Table of Contents

Air Title V Operating Permit (AOP) - Modification

version 2.3

(Submission #: HPX-B5MC-CKV7J, version 2)

Details

Submission ID HPX-B5MC-CKV7J

Status In Process

CORRECTION REQUEST (CORRECTED)

Redlined Title V

Please provide a redlined Title V Permit to Operate using the current version for the facility. Mark the requested changes throughout the permit and add the document to this submittal. Please contact me with any questions (Kyla Schneider, 701-328-5218 or kkschneider@nd.gov.).
Created on 9/26/2023 4:01 PM by **Schneider, K.**

Form Input

Form Instructions

Section A - Permit Information

Permit Number
AOP-28416

Permit Version
1

Issue Date
09/02/2021

Expiration Date
09/02/2026

Owner

Company Name
1804 Ltd. LLC

Address

10385 Westmoor Drive, Suite 225
Westminster, CO 80021
United States

Responsible Official

Prefix
NONE PROVIDED

First Name	Last Name
Edward	*Aabak*

Title
Managing Director

Phone Type	Number	Extension
Business	720-636-9691	

Email
eaabak@flatironsfs.com

Address
10385 Westmoor Drive, Suite 225
Westminster, CO 80021
United States

Contact Person for Air Pollution Matters

Prefix
NONE PROVIDED

First Name	Last Name
Eric	*Hammond*

Title
Engineering Manager

Phone Type	Number	Extension
Business	720-636-9688	

Email
ehammond@flatironsfs.com

Address
10385 Westmoor Drive, Suite 225
Westminster, CO 80021
United States

Section B (Part 1) - Facility Information and Modification Form

Facility Name
1804 Ltd. LLC - Springbrook Gas Plant

Is this a Minor Modification application according to NDAC 33.1-15-14-06.6.e(1) or a Significant Modification application according to NDAC 33.1-15-14-06.6.e(3)?
Application for Significant Modification

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

Is this a portable source?
No

Facility Location
5621 - 131st Avenue NW
Williston, ND 58801
United States

County
Williams

Facility Location:
48.22972400000000,-103.5185580000000

5621 - 131st Avenue NW, Williston, ND

Please 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 TITLE V PERMIT TO OPERATE (SFN52858)

Attach completed form here

SFN52858 - Permit Application for TV Permit to Operate - signed.pdf - 09/05/2023 05:11 PM

Comment
NONE PROVIDED

Section B (Part 2) - Additional Location Information

Legal Description of Facility Site

Qtr Qtr	Qtr	Section	Township	Range
SESE	SE	22	155N	100W

Land area at facility site (in sq. ft.)
NONE PROVIDED

Mean sea level (MSL) elevation at facility (in feet)
NONE PROVIDED

Section C - Nature of Business

General Nature of Business

Describe Nature of Business	NAICS Code	SIC Code
Gas Processing Plant	221210-Natural Gas Distribution	1311-Crude Petroleum and Natural Gas

Actual Start of Construction Date
NONE PROVIDED

Actual End of Construction Date
NONE PROVIDED

Facility Startup Date
NONE PROVIDED

Date of Equipment Modification that Triggers this Title V Permit Modification Application.
09/06/2022

Section D - Process Equipment Information (1 of 13)

Emission Unit - C-300A

Emission Unit ID
C-300A

Emission Unit Description
Compressor Engine

Emission Point ID
EPN3

Emission Point Description
Engine Stack

Emission Process Description
Natural Gas Reciprocating Internal Combustion Engine

Emission Unit Status
Existing, modification

Applicable PTCs

PTC Number
ACP-18160 v1.0

Applicable Federal Air Programs

Program Code
New Source Performance Standards
MACT Standards (40 CFR Part 63)

NSPS Air Program Subparts

Subpart
Subpart JJJJ - STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES
Subpart OOOOa - CRUDE OIL/NATURAL GAS PRODUCTION/TRANSMISSION & DISTRIBUTION (post 9/18/15)

MACT Air Program Subparts

Subpart
Subpart ZZZZ - STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES (RICE)

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 - Emission Unit for TV Permit to Operate - C-300A.pdf - 09/05/2023 05:23 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (2 of 13)

Emission Unit - C-300B

Emission Unit ID
C-300B

Emission Unit Description
Compressor Engine

Emission Point ID
EPN4

Emission Point Description
Engine Stack

Emission Process Description
Natural Gas Reciprocating Internal Combustion Engine

Emission Unit Status
Existing, modification

Applicable PTCs

PTC Number
ACP-18160 v1.0

Applicable Federal Air Programs

Program Code
New Source Performance Standards
MACT Standards (40 CFR Part 63)

NSPS Air Program Subparts

Subpart
Subpart JJJJ - STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES
Subpart OOOOa - CRUDE OIL/NATURAL GAS PRODUCTION/TRANSMISSION & DISTRIBUTION (post 9/18/15)

MACT Air Program Subparts

Subpart
Subpart ZZZZ - STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES (RICE)

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 - Emission Unit for TV Permit to Operate - C-300B.pdf - 09/05/2023 05:26 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (3 of 13)

Emission Unit - C-2710

Emission Unit ID
C-2710

Emission Unit Description
Compressor Engine

Emission Point ID
EPN12

Emission Point Description
Engine Stack

Emission Process Description
Natural Gas Reciprocating Internal Combustion Engine

Emission Unit Status
Existing, modification

Applicable PTCs

PTC Number
ACP-18160 v1.0

Applicable Federal Air Programs

Program Code
New Source Performance Standards
MACT Standards (40 CFR Part 63)

NSPS Air Program Subparts

Subpart
Subpart JJJJ - STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES
Subpart OOOOa - CRUDE OIL/NATURAL GAS PRODUCTION/TRANSMISSION & DISTRIBUTION (post 9/18/15)

MACT Air Program Subparts

Subpart
Subpart ZZZZ - STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES (RICE)

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 - Emission Unit for TV Permit to Operate - C-2710.pdf - 09/05/2023 05:27 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (4 of 13)

Emission Unit - C-2711

Emission Unit ID
C-2711

Emission Unit Description
Compressor Engine

Emission Point ID
EPN1

Emission Point Description
Engine Stack

Emission Process Description
Natural Gas Reciprocating Internal Combustion Engine

Emission Unit Status
Existing, modification

Applicable PTCs

PTC Number
ACP-18160 v1.0

Applicable Federal Air Programs

Program Code
New Source Performance Standards
MACT Standards (40 CFR Part 63)

NSPS Air Program Subparts

Subpart
Subpart JJJJ - STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES
Subpart OOOOa - CRUDE OIL/NATURAL GAS PRODUCTION/TRANSMISSION & DISTRIBUTION (post 9/18/15)

MACT Air Program Subparts

Subpart
Subpart ZZZZ - STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES (RICE)

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 - Emission Unit for TV Permit to Operate - C-2711.pdf - 09/05/2023 05:27 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (5 of 13)

Emission Unit - C-2712

Emission Unit ID
C-2712

Emission Unit Description
Compressor Engine

Emission Point ID
EPN2

Emission Point Description
Engine Stack

Emission Process Description
Natural Gas Reciprocating Internal Combustion Engine

Emission Unit Status
Existing, modification

Applicable PTCs

PTC Number
ACP-18160 v1.0

Applicable Federal Air Programs

Program Code
New Source Performance Standards
MACT Standards (40 CFR Part 63)

NSPS Air Program Subparts

Subpart
Subpart JJJJ - STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES
Subpart OOOOa - CRUDE OIL/NATURAL GAS PRODUCTION/TRANSMISSION & DISTRIBUTION (post 9/18/15)

MACT Air Program Subparts

Subpart
Subpart ZZZZ - STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES (RICE)

Applicable State Regulations

Regulation

Emission Unit form
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EMISSION UNIT FOR TITLE V PERMIT TO OPERATE (SFN61006)

Attach Emission Unit Form
NONE PROVIDED
Comment
NONE PROVIDED

Section D - Process Equipment Information (6 of 13)

Emission Unit - C-2713

Emission Unit ID
C-2713

Emission Unit Description
Compressor Engine

Emission Point ID
EPN13

Emission Point Description
Engine Stack

Emission Process Description
Natural Gas Reciprocating Internal Combustion Engine

Emission Unit Status
Existing, modification

Applicable PTCs

PTC Number
ACP-18160 v1.0

Applicable Federal Air Programs

Program Code
New Source Performance Standards
MACT Standards (40 CFR Part 63)

NSPS Air Program Subparts

Subpart
Subpart JJJJ - STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES
Subpart OOOOa - CRUDE OIL/NATURAL GAS PRODUCTION/TRANSMISSION & DISTRIBUTION (post 9/18/15)

MACT Air Program Subparts

Subpart
Subpart ZZZZ - STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES (RICE)

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 - Emission Unit for TV Permit to Operate - C-2713.pdf - 09/05/2023 05:28 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (7 of 13)

Emission Unit - C-4711

Emission Unit ID
C-4711

Emission Unit Description
Compressor Engine

Emission Point ID
EPN7

Emission Point Description
Engine Stack

Emission Process Description
Natural Gas Reciprocating Internal Combustion Engine

Emission Unit Status
Existing, modification

Applicable PTCs

PTC Number
ACP-18160 v1.0

Applicable Federal Air Programs

Program Code
New Source Performance Standards
MACT Standards (40 CFR Part 63)

NSPS Air Program Subparts

Subpart
Subpart JJJJ - STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES
Subpart OOOOa - CRUDE OIL/NATURAL GAS PRODUCTION/TRANSMISSION & DISTRIBUTION (post 9/18/15)

MACT Air Program Subparts

Subpart
Subpart ZZZZ - STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES (RICE)

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 - Emission Unit for TV Permit to Operate - C-4711.pdf - 09/05/2023 05:29 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (8 of 13)

Emission Unit - C-5701

Emission Unit ID
C-5701

Emission Unit Description
Compressor Engine

Emission Point ID
EPN5

Emission Point Description
Engine Stack

Emission Process Description
Natural Gas Reciprocating Internal Combustion Engine

Emission Unit Status
Existing, modification

Applicable PTCs

PTC Number
ACP-18160 v1.0

Applicable Federal Air Programs

Program Code
New Source Performance Standards
MACT Standards (40 CFR Part 63)

NSPS Air Program Subparts

Subpart
Subpart JJJJ - STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES
Subpart OOOOa - CRUDE OIL/NATURAL GAS PRODUCTION/TRANSMISSION & DISTRIBUTION (post 9/18/15)

MACT Air Program Subparts

Subpart
Subpart ZZZZ - STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES (RICE)

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 - Emission Unit for TV Permit to Operate - C-5701.pdf - 09/05/2023 05:29 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (9 of 13)

Emission Unit - C-5702

Emission Unit ID
C-5702

Emission Unit Description
Compressor Engine

Emission Point ID
EPN6

Emission Point Description
Engine Stack

Emission Process Description
Natural Gas Reciprocating Internal Combustion Engine

Emission Unit Status
Existing, modification

Applicable PTCs

PTC Number
ACP-18160 v1.0

Applicable Federal Air Programs

Program Code
New Source Performance Standards
MACT Standards (40 CFR Part 63)

NSPS Air Program Subparts

Subpart
Subpart JJJJ - STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES
Subpart OOOOa - CRUDE OIL/NATURAL GAS PRODUCTION/TRANSMISSION & DISTRIBUTION (post 9/18/15)

MACT Air Program Subparts

Subpart
Subpart ZZZZ - STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES (RICE)

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 - Emission Unit for TV Permit to Operate - C-5702.pdf - 09/05/2023 05:30 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (10 of 13)

Emission Unit - GEN1

Emission Unit ID
GEN1

Emission Unit Description
Generator Engine

Emission Point ID
EPN8

Emission Point Description
Engine Stack

Emission Process Description
Natural Gas Generator Engine

Emission Unit Status
Existing, modification

Applicable PTCs

PTC Number
ACP-18160 v1.0

Applicable Federal Air Programs

Program Code
New Source Performance Standards
MACT Standards (40 CFR Part 63)

NSPS Air Program Subparts

Subpart
Subpart JJJJ - STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES

MACT Air Program Subparts

Subpart
Subpart ZZZZ - STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES (RICE)

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 - Emission Unit for TV Permit to Operate - GEN1.pdf - 09/05/2023 05:31 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (11 of 13)

Emission Unit - GEN2

Emission Unit ID
GEN2

Emission Unit Description
Generator Engine

Emission Point ID
EPN9

Emission Point Description
Engine Stack

Emission Process Description
Natural Gas Generator Engine

Emission Unit Status
Existing, modification

Applicable PTCs

PTC Number
ACP-18160 v1.0

Applicable Federal Air Programs

Program Code
New Source Performance Standards
MACT Standards (40 CFR Part 63)

NSPS Air Program Subparts

Subpart
Subpart JJJJ - STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES

MACT Air Program Subparts

Subpart
Subpart ZZZZ - STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES (RICE)

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 - Emission Unit for TV Permit to Operate - GEN2.pdf - 09/05/2023 05:39 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (12 of 13)

Emission Unit - H-951

Emission Unit ID
H-951

Emission Unit Description
Heater

Emission Point ID
EPN22

Emission Point Description
Heater stack

Emission Process Description
Natural Gas-Fired Hot Oil Heater

Emission Unit Status
Existing, modification

Applicable PTCs

PTC Number
ACP-18160 v1.0

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 - Emission Unit for TV Permit to Operate - H-951.pdf - 09/05/2023 05:43 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (13 of 13)

Emission Unit - T-510V/V-520

Emission Unit ID
T-510V/V-520

Emission Unit Description
EG Dehydrator

Emission Point ID
EPN11

Emission Point Description
Flare Stack

Emission Process Description
EG Dehydrator to remove water from inlet gas stream

Emission Unit Status
Existing, modification

Applicable PTCs

PTC Number
ACP-18160 v1.0

Applicable Federal Air Programs

Program Code
MACT Standards (40 CFR Part 63)

MACT Air Program Subparts

Subpart
Subpart HH - OIL AND NATURAL GAS PRODUCTION FACILITIES

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 - Emission Unit for TV Permit to Operate - T-510V-520.pdf - 09/05/2023 05:48 PM
Comment
NONE PROVIDED

Section E - Control Equipment (1 of 1)

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
NONE PROVIDED
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	149.35	149.35
CO	217.22	217.22

Pollutant	Tons Per Year Without Fugitives	Tons Per Year With Fugitives
VOCs	139.58	161.54
SO2	0.36	0.36
PM	0.47	0.47
PM10	0.47	0.47
PM2.5	0.47	0.47
Total HAPs	19.74	19.91

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
NONE PROVIDED
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 link. Please provide new or modified CAM Plans here.

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.
Compliance Assurance Monitoring (CAM) Guidance

Attach completed form
NONE PROVIDED
Comment
NONE PROVIDED

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

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

2021.09.03_Springbrook Gas Plant TV PTO_AOP28416v1_0 - redlined.pdf - 09/28/2023 01:30 PM

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

2023.09.05_Springbrook Gas Plant Title V Mod Application - signed.pdf - 09/05/2023 06:02 PM

2021.09.03_Springbrook Gas Plant TV PTO_AOP28416v1_0 - redlined.pdf - 09/28/2023 01:27 PM

Comment

NONE PROVIDED

Additional Forms

NONE PROVIDED

Attachments

Date	Attachment Name	Context	User
9/28/2023 1:30 PM	2021.09.03_Springbrook Gas Plant TV PTO_AOP28416v1_0 - redlined.pdf	Attachment	Edward Lachendro
9/28/2023 1:27 PM	2021.09.03_Springbrook Gas Plant TV PTO_AOP28416v1_0 - redlined.pdf	Attachment	Edward Lachendro
9/5/2023 6:02 PM	2023.09.05_Springbrook Gas Plant Title V Mod Application - signed.pdf	Attachment	Edward Lachendro
9/5/2023 5:48 PM	SFN61006 - Emission Unit for TV Permit to Operate - T-510V-520.pdf	Attachment	Edward Lachendro
9/5/2023 5:43 PM	SFN61006 - Emission Unit for TV Permit to Operate - H-951.pdf	Attachment	Edward Lachendro
9/5/2023 5:39 PM	SFN61006 - Emission Unit for TV Permit to Operate - GEN2.pdf	Attachment	Edward Lachendro
9/5/2023 5:31 PM	SFN61006 - Emission Unit for TV Permit to Operate - GEN1.pdf	Attachment	Edward Lachendro
9/5/2023 5:30 PM	SFN61006 - Emission Unit for TV Permit to Operate - C-5702.pdf	Attachment	Edward Lachendro
9/5/2023 5:29 PM	SFN61006 - Emission Unit for TV Permit to Operate - C-5701.pdf	Attachment	Edward Lachendro
9/5/2023 5:29 PM	SFN61006 - Emission Unit for TV Permit to Operate - C-4711.pdf	Attachment	Edward Lachendro
9/5/2023 5:28 PM	SFN61006 - Emission Unit for TV Permit to Operate - C-2713.pdf	Attachment	Edward Lachendro
9/5/2023 5:27 PM	SFN61006 - Emission Unit for TV Permit to Operate - C-2711.pdf	Attachment	Edward Lachendro
9/5/2023 5:27 PM	SFN61006 - Emission Unit for TV Permit to Operate - C-2710.pdf	Attachment	Edward Lachendro

Date	Attachment Name	Context	User
9/5/2023 5:26 PM	SFN61006 - Emission Unit for TV Permit to Operate - C-300B.pdf	Attachment	Edward Lachendro
9/5/2023 5:23 PM	SFN61006 - Emission Unit for TV Permit to Operate - C-300A.pdf	Attachment	Edward Lachendro
9/5/2023 5:11 PM	SFN52858 - Permit Application for TV Permit to Operate - signed.pdf	Attachment	Edward Lachendro

Status History

	User	Processing Status
9/28/2023 1:24:59 PM	Edward Lachendro	Draft
10/9/2023 11:52:52 AM	Eric Hammond	Submitting
10/9/2023 11:52:52 AM	Eric Hammond	Signing
10/9/2023 11:53:56 AM	Eric Hammond	Submitted
10/9/2023 11:54:02 AM	Eric Hammond	In Process

Audit

Event	Event Description	Event By	Event Date
Submission Locked	Submission Locked	Schneider, Kyla K.	9/26/2023 3:58 PM
Submission Unlocked	Submission Unlocked	Schneider, Kyla K.	9/26/2023 4:02 PM

Revisions

Revision	Revision Date	Revision By
Revision 1	9/1/2023 3:50 PM	Edward Lachendro
Revision 2	9/28/2023 1:24 PM	Edward Lachendro

Agreements and Signature(s)

SUBMISSION AGREEMENTS

- ☑ I am the owner of the account used to perform the electronic submission and signature.
- ☑ I have the authority to submit the data on behalf of the facility I am representing.
- ☑ I agree that providing the account credentials to sign the submission document constitutes an electronic signature equivalent to my written signature.
- ☑ 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 lawthat 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 Eric Hammond on 10/09/2023 at 11:52 AM

Springbrook Gas Plant

Title V Application

Williams County, North Dakota

August 2023

PREPARED FOR:

1804, Ltd.

Westminster, Colorado

OFFICE: 303-847-0761
FAX: 281-664-2491

1626 Wazee St, Suite 2A
Denver, CO 80202

spiritenv.com

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September 5th, 2023

Mr. Craig D. Thorstenson
North Dakota Department of Environmental Quality
Gold Seal Center
918 E. Divide Avenue
Bismark, ND 58501-1947

RE: Title V Permit to Operate Application
Springbrook Gas Plant
SESE Section 22, T155N, R100W
Williams County, North Dakota

Dear Mr. Thorstenson,

1804, Ltd. ("1804/Flatirons") is hereby submitting this application to the North Dakota Department of Environmental Quality, Division of Air Quality to modify the Title V Permit to Operate ("PTO") for the Springbrook Gas Plant. The Springbrook Gas Plant is located at SESE Section 22, T155N, R100W in Williams County, North Dakota. Permit to Construct ("PTC") 14038, PTC 15068, PTC 18028, PTC 18160 v1.0, and PTO AOP-28416 v1.0 currently authorize the facility as a gas plant with a processing capacity of 70 million standard cubic feet of natural gas per day. The Springbrook Gas Plant operates under the Standard Industrial Classification ("SIC") codes 1311 for Crude Petroleum and 1321 for Natural Gas Liquids.

1804/Flatirons submitted a PTC Modification request on June 30, 2022 and was issued the updated PTC No. ACP-18160 v1.0 on September 6, 2022. 1804/Flatirons is submitting this Title V Permit modification request to modify/update the Title V PTO with the same modifications/updates as in the PTC modification and summarized below.

1804/Flatirons is submitting this Title V PTO Application request to capture criteria and hazardous air pollutants ("HAPs") emission factor updates for all reciprocating internal combustion engines ("RICE") located at the facility. 1804/Flatirons determined that the currently permitted emission factors, based on emissions testing data, are insufficient and require updating. 1804/Flatirons is also requesting the removal of compressor engine C-5703 from the facility and current permit. Emissions from the Ethylene Glycol (EG) Dehydration unit (T-510/V-520) at the facility are being updated with this submittal and the flare is being added as a control device for the flash tank. During the recent facility inspection, it was discovered that the Glycol Medium Heater (H-951) is onsite/operating and was incorrectly omitted from the PTO. Based on the emissions, H- 951 is an insignificant unit and its associated emissions are included in this submittal.

1804/Flatirons would like to request that B-941, the 2.5 MMBtu/hr natural gas-fired hot oil process heater be reclassified as an insignificant unit. Under NDAPCR 33.1-15-14-06.4(c), the demonstrated emissions of criteria pollutants (minus lead) and inhalable particulates, reduced sulfur compounds and VOC are less than 2 tons per year ("tpy"), and all other regulated contaminant emissions are less than 0.5 tpy.

With this Title V PTO modification request, the Springbrook Gas Plant will become a major source for HAPs, specifically formaldehyde ("HCHO"), and will become subject to MACT ZZZZ. The facility will be in compliance with the provisions of this subpart that are applicable to the engines on-site within 3-years after it changed from an area source to a major source of HAPs, per 63.6595(b)(2).

The emission sources at the Springbrook Gas Plant include compression and generator engines, refrigerator and gas lift compressors and associated blowdowns, pig receiving, EG dehydration, hot oil heaters, an emergency and process flare, an oil water tank, loadouts and fugitive emissions. Emissions from the engines were calculated using Manufacturer Specifications and Environmental Protection Agency ("EPA") AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean Burn Engines. Flaring emissions were estimated using Oxides of Nitrogen ("NOx"), and Carbon Monoxide ("CO") emission factors from EPA AP-42 Table 13.5-1 and the maximum heat input rate for the flare in million British thermal units per hour ("MMBtu/hr"). Volatile organic compounds ("VOC") and HAP emissions were calculated based on weighted average molecular weights. The hot oil heater emissions were estimated using emission factors from EPA AP-42 Tables 1.4-1, 1.4-2, and 1.4-3 and the fuel usage rate of the heater in million standard cubic feet per hour ("MMscf/hr"). Fugitive emissions were estimated based on emission factors from the Protocol for Equipment Leak Table 2-4 for Oil and Gas Production Operations and an estimated component count. Additionally, 1804/Flatirons estimated Greenhouse Gas ("GHG") emissions from all sources at the facility. The GHG emissions were estimated based on CFR Part 98 Subpart W and directly from the gas composition data and global warming potential ("GWP") factors presented in 40 CFR 98, Subpart A, Table A-1.

This application reflects an initial application for the following equipment:

- H-951 - 1.5 MMBtu/hr Glycol Medium Heater

This application reflects a modification to the Title V PTO previously submitted for the following equipment:

- C-2710 – 2,500 HP Caterpillar G3608 A4 Compressor Engine
- C-2711 – 2,370 HP Caterpillar G3608LE Compressor Engine
- C-2712 – 2,370 HP Caterpillar G3608LE Compressor Engine
- C-2713 – 1,875 HP Caterpillar G3606 A4 Compressor Engine
- C-4711 – 1,035 HP Caterpillar G3512BLE Compressor Engine
- C-5701 – 1,035 HP Caterpillar G3512BLE Compressor Engine
- C-5702 – 1,035 HP Caterpillar G3512BLE Compressor Engine
- C-300A – 1,035 HP Caterpillar G3512BLE Compressor Engine
- C-300B – 1,035 HP Caterpillar G3512BLE Compressor Engine
- GEN1 – 1,818 HP Caterpillar G3516BLE Compressor Engine
- GEN2 – 1,818 HP Caterpillar G3516BLE Compressor Engine
- T-510/V-520 – Glycol Dehydration Unit

This application reflects the removal of the following equipment:

- C-5703 – 1,035 HP Caterpillar G3512BLE Compressor Engine

In addition to the required forms, process descriptions, and emission calculations for all applicable units at the Springbrook Gas Plant, 1804/Flatirons is providing information related to insignificant units. Under NDAPCR 33.1-15-14-06.4(c) the demonstrated emissions of criteria pollutants (minus lead) and inhalable particulates, reduced sulfur compounds and VOC are less than 2 tons per year ("tpy"), and all other regulated contaminant emissions are less than 0.5 tpy. 1804/Flatirons is identifying the following units as insignificant:

- Natural Gas Liquids Loadout (EU: LOAD1)
- Condensate Loadout (EU: LOAD2)
- Produced Water Loading (EU: LOAD3)
- Hot Oil Process Heater (EU: B-941)
- Glycol Medium Heater (EU: H-951)
- Pigging Activities (EU: PIG1)
- Four NGL pressurized storage 90,000-gallon bullet tanks (V-4401-V-4404)
- 30,000-gallon field condensate bullet tank (V-4407)
- 400-barrel oil water storage tank with taker truck loadout (TK-1)
- Lift compressor blowdowns (EU: LIFTBD)
- Compressor blowdowns (EU: COMPBD)
- Fugitive Emissions (EU: FUG)
- Fugitives – OOOO (EU: FUG-1)
- Fugitives – OOOOa (EU: FUG-2)
- Glycol dehydration unit (EU: T-510/V-520)

The following Title V PTO application package includes:

- One (1) SFN 52858 Permit Application form
- Process description and plot plan
- Regulatory review
- SFN 61006 Emission Unit forms for all appropriate units
- SFN 61008 Compliance Schedule and Plan forms for all appropriate units
- Emissions calculations and supporting documentation

If you have any questions or require any technical clarifications, please contact me at (720) 636-9688 or via email at ehammond@flatironsfs.com.

Sincerely,

1804, LTD

Eric Hammond

Eric Hammond
Senior Project Engineer

Cc: File Attachment

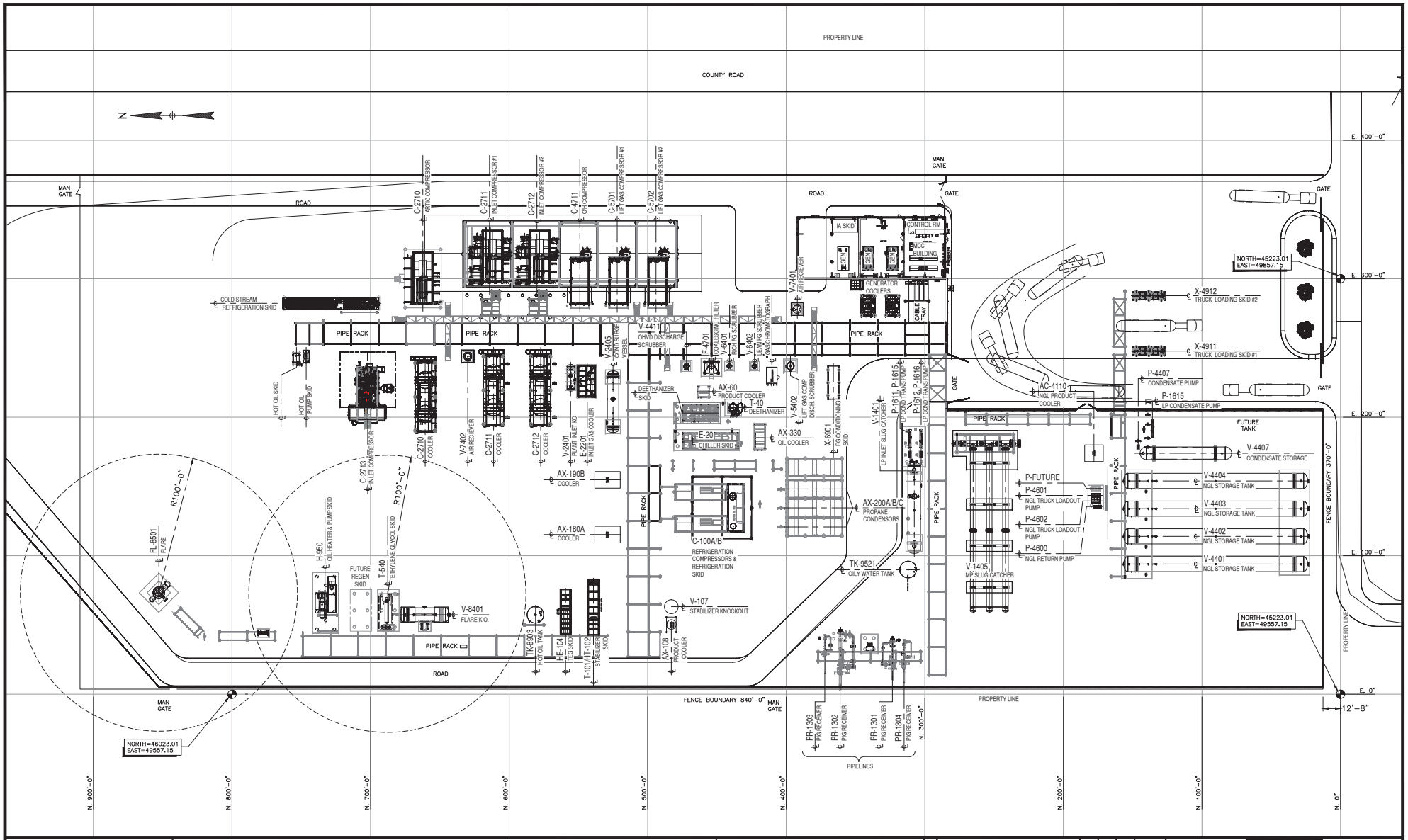
1.0 PROCESS DESCRIPTION & PLOT PLAN

The Springbrook Gas Plant is a natural gas processing plant with a capacity of 70 million standard cubic feet per day. The function of the facility is to process field natural gas, produce Natural Gas Liquids ("NGLs") and maintain pressure in the pipeline transporting treated natural gas. Equipment at the facility includes:

1) Four (4) inlet compressors (C-2710, C-2711, C-2712, C-2713),
2) Five (5) refrigeration or lift gas compressors (C-300A, C-300B, C-4711, C-5701, C-5702),
3) Two (2) generators (GEN1, GEN2),
4) Three (3) hot oil heaters (B-940, B-941, H-951),
5) One (1) emergency and process flare (FL-8501),
6) One (1) oily water storage tanks (TK-1),
7) Compressor blowdown emissions (COMPBD) controlled by the Flare (FL-8501),
8) NGL loadout (LOAD1),
9) Facility pigging receiver (PIG1),
10) EG still vent & flash drum (T-510/V-520),
11) Oily water tank unloading (LOAD3),
12) Condensate unloading (LOAD2), and
13) Facility fugitive emissions (FUG).

The table below describes the total emissions from this application for a PTO for criteria pollutants:

Total Requested Emissions					
PM10	PM2.5	NOx	SO2	CO	VOC
0.47	0.47	149.35	0.36	217.2	161.5



STV

BALTIMORE, MD | BISMARCK, ND | DENVER, CO
DOUGLASSVILLE, PA | HOUSTON, TX
PITTSBURGH, PA | WILLIAMSPORT, PA

NOTE:

1. PLANT GRID BASED OF SURVEY INFORMATION PROVIDED KLJ:
   HORIZONTAL DATUM
   NAD-83 (2011)
   THE AZIMUTHS SHOWN ARE GRID, BASED UPON GEODETIC NORTH DERIVED FROM GPS MEASUREMENTS AT THE CENTER OF THE PROJECT ORIGIN LOCATED AT THE NE CORNER OF SECTION 22, T. 155 N., R. 100 W., 5TH P.M. LATITUDE 48°14'28.666" NORTH; LONGITUDE 103°31'04.788" WEST. AZIMUTHS REPRESENT THE CALCULATED VALUE FROM THE CENTRAL MERIDIAN USING THE FORWARD BEARING.
   VERTICAL DATUM
   NAVD 88
   BASED ON ELEVATION DERIVED FROM OPUS SOLUTION ON CP*KLJ 1 (IRON REBAR) LOCATED A DISTANCE OF 49.62' ON AN AZIMUTH OF 293°13'45" FROM THE EAST 1/4 CORNER OF SECTION 22 T.155N., R.100W., 5TH P.M. BEING AT 2125.00' ELEVATION MSL.

REFERENCE DRAWINGS

No	REVISIONS	BY	CHKD	PM	DATE
4	REVISED TRUCK LOADOUT	KEP	RWG		7/28/14
3	REVISED EQUIPMENT LAYOUT	RWG			6/16/14
2	REVISED EQUIPMENT LAYOUT	RWG			5/22/14
1	ADDED LOCAL COORDINATES SYSTEM	RLG	SMT	DC	5/13/14
7	ISSUED AS-BUILT	LKS	MAA	REH	4/8/20
6	ADDED NEW INLET COMPRESSOR AND REFRIG UNIT	MCM	RH	RH	6/15/19
5	ADDED EQUIPMENT TAGS, REVERSED NGL TANKS	KEP	BCP	DC	9/25/14

WILLISTON, NORTH DAKOTA

SPRINGBROOK PLANT
PIPING
45 MMSCFD PLOT PLAN

FILE NUMBER	DRAWING NUMBER	SCALE	REVISION
	SRP-PP-3000	1"-30'-0"	7

2.0 REGULATORY REVIEW

This section summarizes the applicable air quality regulations for the Springbrook Gas Plant.

Table 2-1 Summary of State and Federal Regulations Applicability

Summary of State and Federal Regulations Applicability		
Program/Standard	**Code**	**Applicability**
NORTH DAKOTA AIR POLLUTION CONTROL RULES	NDAC 33.1-15	Yes
General Provisions	NDAC 33.1-15-01	Yes
Ambient Air Quality Standards	NDAC 33.1-15-02	Yes
Restriction of Emission of Visible Air Contaminants	NDAC 33.1-15-03	Yes
Open Burning Restrictions	NDAC 33.1-15-04	No
Emissions of Particulate Matter Restricted	NDAC 33.1-15-05	Yes
Emissions of Sulfur Compounds Restricted	NDAC 33.1-15-06	No
Control of Organic Compounds Emissions	NDAC 33.1-15-07	Yes
And Other Internal Combustion Engines	NDAC 33.1-15-08	Yes
Control of Pesticides	NDAC 33.1-15-10	No
Prevention of Air Pollution Emergency Episodes	NDAC 33.1-15-11	Yes
Standards of Performance for New Stationary Sources	NDAC 33.1-15-12	Yes
Emission Standards for Hazardous Air Pollutants	NDAC 33.1-15-13	Yes
Designated Air Contaminant Sources, Permit to Construct, Minor Source Permit to Operate, Title V Permit to Operate	NDAC 33.1-15-14	Yes
Prevention of Significant Deterioration (PSD) of Air Quality	NDAC 33.1-15-15	No
Restriction of Odorous Air Contaminants	NDAC 33.1-15-16	Yes
Restriction of Fugitive Emissions	NDAC 33.1-15-17	Yes
Stack Heights	NDAC 33.1-15-18	Yes
Visibility Protection	NDAC 33.1-15-19	Yes
Control of Emissions from Oil and Gas Well Production Facilities	NDAC 33.1-15-20	No
Acid Rain Program	NDAC 33.1-15-21	No
Emissions Standards for HAP for Source Categories	NDAC 33.1-15-22	Yes
Fees	NDAC 33.1-15-23	Yes
Standards for Lead-Based Paint Activities	NDAC 33.1-15-24	No
Regional Haze Requirements	NDAC 33.1-15-25	Yes
National Ambient Air Quality Standards (NAAQS)	40 CFR 50	Yes
New Source Review	40 CFR 52	Yes
STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES (NSPS)	40 CFR 60	Yes

SUBPART A - General Provisions	40 CFR 60	Yes
SUBPART Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (60.40c-60.48c)	40 CFR 60	No
SUBPART Dc - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (60.40c-60.48c)	40 CFR 60	Yes
SUBPART Kb - Standards of Performance for Volatile Organic Liquid (VOL) Storage Vessels (Including Petroleum Liquid Storage Vessels) row which Construction, Reconstruction, or Modification Commenced after July 23, 1984 (60.110a - 60.115a)	40 CFR 60	No
SUBPART JJJJ – New Source Performance Standards for Stationary Spark Ignition Internal Combustion Engines	40 CFR 60	Yes
SUBPART OOOO – Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced August 23, 2011, and on or before September 18, 2015.	40 CFR 60	Yes
SUBPART OOOOa – Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015.	40 CFR 60	Yes
NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPs) FOR SOURCE CATEGORIES	40 CFR 63	Yes
SUBPART A - General Provisions	40 CFR 63	Yes
SUBPART HH – National Emission standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities	40 CFR 63	No
SUBPART ZZZZ - National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines	40 CFR 63	Yes
Title V Operating Permit	40 CFR 70	Yes
Mandatory Greenhouse Gas Reporting	40 CFR 98	Yes

2.1 STATE OF NORTH DAKOTA AIR QUALITY RULES

The Springbrook Gas Plant is a "*designated air contaminant source*" under North Dakota Administrative Code (NDAC) 33.1-15-14-01; therefore, it is subject to the permitting requirements and emission limitations for new stationary source of air contaminants subject to regulation, also known as "*criteria pollutants*" or "*regulated NSR pollutants.*"

Based on the PTE of regulated NSR pollutants from the Springbrook Gas Plant the facility qualifies as a Major Source as defined in NDAC 33.1-15-14-06.

The remaining section details the applicability to the Springbrook Gas Plant of the State of North Dakota Air Pollution Control Rules codified in NDAC Chapters 33.1-15-01 through 33.1-15-25.

2.1.1 General Provisions (33.1-15-01)

The general provisions of chapter -15-01 address the following: entry onto premises, authority, variances, circumvention, severability, land use plans and zoning regulations, measurement of air contaminants, shutdown and malfunction of an installation - requirement for notification, time schedule for compliance, prohibition of air pollution, confidentiality of records, enforcement, and compliance certifications. 1804/Flatirons is subject to the provisions of this chapter and follows the regulations of the section.

2.1.2 Ambient Air Quality Standards (33.1-15-02)

NDDEQ has adopted in NDAC 33.1-15-02, as mandated by North Dakota Century Code 23-25-03.2 and 23-25-03-3. Ambient Air Quality Standards affecting onshore natural gas processing facilities are equal to NAAQS under the CAA. 1804/Flatirons is subject to the provisions of this chapter and follows the regulations of the section.

2.1.3 Restriction of Emission of Visible Air Contaminants (33.1-15-03)

This chapter prohibits new emission sources from producing visible emissions of greater than 20% opacity, with the exception that 40% opacity is permissible for not more than one (1) six-minute period per hour. 1804/Flatirons is subject to the provisions of this chapter and follows the regulations of the section.

2.1.4 Open Burning Restrictions (33.1-15-04)

This chapter states that no person may 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 or 33.1-15-10-02, and no person may conduct, cause, or permit the conduct of a salvage operation by open burning. 1804/Flatirons will not conduct open burning as outlined in this chapter and will not be subject to the provisions of this chapter.

2.1.5 Emissions of Particulate Matter Restricted (33.1-15-05)

Section 33.1-15-05-01 regulates particulate matter from "any operation, process, or activity from which particulate matter is emitted except the burning of fuel for indirect heating in which the products of combustion do not come into direct contact with process materials." Each of the compressor and generator engines are operated in compliance with the maximum allowable rates of emission as outlined in the provisions of this chapter. The particulate matter (PM) emissions of all engines and generators are less than the smallest lb/hr allowable emission rate (E) of Table 3 of this subpart.

Section 33.1-15-05-02 regulates particulate matter from indirect heating equipment in which "fuel, including any products or byproducts of the manufacturing process, is burned for the primary purpose of producing steam, hot water, hot air, or other indirect heating of liquids, gases, or solids and, in the course of doing so, the products of combustion do not come into direct contact with process material." This section exempts fuel burning equipment in which gaseous fuel is burned, and as such, the heaters at the Springbrook Gas Plant are exempted from this section since they operate on natural gas.

2.1.6 Emissions of Sulfur Compounds Restricted (33.1-15-06)

This chapter applies to any installation in which fuel is burned, in which the SO2 emissions are substantial due to the sulfur content of the fuel consumed, and in which the fuel is burned primarily to produce heat. All applicable units at the facility apply to sulfur dioxide emission limits under NSPS Subpart Dc which is listed under chapter 33.1-15-12 and, therefore, not subject to this subpart.

2.1.7 Control of Organic Compounds Emissions (33.1-15-07)

This chapter establishes requirements for the construction of facilities that generate organic compounds and vapors and the manner of organic compounds disposal. The Springbrook Gas Plant will emit Organic Compounds and has employed a closed vent system, submerged fill pipes, and submerged fill loading at the facility. Additionally, all pumps and compressors handling organic compounds are equipped and operated with adequately maintained seals.

2.1.8 And Other Internal Combustion Engines (33.1-15-08)

The provisions of this chapter prohibit the operation of an internal combustion engine from any source which emits "any unreasonable and excessive smoke, obnoxious or noxious gases, fumes or vapor." 1804/Flatirons will not intentionally remove, alter or otherwise render inoperative any control device at the facility.

2.1.9 Control of Pesticides (33.1-15-10)

The provisions of this chapter restrict the use and disposal of pesticides, surplus, and containers. 1804/Flatirons will not use pesticides and is therefore not subject to the provisions of this chapter.

2.1.10 Prevention of Air Pollution Emergency Episodes (33.1-15-11)

When NDDEQ declares an air pollution emergency episode, 1804/Flatirons will comply with the provisions of the chapter.

2.1.11 Standards of Performance for New Stationary Sources (33.1-15-12)

The North Dakota Standards of Performance for New Stationary Sources adopt in whole or in part the Federal NSPS regulations in 40 CFR 60. NDAC 33.1-15-12 identifies the applicable requirements of the Federal NSPS regulations adopted by the State. The Springbrook gas plant is subject to the following provisions of the NSPS:

- Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
- Subpart JJJJ – New Source Performance Standards for Stationary Spark Ignition Internal Combustion Engines.
- Subpart OOOO – New Source Performance Standards for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced August 23, 2011, and on or before September 18, 2015.
- Subpart OOOOa – New Source Performance Standards for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced September 18, 2015.

2.1.12 Emissions Standards for Hazardous Air Pollutants (33.1-15-13)

The North Dakota Emission Standards of Hazardous Air Pollutants adopt in whole or in part the Federal NESHAPs in 40 CFR 61. NDAC 33.1-15-13 identifies the applicable requirements of the Federal NESHAP regulations adopted by the State. The Springbrook gas plant is subject to MACT ZZZZ and will comply with the provisions outlined in this chapter.

2.1.13 Designated Air Contaminant Sources, Permit to Construct, Minor Source Permit to Operate, Title V Permit to Operate (33.1-15-14)

The Springbrook gas plant is a “designated air contaminant source” under NDAC 33.1-15-14-01; therefore, a Title V PTO a new stationary source of air contaminants is required. Major sources are defined by Section 112 of the Federal Clean Air Act as those with Potential to Emit (PTE) any air contaminant subject to regulation more than 100 TPY, or any single HAP more than 10 TPY or combined HAPs more than 25 TPY.

In accordance with the allowable provisions of 33.1-15-14 and based on the PTE of regulated NSR pollutants from the Springbrook Gas Plant Title V application, under its physical and operational design and including the effect of add-on air pollution control equipment, 1804/Flatirons has a Title V PTO for the Springbrook Gas Plant.

2.1.14 Prevention of Significant Deterioration of Air Quality (33.1-15-15)

The North Dakota Prevention of Significant Deterioration (PSD) regulations adopted in whole or in part the Federal PSD regulations. NDAC 35-15-15 identifies the applicable requirements of the Federal PSD regulations adopted by the State. The provisions of the PSD program apply to Major Sources. The Springbrook Gas Plant is not a source type included in the 26 specific facility types that are considered major stationary sources if their PTE of any regulated NSR is 100 TPY or more. Based on the estimated PTE of all regulated NSR pollutants being less than the 250 TPY threshold, the Springbrook Gas Plant is not subject to the PSD program.

2.1.15 Restriction of Odorous Air Contaminants (33.1-15-16)

This chapter states “a person may not discharge into the ambient air any objectionable odorous air contaminant that measures seven (7) odor concentration units or higher outside the property boundary where the discharge is occurring.” 1804/Flatirons will be subject to the provisions of this chapter and will not emit odorous air contaminants greater than seven (7) odor concentration units at any point beyond 0.5 miles from the facility boundary.

2.1.16 Restriction of Fugitive Emissions (33.1-15-17)

This chapter restricts fugitive emissions from any source without taking reasonable precautions to prevent such discharges from causing air pollution. 1804/Flatirons has quantified emissions from fugitive sources at the Springbrook Gas Plant and is complying with federal fugitive emission standards outlined in NSPS Subpart OOOO/OOOOa.

2.1.17 Stack Heights (33.1-15-18)

The general provisions of this chapter restrict the use of stack heights above good engineering practices as well as other dispersion techniques to affect the concentration of a pollutant in the ambient air. Stack heights at the Springbrook Gas Plant either currently meet or will meet good engineering practice standards.

2.1.18 Visibility Protection (33.1-15-19)

New major sources as defined in Chapter 33.1-15-15 are required to demonstrate to NDDEQ that the actual emissions of visibility-impairing pollutants from the source, including fugitive emissions, will not cause or contribute to an adverse impact on visibility within any federal Class I area if such pollutants are emitted in significant quantities. The Springbrook Gas Plant is located more than 50 miles away from any Class I area in North Dakota, and the facility follows compliance with sections 33.1-15-12, 33.1-15-14, and 33.1-15-15. The facility will continue to maintain compliance with these rules. 1804/Flatirons is subject to the provisions of this chapter and follows the regulations of the section.

2.1.19 Control of Emissions from Oil and Gas Well Production Facilities (33.1-15-20)

The Springbrook Gas Plant does not have any natural gas wells on site, as defined in Chapter 33.1-15-20-01, and therefore does not meet the definition of a 'gas well facility' and is not subject to the requirements of this section.

2.1.20 Acid Rain Program (33.1-15-21)

The Springbrook Gas Plant is not subject to the Acid Rain Program provisions of 40 CFR Part 72-28, and consequently, not subject to the requirements of North Dakota's Acid Rain Program.

2.1.21 Emission Standards for Hazardous Air Pollutants for Source Categories (33.1-15-22)

The North Dakota Emission Standards for Hazardous Air Pollutants for Source Categories adopt in whole or in part the Federal MACT regulations in 40 CFR 63. NDAC 33.1-15-17 identifies the applicable requirements of the Federal MACT regulations adopted by the State. The Springbrook gas plant complies with the following provisions of the MACT rules:

- Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines.

2.1.22 Fees (33.1-15-23)

1804/Flatirons is responsible for any filing fee assessed by the NDDEQ for operation permit applications, plus any additional charges based on actual processing costs.

2.1.23 Standards for Lead-Based Paint Activities (33.1-15-24)

The Springbrook Gas Plant is not subject to the Lead-Based Paint provisions of 40 CFR Part 745, and consequently, is not subject to the requirements of North Dakota's Standards for Lead-Based Paint Activities.

2.1.24 Regional Haze Requirements (33.1-15-25)

The Springbrook Gas Plant does not contain any equipment subject to Best Available Retrofit Technology (BART) and therefore not subject to the requirements of this chapter.

2.2 Code of Federal Regulations

2.2.1 National Ambient Air Quality Standards

As part of the PSD analysis, major sources or modifications of air pollution are required to demonstrate compliance with NAAQS for pollutants emitted in a significant amount. The Springbrook Gas Plant emissions of the NAAQS pollutants do not exceed PSD significant levels making further analysis unnecessary.

2.2.2 New Source Performance Standards (40 CFR 60)

An NSPS applies to specific categories of affected facilities that are constructed, modified, or reconstructed and that meet other applicability criteria on or after a compliance date upon which a relevant subpart applies. The following sections provide a summary of NSPS applicability and emission limits for potentially affected facilities at the Springbrook Gas Plant.

Subpart A – General Provisions
If an individual NSPS subpart applies to a project, the general provisions of NSPS Subpart A also apply.

Subpart Db – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
Subpart Db applies to steam generating units that have a heat input capacity of greater than 100 MMBtu/hr. There are no steam generating units that have a heat input capacity of greater than 100 MMBtu/hr. Therefore, this subpart does not apply to the Springbrook Gas Plant.

Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
Subpart Dc applies to steam generating units for which construction is commenced after June 9, 1989, and that have a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr. One (1) Hot Oil Heater is greater than or equal to the 10 MMBtu/hr design capacity and is thus applicable to NSPS Dc 60.40c(a). The Springbrook Gas Plant is complying with the provisions of the chapter demonstrated below by documenting the following:

- *Recordkeeping according to 60.48c(g)(1)-(3), (i), and*
- *Reporting according to 60.48c(a), (j)*

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.
The storage tanks at this facility are less than 75 cubic meters. Therefore, this subpart does not apply to the Springbrook Gas Plant §60.110b(d)(4).

Subpart JJJJ – New Source Performance Standards for Stationary Spark Ignition Internal Combustion Engines

Subpart JJJJ applies to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE). Applicable engines are the following: engines that commence construction (ordered from the manufacturer) after June 12, 2006, and are manufactured after July 1, 2007, and are greater than or equal to 500 hp or manufactured after July 1, 2008, and are less than 500 hp, and engines that are modified or reconstructed after June 12, 2006. All internal combustion engines at the Springbrook Gas Plant are greater than 500 hp and constructed after 2007. Springbrook Gas Plant is complying by following the recordkeeping/reporting/testing requirements of this rule.

Subpart OOOO – Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced August 23, 2011, and on or before September 18, 2015.

Subpart OOOO applies to affected facilities that commence construction, reconstruction, or modification after August 23, 2011, and on or before September 18, 2015. Affected facilities include hydraulically fractured natural gas and oil wells, compressors, continuous bleed pneumatic controllers, pneumatic pumps, storage vessels, fugitive equipment components, and sweetening units at onshore natural gas processing plants.

- *Storage Vessel Affected Facility:* The produced water tanks at this facility have less than six (6) tpy per tank emissions. Storage vessel affected facility is not applicable to the Springbrook Gas Plant.
- *Pneumatic Controllers and Pumps Affected Facility*: All facility pneumatic controllers and pumps operate on compressed air and are not subject to the emission standards of this subpart.
- *Centrifugal/Reciprocal Compressor Affected Facility:* All applicable centrifugal or reciprocal compressors at the Springbrook Gas Plant are not located at a well site (as defined in this rule), and, therefore, are affected facilities in compliance with the requirements of this subpart.
- *Fugitive Emissions Affected Facility:* All applicable fugitive components will be monitored and repaired as required.

Subpart OOOOa – Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015.

Subpart OOOOa applies to affected facilities that commence construction, reconstruction, or modification after September 18, 2015. Affected facilities include hydraulically fractured natural gas and oil wells, compressors, continuous bleed pneumatic controllers, pneumatic pumps, storage vessels, collection of fugitive emissions components, and sweetening units at onshore natural gas processing plants.

- *Centrifugal/Reciprocal Compressor Affected Facility:* All applicable centrifugal or reciprocal compressors at the Springbrook Gas Plant are affected facilities in compliance with the requirements of this subpart.

2.2.3 National Emission Standards for Hazardous Air Pollutants for Source Categories (40 CFR 63)

40 CFR 63 establishes national emission standards for source categories that emit HAPs above major source thresholds. 40 CFR 63 is also known as Maximum Achievable Control Technology (MACT) standards for Major Sources. The following sections provide a summary of MACT applicability and emission limits for potentially affected facilities at the Springbrook Gas Plant.

Subpart HH – National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities

Subpart HH applies to glycol dehydration units, storage vessels with the potential for flashing, and fugitive equipment at major sources of HAP emissions and triethylene glycol dehydration units at area sources of HAP emissions. The potentially applicable unit at this facility is the facility dehydrator. The dehydrator is an ethylene glycol unit located at an area source of HAPs; therefore, the unit is not an affected source per paragraph 63.760(b)(2).

Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines

Subpart ZZZZ applies to existing, new and reconstructed engines greater than 500 hp at major sources of HAP emissions, new and reconstructed engines less than 500 hp at major sources of HAP emissions, and new or reconstructed engines at area sources of HAP emissions. This facility is a major source of HAP emissions. A stationary RICE located at a major source of HAPs is existing if construction or reconstruction commenced before June 12, 2006 [63.6590(a)(l)(iii)]. The facility will be in compliance with the provisions of this subpart that are applicable to the engines on-site within 3-years after it changed from an area source to a major source of HAPs, per 63.6595(b)(2).

3.0 AIR DISPERSION MODELING REPORT

Air Dispersion Modeling Report

Addendum to PTC Permit Request

Springbrook Gas Plant

SESE Section 22, T155N, R100W
Williams County, North Dakota

July 2022

PREPARED FOR:

Flatirons Field Services, LLC

SPIRIT PROJECT NUMBER: 21132.00A

FOR SPIRIT ENVIRONMENTAL:

Eric Kolb

Peter Knell

OFFICE: 720-500-3710
FAX: 281-664-2491

1536 Wynkoop St, Suite B200
Denver, CO 80202

spiritenv.com

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1.0 Project Identification Information

Table 1-1 Project Identification Information

Applicant:	Flatirons Field Services, LLC 10385 Westmoor Drive Westminster, CO 80021 Phone: 720-291-3232 E-mail: ehammond@flatironsfs.com Contact: Eric Hammond
Site Name:	Springbrook Gas Plant, ND
Site Operations:	Natural Gas Processing Plant
NAICS Code:	221210 & 211130
Site Permit Number:	AOP-28416 v1.0
Site Location:	SESE Section 22, T155N, R100W
Site Location County:	Williams
Site Coordinates:	40.12083°N, 102.68222°W
Applicant's Modeling Performed By:	Spirit Environmental, LLC 1536 Wynkoop St, Suite B200 Denver, CO 80202 Phone: 720-899-3912 E-mail: ekolb@spiritenv.com Contact: Eric Kolb Air Quality Project Consultant

2.0 Project Overview

On behalf of Flatirons Field Services, LLC ("Flatirons"), Spirit Environmental, LLC ("Spirit") respectfully submits this air dispersion modeling report to the North Dakota Department of Environmental Quality, Division of Air Quality ("NDDEQ"). This submittal is a supplement to the Permit-to-Construct ("PTC") construction permit request for the Springbrook Gas Plant ("the Plant") located in Williams County, North Dakota. Specifically, Flatirons is submitting the PTC application to capture criteria and hazardous air pollutants ("HAPs") emission factor updates for all reciprocating internal combustion engines ("RICE") located at the facility. Flatirons met with appropriate personnel at the NDDEQ and informed them of the PTC request. With the update, the facility will become a major source for HAPs, specifically formaldehyde ("HCHO").

Spirit Environmental and Flatirons spoke with Rheanna Kautzman on December 7, 2021 (Environmental Scientist at the NDDEQ) and it was determined that the previous modeling submitted in August 2020 for NAAQS pollutants (NO2) was sufficient and no further modeling would be needed at this time for the updated NAAQS emission rates submitted with the PTC request. A copy of this communication is attached at the end of this modeling report. Flatirons understands this is subject to change upon review of the PTC application. It was determined, however, that an Air Toxics modeling analysis for HCHO would need to be done. Since this determination, Flatirons has removed and replaced some equipment at the Plant. This modeling report incorporates these changes. Spirit determined it was most efficient to re-run previously submitted HCHO modeling using the United States Environmental Protection Agency's ("US EPA's") AERMOD modeling software (Tier 3 analysis) with updated emission rates and equipment representative of the PTC request.

This modeling report contains the details and results of the air dispersion modeling of HCHO for the Springbrook Gas Plant.

2.1 Summary of Equipment

Equipment associated with the facility requiring modeling is presented below.

Table 2-1 Modeled Facility Equipment

Equipment Description	Permit Application ID	Modeling Source Name
Eng Cat G3608 LE	C-2711	C_2711
Eng Cat G3608 LE	C-2712	C_2712
Eng Cat G3608 A4	C-2710	C_2710
Eng Cat G3606 A4	C-2713	C_2713
Ref. Eng Cat G3512B LE	C-300A	C_300A
Ref. Eng Cat G3512B LE	C-300B	C_300B
Lift Eng Cat G3512B LE	C-5701	C_5701
Lift Eng Cat G3512B LE	C-5702	C_5702
Overhead Eng Cat G3512B LE	C-4711	C_4711
Genset 1 Cat G3516B LE	GEN1	GEN1
Genset 2 Cat G3516B LE	GEN2	GEN2
Hot Oil Heater	B-940	B_940
Hot Oil Heater	B-941	B_941
Emergency Flare	FL-8501	FL_8501
Glycol Medium Heater	H-951	GHM

The site has emission sources of the following pollutants:

- Nitrogen dioxide ("NO_2"),
- Carbon monoxide ("CO"),
- HCHO,
- Sulfur Dioxide ("SO_2"),
- Particulate Matter ("PM"),
- Volatile Organic Compounds ("VOC"), and
- HAPS.

At this time, the only pollutant requiring modeling by the NDDEQ is HCHO. All modeling evaluations were performed using the US EPA's American Meteorological Society ("AMS")/EPA Regulatory Model Improvement Committee ("AERMIC") Model ("AERMOD") modeling system.

The modeling was conducted using an updated version of the same model setup as the original modeling submitted in August 2020 with the equipment replacement and modifications listed below:

- Engine C-5703 was removed from the facility.
- The stack height for the Glycol Medium Heater (H-951) was reduced by 4 inches.

AERMOD (version: 19191), AERMET (version: 19191), AERMAP (version: 18081), BPIP-PRIME (version: 04274), and AERSURFACE (version: 20060) were used. Updated versions of the model were utilized. The same meteorological data and as-built stack parameters were utilized. The only changes were updated emission rates for HCHO and modified engine information.

For HCHO, the one-hour ("1-hr") and annual maximum modeled ground level concentrations ("GLC_{MAX}") were compared to the Minnesota Health Based Values.

2.2 Pollutants to be Evaluated

Table 2-2 details the pollutants at the plant that are evaluated in this modeling study, Chemical Abstract Service ("CAS") number for each pollutant, and averaging periods that were reviewed as part of the modeling evaluation.

Table 2-2 Modeling Evaluation – Pollutants Summary

Pollutant	CAS Number	Averaging Period
HCHO	50-00-0	1-hr
		Annual

3.0 Modeling Emissions Inventory

The modeling evaluations include all activities with emissions of the pollutants listed in Section 2.2. Table 3-1 below lists the modeled emission rates for the sources included in the analysis.

3.1 Modeled Emission Rates

Table 3-1 Point Source Emission Rates

Modeled Source ID	Description of Source	Permit No.	Easting (X) (m)	Northing (Y) (m)	HCHO (lb/hr)	HCHO (tpy)
Facility Sources						
C_2711	Eng Cat G3608 LE	PTC15068, PTC14038	610,027.22	5,342,914.30	0.365	1.601
C_2712	Eng Cat G3608 LE	PTC15068, PTC14038	610,027.32	5,342,903.85	0.365	1.601
C_2710	Eng Cat G3608 A4	PTC18028	610,024.83	5,342,928.69	0.275	1.206
C_2713	Eng Cat G3606 A4	TBD	609,979.37	5,342,939.85	0.206	0.904
C_300A	Ref. Eng Cat G3512B LE	PTC15068, PTC14038	609,956.28	5,342,886.12	0.205	0.899
C_300B	Ref. Eng Cat G3512B LE	PTC15068, PTC14038	609,968.33	5,342,886.25	0.205	0.899
C_5701	Lift Eng Cat G3512B LE	PTC15068, PTC14038	610,027.95	5,342,886.10	0.205	0.899
C_5702	Lift Eng Cat G3512B LE	PTC15068, PTC14038	610,027.85	5,342,877.65	0.205	0.899
C_4711	Overhead Eng Cat G3512B LE	PTC15068, PTC14038	610,027.53	5,342,894.28	0.205	0.899
GEN1	Genset 1 Cat G3516B LE	PTC15068, PTC14038	610,019.74	5,342,830.85	0.44	1.929
GEN2	Genset 2 Cat G3516B LE	PTC15068, PTC14038	610,019.94	5,342,825.36	0.44	1.929

Modeled Source ID	Description of Source	Permit No.	Easting (X) (m)	Northing (Y) (m)	HCHO (lb/hr)	HCHO (tpy)
B_940	Hot Oil Heater	PTC15068, PTC14038	609,947.29	5,342,949.05	6.97E-04	0.003
B_941	Hot Oil Heater	TBD	609,993.53	5,342,955.92	1.73E-04	7.57E-04
FL_8501	Emergency Flare	PTC15068, PTC14038	609,940.83	5,342,985.73	0.0	0.0
GHM	Glycol Medium Heater	PTC18028	609,947.68	5,342,931.82	1.03E-04	4.54E-04

3.2 General Models and Modeling Techniques

For the air toxics review, the maximum highest first high ("H1H") modeled concentration from all receptors was applied as the design value for each averaging period (1-hr and annual). These modeled maximum concentrations were then compared to the health-based standards outlined in the Minnesota Air Guidance Values web page, which are equivalent to the North Dakota standards.

4.0 Modeling Results Analysis

A sitewide Air Toxics evaluation for HCHO for the corresponding averaging periods was performed using the previously submitted version of the air dispersion model, AERMOD. The GLC_{MAX} was compared to the Minnesota health-based standard for the given pollutant and averaging period[1]. In this case, "Acute" corresponds to the 1-hr concentration, and "Chronic" corresponds to the annual concentration.

Modeling was performed using the stack parameters and corresponding emission rates in Section 3. Details from the evaluation are provided in the following subsections.

4.1 Significant Impact Analysis

The first step in the analysis was to model "project only" emissions and compare the updated maximum concentrations to the corresponding SIL in the Minnesota Health Based Standards. If modeled impacts exceed the SIL, a cumulative impact analysis to include nearby sources and background concentrations (where applicable) would be triggered. Table 4-1 lists the significance levels in comparison to modeled project impacts.

[1] https://www.health.state.mn.us/communities/environment/risk/guidance/air/table.html

Table 4-1 SIL Modeling Results Summary

Pollutant	Averaging Period	GLC_{MAX}	Significant Impact Level	Full Analysis Required?
		(µg/m³)	(µg/m³)	
HCHO	1-hour	9.62	50.0	**No**
	Annual	0.603	9	**No**

As shown, the modeled offsite impacts for all averaging periods of HCHO are less than the health-based standards. Therefore, no further evaluation for HCHO is required, and the demonstration is complete.

Kim Frauhammer

From: Kautzman, Rheanna M. <rKautzman@nd.gov>
Sent: Tuesday, December 7, 2021 11:15 AM
To: Kim Frauhammer
Cc: Peter Knell
Subject: RE: Flatirons Springbrook PTC pending: modeling
Attachments: Plot 5 - 1 HR NO2 All.pdf

Good Afternoon,

Taking a look at the previous modeling conducted for the site (done a year ago) and based on the information provided below, I would not require the model to be re-run for NAAQS. If the increase is greater than 40 tpy for NOx or the previous modeled concentrations were closer to the NAAQS limit I would then require the modeling to be re-run.

Note that if the staff reviewing the application had any circumvention concerns we may decide to re-run the modeling with the updated information, but based on the information at hand, I do not see a need to re-run modeling.

Air Toxics I would still require as this changes from a minor source of HAPs to a major source of HAPs.

You would still need to submit a permit application for the emissions increases.

Rheanna Kautzman
Environmental Scientist
Division of Air Quality

701.328.5188 (main AQ) • 701.328.5186 (direct) • 701.328.5185 (fax) • www.deq.nd.gov/aq/

NORTH Dakota Be Legendary. | Environmental Quality

4201 Normandy Street, 2nd Floor, Bismarck, ND 58503-1324

From: Kim Frauhammer <kfrauhammer@spiritenv.com>
Sent: Tuesday, December 7, 2021 11:57 AM
To: Kautzman, Rheanna M. <rKautzman@nd.gov>
Cc: Peter Knell <pknell@spiritenv.com>
Subject: RE: Flatirons Springbrook PTC pending: modeling

That is correct Rheanna!

Kim Frauhammer

4.0 PERMIT APPLICATION FORMS

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 1804, Ltd.		
Responsible Person Edward Aabak		
Title Managing Director	Telephone Number (720) 636-9691	E-mail Address eaabak@flatironsfs.com
Mailing Address (Street & Number) 10385 Westmoor Drive, Suite 225		
City Westminster	State CO	ZIP Code 80021
Contact Person for Air Pollution Matters Eric Hammond		
Title Engineering Manager	Telephone Number (720) 636-9688	E-mail Address ehammond@flatironsfs.com
Mailing Address (Street & Number) 10385 Westmoor Drive, Suite 225		
City Westminster	State CO	ZIP Code 80021
Facility Name Springbrook Gas Plant, ND		
Facility Address (Street & Number) SE 1/4, SE 1/4, Sec. 22, T 155N, R100W		
City	State ND	ZIP Code

County Williams	Latitude (decimal degrees) 48.229724	Longitude (decimal degrees) -103.518558

Legal Description of Facility Site

Quarter SE	Quarter SE	Section 22	Township 155N	Range 100W

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)
Gas Processing Plant	221210	1311
Natural Gas Extraction	211130	1321

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: AOP-28416 Renewal: _____ Revision: v1.0	Current Permit to Operate Expiration Date: 09/02/2026

SECTION D – MINOR PERMIT MODIFICATION

Affected Emission Unit(s):	Description of Proposed Change:
C-2710, C-2711, C-2712, C-2713, C-4711, C-5701, C-5702, C-300A, C-300B, GEN1, GEN2, H-951, T-510/V-520	Emission factor updates and addition of the Glycol Medium Heater (H-951)
Applicable Requirements (NSPS, PSD, etc.): NSPS Subpart Dc, JJJJ & OOOO/OOOOa, MACT ZZZZ & DDDDD	Net Effect on Source Emissions Emission Unit(s): Increase Facility: Springbrook Gas Plant
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
C-2710	Compressor Engine	☐	ACP-18160 v1.0	☐	✓	☐	☐	
C-2711	Compressor Engine	☐	ACP-18160 v1.0	☐	✓	☐	☐	
C-2712	Compressor Engine	☐	ACP-18160 v1.0	☐	✓	☐	☐	
C-2713	Compressor Engine	☐	ACP-18160 v1.0	☐	✓	☐	☐	
C-4711	Compressor Engine	☐	ACP-18160 v1.0	☐	✓	☐	☐	
C-5701	Compressor Engine	☐	ACP-18160 v1.0	☐	✓	☐	☐	
C-5702	Compressor Engine	☐	ACP-18160 v1.0	☐	✓	☐	☐	
C-300A	Compressor Engine	☐	ACP-18160 v1.0	☐	✓	☐	☐	
C-300B	Compressor Engine	☐	ACP-18160 v1.0	☐	✓	☐	☐	
GEN1	Generator Engine	☐	ACP-18160 v1.0	☐	✓	☐	☐	
GEN2	Generator Engine	☐	ACP-18160 v1.0	☐	✓	☐	☐	
H-951	Heater	☐	ACP-18160 v1.0	✓	☐	☐	☐	
T-510/V-520	EG Dehydrator	☐	ACP-18160 v1.0	☐	✓	☐	☐	

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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:

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)
C-2710	09/16/2022	3 years or 8,760 hrs of operation, whichever comes first	NSPS JJJJ
C-2711	09/15/2022	3 years or 8,760 hrs of operation, whichever comes first	NSPS JJJJ
C-2712	09/15/2022	3 years or 8,760 hrs of operation, whichever comes first	NSPS JJJJ
C-2713	09/16/2022	3 years or 8,760 hrs of operation, whichever comes first	NSPS JJJJ
C-4711	09/15/2022	3 years or 8,760 hrs of operation, whichever comes first	NSPS JJJJ
C-5701	09/13/2022	3 years or 8,760 hrs of operation, whichever comes first	NSPS JJJJ

Add additional pages if necessary

SECTION G1 – ADDITIONAL FORMS

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

SECTION G2 – OTHER ATTACHMENTS INCLUDED AS PART OF THIS APPLICATION

1.	Process Description	4.	Emission Calculations
2.	Regulatory Review	5.	Air Dispersion Model Report
3.	Permit Application Forms	6.	PTC Application Request

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
	9/3/2023

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:
Compressor Engine	C-300A	EPN3
Make	**Model**	**Installation or manufacture date**
Caterpillar	G3512B LE	01/01/2013
Capacity (manufacturer's or designer's guaranteed maximum)	**Operating Capacity (specific units)**	
1,035 hp	1,035 hp	
Brief description of operation of unit or process:		
Natural Gas Reciprocating Internal Combustion Engine		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	**Alternative Emission Point:**	
NA	NA	

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	NA	NA

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	
Natural Gas	24	7	52	

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)
NSPS JJJJ	Stack Testing	Certification & Maintenance Records	Initial & Annual	Initial & every 3 yrs or 8,760 hrs of ops	NOx=1;CO=2;VOC=0.7 - g/hp-hr
NSPS OOOOa	Rod Packing Replacement	26,000 hrs	Annual	NA	NA
NESHAP ZZZZ	continuous catalyst inlet temperature	40 CFR 63.7(g)	Semi-Annual	Semi-Annual	NA

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)
C-300A	9/16/2022	Every 3 yrs or 8,760 hrs of ops	NSPS JJJJ - PTC 18160 v1.0

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)
60,667		

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	46.5	1.0	6,517	1,012	138.3
CO	46.5	1.0	6,517	1,012	138.3
VOC	46.5	1.0	6,517	1,012	138.3
PM	46.5	1.0	6,517	1,012	138.3
PM10	46.5	1.0	6,517	1,012	138.3
PM2.5	46.5	1.0	6,517	1,012	138.3
SO2	46.5	1.0	6,517	1,012	138.3

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
609,956.28	5,342,886.12

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)
Formaldehyde (500-00-0)	46.5	1.0	6,517	1,012	138.3

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
609,956.28	5,342,886.12

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	
NOx	1.14	4.99	Manufacturer Specifications
CO	0.46	2.0	Manufacturer Specifications
VOC	1.05	4.59	Manufacturer Specifications
PM	0.076	0.33	AP-42 Table 3.2-2
PM10 (filterable and condensable)	0.076	0.33	AP-42 Table 3.2-2
PM2.5 (filterable and condensable)	0.076	0.33	AP-42 Table 3.2-2
SO2	0.004	0.02	AP-42 Table 3.2-2
Largest Single HAP	0.25	1.08	Manufacturer Specifications
Total HAPs	0.27	1.17	AP-42 Table 3.2-2

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

☒ Other – Specify: Oxidation Catalyst with AFRC

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☒ Engine

☐ Other – Specify:

Pollutants Removed	CO	HAPs	HCHO	
Design Efficiency (%)	93%	50%	76%	

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)	450-1,350			
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) +/- 2 in H2O from baseline reading established during performance test				

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:
Compressor Engine	C-300B	EPN4
Make	**Model**	**Installation or manufacture date**
Caterpillar	G3512B LE	01/01/2013
Capacity (manufacturer's or designer's guaranteed maximum)	**Operating Capacity (specific units)**	
1,035 hp	1,035 hp	
Brief description of operation of unit or process:		
Natural Gas Reciprocating Internal Combustion Engine		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	**Alternative Emission Point:**	
NA	NA	

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	NA	NA

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	
Natural Gas	24	7	52	

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)
NSPS JJJJ	Stack Testing	Certification & Maintenance Records	Initial & Annual	Initial & every 3 yrs or 8,760 hrs of ops	NOx=1;CO=2;VOC=0.7 - g/hp-hr
NSPS OOOOa	Rod Packing Replacement	26,000 hrs	Annual	NA	NA
NESHAP ZZZZ	continuous catalyst inlet temperature	40 CFR 63.7(g)	Semi-Annual	Semi-Annual	NA

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)
C-300B	9/15/2022	Every 3 yrs or 8,760 hrs of ops	NSPS JJJJ - PTC 18160 v1.0

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)
60,667		

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	46.5	1.0	6,545	1,012	138.9
CO	46.5	1.0	6,545	1,012	138.9
VOC	46.5	1.0	6,545	1,012	138.9
PM	46.5	1.0	6,545	1,012	138.9
PM10	46.5	1.0	6,545	1,012	138.9
PM2.5	46.5	1.0	6,545	1,012	138.9
SO2	46.5	1.0	6,545	1,012	138.9

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
609,968.33	5,342,886.25

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)
Formaldehyde (500-00-0)	46.5	1.0	6,545	1,012	138.9

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
609,968.33	5,342,886.25

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	
NOx	1.14	4.99	Manufacturer Specifications
CO	0.46	2.0	Manufacturer Specifications
VOC	1.05	4.59	Manufacturer Specifications
PM	0.076	0.33	AP-42 Table 3.2-2
PM10 (filterable and condensable)	0.076	0.33	AP-42 Table 3.2-2
PM2.5 (filterable and condensable)	0.076	0.33	AP-42 Table 3.2-2
SO2	0.004	0.02	AP-42 Table 3.2-2
Largest Single HAP	0.25	1.08	Manufacturer Specifications
Total HAPs	0.27	1.17	AP-42 Table 3.2-2

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

☒ Other – Specify: Oxidation Catalyst with AFRC

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☒ Engine

☐ Other – Specify:

Pollutants Removed	CO	HAPs	HCHO	
Design Efficiency (%)	93%	50%	76%	

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)	450-1,350			
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) +/- 2 in H2O from baseline reading established during performance test				

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:
Compressor Engine	C-2710	EPN12
Make	**Model**	**Installation or manufacture date**
Caterpillar	G3608 A4	01/01/2018
Capacity (manufacturer's or designer's guaranteed maximum)	**Operating Capacity (specific units)**	
2,500 hp	2,500 hp	
Brief description of operation of unit or process:		
Natural Gas Reciprocating Internal Combustion Engine		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	**Alternative Emission Point:**	
NA	NA	

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	NA	NA

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	
Natural Gas	24	7	52	

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)
NSPS JJJJ	Stack Testing	Certification & Maintenance Records	Initial & Annual	Initial & every 3 yrs or 8,760 hrs of ops	NOx=1;CO=2;VOC=0.7 - g/hp-hr
NSPS OOOOa	Rod Packing Replacement	26,000 hrs	Annual	NA	NA
NESHAP ZZZZ	continuous catalyst inlet temperature	40 CFR 63.7(g)	Semi-Annual	Semi-Annual	NA

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)
C-2710	9/16/2022	Every 3 yrs or 8,760 hrs of ops	NSPS JJJJ - PTC 18160 v1.0

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) 136,365		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	24	1.66	15,974	842	122
CO	24	1.66	15,974	842	122
VOC	24	1.66	15,974	842	122
PM	24	1.66	15,974	842	122
PM10	24	1.66	15,974	842	122
PM2.5	24	1.66	15,974	842	122
SO2	24	1.66	15,974	842	122

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,024.83	5,342,928.69

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)
Formaldehyde (500-00-0)	24	1.66	15,974	842	122
Acetaldehyde (75-07-0)	24	1.66	15,974	842	122

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,024.83	5,342,928.69

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	
NOx	2.75	12.06	Manufacturer Specifications
CO	0.88	3.83	Manufacturer Specifications
VOC	1.38	6.03	Manufacturer Specifications
PM	0.17	0.75	AP-42 Table 3.2-2
PM10 (filterable and condensable)	0.17	0.75	AP-42 Table 3.2-2
PM2.5 (filterable and condensable)	0.17	0.75	AP-42 Table 3.2-2
SO2	0.01	0.04	AP-42 Table 3.2-2
Largest Single HAP	0.30	1.33	Manufacturer Specifications
Total HAPs	0.41	1.81	AP-42 Table 3.2-2

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

☒ Other – Specify: Oxidation Catalyst with AFRC

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☒ Engine

☐ Other – Specify:

Pollutants Removed	CO	HAPs	HCHO	VOC
Design Efficiency (%)	93%	50%	76%	4%

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)	450-1,350			
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) +/- 2 in H2O from baseline reading established during performance test				

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:
Compressor Engine	C-2711	EPN1
Make	**Model**	**Installation or manufacture date**
Caterpillar	G3608 LE	01/01/2014
Capacity (manufacturer's or designer's guaranteed maximum) 2,370 hp	**Operating Capacity (specific units)** 2,370 hp	
Brief description of operation of unit or process: Natural Gas Reciprocating Internal Combustion Engine		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate): NA	**Alternative Emission Point:** NA	

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	NA	NA

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	
Natural Gas	24	7	52	

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)
NSPS JJJJ	Stack Testing	Certification & Maintenance Records	Initial & Annual	Initial & every 3 yrs or 8,760 hrs of ops	NOx=1;CO=2;VOC=0.7 - g/hp-hr
NSPS OOOOa	Rod Packing Replacement	26,000 hrs	Annual	NA	NA
NESHAP ZZZZ	continuous catalyst inlet temperature	40 CFR 63.7(g)	Semi-Annual	Semi-Annual	NA

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)
C-2711	9/15/2022	Every 3 yrs or 8,760 hrs of ops	NSPS JJJJ - PTC 18160 v1.0

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) 130,230		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	46.5	1.66	15,854	877	121
CO	46.5	1.66	15,854	877	121
VOC	46.5	1.66	15,854	877	121
PM	46.5	1.66	15,854	877	121
PM10	46.5	1.66	15,854	877	121
PM2.5	46.5	1.66	15,854	877	121
SO2	46.5	1.66	15,854	877	121

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,027.22	5,342,914.30

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)
Formaldehyde (500-00-0)	46.5	1.66	15,854	877	121
Acetaldehyde (75-07-0)	46.5	1.66	15,854	877	121

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,027.22	5,342,914.30

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	
NOx	2.61	11.43	Manufacturer Specifications
CO	1.01	4.42	Manufacturer Specifications
VOC	3.29	14.41	Manufacturer Specifications
PM	0.16	0.72	AP-42 Table 3.2-2
PM10 (filterable and condensable)	0.16	0.72	AP-42 Table 3.2-2
PM2.5 (filterable and condensable)	0.16	0.72	AP-42 Table 3.2-2
SO2	0.01	0.04	AP-42 Table 3.2-2
Largest Single HAP	0.33	1.43	Manufacturer Specifications
Total HAPs	0.50	2.18	AP-42 Table 3.2-2

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

■ Other – Specify: Oxidation Catalyst with AFRC

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ■ Engine

☐ Other – Specify:

Pollutants Removed	CO	HAPs	HCHO	
Design Efficiency (%)	93%	50%	76%	

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)	450-1,350			
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) +/- 2 in H2O from baseline reading established during performance test				

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:
Compressor Engine	C-2712	EPN2
Make	**Model**	**Installation or manufacture date**
Caterpillar	G3608 LE	01/01/2014
Capacity (manufacturer's or designer's guaranteed maximum) 2,370 hp	**Operating Capacity (specific units)** 2,370 hp	
Brief description of operation of unit or process: Natural Gas Reciprocating Internal Combustion Engine		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate): NA	**Alternative Emission Point:** NA	

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	NA	NA

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	
Natural Gas	24	7	52	

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)
NSPS JJJJ	Stack Testing	Certification & Maintenance Records	Initial & Annual	Initial & every 3 yrs or 8,760 hrs of ops	NOx=1;CO=2;VOC=0.7 - g/hp-hr
NSPS OOOOa	Rod Packing Replacement	26,000 hrs	Annual	NA	NA
NESHAP ZZZZ	continuous catalyst inlet temperature	40 CFR 63.7(g)	Semi-Annual	Semi-Annual	NA

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)
C-2712	9/15/2022	Every 3 yrs or 8,760 hrs of ops	NSPS JJJJ - PTC 18160 v1.0

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) 130,230		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	46.5	1.33	16,180	878	193
CO	46.5	1.33	16,180	878	193
VOC	46.5	1.33	16,180	878	193
PM	46.5	1.33	16,180	878	193
PM10	46.5	1.33	16,180	878	193
PM2.5	46.5	1.33	16,180	878	193
SO2	46.5	1.33	16,180	878	193

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,027.32	5,342,903.85

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)
Formaldehyde (500-00-0)	46.5	1.33	16,180	878	193
Acetaldehyde (75-07-0)	46.5	1.33	16,180	878	193

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,027.32	5,342,903.85

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	
NOx	2.61	11.43	Manufacturer Specifications
CO	1.01	4.42	Manufacturer Specifications
VOC	3.29	14.41	Manufacturer Specifications
PM	0.16	0.72	AP-42 Table 3.2-2
PM10 (filterable and condensable)	0.16	0.72	AP-42 Table 3.2-2
PM2.5 (filterable and condensable)	0.16	0.72	AP-42 Table 3.2-2
SO2	0.01	0.04	AP-42 Table 3.2-2
Largest Single HAP	0.33	1.43	Manufacturer Specifications
Total HAPs	0.50	2.18	AP-42 Table 3.2-2

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

☒ Other – Specify: Oxidation Catalyst with AFRC

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☒ Engine

☐ Other – Specify:

Pollutants Removed	CO	HAPs	HCHO	
Design Efficiency (%)	93%	50%	76%	

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)	450-1,350			
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) +/- 2 in H2O from baseline reading established during performance test				

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:
Compressor Engine	C-2713	EPN13
Make	**Model**	**Installation or manufacture date**
Caterpillar	G3606 A4	01/01/2019
Capacity (manufacturer's or designer's guaranteed maximum)	**Operating Capacity (specific units)**	
1,875 hp	1,875 hp	
Brief description of operation of unit or process:		
Natural Gas Reciprocating Internal Combustion Engine		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	**Alternative Emission Point:**	
NA	NA	

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	NA	NA

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	
Natural Gas	24	7	52	

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)
NSPS JJJJ	Stack Testing	Certification & Maintenance Records	Initial & Annual	Initial & every 3 yrs or 8,760 hrs of ops	NOx=1;CO=2;VOC=0.7 - g/hp-hr
NSPS OOOOa	Rod Packing Replacement	26,000 hrs	Annual	NA	NA
NESHAP ZZZZ	continuous catalyst inlet temperature	40 CFR 63.7(g)	Semi-Annual	Semi-Annual	NA

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)
C-2713	9/16/2022	Every 3 yrs or 8,760 hrs of ops	NSPS JJJJ - PTC 18160 v1.0

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)
112,224		

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	28.6	1.66	11,991	813	92
CO	28.6	1.66	11,991	813	92
VOC	28.6	1.66	11,991	813	92
PM	28.6	1.66	11,991	813	92
PM10	28.6	1.66	11,991	813	92
PM2.5	28.6	1.66	11,991	813	92
SO2	28.6	1.66	11,991	813	92

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
609,979.37	5,342,939.85

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)
Formaldehyde (500-00-0)	28.6	1.66	11,991	813	92

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
609,979.37	5,342,939.85

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	
NOx	2.07	9.05	Manufacturer Specifications
CO	0.66	2.89	Manufacturer Specifications
VOC	1.03	4.52	Manufacturer Specifications
PM	0.13	0.56	AP-42 Table 3.2-2
PM10 (filterable and condensable)	0.13	0.56	AP-42 Table 3.2-2
PM2.5 (filterable and condensable)	0.13	0.56	AP-42 Table 3.2-2
SO2	0.01	0.03	AP-42 Table 3.2-2
Largest Single HAP	0.20	0.87	Manufacturer Specifications
Total HAPs	0.31	1.36	AP-42 Table 3.2-2

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

☒ Other – Specify: Oxidation Catalyst with AFRC

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☒ Engine

☐ Other – Specify:

Pollutants Removed	CO	HAPs	HCHO	VOC
Design Efficiency (%)	93%	50%	76%	7%

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)	450-1,350			
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) +/- 2 in H2O from baseline reading established during performance test				

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:
Compressor Engine	C-4711	EPN7
Make	**Model**	**Installation or manufacture date**
Caterpillar	G3512B LE	01/01/2014
Capacity (manufacturer's or designer's guaranteed maximum)	**Operating Capacity (specific units)**	
1,035 hp	1,035 hp	
Brief description of operation of unit or process:		
Natural Gas Reciprocating Internal Combustion Engine		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	**Alternative Emission Point:**	
NA	NA	

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	NA	NA

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	
Natural Gas	24	7	52	

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)
NSPS JJJJ	Stack Testing	Certification & Maintenance Records	Initial & Annual	Initial & every 3 yrs or 8,760 hrs of ops	NOx=1;CO=2;VOC=0.7 - g/hp-hr
NSPS OOOOa	Rod Packing Replacement	26,000 hrs	Annual	NA	NA
NESHAP ZZZZ	continuous catalyst inlet temperature	40 CFR 63.7(g)	Semi-Annual	Semi-Annual	NA

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)
C-4711	9/15/2022	Every 3 yrs or 8,760 hrs of ops	NSPS JJJJ - PTC 18160 v1.0

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)
60,667		

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	46.5	0.92	6,681	992	169
CO	46.5	0.92	6,681	992	169
VOC	46.5	0.92	6,681	992	169
PM	46.5	0.92	6,681	992	169
PM10	46.5	0.92	6,681	992	169
PM2.5	46.5	0.92	6,681	992	169
SO2	46.5	0.92	6,681	992	169

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,027.53	5,342,894.28

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)
Formaldehyde (500-00-0)	46.5	0.92	6,681	992	169

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,027.53	5,342,894.28

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	
NOx	1.14	4.99	Manufacturer Specifications
CO	0.46	2.00	Manufacturer Specifications
VOC	1.05	4.59	Manufacturer Specifications
PM	0.076	0.33	AP-42 Table 3.2-2
PM10 (filterable and condensable)	0.076	0.33	AP-42 Table 3.2-2
PM2.5 (filterable and condensable)	0.076	0.33	AP-42 Table 3.2-2
SO2	0.004	0.02	AP-42 Table 3.2-2
Largest Single HAP	0.25	1.08	Manufacturer Specifications
Total HAPs	0.27	1.17	AP-42 Table 3.2-2

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

☒ Other – Specify: Oxidation Catalyst with AFRC

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☒ Engine

☐ Other – Specify:

Pollutants Removed	CO	HAPs	HCHO	
Design Efficiency (%)	93%	50%	76%	

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)	450-1,350			
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) +/- 2 in H2O from baseline reading established during performance test				

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:
Compressor Engine	C-5701	EPN5
Make	**Model**	**Installation or manufacture date**
Caterpillar	G3512B LE	01/01/2014
Capacity (manufacturer's or designer's guaranteed maximum)	**Operating Capacity (specific units)**	
1,035 hp	1,035 hp	
Brief description of operation of unit or process:		
Natural Gas Reciprocating Internal Combustion Engine		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	**Alternative Emission Point:**	
NA	NA	

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	NA	NA

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	
Natural Gas	24	7	52	

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)
NSPS JJJJ	Stack Testing	Certification & Maintenance Records	Initial & Annual	Initial & every 3 yrs or 8,760 hrs of ops	NOx=1;CO=2;VOC=0.7 - g/hp-hr
NSPS OOOOa	Rod Packing Replacement	26,000 hrs	Annual	NA	NA
NESHAP ZZZZ	continuous catalyst inlet temperature	40 CFR 63.7(g)	Semi-Annual	Semi-Annual	NA

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)
C-5701	9/13/2022	Every 3 yrs or 8,760 hrs of ops	NSPS JJJJ - PTC 18160 v1.0

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)
60,667		

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	46.5	0.92	6,675	992	169
CO	46.5	0.92	6,675	992	169
VOC	46.5	0.92	6,675	992	169
PM	46.5	0.92	6,675	992	169
PM10	46.5	0.92	6,675	992	169
PM2.5	46.5	0.92	6,675	992	169
SO2	46.5	0.92	6,675	992	169

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,027.95	5,342,886.10

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)
Formaldehyde (500-00-0)	46.5	0.92	6,675	992	169

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,027.95	5,342,886.10

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	
NOx	1.14	4.99	Manufacturer Specifications
CO	0.46	2.00	Manufacturer Specifications
VOC	1.05	4.59	Manufacturer Specifications
PM	0.076	0.33	AP-42 Table 3.2-2
PM10 (filterable and condensable)	0.076	0.33	AP-42 Table 3.2-2
PM2.5 (filterable and condensable)	0.076	0.33	AP-42 Table 3.2-2
SO2	0.004	0.02	AP-42 Table 3.2-2
Largest Single HAP	0.25	1.08	Manufacturer Specifications
Total HAPs	0.27	1.17	AP-42 Table 3.2-2

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

☒ Other – Specify: Oxidation Catalyst with AFRC

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☒ Engine

☐ Other – Specify:

Pollutants Removed	CO	HAPs	HCHO	
Design Efficiency (%)	93%	50%	76%	

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)	450-1,350			
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) +/- 2 in H2O from baseline reading established during performance test				

EMISSION UNIT FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
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SECTION A – EQUIPMENT INFORMATION

Type of Unit or Process (rotary dryer, cupola furnace, crusher, pelletizer, engine, etc.)	Emission Unit Number:	Emission Point Number:
Compressor Engine	C-5702	EPN6
Make	**Model**	**Installation or manufacture date**
Caterpillar	G3512B LE	01/01/2014
Capacity (manufacturer's or designer's guaranteed maximum)	**Operating Capacity (specific units)**	
1,035 hp	1,035 hp	
Brief description of operation of unit or process:		
Natural Gas Reciprocating Internal Combustion Engine		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	**Alternative Emission Point:**	
NA	NA	

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	NA	NA

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	
Natural Gas	24	7	52	

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)
NSPS JJJJ	Stack Testing	Certification & Maintenance Records	Initial & Annual	Initial & every 3 yrs or 8,760 hrs of ops	NOx=1;CO=2;VOC=0.7 - g/hp-hr
NSPS OOOOa	Rod Packing Replacement	26,000 hrs	Annual	NA	NA
NESHAP ZZZZ	continuous catalyst inlet temperature	40 CFR 63.7(g)	Semi-Annual	Semi-Annual	NA

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)
C-5702	9/12/2022	Every 3 yrs or 8,760 hrs of ops	NSPS JJJJ - PTC 18160 v1.0

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)
60,667		

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	46.5	0.92	6,665	999	169
CO	46.5	0.92	6,665	999	169
VOC	46.5	0.92	6,665	999	169
PM	46.5	0.92	6,665	999	169
PM10	46.5	0.92	6,665	999	169
PM2.5	46.5	0.92	6,665	999	169
SO2	46.5	0.92	6,665	999	169

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,027.95	5,342,886.10

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)
Formaldehyde (500-00-0)	46.5	0.92	6,665	999	169

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,027.95	5,342,886.10

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	
NOx	1.14	4.99	Manufacturer Specifications
CO	0.46	2.00	Manufacturer Specifications
VOC	1.05	4.59	Manufacturer Specifications
PM	0.076	0.33	AP-42 Table 3.2-2
PM10 (filterable and condensable)	0.076	0.33	AP-42 Table 3.2-2
PM2.5 (filterable and condensable)	0.076	0.33	AP-42 Table 3.2-2
SO2	0.004	0.02	AP-42 Table 3.2-2
Largest Single HAP	0.25	1.08	Manufacturer Specifications
Total HAPs	0.27	1.17	AP-42 Table 3.2-2

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

☒ Other – Specify: Oxidation Catalyst with AFRC

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☒ Engine

☐ Other – Specify:

Pollutants Removed	CO	HAPs	HCHO	
Design Efficiency (%)	93%	50%	76%	

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)	450-1,350			
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) +/- 2 in H2O from baseline reading established during performance test				

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SECTION A – EQUIPMENT INFORMATION

Type of Unit or Process (rotary dryer, cupola furnace, crusher, pelletizer, engine, etc.)	Emission Unit Number:	Emission Point Number:
Generator Engine	GEN1	EPN8
Make	**Model**	**Installation or manufacture date**
Caterpillar	G3516B LE	01/01/2014
Capacity (manufacturer's or designer's guaranteed maximum)	**Operating Capacity (specific units)**	
1,818 hp	1,818 hp	
Brief description of operation of unit or process:		
Natural Gas Reciprocating Internal Combustion Engine		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	**Alternative Emission Point:**	
NA	NA	

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	NA	NA

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	
Natural Gas	24	7	52	

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)
NSPS JJJJ	Stack Testing	Certification & Maintenance Records	Initial & Annual	Initial & every 3 yrs or 8,760 hrs of ops	NOx=1;CO=2;VOC=0.7 - g/hp-hr
NESHAP ZZZZ	continuous catalyst inlet temperature	40 CFR 63.7(g)	Semi-Annual	Semi-Annual	NA

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)
GEN1	9/13/2022	Every 3 yrs or 8,760 hrs of ops	NSPS JJJJ - PTC 18160 v1.0

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)
104,537		

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	46.5	1.33	12,064	990	144
CO	46.5	1.33	12,064	990	144
VOC	46.5	1.33	12,064	990	144
PM	46.5	1.33	12,064	990	144
PM10	46.5	1.33	12,064	990	144
PM2.5	46.5	1.33	12,064	990	144
SO2	46.5	1.33	12,064	990	144

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,019.74	5,342,830.85

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)
Formaldehyde (500-00-0)	46.5	1.33	12,064	990	144

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,019.74	5,342,830.85

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	
NOx	4.00	17.54	Manufacturer Specifications
CO	0.70	3.07	Manufacturer Specifications
VOC	1.31	5.75	Manufacturer Specifications
PM	0.13	0.57	AP-42 Table 3.2-2
PM10 (filterable and condensable)	0.13	0.57	AP-42 Table 3.2-2
PM2.5 (filterable and condensable)	0.13	0.57	AP-42 Table 3.2-2
SO2	0.01	0.03	AP-42 Table 3.2-2
Largest Single HAP	0.34	1.47	Manufacturer Specifications
Total HAPs	0.55	2.40	AP-42 Table 3.2-2

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

■ Other – Specify: Oxidation Catalyst with AFRC

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☐ Engine

☐ Other – Specify:

Pollutants Removed	CO	HAPs	HCHO	VOC
Design Efficiency (%)	93%	50%	76%	60%

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)	450-1,350			
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) +/- 2 in H2O from baseline reading established during performance test				

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SECTION A – EQUIPMENT INFORMATION

Type of Unit or Process (rotary dryer, cupola furnace, crusher, pelletizer, engine, etc.)	Emission Unit Number:	Emission Point Number:
Generator Engine	GEN2	EPN9
Make	**Model**	**Installation or manufacture date**
Caterpillar	G3516B LE	01/01/2014
Capacity (manufacturer's or designer's guaranteed maximum)	**Operating Capacity (specific units)**	
1,818 hp	1,818 hp	
Brief description of operation of unit or process:		
Natural Gas Reciprocating Internal Combustion Engine		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	**Alternative Emission Point:**	
NA	NA	

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	NA	NA

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	
Natural Gas	24	7	52	

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)
NSPS JJJJ	Stack Testing	Certification & Maintenance Records	Initial & Annual	Initial & every 3 yrs or 8,760 hrs of ops	NOx=1;CO=2;VOC=0.7 - g/hp-hr
NESHAP ZZZZ	continuous catalyst inlet temperature	40 CFR 63.7(g)	Semi-Annual	Semi-Annual	NA

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)
GEN2	9/13/2022	Every 3 yrs or 8,760 hrs of ops	NSPS JJJJ - PTC 18160 v1.0

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) 104,537		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	46.5	1.33	12,064	990	144
CO	46.5	1.33	12,064	990	144
VOC	46.5	1.33	12,064	990	144
PM	46.5	1.33	12,064	990	144
PM10	46.5	1.33	12,064	990	144
PM2.5	46.5	1.33	12,064	990	144
SO2	46.5	1.33	12,064	990	144

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,019.94	5,342,825.36

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)
Formaldehyde (500-00-0)	46.5	1.33	12,064	990	144

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
610,019.94	5,342,825.36

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	
NOx	4.00	17.54	Manufacturer Specifications
CO	0.70	3.07	Manufacturer Specifications
VOC	1.31	5.75	Manufacturer Specifications
PM	0.13	0.57	AP-42 Table 3.2-2
PM10 (filterable and condensable)	0.13	0.57	AP-42 Table 3.2-2
PM2.5 (filterable and condensable)	0.13	0.57	AP-42 Table 3.2-2
SO2	0.01	0.03	AP-42 Table 3.2-2
Largest Single HAP	0.34	1.47	Manufacturer Specifications
Total HAPs	0.55	2.40	AP-42 Table 3.2-2

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

■ Other – Specify: Oxidation Catalyst with AFRC

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☐ Engine

☐ Other – Specify:

Pollutants Removed	CO	HAPs	HCHO	VOC
Design Efficiency (%)	93%	50%	76%	60%

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)	450-1,350			
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) +/- 2 in H2O from baseline reading established during performance test				

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SECTION A – EQUIPMENT INFORMATION

Type of Unit or Process (rotary dryer, cupola furnace, crusher, pelletizer, engine, etc.)	Emission Unit Number:	Emission Point Number:
Heater	H-951	22
Make	**Model**	**Installation or manufacture date**
Flameco	SB30/18-16	10/01/2018
Capacity (manufacturer's or designer's guaranteed maximum) 1.5 MMBtu/hr	**Operating Capacity (specific units)** 1.5 MMBtu/hr	
Brief description of operation of unit or process: Natural Gas-Fired Hot Oil Heater		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate): NA	**Alternative Emission Point:** NA	

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	NA	NA

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	
NA	24	7	52	hrs/yr

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)
12,110		

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	12	1.33	121.4	800	1.46
CO	12	1.33	121.4	800	1.46
VOC	12	1.33	121.4	800	1.46
PM	12	1.33	121.4	800	1.46
PM10	12	1.33	121.4	800	1.46
PM2.5	12	1.33	121.4	800	1.46
SO2	12	1.33	121.4	800	1.46

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
609,947.68	5,342,931.82

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)

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	

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)				

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SECTION A – EQUIPMENT INFORMATION

Type of Unit or Process (rotary dryer, cupola furnace, crusher, pelletizer, engine, etc.)	Emission Unit Number:	Emission Point Number:
EG Dehydrator	T-510/V-520	EPN11
Make	Model	Installation or manufacture date: 01/01/2014
Capacity (manufacturer's or designer's guaranteed maximum) 70.0 MMSCFD	Operating Capacity (specific units) 55 MMSCFD	
Brief description of operation of unit or process: EG Dehydrator to remove water from inlet gas stream		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate): NA	Alternative Emission Point: NA	

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	NA	NA

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	
NA	24	7	52	hrs/yr

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)
MACT HH	NA	NA	NA	NA	NA

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	143	3.6	4.5	1000	0.01
Total HAPs	143	3.6	4.5	1000	0.01
CO2e	143	3.6	4.5	1000	0.01

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:
609,948.70	5,342,819.59

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)

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	

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

■ Other – Specify: Flare

Name of Manufacturer	Model Number	Date to Be Installed
TBD	TBD	01/01/2014

Application: ☐ Boiler ☐ Kiln ☐ Engine

■ Other – Specify: EG Dehydrator

Pollutants Removed	VOCs	HAPs		
Design Efficiency (%)	98%	98%		

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)	1.06			
Gas Temperature (°F)	130			
Gas Pressure (in. H_2O)	64.7			
Gas Velocity (ft/sec)	TBD			
Pollutant Concentration (Specify pollutant and unit of concentration)	Pollutant	Unit of Concentration	Inlet	Outlet

Pressure drop through gas cleaning device (in. H_2O)

TBD

COMPLIANCE SCHEDULE AND PLAN FOR TITLE V PERMIT TO OPERATE

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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

C-300A

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 40 CFR 60(A) Methods 1 & 19, EPA 40 CFR 63(A) Method 320

Reference Test Method Citation:

NSPS Subpart JJJJ, 60.4243(a)(2)(iii) and MACT ZZZZ, 63.6620

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description: Within engine stack
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.)
NOx	3 yrs or 8,760 hrs of operations
CO	3 yrs or 8,760 hrs of operations
VOC	3 yrs or 8,760 hrs of operations

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
NSPS JJJJ Stack Test Results (ppmvd)	Annual
MACT ZZZZ Stack Test Results (% DRE)	Semi-Annual
Rod Packing Replacement (every 26,000 hrs)	Annual

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
Emission Factor	7/2015	Annual
Hours of Operation	7/2015	Annual
Catalyst Inlet Temperature	TBD	Semi-Annual

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
NOx (lb/hr) Emission Factor	7/2015	Annual
CO (lb/hr) Emission Factor	7/2015	Annual
VOC (lb/hr) Emission Factor	7/2015	Annual

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

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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

C-300B

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 40 CFR 60(A) Methods 1 & 19, EPA 40 CFR 63(A) Method 320

Reference Test Method Citation:

NSPS Subpart JJJJ, 60.4243(a)(2)(iii) and MACT ZZZZ, 63.6620

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description: Within engine stack
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.)
NOx	3 yrs or 8,760 hrs of operations
CO	3 yrs or 8,760 hrs of operations
VOC	3 yrs or 8,760 hrs of operations

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
NSPS JJJJ Stack Test Results (ppmvd)	Annual
MACT ZZZZ Stack Test Results (% DRE)	Semi-Annual
Rod Packing Replacement (every 26,000 hrs)	Annual

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
Emission Factor	7/2015	Annual
Hours of Operation	7/2015	Annual
Catalyst Inlet Temperature	TBD	Semi-Annual

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
NOx (lb/hr) Emission Factor	7/2015	Annual
CO (lb/hr) Emission Factor	7/2015	Annual
VOC (lb/hr) Emission Factor	7/2015	Annual

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

C-2710

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 40 CFR 60(A) Methods 1 & 19, EPA 40 CFR 63(A) Method 320

Reference Test Method Citation:

NSPS Subpart JJJJ, 60.4243(a)(2)(iii) and MACT ZZZZ, 63.6620

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description: Within engine stack
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.)
NOx	3 yrs or 8,760 hrs of operations
CO	3 yrs or 8,760 hrs of operations
VOC	3 yrs or 8,760 hrs of operations

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
NSPS JJJJ Stack Test Results (ppmvd)	Annual
MACT ZZZZ Stack Test Results (% DRE)	Semi-Annual
Rod Packing Replacement (every 26,000 hrs)	Annual

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
Emission Factor	7/2015	Annual
Hours of Operation	7/2015	Annual
Catalyst Inlet Temperature	TBD	Semi-Annual

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
NOx (lb/hr) Emission Factor	7/2015	Annual
CO (lb/hr) Emission Factor	7/2015	Annual
VOC (lb/hr) Emission Factor	7/2015	Annual

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

C-2711

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 40 CFR 60(A) Methods 1 & 19, EPA 40 CFR 63(A) Method 320

Reference Test Method Citation:

NSPS Subpart JJJJ, 60.4243(a)(2)(iii) and MACT ZZZZ, 63.6620

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description: Within engine stack
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.)
NOx	3 yrs or 8,760 hrs of operations
CO	3 yrs or 8,760 hrs of operations
VOC	3 yrs or 8,760 hrs of operations

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
NSPS JJJJ Stack Test Results (ppmvd)	Annual
MACT ZZZZ Stack Test Results (% DRE)	Semi-Annual
Rod Packing Replacement (every 26,000 hrs)	Annual

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
Emission Factor	7/2015	Annual
Hours of Operation	7/2015	Annual
Catalyst Inlet Temperature	TBD	Semi-Annual

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
NOx (lb/hr) Emission Factor	7/2015	Annual
CO (lb/hr) Emission Factor	7/2015	Annual
VOC (lb/hr) Emission Factor	7/2015	Annual

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

C-2712

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 40 CFR 60(A) Methods 1 & 19, EPA 40 CFR 63(A) Method 320

Reference Test Method Citation:

NSPS Subpart JJJJ, 60.4243(a)(2)(iii) and MACT ZZZZ, 63.6620

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description: Within engine stack
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.)
NOx	3 yrs or 8,760 hrs of operations
CO	3 yrs or 8,760 hrs of operations
VOC	3 yrs or 8,760 hrs of operations

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
NSPS JJJJ Stack Test Results (ppmvd)	Annual
MACT ZZZZ Stack Test Results (% DRE)	Semi-Annual
Rod Packing Replacement (every 26,000 hrs)	Annual

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
Emission Factor	7/2015	Annual
Hours of Operation	7/2015	Annual
Catalyst Inlet Temperature	TBD	Semi-Annual

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
NOx (lb/hr) Emission Factor	7/2015	Annual
CO (lb/hr) Emission Factor	7/2015	Annual
VOC (lb/hr) Emission Factor	7/2015	Annual

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

C-2713

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 40 CFR 60(A) Methods 1 & 19, EPA 40 CFR 63(A) Method 320

Reference Test Method Citation:

NSPS Subpart JJJJ, 60.4243(a)(2)(iii) and MACT ZZZZ, 63.6620

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description: Within engine stack
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.)
NOx	3 yrs or 8,760 hrs of operations
CO	3 yrs or 8,760 hrs of operations
VOC	3 yrs or 8,760 hrs of operations

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
NSPS JJJJ Stack Test Results (ppmvd)	Annual
MACT ZZZZ Stack Test Results (% DRE)	Semi-Annual
Rod Packing Replacement (every 26,000 hrs)	Annual

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
Emission Factor	6/2019	Annual
Hours of Operation	6/2019	Annual
Catalyst Inlet Temperature	TBD	Semi-Annual

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
NOx (lb/hr) Emission Factor	6/2019	Annual
CO (lb/hr) Emission Factor	6/2019	Annual
VOC (lb/hr) Emission Factor	6/2019	Annual

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

C-4711

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 40 CFR 60(A) Methods 1 & 19, EPA 40 CFR 63(A) Method 320

Reference Test Method Citation:

NSPS Subpart JJJJ, 60.4243(a)(2)(iii) and MACT ZZZZ, 63.6620

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description: Within engine stack
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.)
NOx	3 yrs or 8,760 hrs of operations
CO	3 yrs or 8,760 hrs of operations
VOC	3 yrs or 8,760 hrs of operations

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
NSPS JJJJ Stack Test Results (ppmvd)	Annual
MACT ZZZZ Stack Test Results (% DRE)	Semi-Annual
Rod Packing Replacement (every 26,000 hrs)	Annual

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
Emission Factor	7/2015	Annual
Hours of Operation	7/2015	Annual
Catalyst Inlet Temperature	TBD	Semi-Annual

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
NOx (lb/hr) Emission Factor	7/2015	Annual
CO (lb/hr) Emission Factor	7/2015	Annual
VOC (lb/hr) Emission Factor	7/2015	Annual

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

C-5701

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 40 CFR 60(A) Methods 1 & 19, EPA 40 CFR 63(A) Method 320

Reference Test Method Citation:

NSPS Subpart JJJJ, 60.4243(a)(2)(iii) and MACT ZZZZ, 63.6620

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description: Within engine stack
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.)
NOx	3 yrs or 8,760 hrs of operations
CO	3 yrs or 8,760 hrs of operations
VOC	3 yrs or 8,760 hrs of operations

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
NSPS JJJJ Stack Test Results (ppmvd)	Annual
MACT ZZZZ Stack Test Results (% DRE)	Semi-Annual
Rod Packing Replacement (every 26,000 hrs)	Annual

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
Emission Factor	7/2015	Annual
Hours of Operation	7/2015	Annual
Catalyst Inlet Temperature	TBD	Semi-Annual

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
NOx (lb/hr) Emission Factor	7/2015	Annual
CO (lb/hr) Emission Factor	7/2015	Annual
VOC (lb/hr) Emission Factor	7/2015	Annual

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

C-5702

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 40 CFR 60(A) Methods 1 & 19, EPA 40 CFR 63(A) Method 320

Reference Test Method Citation:

NSPS Subpart JJJJ, 60.4243(a)(2)(iii) and MACT ZZZZ, 63.6620

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description: Within engine stack
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.)
NOx	3 yrs or 8,760 hrs of operations
CO	3 yrs or 8,760 hrs of operations
VOC	3 yrs or 8,760 hrs of operations

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
NSPS JJJJ Stack Test Results (ppmvd)	Annual
MACT ZZZZ Stack Test Results (% DRE)	Semi-Annual
Rod Packing Replacement (every 26,000 hrs)	Annual

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
Emission Factor	7/2015	Annual
Hours of Operation	7/2015	Annual
Catalyst Inlet Temperature	TBD	Semi-Annual

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
NOx (lb/hr) Emission Factor	7/2015	Annual
CO (lb/hr) Emission Factor	7/2015	Annual
VOC (lb/hr) Emission Factor	7/2015	Annual

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

GEN1

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 40 CFR 60(A) Methods 1 & 19, EPA 40 CFR 63(A) Method 320

Reference Test Method Citation:

NSPS Subpart JJJJ, 60.4243(a)(2)(iii) and MACT ZZZZ, 63.6620

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description: Within engine stack
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.)
NOx	3 yrs or 8,760 hrs of operations
CO	3 yrs or 8,760 hrs of operations
VOC	3 yrs or 8,760 hrs of operations

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
NSPS JJJJ Stack Test Results (ppmvd)	Annual
MACT ZZZZ Stack Test Results (% DRE)	Semi-Annual
Rod Packing Replacement (every 26,000 hrs)	Annual

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
Emission Factor	7/2015	Annual
Hours of Operation	7/2015	Annual
Catalyst Inlet Temperature	TBD	Semi-Annual

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
NOx (lb/hr) Emission Factor	7/2015	Annual
CO (lb/hr) Emission Factor	7/2015	Annual
VOC (lb/hr) Emission Factor	7/2015	Annual

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

GEN2

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 40 CFR 60(A) Methods 1 & 19, EPA 40 CFR 63(A) Method 320

Reference Test Method Citation:

NSPS Subpart JJJJ, 60.4243(a)(2)(iii) and MACT ZZZZ, 63.6620

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description: Within engine stack
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.)
NOx	3 yrs or 8,760 hrs of operations
CO	3 yrs or 8,760 hrs of operations
VOC	3 yrs or 8,760 hrs of operations

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
NSPS JJJJ Stack Test Results (ppmvd)	Annual
MACT ZZZZ Stack Test Results (% DRE)	Semi-Annual
Rod Packing Replacement (every 26,000 hrs)	Annual

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
Emission Factor	7/2015	Annual
Hours of Operation	7/2015	Annual
Catalyst Inlet Temperature	TBD	Semi-Annual

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
NOx (lb/hr) Emission Factor	7/2015	Annual
CO (lb/hr) Emission Factor	7/2015	Annual
VOC (lb/hr) Emission Factor	7/2015	Annual

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

H-951

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:

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.)

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
Daily Fuel Combusted	Annual

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)

SECTION B3 –COMPLIANCE CERTIFICATION

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

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
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:
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.)

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
Benzene emissions	Annual

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)

SECTION B3 –COMPLIANCE CERTIFICATION

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

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

5.0 EMISSION CALCULATIONS

Table 1
Emissions Summary
1804, Ltd.
Springbrook Gas Plant

Emission Unit (EU) ID	Emission Point Number (EPN)	Criteria Pollutant	PM_{10} (TPY)	$PM_{2.5}$ (TPY)	NO_x (TPY)	SO_2 (TPY)	CO (TPY)	VOC (TPY)
C-2710	EPN12	Compressor Engine Caterpillar G3608 A4	0.01	0.01	12.06	0.04	3.83	6.03
C-2711	EPN1	Compressor Engine Caterpillar G3608 LE	0.01	0.01	11.43	0.04	4.42	14.40
C-2712	EPN2	Compressor Engine Caterpillar G3608 LE	0.01	0.01	11.43	0.04	4.42	14.40
C-300A	EPN3	Refrigeration Compressor Engine Caterpillar G3512B LE	0.00	0.00	4.99	0.02	2.00	4.59
C-300B	EPN4	Refrigeration Compressor Engine Caterpillar G3512B LE	0.00	0.00	4.99	0.02	2.00	4.59
C-4711	EPN7	Overhead Compressor Engine Caterpillar G3512B LE	0.00	0.00	4.99	0.02	2.00	4.59
C-5701	EPN5	Lift Compressor Engine Caterpillar G3512B LE	0.00	0.00	4.99	0.02	2.00	4.59
C-5702	EPN6	Lift Compressor Engine Caterpillar G3512B LE	0.00	0.00	4.99	0.02	2.00	4.59
C-2713	EPN13	Compressor Engine Caterpillar G3606 A4	0.00	0.00	9.04	0.03	2.89	4.52
GEN1	EPN8	Genset 1 Engine Caterpillar G3516B LE	0.00	0.00	17.54	0.03	3.07	5.75
GEN2	EPN9	Genset 2 Engine Caterpillar G3516B LE	0.00	0.00	17.54	0.03	3.07	5.75
B-940	EPN10	Hot Oil Heater	0.31	0.31	4.07	0.02	3.42	0.22
B-941	EPN13	Hot Oil Heater	0.08	0.08	1.01	0.01	0.85	0.06
H-951	--	Glycol Heat Medium	0.05	0.05	0.61	0.00	0.51	0.03
TK-1	EPN12	Oily Water Tank	---	---	---	---	---	5.73
FL-8501	EPN11	Facility Emergency and Process Flare	---	---	39.65	0.00	180.75	36.11
LOAD1	--	NGL Loadout	---	---	---	---	---	1.05
LOAD2	EPN14	Condensate Loadout	---	---	---	---	---	8.05
LOAD3	--	Oily Water Tank Loadout	---	---	---	---	---	0.32
PIG1	EPN15	Pig Receiving	---	---	0.00	---	0.00	13.91
LIFTBD	--	Lift Compressor Blowdown	---	---	---	---	---	0.01
COMPBD	--	Compressor Blowdown	---	---	---	---	---	0.12
T-510/V-520	--	EG Still Vent and Flash Drum	---	---	---	---	---	0.14
FUG	FUG	Fugitive	---	---	---	---	---	21.95
TOTAL REQUESTED			0.47	0.47	149.35	0.36	217.22	161.54

Proposed modifications

Table 1
Emissions Summary
1804, Ltd.
Springbrook Gas Plant

Emission Unit (EU) ID	Emission Point Number (EPN)	Greenhouse Gas	CO_2e (TPY)	CO_2 (TPY)	CH_4 (TPY)	N_2O (TPY)
C-2710	EPN12	Compressor Engine Caterpillar G3608 A4	8,656	8,647	0.16	0.02
C-2711	EPN1	Compressor Engine Caterpillar G3608 LE	8,267	8,258	0.16	0.02
C-2712	EPN2	Compressor Engine Caterpillar G3608 LE	8,267	8,258	0.16	0.02
C-300A	EPN3	Refrigeration Compressor Engine Caterpillar G3512B LE	3,851	3,847	0.07	0.01
C-300B	EPN4	Refrigeration Compressor Engine Caterpillar G3512B LE	3,851	3,847	0.07	0.01
C-5701	EPN5	Lift Compressor Engine Caterpillar G3512B LE	3,851	3,847	0.07	0.01
C-5702	EPN6	Lift Compressor Engine Caterpillar G3512B LE	3,851	3,847	0.07	0.01
C-2713	EPN13	Compressor Engine Caterpillar G3606 A4	6,546	6,539	0.12	0.01
C-4711	EPN7	Overhead Compressor Engine Caterpillar G3512B LE	3,851	3,847	0.07	0.01
GEN1	EPN8	Genset 1 Engine Caterpillar G3516B LE	6,636	6,629	0.13	0.01
GEN2	EPN9	Genset 2 Engine Caterpillar G3516B LE	6,636	6,629	0.13	0.01
B-940	EPN10	Hot Oil Heater	5,942	5,784	6.17	0.01
B-941	EPN13	Hot Oil Heater	1,472	1,433	1.53	0.00
H-951	--	Glycol Heat Medium	883	860	0.92	0.00
TK-1	EPN12	Oily Water Tank	35	0	1.39	---
FL-8501	EPN11	Facility Emergency and Process Flare	64,172	57,871	250	0.13
LOAD1	--	NGL Loadout	0	0.0	0.00	---
LOAD2	EPN14	Condensate Loadout	0	0.0	0.00	---
LOAD3	--	Oily Water Tank Loadout	0	0.0	0.00	---
PIG1	EPN15	Pig Receiving	283	0.3	11.30	---
LIFTBD	--	Lift Compressor Blowdown	2	0.0	0.08	---
COMPBD	--	Compressor Blowdown	3	0.0	0.10	---
T-510/V-520	--	EG Still Vent and Flash Drum	5	3.4	0.06	---
FUG	FUG	Fugitive	40	0.0	1.59	---
TOTAL REQUESTED			137,097	130,147	275	0.27
Proposed modifications						

Table 1
Emissions Summary
1804, Ltd.
Springbrook Gas Plant

Emission Unit (EU) ID	Emission Point Number (EPN)	Hazardous Air Pollutant	HAP (TPY)	n-Hexane (TPY)	Benzene (TPY)	Toluene (TPY)	E-benzene (TPY)	Xylenes (TPY)	MeOH (TPY)	224-TMP (TPY)	Acetaldehyde (TPY)	Acrolein (TPY)	CH_2O (TPY)
C-2710	EPN12	Compressor Engine Caterpillar G3608 A4	1.939	---	0.016	---	---	---	0.092	---	0.309	0.190	1.331
C-2711	EPN1	Compressor Engine Caterpillar G3608 LE	2.008	---	0.016	---	---	---	0.088	---	0.295	0.182	1.427
C-2712	EPN2	Compressor Engine Caterpillar G3608 LE	2.008	---	0.016	---	---	---	0.088	---	0.295	0.182	1.427
C-300A	EPN3	Refrigeration Compressor Engine Caterpillar G3512B LE	1.349	---	0.007	---	---	---	0.041	---	0.138	0.085	1.078
C-300B	EPN4	Refrigeration Compressor Engine Caterpillar G3512B LE	1.349	---	0.007	---	---	---	0.041	---	0.138	0.085	1.078
C-5701	EPN5	Lift Compressor Engine Caterpillar G3512B LE	1.349	---	0.007	---	---	---	0.041	---	0.138	0.085	1.078
C-5702	EPN6	Lift Compressor Engine Caterpillar G3512B LE	1.349	---	0.007	---	---	---	0.041	---	0.138	0.085	1.078
C-2713	EPN13	Compressor Engine Caterpillar G3606 A4	1.328	---	0.012	---	---	---	0.070	---	0.234	0.144	0.868
C-4711	EPN7	Overhead Compressor Engine Caterpillar G3512B LE	1.349	---	0.007	---	---	---	0.041	---	0.138	0.085	1.078
GEN1	EPN8	Genset 1 Engine Caterpillar G3516B LE	1.939	---	0.012	---	---	---	0.071	---	0.237	0.146	1.473
GEN2	EPN9	Genset 2 Engine Caterpillar G3516B LE	1.939	---	0.012	---	---	---	0.071	---	0.237	0.146	1.473
B-940	EPN10	Hot Oil Heater	0.012	0.009	0.000	0.000	---	---	---	---	---	---	0.003
B-941	EPN13	Hot Oil Heater	0.003	0.002	0.000	0.000	---	---	---	---	---	---	0.001
H-951	--	Glycol Heat Medium	0.002	0.001	0.000	0.000	---	---	---	---	---	---	0.000
TK-1	EPN12	Oily Water Tank	1.135	0.987	0.020	0.020	0.003	0.006	---	0.100	---	---	---
FL-8501	EPN11	Facility Emergency and Process Flare	0.007	0.006	0.001	0.000	0.000	0.000	---	0.000	---	---	---
LOAD1	--	NGL Loadout	0.018	0.016	0.001	0.001	0.000	0.000	---	---	---	---	---
LOAD2	EPN14	Condensate Loadout	0.090	0.077	0.005	0.002	0.000	0.001	---	0.005	---	---	---
LOAD3	--	Oily Water Tank Loadout	0.072	0.000	0.059	0.011	0.002	0.000	---	0.000	---	---	---
PIG1	EPN15	Pig Receiving	0.488	0.457	0.020	0.007	0.000	0.004	---	---	---	---	---
LIFTBD	--	Lift Compressor Blowdown	0.000	0.000	0.000	0.000	0.000	0.000	---	---	---	---	---
COMPBD	--	Compressor Blowdown	0.004	0.004	0.000	0.000	0.000	0.000	---	---	---	---	---
T-510/V-520	--	EG Still Vent and Flash Drum	0.001	0.000	0.000	0.000	0.000	0.000	---	---	---	---	---
FUG	FUG	Fugitive	0.172	0.149	0.007	0.003	0.000	0.001	---	0.012	---	---	---
TOTAL REQUESTED			19.911	1.710	0.232	0.044	0.005	0.012	0.687	0.118	2.296	1.411	13.396

Proposed modifications

Engine Emission Calculations
1804, Ltd.
Springbrook Gas Plant

Basis

Unit(s)	C-2710 - Inlet Compression		
Type	Caterpillar G3608 A4		
Emission Control	Lean Burn Engine, Oxidation Catalyst with AFRC		
Maximum Horsepower	2,500	hp	
Site Rated Horsepower	2,500	hp	
Annual Hours of Operation	8,760	hrs	
Fuel Consumption (LHV)	6,756	Btu/hp-hr	16.89 MMBtu/hr
Fuel Heat Content	1,085	Btu/SCF	
Annual Fuel Consumption	136,365	Mscf	136.37 MMscf
Fuel Use Rate	15,566.82	scf/hr	

Emissions Estimate (per engine)

Pollutant	Uncontrolled					Controlled					Reduction Efficiency
	Emissions Factor		Emissions			Emissions Factor		Emissions			
	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	
NO_X [a, h]	0.163	0.500	2.753	---	12.059	0.163	0.500	2.753	---	12.059	0%
CO [a, h]	0.740	2.270	12.500	---	54.750	0.052	0.159	0.875	---	3.833	93%
VOC [a, h]	0.085	0.260	1.432	---	6.271	0.082	0.250	1.377	---	6.030	4%
Formaldehyde [a, h]	0.075	0.230	1.267	11,095	5.547	0.018	0.055	0.304	2,663	1.331	76%
SO_2 [b]	0.001	0.002	0.010	---	0.043	0.001	0.002	0.010	---	0.043	0%
PM [b, c]	0.010	0.031	0.170	---	0.745	0.010	0.031	0.170	---	0.745	0%
PM_{10} (filterable) [b]	0.000	0.000	0.001	---	0.006	0.000	0.000	0.001	---	0.006	0%
$PM_{2.5}$ (filterable) [b]	0.000	0.000	0.001	---	0.006	0.000	0.000	0.001	---	0.006	0%
Acetaldehyde [b]	0.008	0.026	0.141	1,237	0.618	0.008	0.013	0.071	618	0.309	50%
Acrolein [b]	0.005	0.016	0.087	760	0.380	0.005	0.008	0.043	380	0.190	50%
Benzene [b]	0.000	0.001	0.007	65	0.033	0.000	0.001	0.004	33	0.016	50%
Methanol [b]	0.003	0.008	0.042	370	0.185	0.003	0.004	0.021	185	0.092	50%

Uncontrolled Emission Factors from [a] Manufacturer's Specifications or [b] AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean Burn Engines

[c] AP-42 PM Emission Factor is Total of Filterable and Condensable

[h] Controlled Emission Factors from Manufacturer's Specifications.

Greenhouse Gas	Emissions Factor[d]		Emissions[e]		GWP[f]	CO_2e Emissions[g]	
	(kg/MMbtu)	(g/hp-hr)	(lb/hr)	(tpy)		(tpy)	(mtpy)
CO_2	53.02	358.20	1974.22	8647.10	1	8647.10	7844.52
N_2O	0.0001	0.00	0.00	0.02	298	4.86	4.41
CH_4	0.001	0.01	0.04	0.16	25	4.08	3.70
Total			1,976.26			8,656.04	7852.62

[d]Emission Factors From 40 CFR 98, Subpart C, Table C-1 & C-2

[e]Emissions calculated using Equation C-1, 40 CFR 98 Subpart C

[f]Global Warming Potential From 40 CFR 98, Subpart A, Table A-1

[g]Emissions calculated using Equation A-1, 40 CFR 98 Subpart C

Engine Emission Calculations
1804, Ltd.
Springbrook Gas Plant

Basis

Unit(s)	C-2711 - Inlet Compression			
Type	Caterpillar G3608 LE			
Emission Control	Lean Burn Engines, Oxidation Catalyst with AFRC			
Maximum Horsepower	2,370	hp		
Site Rated Horsepower	2,370	hp		
Annual Hours of Operation	8,760	hrs		
Fuel Consumption (LHV)	6,806	Btu/hp-hr	16.13	MMBtu/hr
Fuel Heat Content	1,085	Btu/SCF		
Annual Fuel Consumption	130,231	Mscf	130.23	MMscf
Fuel Use Rate	14,867	scf/hr		

Emissions Estimate (per engine)

Pollutant	Uncontrolled					Controlled					Reduction Efficiency
	Emissions Factor		Emissions			Emissions Factor		Emissions			
	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	
NO_X [a, h]	0.162	0.500	2.610	---	11.432	0.162	0.500	2.610	---	11.432	0%
CO [a, h]	0.893	2.760	14.408	---	63.107	0.062	0.193	1.009	---	4.417	93%
VOC [a, h]	0.204	0.630	3.289	---	14.405	0.204	0.630	3.289	---	14.405	0%
Formaldehyde [a, h]	0.084	0.260	1.357	11,890	5.945	0.020	0.062	0.326	2,854	1.427	76%
SO_2 [b]	0.001	0.002	0.009	---	0.042	0.001	0.002	0.009	---	0.042	0%
PM [b, c]	0.010	0.031	0.162	---	0.711	0.010	0.031	0.162	---	0.711	0%
PM_{10} (filterable) [b]	0.000	0.000	0.001	---	0.005	0.000	0.000	0.001	---	0.005	0%
$PM_{2.5}$ (filterable) [b]	0.000	0.000	0.001	---	0.005	0.000	0.000	0.001	---	0.005	0%
Acetaldehyde [b]	0.008	0.026	0.135	1,181	0.591	0.008	0.013	0.067	591	0.295	50%
Acrolein [b]	0.005	0.016	0.083	726	0.363	0.005	0.008	0.041	363	0.182	50%
Benzene [b]	0.000	0.001	0.007	62	0.031	0.000	0.001	0.004	31	0.016	50%
Methanol [b]	0.003	0.008	0.040	353	0.177	0.003	0.004	0.020	177	0.088	50%

Uncontrolled Emission Factors from [a] Manufacturer's Specifications or [b] AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean Burn Engines

[c] AP-42 PM Emission Factor is Total of Filterable and Condensable

[h] Controlled Emission Factors from Manufacturer's Specifications.

Greenhouse Gas	Emissions Factor[d]		Emissions[e]		GWP[f]	CO_2e Emissions[g]	
	(kg/MMbtu)	(g/hp-hr)	(lb/hr)	(tpy)		(tpy)	(mtpy)
CO_2	53.02	360.85	1885.42	8258.12	1	8258.12	7491.64
N_2O	0.0001	0.00	0.00	0.02	298	4.64	4.21
CH_4	0.001	0.01	0.04	0.16	25	3.89	3.53
Total			1,887.36			8,266.65	7499.38

[d]Emission Factors From 40 CFR 98, Subpart C, Table C-1 & C-2

[e]Emissions calculated using Equation C-1, 40 CFR 98 Subpart C

[f]Global Warming Potential From 40 CFR 98, Subpart A, Table A-1

[g]Emissions calculated using Equation A-1, 40 CFR 98 Subpart C

Engine Emission Calculations
1804, Ltd.
Springbrook Gas Plant

Basis

Unit(s)	C-2712 - Inlet Compression		
Type	Caterpillar G3608 LE		
Emission Control	Lean Burn Engines, Oxidation Catalyst with AFRC		
Maximum Horsepower	2,370	hp	
Site Rated Horsepower	2,370	hp	
Annual Hours of Operation	8,760	hrs	
Fuel Consumption (LHV)	6,806	Btu/hp-hr	16.13 MMBtu/hr
Fuel Heat Content	1,085	Btu/SCF	
Annual Fuel Consumption	130,231	Mscf	130.23 MMscf
Fuel Use Rate	14,867	scf/hr	

Emissions Estimate (per engine)

Pollutant	Uncontrolled					Controlled					Reduction Efficiency
	Emissions Factor		Emissions			Emissions Factor		Emissions			
	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	
NO_X [a, h]	0.162	0.500	2.610	---	11.432	0.162	0.500	2.610	---	11.432	0%
CO [a, h]	0.893	2.760	14.408	---	63.107	0.062	0.193	1.009	---	4.417	93%
VOC [a, h]	0.204	0.630	3.289	---	14.405	0.204	0.630	3.289	---	14.405	0%
Formaldehyde [a, h]	0.084	0.260	1.357	11,890	5.945	0.020	0.062	0.326	2,854	1.427	76%
SO_2 [b]	0.001	0.002	0.009	---	0.042	0.001	0.002	0.009	---	0.042	0%
PM [b, c]	0.010	0.031	0.162	---	0.711	0.010	0.031	0.162	---	0.711	0%
PM_{10} (filterable) [b]	0.000	0.000	0.001	---	0.005	0.000	0.000	0.001	---	0.005	0%
$PM_{2.5}$ (filterable) [b]	0.000	0.000	0.001	---	0.005	0.000	0.000	0.001	---	0.005	0%
Acetaldehyde [b]	0.008	0.026	0.135	1,181	0.591	0.008	0.013	0.067	591	0.295	50%
Acrolein [b]	0.005	0.016	0.083	726	0.363	0.005	0.008	0.041	363	0.182	50%
Benzene [b]	0.000	0.001	0.007	62	0.031	0.000	0.001	0.004	31	0.016	50%
Methanol [b]	0.003	0.008	0.040	353	0.177	0.003	0.004	0.020	177	0.088	50%

Uncontrolled Emission Factors from [a] Manufacturer's Specifications or [b] AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean Burn Engines

[c] AP-42 PM Emission Factor is Total of Filterable and Condensable

[h] Controlled Emission Factors from Manufacturer's Specifications.

Greenhouse Gas	Emissions Factor[d]		Emissions[e]		GWP[f]	CO_2e Emissions[g]	
	(kg/MMbtu)	(g/hp-hr)	(lb/hr)	(tpy)		(tpy)	(mtpy)
CO_2	53.02	360.85	1885.42	8258.12	1	8258.12	7491.64
N_2O	0.0001	0.00	0.00	0.02	298	4.64	4.21
CH_4	0.001	0.01	0.04	0.16	25	3.89	3.53
Total			1,887.36			8,266.65	7499.38

[d]Emission Factors From 40 CFR 98, Subpart C, Table C-1 & C-2

[e]Emissions calculated using Equation C-1, 40 CFR 98 Subpart C

[f]Global Warming Potential From 40 CFR 98, Subpart A, Table A-1

[g]Emissions calculated using Equation A-1, 40 CFR 98 Subpart C

Engine Emission Calculations
1804, Ltd.
Springbrook Gas Plant

Basis

Unit(s)	C-300A - Refrig and Lift Gas Compressors		
Type	Caterpillar G3512B LE		
Emission Control	Ultra Lean Burn Engines, Oxidation Catalyst with AFRC		
Maximum Horsepower	1,035	hp	
Site Rated Horsepower	1,035	hp	
Annual Hours of Operation	8,760	hrs	
Fuel Consumption (LHV)	7,260	Btu/hp-hr	7.51 MMBtu/hr
Fuel Heat Content	1,085	Btu/SCF	
Annual Fuel Consumption	60,667	Mscf	60.67 MMscf
Fuel Use Rate	6,925	scf/hr	

Emissions Estimate (per engine)

Pollutant	Uncontrolled					Controlled					Reduction Efficiency
	Emissions Factor		Emissions			Emissions Factor		Emissions			
	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	
NO_X [a, h]	0.152	0.500	1.140	---	4.99	0.152	0.500	1.140	---	4.993	0%
CO [a, h]	0.868	2.860	6.520	---	28.56	0.061	0.200	0.456	---	1.999	93%
VOC [a, h]	0.140	0.460	1.049	---	4.59	0.140	0.460	1.049	---	4.593	0%
Formaldehyde [a, h]	0.137	0.450	1.026	8,987	4.49	0.033	0.108	0.246	2,157	1.078	76%
SO_2 [b]	0.001	0.002	0.004	---	0.02	0.001	0.002	0.004	---	0.019	0%
PM [b, c]	0.010	0.033	0.076	---	0.33	0.010	0.033	0.076	---	0.331	0%
PM_{10} (filterable) [b]	0.000	0.000	0.001	---	0.00	0.000	0.000	0.001	---	0.003	0%
$PM_{2.5}$ (filterable) [b]	0.000	0.000	0.001	---	0.00	0.000	0.000	0.001	---	0.003	0%
Acetaldehyde [b]	0.008	0.028	0.063	550	0.28	0.008	0.014	0.031	275	0.138	50%
Acrolein [b]	0.005	0.017	0.039	338	0.17	0.005	0.008	0.019	169	0.085	50%
Benzene [b]	0.000	0.001	0.003	29	0.01	0.000	0.001	0.002	14	0.007	50%
Methanol [b]	0.003	0.008	0.019	165	0.08	0.003	0.004	0.009	82	0.041	50%

Uncontrolled Emission Factors from [a] Manufacturer's Specifications or [b] AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean Burn Engines

[c] AP-42 PM Emission Factor is Total of Filterable and Condensable

[h] Controlled Emission Factors from Manufacturer's Specifications.

Greenhouse Gas	Emissions Factor[d]		Emissions[e]		GWP[f]	CO_2e Emissions[g]	
	(kg/MMbtu)	(g/hp-hr)	(lb/hr)	(tpy)		(tpy)	(mtpy)
CO_2	53.02	384.93	878.30	3846.96	1	3846.96	3489.90
N_2O	0.0001	0.00	0.00	0.01	298	2.16	1.96
CH_4	0.001	0.01	0.02	0.07	25	1.81	1.65
Total			879.21			3,850.94	3493.51

[d]Emission Factors From 40 CFR 98, Subpart C, Table C-1 & C-2

[e]Emissions calculated using Equation C-1, 40 CFR 98 Subpart C

[f]Global Warming Potential From 40 CFR 98, Subpart A, Table A-1

[g]Emissions calculated using Equation A-1, 40 CFR 98 Subpart C

Engine Emission Calculations
1804, Ltd.
Springbrook Gas Plant

Basis

Unit(s)	C-300B - Refrig and Lift Gas Compressors		
Type	Caterpillar G3512B LE		
Emission Control	Ultra Lean Burn Engines, Oxidation Catalyst with AFRC		
Maximum Horsepower	1,035	hp	
Site Rated Horsepower	1,035	hp	
Annual Hours of Operation	8,760	hrs	
Fuel Consumption (LHV)	7,260	Btu/hp-hr	7.51 MMBtu/hr
Fuel Heat Content	1,085	Btu/SCF	
Annual Fuel Consumption	60,667	Mscf	60.67 MMscf
Fuel Use Rate	6,925	scf/hr	

Emissions Estimate (per engine)

Pollutant	Uncontrolled					Controlled					Reduction Efficiency
	Emissions Factor		Emissions			Emissions Factor		Emissions			
	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	
NO_X [a, h]	0.152	0.500	1.140	---	4.99	0.152	0.500	1.140	---	4.993	0%
CO [a, h]	0.868	2.860	6.520	---	28.56	0.061	0.200	0.456	---	1.999	93%
VOC [a, h]	0.140	0.460	1.049	---	4.59	0.140	0.460	1.049	---	4.593	0%
Formaldehyde [a, h]	0.137	0.450	1.026	8,987	4.49	0.033	0.108	0.246	2,157	1.078	76%
SO_2 [b]	0.001	0.002	0.004	---	0.02	0.001	0.002	0.004	---	0.019	0%
PM [b, c]	0.010	0.033	0.076	---	0.33	0.010	0.033	0.076	---	0.331	0%
PM_{10} (filterable) [b]	0.000	0.000	0.001	---	0.00	0.000	0.000	0.001	---	0.003	0%
$PM_{2.5}$ (filterable) [b]	0.000	0.000	0.001	---	0.00	0.000	0.000	0.001	---	0.003	0%
Acetaldehyde [b]	0.008	0.028	0.063	550	0.28	0.008	0.014	0.031	275	0.138	50%
Acrolein [b]	0.005	0.017	0.039	338	0.17	0.005	0.008	0.019	169	0.085	50%
Benzene [b]	0.000	0.001	0.003	29	0.01	0.000	0.001	0.002	14	0.007	50%
Methanol [b]	0.003	0.008	0.019	165	0.08	0.003	0.004	0.009	82	0.041	50%

Uncontrolled Emission Factors from [a] Manufacturer's Specifications or [b] AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean Burn Engines

[c] AP-42 PM Emission Factor is Total of Filterable and Condensable

[h] Controlled Emission Factors from Manufacturer's Specifications.

Greenhouse Gas	Emissions Factor[d]		Emissions[e]		GWP[f]	CO_2e Emissions[g]	
	(kg/MMbtu)	(g/hp-hr)	(lb/hr)	(tpy)		(tpy)	(mtpy)
CO_2	53.02	384.93	878.30	3846.96	1	3846.96	3489.90
N_2O	0.0001	0.00	0.00	0.01	298	2.16	1.96
CH_4	0.001	0.01	0.02	0.07	25	1.81	1.65
Total			879.21			3,850.94	3493.51

[d]Emission Factors From 40 CFR 98, Subpart C, Table C-1 & C-2

[e]Emissions calculated using Equation C-1, 40 CFR 98 Subpart C

[f]Global Warming Potential From 40 CFR 98, Subpart A, Table A-1

[g]Emissions calculated using Equation A-1, 40 CFR 98 Subpart C

Engine Emission Calculations
1804, Ltd.
Springbrook Gas Plant

Basis

Unit(s)	C-4711 - Refrig and Lift Gas Compressors		
Type	Caterpillar G3512B LE		
Emission Control	Ultra Lean Burn Engines, Oxidation Catalyst with AFRC		
Maximum Horsepower	1,035	hp	
Site Rated Horsepower	1,035	hp	
Annual Hours of Operation	8,760	hrs	
Fuel Consumption (LHV)	7,260	Btu/hp-hr	7.51 MMBtu/hr
Fuel Heat Content	1,085	Btu/SCF	
Annual Fuel Consumption	60,667	Mscf	60.67 MMscf
Fuel Use Rate	6,925	scf/hr	

Emissions Estimate (per engine)

Pollutant	Uncontrolled					Controlled					Reduction Efficiency
	Emissions Factor		Emissions			Emissions Factor		Emissions			
	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	
NO_X [a, h]	0.152	0.500	1.140	---	4.99	0.152	0.500	1.140	---	4.993	0%
CO [a, h]	0.868	2.860	6.520	---	28.56	0.061	0.200	0.456	---	1.999	93%
VOC [a, h]	0.140	0.460	1.049	---	4.59	0.140	0.460	1.049	---	4.593	0%
Formaldehyde [a, h]	0.137	0.450	1.026	8,987	4.49	0.033	0.108	0.246	2,157	1.078	76%
SO_2 [b]	0.001	0.002	0.004	---	0.02	0.001	0.002	0.004	---	0.019	0%
PM [b, c]	0.010	0.033	0.076	---	0.33	0.010	0.033	0.076	---	0.331	0%
PM_{10} (filterable) [b]	0.000	0.000	0.001	---	0.00	0.000	0.000	0.001	---	0.003	0%
$PM_{2.5}$ (filterable) [b]	0.000	0.000	0.001	---	0.00	0.000	0.000	0.001	---	0.003	0%
Acetaldehyde [b]	0.008	0.028	0.063	550	0.28	0.008	0.014	0.031	275	0.138	50%
Acrolein [b]	0.005	0.017	0.039	338	0.17	0.005	0.008	0.019	169	0.085	50%
Benzene [b]	0.000	0.001	0.003	29	0.01	0.000	0.001	0.002	14	0.007	50%
Methanol [b]	0.003	0.008	0.019	165	0.08	0.003	0.004	0.009	82	0.041	50%

Uncontrolled Emission Factors from [a] Manufacturer's Specifications or [b] AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean Burn Engines

[c] AP-42 PM Emission Factor is Total of Filterable and Condensable

[h] Controlled Emission Factors from Manufacturer's Specifications.

Greenhouse Gas	Emissions Factor[d]		Emissions[e]		GWP[f]	CO_2e Emissions[g]	
	(kg/MMbtu)	(g/hp-hr)	(lb/hr)	(tpy)		(tpy)	(mtpy)
CO_2	53.02	384.93	878.30	3846.96	1	3846.96	3489.90
N_2O	0.0001	0.00	0.00	0.01	298	2.16	1.96
CH_4	0.001	0.01	0.02	0.07	25	1.81	1.65
Total			879.21			3,850.94	3493.51

[d]Emission Factors From 40 CFR 98, Subpart C, Table C-1 & C-2

[e]Emissions calculated using Equation C-1, 40 CFR 98 Subpart C

[f]Global Warming Potential From 40 CFR 98, Subpart A, Table A-1

[g]Emissions calculated using Equation A-1, 40 CFR 98 Subpart C

Engine Emission Calculations
1804, Ltd.
Springbrook Gas Plant

Basis

Unit(s)	C-5701 - Refrig and Lift Gas Compressors		
Type	Caterpillar G3512B LE		
Emission Control	Ultra Lean Burn Engines, Oxidation Catalyst with AFRC		
Maximum Horsepower	1,035	hp	
Site Rated Horsepower	1,035	hp	
Annual Hours of Operation	8,760	hrs	
Fuel Consumption (LHV)	7,260	Btu/hp-hr	7.51 MMBtu/hr
Fuel Heat Content	1,085	Btu/SCF	
Annual Fuel Consumption	60,667	Mscf	60.67 MMscf
Fuel Use Rate	6,925	scf/hr	

Emissions Estimate (per engine)

Pollutant	Uncontrolled					Controlled					Reduction Efficiency
	Emissions Factor		Emissions			Emissions Factor		Emissions			
	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	
NO_X [a, h]	0.152	0.500	1.140	---	4.99	0.152	0.500	1.140	---	4.993	0%
CO [a, h]	0.868	2.860	6.520	---	28.56	0.061	0.200	0.456	---	1.999	93%
VOC [a, h]	0.140	0.460	1.049	---	4.59	0.140	0.460	1.049	---	4.593	0%
Formaldehyde [a, h]	0.137	0.450	1.026	8,987	4.49	0.033	0.108	0.246	2,157	1.078	76%
SO_2 [b]	0.001	0.002	0.004	---	0.02	0.001	0.002	0.004	---	0.019	0%
PM [b, c]	0.010	0.033	0.076	---	0.33	0.010	0.033	0.076	---	0.331	0%
PM_{10} (filterable) [b]	0.000	0.000	0.001	---	0.00	0.000	0.000	0.001	---	0.003	0%
$PM_{2.5}$ (filterable) [b]	0.000	0.000	0.001	---	0.00	0.000	0.000	0.001	---	0.003	0%
Acetaldehyde [b]	0.008	0.028	0.063	550	0.28	0.008	0.014	0.031	275	0.138	50%
Acrolein [b]	0.005	0.017	0.039	338	0.17	0.005	0.008	0.019	169	0.085	50%
Benzene [b]	0.000	0.001	0.003	29	0.01	0.000	0.001	0.002	14	0.007	50%
Methanol [b]	0.003	0.008	0.019	165	0.08	0.003	0.004	0.009	82	0.041	50%

Uncontrolled Emission Factors from [a] Manufacturer's Specifications or [b] AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean Burn Engines

[c] AP-42 PM Emission Factor is Total of Filterable and Condensable

[h] Controlled Emission Factors from Manufacturer's Specifications.

Greenhouse Gas	Emissions Factor[d]		Emissions[e]		GWP[f]	CO_2e Emissions[g]	
	(kg/MMbtu)	(g/hp-hr)	(lb/hr)	(tpy)		(tpy)	(mtpy)
CO_2	53.02	384.93	878.30	3846.96	1	3846.96	3489.90
N_2O	0.0001	0.00	0.00	0.01	298	2.16	1.96
CH_4	0.001	0.01	0.02	0.07	25	1.81	1.65
Total			879.21			3,850.94	3493.51

[d]Emission Factors From 40 CFR 98, Subpart C, Table C-1 & C-2

[e]Emissions calculated using Equation C-1, 40 CFR 98 Subpart C

[f]Global Warming Potential From 40 CFR 98, Subpart A, Table A-1

[g]Emissions calculated using Equation A-1, 40 CFR 98 Subpart C

Engine Emission Calculations
1804, Ltd.
Springbrook Gas Plant

Basis

Unit(s)	C-5702 - Refrig and Lift Gas Compressors		
Type	Caterpillar G3512B LE		
Emission Control	Ultra Lean Burn Engines, Oxidation Catalyst with AFRC		
Maximum Horsepower	1,035	hp	
Site Rated Horsepower	1,035	hp	
Annual Hours of Operation	8,760	hrs	
Fuel Consumption (LHV)	7,260	Btu/hp-hr	7.51 MMBtu/hr
Fuel Heat Content	1,085	Btu/SCF	
Annual Fuel Consumption	60,667	Mscf	60.67 MMscf
Fuel Use Rate	6,925	scf/hr	

Emissions Estimate (per engine)

Pollutant	Uncontrolled					Controlled					Reduction Efficiency
	Emissions Factor		Emissions			Emissions Factor		Emissions			
	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	
NO_X [a, h]	0.152	0.500	1.140	---	4.99	0.152	0.500	1.140	---	4.993	0%
CO [a, h]	0.868	2.860	6.520	---	28.56	0.061	0.200	0.456	---	1.999	93%
VOC [a, h]	0.140	0.460	1.049	---	4.59	0.140	0.460	1.049	---	4.593	0%
Formaldehyde [a, h]	0.137	0.450	1.026	8,987	4.49	0.033	0.108	0.246	2,157	1.078	76%
SO_2 [b]	0.001	0.002	0.004	---	0.02	0.001	0.002	0.004	---	0.019	0%
PM [b, c]	0.010	0.033	0.076	---	0.33	0.010	0.033	0.076	---	0.331	0%
PM_{10} (filterable) [b]	0.000	0.000	0.001	---	0.00	0.000	0.000	0.001	---	0.003	0%
$PM_{2.5}$ (filterable) [b]	0.000	0.000	0.001	---	0.00	0.000	0.000	0.001	---	0.003	0%
Acetaldehyde [b]	0.008	0.028	0.063	550	0.28	0.008	0.014	0.031	275	0.138	50%
Acrolein [b]	0.005	0.017	0.039	338	0.17	0.005	0.008	0.019	169	0.085	50%
Benzene [b]	0.000	0.001	0.003	29	0.01	0.000	0.001	0.002	14	0.007	50%
Methanol [b]	0.003	0.008	0.019	165	0.08	0.003	0.004	0.009	82	0.041	50%

Uncontrolled Emission Factors from [a] Manufacturer's Specifications or [b] AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean Burn Engines

[c] AP-42 PM Emission Factor is Total of Filterable and Condensable

[h] Controlled Emission Factors from Manufacturer's Specifications.

Greenhouse Gas	Emissions Factor[d]		Emissions[e]		GWP[f]	CO_2e Emissions[g]	
	(kg/MMbtu)	(g/hp-hr)	(lb/hr)	(tpy)		(tpy)	(mtpy)
CO_2	53.02	384.93	878.30	3846.96	1	3846.96	3489.90
N_2O	0.0001	0.00	0.00	0.01	298	2.16	1.96
CH_4	0.001	0.01	0.02	0.07	25	1.81	1.65
Total			879.21			3,850.94	3493.51

[d]Emission Factors From 40 CFR 98, Subpart C, Table C-1 & C-2

[e]Emissions calculated using Equation C-1, 40 CFR 98 Subpart C

[f]Global Warming Potential From 40 CFR 98, Subpart A, Table A-1

[g]Emissions calculated using Equation A-1, 40 CFR 98 Subpart C

Engine Emission Calculations
1804, Ltd.
Springbrook Gas Plant

Basis

Unit(s)	C-2713 - Inlet Compression, New Inlet Compression		
Type	Caterpillar G3606 A4		
Emission Control	Lean Burn Engine, Oxidation Catalyst with AFRC		
Maximum Horsepower	1,875	hp	
Site Rated Horsepower	1,875	hp	
Annual Hours of Operation	8,760	hrs	
Fuel Consumption (LHV)	6,812	Btu/hp-hr	12.77 MMBtu/hr
Fuel Heat Content	997	Btu/SCF	
Annual Fuel Consumption	112,224	Mscf	112.22 MMscf
Fuel Use Rate	12,810.93	scf/hr	

Emissions Estimate (per engine)

Pollutant	Uncontrolled					Controlled					Reduction Efficiency
	Emissions Factor		Emissions			Emissions Factor		Emissions			
	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	
NO_X [a, h]	0.162	0.500	2.065	---	9.045	0.162	0.500	2.065	---	9.045	0%
CO [a, h]	0.737	2.280	9.416	---	41.243	0.052	0.159	0.659	---	2.887	93%
VOC [a, h]	0.087	0.270	1.115	---	4.884	0.081	0.250	1.032	---	4.522	7%
Formaldehyde [a, h]	0.065	0.200	0.826	7235.683	3.618	0.016	0.048	0.198	1736.564	0.868	76%
SO_2 [b]	0.001	0.002	0.008	---	0.033	0.001	0.002	0.008	---	0.033	0%
PM [b, c]	0.010	0.031	0.129	---	0.563	0.010	0.031	0.129	---	0.563	0%
PM_{10} (filterable) [b]	0.000	0.000	0.001	---	0.004	0.000	0.000	0.001	---	0.004	0%
$PM_{2.5}$ (filterable) [b]	0.000	0.000	0.001	---	0.004	0.000	0.000	0.001	---	0.004	0%
Acetaldehyde [b]	0.008	0.026	0.107	935.376	0.468	0.008	0.013	0.053	467.688	0.234	50%
Acrolein [b]	0.005	0.016	0.066	575.100	0.288	0.005	0.008	0.033	287.550	0.144	50%
Benzene [b]	0.000	0.001	0.006	49.230	0.025	0.000	0.001	0.003	24.615	0.012	50%
Methanol [b]	0.003	0.008	0.032	279.718	0.140	0.003	0.004	0.016	139.859	0.070	50%

Uncontrolled Emission Factors from [a] Manufacturer's Specifications or [b] AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean Burn Engines

[c] AP-42 PM Emission Factor is Total of Filterable and Condensable

[h] Controlled Emission Factors from Manufacturer's Specifications.

Greenhouse Gas	Emissions Factor[d]		Emissions[e]		GWP[f]	CO_2e Emissions[g]	
	(kg/MMbtu)	(g/hp-hr)	(lb/hr)	(tpy)		(tpy)	(mtpy)
CO_2	53.02	361.17	1492.94	6539.08	1	6539.08	5932.15
N_2O	0.0001	0.00	0.00	0.01	298	3.68	3.33
CH_4	0.001	0.01	0.03	0.12	25	3.08	2.80
Total			1,494.48			6,545.84	5938.29

[d]Emission Factors From 40 CFR 98, Subpart C, Table C-1 & C-2

[e]Emissions calculated using Equation C-1, 40 CFR 98 Subpart C

[f]Global Warming Potential From 40 CFR 98, Subpart A, Table A-1

[g]Emissions calculated using Equation A-1, 40 CFR 98 Subpart C

Engine Emission Calculations
1804, Ltd.
Springbrook Gas Plant

Basis

Unit(s)	Gen 1 - Generator Set			
Type	Caterpillar G3516B LE			
Emission Control	Lean Burn Engines, Oxidation Catalyst with AFRC			
Maximum Horsepower	1,818	hp		
Site Rated Horsepower	1,818	hp		
Annual Hours of Operation	8,760	hrs		
Fuel Consumption	7,122	Btu/hp-hr	12.95	MMBtu/hr
Fuel Heat Content	1,085	Btu/SCF		
Annual Fuel Consumption	104,537	Mscf	104.54	MMscf
Fuel Use Rate	11,933	scf/hr		

Emissions Estimate (per engine)

Pollutant	Uncontrolled					Controlled					Reduction Efficiency
	Emissions Factor		Emissions			Emissions Factor		Emissions			
	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	
NO_X [a, h]	0.309	1.000	4.004	---	17.539	0.309	1.000	4.004	---	17.539	0%
CO [a, h]	0.773	2.500	10.011	---	43.848	0.054	0.175	0.701	---	3.069	93%
VOC [a, h]	0.254	0.820	3.284	---	14.382	0.101	0.328	1.313	---	5.753	60%
Formaldehyde [a, h]	0.108	0.350	1.402	12,278	6.139	0.026	0.084	0.336	2,947	1.473	76%
SO_2 [b]	0.001	0.002	0.008	---	0.033	0.001	0.002	0.008	---	0.033	0%
PM [b, c]	0.010	0.033	0.130	---	0.571	0.010	0.033	0.130	---	0.571	0%
PM_{10} (filterable) [b]	0.000	0.000	0.001	---	0.004	0.000	0.000	0.001	---	0.004	0%
$PM_{2.5}$ (filterable) [b]	0.000	0.000	0.001	---	0.004	0.000	0.000	0.001	---	0.004	0%
Acetaldehyde [b]	0.008	0.027	0.108	948	0.474	0.008	0.014	0.054	474	0.237	50%
Acrolein [b]	0.005	0.017	0.067	583	0.291	0.005	0.008	0.033	291	0.146	50%
Benzene [b]	0.000	0.001	0.006	50	0.025	0.000	0.001	0.003	25	0.012	50%
Methanol [b]	0.003	0.008	0.032	284	0.142	0.003	0.004	0.016	142	0.071	50%

Uncontrolled Emission Factors from [a] Manufacturer's Specifications or [b] AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean Burn Engines

[c] AP-42 PM Emission Factor is Total of Filterable and Condensable

[h] Controlled Emission Factors from Manufacturer's Specifications.

Greenhouse Gas	Emissions Factor[d]		Emissions[e]		GWP[f]	CO_2e Emissions[g]	
	(kg/MMbtu)	(g/hp-hr)	(lb/hr)	(tpy)		(tpy)	(mTpy)
CO_2	53.02	377.61	1513.43	6628.83	1	6628.83	6013.57
N_2O	0.0001	0.00	0.00	0.01	298	3.73	3.38
CH_4	0.001	0.01	0.03	0.13	25	3.13	2.84
Total			1,514.99			6,635.68	6019.79

[d]Emission Factors From 40 CFR 98, Subpart C, Table C-1 & C-2

[e]Emissions calculated using Equation C-1, 40 CFR 98 Subpart C

[f]Global Warming Potential From 40 CFR 98, Subpart A, Table A-1

[g]Emissions calculated using Equation A-1, 40 CFR 98 Subpart C

Engine Emission Calculations
1804, Ltd.
Springbrook Gas Plant

Basis

Unit(s)	Gen 2 - Generator Set			
Type	Caterpillar G3516B LE			
Emission Control	Lean Burn Engines, Oxidation Catalyst with AFRC			
Maximum Horsepower	1,818	hp		
Site Rated Horsepower	1,818	hp		
Annual Hours of Operation	8,760	hrs		
Fuel Consumption	7,122	Btu/hp-hr	12.95	MMBtu/hr
Fuel Heat Content	1,085	Btu/SCF		
Annual Fuel Consumption	104,537	Mscf	104.54	MMscf
Fuel Use Rate	11,933	scf/hr		

Emissions Estimate (per engine)

Pollutant	Uncontrolled					Controlled					Reduction Efficiency
	Emissions Factor		Emissions			Emissions Factor		Emissions			
	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	(lb/MMBtu)	(g/hp-hr)	(lb/hr)	(lb/yr)	(tpy)	
NO_X [a, h]	0.309	1.000	4.004	---	17.539	0.309	1.000	4.004	---	17.539	0%
CO [a, h]	0.773	2.500	10.011	---	43.848	0.054	0.175	0.701	---	3.069	93%
VOC [a, h]	0.254	0.820	3.284	---	14.382	0.101	0.328	1.313	---	5.753	60%
Formaldehyde [a, h]	0.108	0.350	1.402	12,278	6.139	0.026	0.084	0.336	2,947	1.473	76%
SO_2 [b]	0.001	0.002	0.008	---	0.033	0.001	0.002	0.008	---	0.033	0%
PM [b, c]	0.010	0.033	0.130	---	0.571	0.010	0.033	0.130	---	0.571	0%
PM_{10} (filterable) [b]	0.000	0.000	0.001	---	0.004	0.000	0.000	0.001	---	0.004	0%
$PM_{2.5}$ (filterable) [b]	0.000	0.000	0.001	---	0.004	0.000	0.000	0.001	---	0.004	0%
Acetaldehyde [b]	0.008	0.027	0.108	948	0.474	0.008	0.014	0.054	474	0.237	50%
Acrolein [b]	0.005	0.017	0.067	583	0.291	0.005	0.008	0.033	291	0.146	50%
Benzene [b]	0.000	0.001	0.006	50	0.025	0.000	0.001	0.003	25	0.012	50%
Methanol [b]	0.003	0.008	0.032	284	0.142	0.003	0.004	0.016	142	0.071	50%

Uncontrolled Emission Factors from [a] Manufacturer's Specifications or [b] AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean Burn Engines

[c] AP-42 PM Emission Factor is Total of Filterable and Condensable

[h] Controlled Emission Factors from Manufacturer's Specifications.

Greenhouse Gas	Emissions Factor[d]		Emissions[e]		GWP[f]	CO_2e Emissions[g]	
	(kg/MMbtu)	(g/hp-hr)	(lb/hr)	(tpy)		(tpy)	(mTpy)
CO_2	53.02	377.61	1513.43	6628.83	1	6628.83	6013.57
N_2O	0.0001	0.00	0.00	0.01	298	3.73	3.38
CH_4	0.001	0.01	0.03	0.13	25	3.13	2.84
Total			1,514.99			6,635.68	6019.79

[d]Emission Factors From 40 CFR 98, Subpart C, Table C-1 & C-2

[e]Emissions calculated using Equation C-1, 40 CFR 98 Subpart C

[f]Global Warming Potential From 40 CFR 98, Subpart A, Table A-1

[g]Emissions calculated using Equation A-1, 40 CFR 98 Subpart C

Hot Oil Heater Emission Calculations
1804, Ltd.
Springbrook Gas Plant

Basis

Unit(s)	H-951, Direct Fired Heater (Glycol Heat Medium)	
Type	<100 MMBTU/hr	
Annual Hours of Operation	8,760	hrs
Fuel Heat Content (HHV)	1,085	BTU/SCF
Heat Input Rate	1.50	MMBtu/hr
Fuel Usage Rate	1.38E-03	MMscf/hr
Annual Heat Input	13,140	MMBtu
Annual Fuel Consumption	12.11	MMscf

Criteria Pollutant Emissions Estimate

Constituent	Emission Factors[a]	Emissions	
	lb/MMscf	lb/hr	tpy
NO_X	100	0.138	0.606
CO	84	0.116	0.509
VOC	5.5	0.008	0.033
Formaldehyde	0.075	0.000	0.000
n-Hexane	1.8	0.002	0.001
Toluene	0.0034	0.000	0.000
Benzene	0.0021	0.000	0.000
SO_2	0.6	0.001	0.004
PM/PM_{10}/$PM_{2.5}$	7.6	0.011	0.046

[a]Criteria Pollutant Emission Factors From AP-42 1.4.1 (Small Boilers), 1.4.2 and 1.4.3

Greenhouse Gas Emission Estimates

$$E_a\ CO_2 = (\mathrm{V_a} * \mathrm{YCO_2}) + \eta * \sum_{j=1}^{5} V_a * Yj * Rj$$

98 CFR Subpart W, Equation W-39A

$$\text{Mass}_{N2O} = (1\text{x}10 - 3) * \mathrm{FUEL} * \mathrm{HHV} * \mathrm{EF} * \mathrm{GWP}$$

98 CFR Subpart W, Equation W-40

$$E_a\ CH_4 = \mathrm{V_a} * (1 - \eta) * \mathrm{YCH_4}$$

98 CFR Subpart W, Equation W-39B

$$\text{Mass}_i = \mathrm{E_{s,i}} * \rho_i * \mathrm{GWP} * 10 - 3$$

98 CFR Subpart W, Equation W-36

Where:

V_a = Volume of gas combusted (scf/yr)	12,110,599
η = Fraction of gas combusted	0.995
Y_{CO2} = Mole Fraction of CO_2 in fuel gas:	0.0083
Y_{CH4} = Mole Fraction of CH_4 in fuel gas:	0.7151
SUM (Yj*Rj)	1.2223

ρ_i = Density of GHGi. Use 0.0526 kg/ft3 for CO_2 and N_2O, and 0.0192 kg/ft^3 for CH_4 at 60 °F and 14.7 psia.
Y_j = Mole fraction of gas hydrocarbon constituents j (such as methane, ethane, propane, butane, and pentanes+)
R_j = Number of carbon atoms in the fuel gas hydrocarbon constituent j; 1 for methane, 2 for ethane, 3 for propane, 4 for butane, 5 for pentanes+
E_a = Contribution of constituent (CO_2 or CH_4) annual emissions from portable or stationary fuel combustion sources, in cubic feet

Pollutant	Density of GHGi, ρi (kg/ft3)	Total Contribution, Ea	GWP[1]	GHG Emissions (tpy)	CO2e[1] (tpy)	CO2e[1] (MT/yr)	Source of Emission Factor
CO_2	0.0526	14,829,724	1	860	860	780	Gas Analysis, MRR Subpart W Eq. W-39A & W-36
CH_4	0.0192	43,303	25	1	23	21	

Pollutant	Fuel (scf/yr)	HHV (MMBtu/scf)	EF (kg/MMBtu)	GWP[1]	GHG Emissions (tpy)	CO_2e (tpy)[1]	CO_2e (MT)[1]	Source of Emission Factor
N_2O	12,110,599	1.41E-03	1.00E-04	298	2.E-03	5.61E-01	5.E-01	Gas Analysis, MRR Subpart W Eq. W-40 & W-36

[1]Global warming potential taken from 98 CFR Subpart W.

Pigging Emission Calculations
1804, Ltd.
Springbrook Gas Plant

Basis

VOC Content	20.55	vol%
VOC MW	51.31	lb/lbmole
CO_2 Content	0.587	vol %
CO_2 MW	44	lb/lbmole
CH_4 Content	53.53	vol %
CH_4 MW	16	lb/lbmole
Benzene Content	0.02	vol %
Benzene MW	78	lb/lbmole
Toluene Content	0.01	vol %
Toluene MW	92	lb/lbmole
Ethyl Benzene Content	0.00	vol %
Ethyl Benzene MW	106	lb/lbmole
Xylene Content	0.00	vol %
Xylene MW	106	lb/lbmole
n-Hexane Content	0.40	vol %
n-Hexane MW	86	lb/lbmole
Gas Heat Content	1409	BTU/scf
Gas Molar Volume @60 F, 14.7 psi	379	scf/mol
Estimated Gas Release Volume	500	scf/event
Anticipated events/year	2000	events/yr
Controlled DRE	0	%
$CO_2\rho$ @68°F, 14.7 psia (40 CFR 98.233(v))	0.0538	kg/ft^3
40 CFR 98, Subpart C, Table C-1 N_2O Emission Factor	0.0001	kg/MMBtu
AP 42 Table 13.5-1 NO_X Emission Factor for Flare Operations	0.068	lb/MMBTU
AP 42 Table 13.5-1 CO Emission Factor for Flare Operations	0.37	lb/MMBTU

Estimated Controlled Pigging Emissions

Regulated Pollutant	Emissions	
	(lb/event)	(tpy)
VOC	13.914	13.914
NO_X	0.000	0.000
CO	0.000	0.000
CO_2 Uncombusted	0.341	0.341
CH_4	11.298	11.298
CO_2 Combusted	0.000	0.000
N_2O	0.000	0.000
Benzene	0.020	0.020
Toluene	0.007	0.007
Ethyl Benzene	0.000	0.000
Xylene	0.004	0.004
n-Hexane	0.457	0.457

EG Dehy Still Vent and Flash Drum Emissions Calculations
1804, Ltd.
Springbrook Gas Plant

Flare DRE % **98**

	Uncontrolled		Controlled	
Component	**Emission Rate**		**Emission Rate**	
	lb/hr	**tpy**	**lb/hr**	**tpy**
C1	0.6586	2.88	0.0132	0.06
C2	2.4865	10.89	0.0497	0.22
C3	0.7694	3.37	0.0154	0.07
iC4	0.0550	0.24	0.0011	0.00
nC4	0.1658	0.73	0.0033	0.01
iC5	0.0208	0.09	0.0004	0.00
nC5	0.0180	0.08	0.0004	0.00
nC6	0.0045	0.02	0.0001	0.00
Other Hexanes	0.0005	0.00	0.0000	0.00
Benzene	0.0015	0.01	0.0000	0.00
Heptanes	0.0003	0.00	0.0000	0.00
Toluene	0.0001	0.00	0.0000	0.00
Ethylbenzene	0.0000	0.00	0.0000	0.00
Xylenes	0.0001	0.00	0.0000	0.00
2,2,4-Trimethylpentane	0.0001	0.00	0.0000	0.00
CO2	0.7770	3.40	0.7770	3.40
H2S	0.0011	0.00	0.0000	0.00
Totals				
VOC	**1.04**	**4.54**	**0.02**	**0.09**
VOC + 50% Buffer [1]	**1.55**	**6.81**	**0.03**	**0.14**
HAP	**0.01**	**0.03**	**0.00**	**0.00**
CO2e	**17.24**	**75.52**	**1.11**	**4.85**

Notes: Emissions estimated using GRI GLYCalc 4.0. Flash Tank emissions controlled by FL-8501. Combustion CO2e emissions accounted for at FL-8501

[1] 50% buffer was added to VOC emissions to account for gas composition and glycol pump rate fluctuations.

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Springbrook Gas Processing Plant EG Dehy
File Name: C:\Users\edwar\Documents\Spirit\Flatirons\Springbrook Gas Plant\Permitting\2023.07 Springbrook TV\Em. Calcs\2022 Permitting_2022.05.18.ddf
Date: August 29, 2023

DESCRIPTION:

Description: Permitting Update: Increased Throughput

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr

FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Hydrogen Sulfide	<0.0001	0.001	0.0001
Methane	0.0132	0.316	0.0577
Ethane	0.0497	1.194	0.2178
Propane	0.0154	0.369	0.0674
Isobutane	0.0011	0.026	0.0048
n-Butane	0.0033	0.080	0.0145
Isopentane	0.0004	0.010	0.0018
n-Pentane	0.0004	0.009	0.0016
n-Hexane	0.0001	0.002	0.0004
Other Hexanes	<0.0001	<0.001	<0.0001
Heptanes	<0.0001	<0.001	<0.0001
2,2,4-Trimethylpentane	<0.0001	<0.001	<0.0001
Benzene	<0.0001	0.001	0.0001
Toluene	<0.0001	<0.001	<0.0001
Xylenes	<0.0001	<0.001	<0.0001
C8+ Heavies	<0.0001	<0.001	<0.0001
Total Emissions	0.0836	2.007	0.3664
Total Hydrocarbon Emissions	0.0836	2.007	0.3663
Total VOC Emissions	0.0207	0.497	0.0908
Total HAP Emissions	0.0001	0.003	0.0005
Total BTEX Emissions	<0.0001	0.001	0.0002

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Hydrogen Sulfide	0.0011	0.026	0.0048
Methane	0.6586	15.806	2.8845
Ethane	2.4865	59.676	10.8909

Propane	0.7694	18.465	3.3698
Isobutane	0.0550	1.321	0.2410
n-Butane	0.1658	3.979	0.7261
Isopentane	0.0208	0.500	0.0913
n-Pentane	0.0180	0.433	0.0790
n-Hexane	0.0045	0.107	0.0195
Other Hexanes	0.0005	0.011	0.0020
Heptanes	0.0003	0.007	0.0013
2,2,4-Trimethylpentane	0.0001	0.002	0.0004
Benzene	0.0015	0.037	0.0068
Toluene	0.0001	0.003	0.0006
Xylenes	<0.0001	0.001	0.0001
C8+ Heavies	<0.0001	<0.001	<0.0001
Total Emissions	4.1822	100.374	18.3182
Total Hydrocarbon Emissions	4.1811	100.348	18.3134
Total VOC Emissions	1.0361	24.866	4.5380
Total HAP Emissions	0.0063	0.150	0.0274
Total BTEX Emissions	0.0017	0.041	0.0075

EQUIPMENT REPORTS:

COLD SEPARATOR

Cold Separator Temperature:	-15.0	deg. F
Cold Separator Pressure:	640.0	psig
Dry Gas Flow Rate:	70.0000	MMSCF/day
Calculated Dry Gas Dew Point:	0.29	lbs. H2O/MMSCF
Glycol Losses with Dry Gas:	0.6735	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	43.42	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	1.67	gal/lb H2O
Produced Liquid:	8.96e+003	bbls/day
Glycol Losses in Produced Liquids:	91.0602	lb/hr

Component	Remaining in Dry Gas	Absorbed or Condensed
Water	0.49%	99.51%
Carbon Dioxide	75.31%	24.69%
Hydrogen Sulfide	47.95%	52.05%
Nitrogen	95.85%	4.15%
Methane	88.55%	11.45%
Ethane	83.45%	16.55%
Propane	29.81%	70.19%
Isobutane	15.98%	84.02%
n-Butane	11.13%	88.87%
Isopentane	5.72%	94.28%
n-Pentane	2.62%	97.38%
n-Hexane	1.02%	98.98%
Other Hexanes	1.70%	98.30%
Heptanes	0.19%	99.81%
2,2,4-Trimethylpentane	0.46%	99.54%
Benzene	0.77%	99.23%
Toluene	0.16%	99.84%
Xylenes	0.07%	99.93%

C8+ Heavies	0.04%	99.96%

FLASH TANK

Flash Control: Combustion device
Flash Control Efficiency: 98.00 %
Flash Temperature: 130.0 deg. F
Flash Pressure: 50.0 psig

Component	Left in Oil and Glycol	Removed in Flash Gas
Water	99.98%	0.02%
Carbon Dioxide	54.60%	45.40%
Hydrogen Sulfide	85.97%	14.03%
Nitrogen	7.09%	92.91%
Methane	8.02%	91.98%
Ethane	12.38%	87.62%
Propane	27.79%	72.21%
Isobutane	29.16%	70.84%
n-Butane	34.95%	65.05%
Isopentane	43.14%	56.86%
n-Pentane	48.29%	51.71%
n-Hexane	59.45%	40.55%
Other Hexanes	53.05%	46.95%
Heptanes	71.16%	28.84%
2,2,4-Trimethylpentane	52.48%	47.52%
Benzene	94.65%	5.35%
Toluene	96.30%	3.70%
Xylenes	98.10%	1.90%
C8+ Heavies	92.97%	7.03%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	111.10%	-11.10%
Carbon Dioxide	0.00%	100.00%
Hydrogen Sulfide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.16%	98.84%
n-Pentane	1.04%	98.96%
n-Hexane	0.84%	99.16%
Other Hexanes	1.88%	98.12%
Heptanes	0.70%	99.30%
2,2,4-Trimethylpentane	2.86%	97.14%
Benzene	5.28%	94.72%
Toluene	8.20%	91.80%
Xylenes	13.15%	86.85%
C8+ Heavies	12.91%	87.09%

STREAM REPORTS:

WET GAS STREAM

Temperature: 80.00 deg. F
Pressure: 664.70 psia
Flow Rate: 3.95e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.15e-002	1.72e+002
Carbon Dioxide	5.86e-001	2.69e+003
Hydrogen Sulfide	9.99e-004	3.55e+000
Nitrogen	2.53e+000	7.37e+003
Methane	5.35e+001	8.93e+004
Ethane	2.28e+001	7.14e+004
Propane	1.29e+001	5.92e+004
Isobutane	1.31e+000	7.90e+003
n-Butane	4.09e+000	2.48e+004
Isopentane	6.74e-001	5.07e+003
n-Pentane	9.74e-001	7.32e+003
n-Hexane	4.03e-001	3.61e+003
Other Hexanes	3.10e-002	2.78e+002
Heptanes	9.79e-002	1.02e+003
2,2,4-Trimethylpentane	2.50e-002	2.97e+002
Benzene	1.90e-002	1.54e+002
Toluene	5.99e-003	5.75e+001
Xylenes	3.00e-003	3.31e+001
C8+ Heavies	2.70e-002	4.79e+002
Total Components	100.00	2.81e+005

DRY GAS STREAM

Temperature: -15.00 deg. F
Pressure: 654.70 psia
Flow Rate: 2.92e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	6.12e-004	8.48e-001
Carbon Dioxide	5.98e-001	2.02e+003
Hydrogen Sulfide	6.49e-004	1.70e+000
Nitrogen	3.28e+000	7.07e+003
Methane	6.42e+001	7.91e+004
Ethane	2.58e+001	5.95e+004
Propane	5.20e+000	1.76e+004
Isobutane	2.83e-001	1.26e+003
n-Butane	6.17e-001	2.76e+003
Isopentane	5.23e-002	2.90e+002
n-Pentane	3.46e-002	1.92e+002
n-Hexane	5.54e-003	3.67e+001
Other Hexanes	7.11e-004	4.71e+000
Heptanes	2.54e-004	1.96e+000

Component	Conc. (wt%)	Loading (lb/hr)
2,2,4-Trimethylpentane	1.54e-004	1.36e+000
Benzene	1.97e-004	1.18e+000
Toluene	1.30e-005	9.23e-002
Xylenes	2.96e-006	2.42e-002
C8+ Heavies	1.53e-005	2.00e-001
Total Components	100.00	1.70e+005

LEAN GLYCOL STREAM

Temperature: 80.00 deg. F
Flow Rate: 3.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
EG	9.00e+001	1.73e+003
Water	1.00e+001	1.92e+002
Carbon Dioxide	8.90e-012	1.71e-010
Hydrogen Sulfide	4.06e-014	7.81e-013
Nitrogen	3.64e-013	6.99e-012
Methane	1.25e-018	2.41e-017
Ethane	6.96e-008	1.34e-006
Propane	2.25e-009	4.34e-008
Isobutane	1.21e-010	2.33e-009
n-Butane	3.29e-010	6.32e-009
Isopentane	9.53e-006	1.83e-004
n-Pentane	9.07e-006	1.74e-004
n-Hexane	2.86e-006	5.49e-005
Other Hexanes	5.05e-007	9.71e-006
Heptanes	2.75e-007	5.29e-006
2,2,4-Trimethylpentane	1.49e-007	2.86e-006
Benzene	7.53e-005	1.45e-003
Toluene	1.43e-005	2.76e-004
Xylenes	1.19e-005	2.29e-004
C8+ Heavies	3.95e-008	7.59e-007
Total Components	100.00	1.92e+003

RICH GLYCOL STREAM

Temperature: -15.00 deg. F
Pressure: 654.70 psia
Flow Rate: 3.31e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
EG	9.01e+001	1.64e+003
Water	9.52e+000	1.73e+002
Carbon Dioxide	9.41e-002	1.71e+000
Hydrogen Sulfide	4.29e-004	7.81e-003
Nitrogen	3.84e-003	6.99e-002
Methane	3.94e-002	7.16e-001
Ethane	1.56e-001	2.84e+000
Propane	5.86e-002	1.07e+000
Isobutane	4.27e-003	7.77e-002
n-Butane	1.40e-002	2.55e-001
Isopentane	2.02e-003	3.67e-002

n-Pentane	1.92e-003	3.49e-002
n-Hexane	6.04e-004	1.10e-002
Other Hexanes	5.34e-005	9.71e-004
Heptanes	5.82e-005	1.06e-003
2,2,4-Trimethylpentane	1.05e-005	1.91e-004
Benzene	1.59e-003	2.90e-002
Toluene	1.92e-004	3.49e-003
Xylenes	9.78e-005	1.78e-003
C8+ Heavies	3.48e-007	6.33e-006
Total Components	100.00	1.82e+003

COLD SEPARATOR OIL STREAM

Temperature: -15.00 deg. F
Flow Rate: 2.61e+002 gpm

Component	Conc. (wt%)	Loading (lb/hr)
EG	8.18e-002	9.11e+001
Water	1.71e-001	1.90e+002
Carbon Dioxide	5.95e-001	6.62e+002
Hydrogen Sulfide	1.65e-003	1.84e+000
Nitrogen	2.75e-001	3.06e+002
Methane	9.20e+000	1.02e+004
Ethane	1.06e+001	1.18e+004
Propane	3.73e+001	4.15e+004
Isobutane	5.97e+000	6.64e+003
n-Butane	1.98e+001	2.20e+004
Isopentane	4.29e+000	4.78e+003
n-Pentane	6.41e+000	7.13e+003
n-Hexane	3.22e+000	3.58e+003
Other Hexanes	2.46e-001	2.73e+002
Heptanes	9.17e-001	1.02e+003
2,2,4-Trimethylpentane	2.66e-001	2.96e+002
Benzene	1.38e-001	1.53e+002
Toluene	5.16e-002	5.74e+001
Xylenes	2.98e-002	3.31e+001
C8+ Heavies	4.30e-001	4.78e+002
Total Components	100.00	1.11e+005

FLASH TANK OFF GAS STREAM

Temperature: 130.00 deg. F
Pressure: 64.70 psia
Flow Rate: 6.35e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.69e-001	2.92e-002
Carbon Dioxide	1.06e+001	7.77e-001
Hydrogen Sulfide	1.92e-002	1.10e-003
Nitrogen	1.39e+000	6.50e-002
Methane	2.45e+001	6.59e-001
Ethane	4.94e+001	2.49e+000
Propane	1.04e+001	7.69e-001
Isobutane	5.66e-001	5.50e-002
n-Butane	1.71e+000	1.66e-001

Isopentane	1.73e-001	2.08e-002
n-Pentane	1.50e-001	1.80e-002
n-Hexane	3.09e-002	4.46e-003
Other Hexanes	3.16e-003	4.56e-004
Heptanes	1.82e-003	3.05e-004
2,2,4-Trimethylpentane	4.74e-004	9.06e-005
Benzene	1.19e-002	1.55e-003
Toluene	8.37e-004	1.29e-004
Xylenes	1.90e-004	3.37e-005
C8+ Heavies	1.56e-006	4.45e-007
Total Components	100.00	5.05e+000

FLASH TANK OIL STREAM

Temperature: 130.00 deg. F

The calculated flow rate is less than 0.000001 #mol/hr.
The stream flow rate and composition are not reported.

FLASH TANK GLYCOL STREAM

Temperature: 130.00 deg. F
Flow Rate: 3.30e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
EG	9.04e+001	1.64e+003
Water	9.54e+000	1.73e+002
Carbon Dioxide	5.15e-002	9.35e-001
Hydrogen Sulfide	3.70e-004	6.72e-003
Nitrogen	2.73e-004	4.96e-003
Methane	3.16e-003	5.74e-002
Ethane	1.94e-002	3.51e-001
Propane	1.63e-002	2.96e-001
Isobutane	1.25e-003	2.27e-002
n-Butane	4.91e-003	8.91e-002
Isopentane	8.72e-004	1.58e-002
n-Pentane	9.29e-004	1.68e-002
n-Hexane	3.60e-004	6.53e-003
Other Hexanes	2.84e-005	5.15e-004
Heptanes	4.15e-005	7.53e-004
2,2,4-Trimethylpentane	5.51e-006	1.00e-004
Benzene	1.51e-003	2.74e-002
Toluene	1.85e-004	3.36e-003
Xylenes	9.62e-005	1.75e-003
C8+ Heavies	3.24e-007	5.88e-006
Total Components	100.00	1.81e+003

FLASH GAS EMISSIONS

Flow Rate: 2.70e+002 scfh
Control Method: Combustion Device
Control Efficiency: 98.00

Component	Conc. (vol%)	Loading (lb/hr)

Water	5.85e+001	7.49e+000
Carbon Dioxide	4.07e+001	1.27e+001
Hydrogen Sulfide	9.05e-005	2.19e-005
Nitrogen	3.27e-001	6.50e-002
Methane	1.16e-001	1.32e-002
Ethane	2.33e-001	4.97e-002
Propane	4.91e-002	1.54e-002
Isobutane	2.67e-003	1.10e-003
n-Butane	8.03e-003	3.32e-003
Isopentane	8.13e-004	4.17e-004
n-Pentane	7.04e-004	3.61e-004
n-Hexane	1.46e-004	8.91e-005
Other Hexanes	1.49e-005	9.12e-006
Heptanes	8.57e-006	6.10e-006
2,2,4-Trimethylpentane	2.23e-006	1.81e-006
Benzene	5.59e-005	3.10e-005
Toluene	3.94e-006	2.58e-006
Xylenes	8.95e-007	6.75e-007
C8+ Heavies	7.35e-009	8.89e-009
Total Components	100.00	2.04e+001

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia

The calculated flow rate is less than 0.000001 #mol/hr.
The stream flow rate and composition are not reported.

September 3, 2021

Mr. Eric Hammond
Senior Project Engineer
1804 Ltd. LLC
10385 Westmoor Drive, Ste 225
Westminster, CO 80021

Re: Air Pollution Control
Initial Permit to Operate
Title V Source

Dear Mr. Hammond:

The Department received an initial permit application dated September 28, 2018 and a revised initial permit application dated August 27, 2020 for the Springbrook Gas Plant located in Williams County, North Dakota.

Based on our review of the permit applications and other relevant documents, the Department hereby issues a Title V Permit to Operate for the source. The Department's issuance of the permit is contingent upon compliance with the conditions outlined in the permit. Please review each condition carefully and note the restrictions placed on the source units. Also note the following administrative corrections in the issued permit.

1) Mailing address change for the Department.

2) Monitoring references revisions for 40 CFR 60, Subparts OOOO and OOOOa in accordance with the current subparts' contents.

3) Flare monitoring update and clarification to reflect the current North Dakota standard monitoring for flares.

For your information, no comments were received during the 30-day public comment and 45-day EPA review periods.

Note that the above-referenced permit addresses only air quality requirements applicable to your facility. Other divisions (Water Quality, Waste Management and Municipal Facilities) within the Department of Environmental Quality may have additional requirements. Contact information for the various divisions is listed at the bottom of this letter.

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

Sincerely,

Kyla K. Schneider
Environmental Scientist
Division of Air Quality

KKS:saj
Enc:
xc/enc: Dan Fagnant, EPA/R8 (email - fagnant.daniel@epa.gov)
Gail Fallon, EPA/R8 (email - fallon.gail@epa.gov)

AIR POLLUTION CONTROL
TITLE V PERMIT TO OPERATE

Permittee: **Name:** 1804 Ltd. LLC **Address:** 10385 Westmoor Drive, Ste 225 Westminster, CO 80021	**Permit Number:** AOP-28416 v1.0 **Source Name:** Springbrook Gas Plant
Source Location: 5621 – 131st Avenue NW Williston, ND 58801 SE ¼, SE ¼, Sec. 22, T155N, R100W Williams County	**Source Type:** Natural Gas Processing and Compressor Station
Expiration Date: September 2, 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.

Initial Issuance: 9/2/21

James L. Semerad
Director
Division of Air Quality

Springbrook Gas Plant
Title V Permit to Operate
Table of Contents

1. **Emission Unit Identification**:

A. The emission units regulated by this permit are as follows:

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Caterpillar Model G3608 LE natural gas-fired engine (4SLB) rated at 2,370 bhp (manf. 2014, JJJJ)	C-2711	1	Oxidation Catalyst
Caterpillar Model G3608 LE natural gas-fired engine (4SLB) rated at 2,370 bhp (manf. 2014, JJJJ)	C-2712	2	Oxidation Catalyst
Caterpillar Model G3512B LE natural gas-fired engine (4SLB) rated at 1,035 bhp (manf. 2013, JJJJ)	C-300A	3	Oxidation Catalyst
Caterpillar Model G3512B LE natural gas-fired engine (4SLB) rated at 1,035 bhp (manf. 2013, JJJJ)	C-300B	4	Oxidation Catalyst
Caterpillar Model G3512B LE natural gas-fired engine (4SLB) rated at 1,035 bhp (manf. 2014, JJJJ)	C-5701	5	Oxidation Catalyst
Caterpillar Model G3512B LE natural gas-fired engine (4SLB) rated at 1,035 bhp (manf. 2014, JJJJ)	C-5702	6	Oxidation Catalyst
Caterpillar Model G3512B LE natural gas-fired engine (4SLB) rated at 1,035 bhp (manf. 2014, JJJJ)	C-4711	7	Oxidation Catalyst
Caterpillar Model G3516B LE natural gas-fired engine (4SLB) rated at 1,818 bhp (manf. 2014, JJJJ)	GEN-1	8	Oxidation Catalyst
Caterpillar Model G3516B LE natural gas-fired engine (4SLB) rated at 1,818 bhp (manf. 2014, JJJJ)	GEN-2	9	Oxidation Catalyst
Natural gas-fired hot oil heater rated at approximately 10 x 10^6 Btu/hr (Dc)	B-940	10	None
Emergency and process flare	FL-8501	11	None
NGL loadout	LOAD 1 [A]	12	None
Ethylene glycol dehydration unit rated at 45 MMscfd	T-510 [A, B]/ V-520 [A, B]	13/14	~~None~~
Condensate loadout	LOAD 2 [A]	16	None
Caterpillar Model G3608 A4 natural gas-fired engine (4SLB) rated at 2,500 bhp (manf. 6/2018, JJJJ)	C-2710	17	Oxidation Catalyst

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Caterpillar Model G3606 A4 natural gas-fired engine (4SLB) rated at approximately 1,875 bhp. (manf. 9/2018, JJJJ)	C-2713	19	Oxidation Catalyst
~~Natural gas-fired hot oil process heater rated at 2.5 x 10^6 Btu/hr~~	~~B-941~~	~~20~~	~~None~~
Produced water storage loadout	LOAD 3 [A]	21	None
Pigging activities	PIG1 [A]	PIG1	None
Four NGL pressurized storage 90,000 bullet tanks	V-4401 [A] through V4404 [A]	Various	Returns vapors to the inlet
30,000-gallon field condensate bullet tank	V-4407 [A]	V-4407	Returns vapors to the inlet
400-barrrel oily water storage tank with taker truck loadout	TK-1 [A]	FUG-TK	Submerged Fill Pipe (SFP)
Lift compressor blowdown	LIFTBD [A]	11	Emergency/ Process Flare
Compressor blowdown	COMPBD [A]	11	Emergency/ Process Flare
Fugitive emissions	FUG [A]	FUG	None
Fugitives - OOOO	FUG -1 [A]	FUG-1	None
Fugitives - OOOOa	FUG-2 [A]	FUG-2	None

[A] Insignificant or fugitive emission sources (no specific emission limit).
[B] T-510 (EP 13) is the still vent and V-520 (EP 14) is the flash gas vent.
[C] Tank vapors are captured using the VRU and are recycled back into the system for reprocessing, therefore, no expected emissions will result from these units.

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

A. **Fuel Restriction**: The engines (EU C-2710, C-2711, C-2712, C-2713, C-300A, C-300B, C-4711, C-5701, C-5702, GEN-1 and GEN-2,) and the hot oil heaters (EU B-940 and B-941) are restricted to combusting only natural gas containing no more than 2 grains of sulfur per 100 standard cubic feet or commercial propane as defined by the Gas Processors Association.

Applicable Requirements: Air Construction Permit (ACP)-17964 v1.0 and NDAC 33.1-15-14-06.5.b(1)

B. **Stack Heights**: The stack height of each engine shall be at least 1.5 times the nearby building height. A nearby building is any building located a distance of less than five times the building height from the stack. In addition, the minimum stack height for each emission unit shall be as shown in the following table.

Emission Unit Description	EU	Stack Height (feet)
Caterpillar Engine	C-2710	24
Caterpillar Engine	C-2711	46.5
Caterpillar Engine	C-2712	46.5
Caterpillar Engine	C-2713	28.5
Caterpillar Engine	C-300A	46.5
Caterpillar Engine	C-300B	46.5
Caterpillar Engine	C-4711	46.5
Caterpillar Engine	C-5701	46.5
Caterpillar Engine	C-5702	46.5
Caterpillar Engine	GEN-1	46.5
Caterpillar Engine	GEN-2	46.5
Hot Oil Heater	B-940	14
Hot Oil Heater	B-941	15
Emergency/Process Flare	FL-8501	120

Applicable Requirement: ACP-17964 v1.0

C. **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 Dc - Standards of performance for small industrial-commercial-institutional steam generating units (EU B-940).

2) Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (EU C-2710, C-2711, C-2712, C-2713, C-300A, C-300B, C-4711, C-5701, C-5702, GEN-1 and GEN-2).

3) Subpart OOOO - Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after August 23, 2011, and on or before September 18, 2015 (centrifugal/reciprocal compressors for EU C-2711, C-2712, C-300A, C-300B, C-4711, C-5701, C-5702, GEN-1 and GEN-2 and fugitive emissions).

4) Subpart OOOOa - Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015 (centrifugal/reciprocal compressors for EU C-2710 and EU C-2713 and fugitive emissions).

Applicable Requirements: NDAC 33.1-15-12, Subparts A, Dc, JJJJ, OOOO and OOOOa

D. **Maximum Achievable Control Technology (MACT)**: The permittee shall comply with all applicable requirements of the following NDAC 33.1-15-22-03 and 40 CFR 63 subparts in addition to complying with Subpart A - General Provisions.

1) Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (EU C-2710, C-2711, C-2712, C-2713, C-300A, C-300B, C-4711, C-5701, C-5702, GEN-1, GEN-2). ~~As an area source of HAPs, compliance with 40 CFR 63, Subpart ZZZZ is achieved by complying with 40 CFR 60, Subpart JJJJ.~~ The North Dakota Department of Environmental Quality has not adopted the area source provisions of this subpart. All required documentation must be submitted to EPA at the following address.

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

Applicable Requirements: NDAC 33.1-15-22-03, Subpart A and 40 CFR 63, Subpart ZZZZ

E. **Flaring Restrictions**:

1) When it is necessary to operate the flare (EU FL-8501) during emergency, malfunction or maintenance, all precautions shall be taken to minimize emissions and maintain compliance with the applicable ambient air quality standards as outlined in NDAC 33.1-15-02 and the opacity standard of 20% not to exceed 60% for more than one six minute period per hour.

2) The flare (EU FL-8501) 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: ACP-17964 v1.0 and NDAC 33.1-15-14-06.5.b(1)

F. **Like-Kind Engine Replacement**: This permit allows the permittee to replace the existing engines 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. Testing shall be conducted to confirm compliance with the emission limits within 180 days after start-up of the new engine.

Applicable Requirements: ACP-17964 v1.0 and NDAC 33.1-15-14-06.5.b(1)

3. **Emission Unit Limits**:

Emission Unit Description	EU	EP	Pollutant/ Parameter	Emission Limit	NDAC Applicable Requirement
Caterpillar engine	C-2711	1	NO_x	~~1.34 lb/hr~~ & 1.0 g/hp-hr or 82 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			CO	~~0.17 lb/hr~~ & 2.0 g/hp-hr or 270 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			VOC	~~1.14 lb/hr~~ & 0.7 g/hp-hr or 60 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			Opacity	20% [B]	ACP-17964 v1.0 & 33.1-15-03-02
Caterpillar engine	C-2712	2	NO_x	~~1.66 lb/hr~~ & 1.0 g/hp-hr or 82 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			CO	~~0.12 lb/hr~~ & 2.0 g/hp-hr or 270 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			VOC	~~0.98 lb/hr~~ & 0.7 g/hp-hr or 60 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			Opacity	20% [B]	ACP-17964 v1.0 & 33.1-15-03-02
Caterpillar engine	C-300A	3	NO_x	~~0.97 lb/hr~~ & 1.0 g/hp-hr or 82 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			CO	~~0.17 lb/hr~~ & 2.0 g/hp-hr or 270 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			VOC	~~0.35 lb/hr~~ & 0.7 g/hp-hr or 60 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			Opacity	20% [B]	ACP-17964 v1.0 & 33.1-15-03-02

Emission Unit Description	EU	EP	Pollutant/ Parameter	Emission Limit	NDAC Applicable Requirement
Caterpillar engine	C-300B	4	NO_x	~~0.88 lb/hr~~ & 1.0 g/hp-hr or 82 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			CO	~~0.08 lb/hr~~ & 2.0 g/hp-hr or 270 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			VOC	~~0.36 lb/hr~~ & 0.7 g/hp-hr or 60 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			Opacity	20% [B]	ACP-17964 v1.0 & 33.1-15-03-02
Caterpillar engine	C-5701	5	NO_x	~~1.08 lb/hr~~ & 1.0 g/hp-hr or 82 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			CO	~~0.18 lb/hr~~ & 2.0 g/hp-hr or 270 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			VOC	~~0.53 lb/hr~~ & 0.7 g/hp-hr or 60 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			Opacity	20% [B]	ACP-17964 v1.0 & 33.1-15-03-02
Caterpillar engine	C-5702	6	NO_x	~~0.98 lb/hr~~ & 1.0 g/hp-hr or 82 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			CO	~~0.20 lb/hr~~ & 2.0 g/hp-hr or 270 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			VOC	~~0.64 lb/hr~~ & 0.7 g/hp-hr or 60 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			Opacity	20% [B]	ACP-17964 v1.0 & 33.1-15-03-02

Emission Unit Description	EU	EP	Pollutant/ Parameter	Emission Limit	NDAC Applicable Requirement
Caterpillar engine	C-4711	7	NO_x	~~1.03 lb/hr~~ & 1.0 g/hp-hr or 82 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJ
			CO	~~0.49 lb/hr~~ & 2.0 g/hp-hr or 270 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJ
			VOC	~~0.65 lb/hr~~ & 0.7 g/hp-hr or 60 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJ
			Opacity	20% [B]	ACP-17964 v1.0 & 33.1-15-03-02
Caterpillar engine	GEN1	8	NO_x	~~3.54 lb/hr~~ & 1.0 g/hp-hr or 82 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJ
			CO	~~0.56 lb/hr~~ & 2.0 g/hp-hr or 270 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJ
			VOC	~~0.90 lb/hr~~ & 0.7 g/hp-hr or 60 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJ
			Opacity	20% [B]	ACP-17964 v1.0 & 33.1-15-03-02
Caterpillar engine	GEN2	9	NO_x	~~3.42 lb/hr~~ & 1.0 g/hp-hr or 82 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJ
			CO	~~0.26 lb/hr~~ & 2.0 g/hp-hr or 270 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJ
			VOC	~~0.48 lb/hr~~ & 0.7 g/hp-hr or 60 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJ
			Opacity	20% [B]	ACP-17964 v1.0 & 33.1-15-03-02
Natural gas-fired hot oil heater	B-940	10	Opacity	20% [B]	33.1-15-12, Subpart Dc & 33.1-15-03-02

Emission Unit Description	EU	EP	Pollutant/ Parameter	Emission Limit	NDAC Applicable Requirement
Emergency and process flare	FL-8501	11	Opacity	20% [C]	ACP-17964 v1.0 & 33.1-15-03-03.1
Dehydration unit	T-510/ V-520	13/14	Opacity	20% [B]	ACP-17964 v1.0 & 33.1-15-03-02
Caterpillar engine	C-2710	17	NO_x	~~1.5 lb/hr~~ & 1.0 g/hp-hr or 82 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			CO	~~0.46 lb/hr~~ & 2.0 g/hp-hr or 270 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			VOC	~~0.68 lb/hr~~ & 0.7 g/hp-hr or 60 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			Opacity	20% [B]	ACP-17964 v1.0 & 33.1-15-03-02
Caterpillar engine	C-2713	19	NO_x	~~1.42 lb/hr~~ & 1.0 g/hp-hr or 82 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			CO	~~0.17 lb/hr~~ & 2.0 g/hp-hr or 270 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			VOC	~~0.59 lb/hr~~ & 0.7 g/hp-hr or 60 ppmvd [A]	ACP-17964 v1.0 & 33.1-15-12-02, Subpart JJJJ
			Opacity	20% [B]	ACP-17964 v1.0 & 33.1-15-03-02
Natural gas-fired hot oil heater	B-941	20	Opacity	20% [B]	33.1-15-03-02
Fugitives – OOOO & OOOOa	FUG-1 & FUG-2	FUG-1 & FUG-2	VOC	See Conditions 2.C.3 & 2.C.4	33.1-15-12-02, Subparts OOOO & OOOOa

A The emission limits in g/hp-hr and ppmvd are from 40 CFR 60, Subpart JJJJ. The engines must also comply with the applicable lb/hr emission limits and any applicable emission limits established by 40 CFR 63, Subpart ZZZZ.

B 40% opacity is permissible for not more than one six-minute period per hour.

C 60% opacity is permissible for not more than one six-minute period per hour.

4. **Monitoring Requirements and Conditions:**

A. **Requirements:**

Emission Unit Description	EP	Pollutant/ Parameter	Monitoring Requirement (Method)	Condition Number	NDAC Applicable Requirement
Caterpillar engine	1	NO_x/CO/VOC	Stack Test & Recordkeeping	4.B.1 & 4.B.2	33.1-15-12-02,Subpart JJJ & 33.1-15-12-02, Subpart OOOO
		Opacity	Recordkeeping	4.B.3	33.1-15-14-06.5.a(3)(a)
Caterpillar engine	2	NO_x/CO/VOC	Stack Test & Recordkeeping	4.B.1 & 4.B.2	33.1-15-12-02,Subpart JJJ & 33.1-15-12-02, Subpart OOOO
		Opacity	Recordkeeping	4.B.3	33.1-15-14-06.5.a(3)(a)
Caterpillar engine	3	NO_x/CO/VOC	Stack Test & Recordkeeping	4.B.1 & 4.B.2	33.1-15-12-02,Subpart JJJ & 33.1-15-12-02, Subpart OOOO
		Opacity	Recordkeeping	4.B.3	33.1-15-14-06.5.a(3)(a)
Caterpillar engine	4	NO_x/CO/VOC	Stack Test & Recordkeeping	4.B.1 & 4.B.2	33.1-15-12-02,Subpart JJJ & 33.1-15-12-02, Subpart OOOO
		Opacity	Recordkeeping	4.B.3	33.1-15-14-06.5.a(3)(a)
Caterpillar engine	5	NO_x/CO/VOC	Stack Test & Recordkeeping	4.B.1 & 4.B.2	33.1-15-12-02,Subpart JJJ & 33.1-15-12-02, Subpart OOOO
		Opacity	Recordkeeping	4.B.3	33.1-15-14-06.5.a(3)(a)
Caterpillar engine	6	NO_x/CO/VOC	Stack Test & Recordkeeping	4.B.1 & 4.B.2	33.1-15-12-02,Subpart JJJ & 33.1-15-12-02, Subpart OOOO
		Opacity	Recordkeeping	4.B.3	33.1-15-14-06.5.a(3)(a)
Caterpillar engine	7	NO_x/CO/VOC	Stack Test & Recordkeeping	4.B.1 & 4.B.2	33.1-15-12-02,Subpart JJJ & 33.1-15-12-02, Subpart OOOO
		Opacity	Recordkeeping	4.B.3	33.1-15-14-06.5.a(3)(a)
Caterpillar engine	8	NO_x/CO/VOC	Stack Test & Recordkeeping	4.B.1 & 4.B.2	33.1-15-12-02,Subpart JJJ & 33.1-15-12-02, Subpart OOOO
		Opacity	Recordkeeping	4.B.3	33.1-15-14-06.5.a(3)(a)
Caterpillar engine	9	NO_x/CO/VOC	Stack Test & Recordkeeping	4.B.1 & 4.B.2	33.1-15-12-02,Subpart JJJ & 33.1-15-12-02, Subpart OOOO
		Opacity	Recordkeeping	4.B.3	33.1-15-14-06.5.a(3)(a)
Natural gas-fired hot oil heater	10	Opacity	Recordkeeping	4.B.3	33.1-15-14-06.5.a(3)(a)

Emission Unit Description	EP	Pollutant/ Parameter	Monitoring Requirement (Method)	Condition Number	NDAC Applicable Requirement
Emergency and process flare	11	Opacity	Recordkeeping & VEO	4.B.4	33.1-15-14-06.5.a(3)(a)
Caterpillar engine	17	NO_x/CO/VOC Opacity	Stack Test & Recordkeeping Recordkeeping	4.B.1 & 4.B.2 4.B.3	33.1-15-12-02, Subpart JJJJ & 33.1-15-12-02, Subpart OOOOa 33.1-15-14-06.5.a(3)(a)
Caterpillar engine	19	NO_x/CO/VOC Opacity	Stack Test & Recordkeeping Recordkeeping	4.B.1 & 4.B.2 4.B.3	33.1-15-12-02, Subpart JJJJ & 33.1-15-12-02, Subpart OOOOa 33.1-15-14-06.5.a(3)(a)
Natural gas-fired hot oil heater	20	Opacity	Recordkeeping	4.B.3	33.1-15-14-06.5.a(3)(a)
Fugitives – OOOO & OOOOa	FUG-1 & FUG-2	VOC	LDAR	4.B.5	33.1-15-12-02, Subparts OOOO & OOOOa

B. **Monitoring Conditions**:

1) For each engine, once every 8,760 hours of operation, three years, or when changes are made to an engine that may increase emission rates, whichever is more frequent, to provide a reasonable assurance of compliance, the permittee shall conduct an emissions test to measure NO_x, CO and VOC emissions, using EPA approved test 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.

Note: This requirement may be satisfied if recurring testing is otherwise performed in accordance with requirements under 40 CFR 60, Subpart JJJJ or 40 CFR 63, Subpart ZZZZ.

2) For each reciprocating compressor affected facility, operating hours monitoring and rod packing replacement and monitoring shall be in accordance with the requirements of 40 CFR 60, Subpart OOOO, §60.5385 or Subpart OOOOa, §60.5385a, as applicable.

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

4) Once per week in which the emergency and process flare (EU FL-8501/EP 11) is operated, a trained company representative (need not be certified) shall observe the emission point. If no visible emissions are observed, the date and time shall be recorded. If visible emissions are observed:

a) The permittee must investigate for a potential problem within eight hours. Any problems that are discovered must be corrected as soon as possible. If the correction of the emissions is expected to take longer than 24 hours, the permittee shall follow procedures as outlined in Condition 7.G. Following corrective maintenance, a visible emissions observation shall be made by a trained company representative (need not be certified). If no visible emissions are observed, the date and time shall be recorded. If visible emissions are observed, a formal visible emissions evaluation shall be conducted in accordance with Condition 4.B.4)b.

b) If visible emissions are observed for longer than 24 hours, the permittee shall conduct a formal visible emissions evaluation of the flare to determine if the emissions are in compliance with the applicable opacity standard. Opacity reading shall consist of three consecutive six-minute periods per day of flaring using EPA Reference Method 9 and conducted by a certified visible emissions reader.

All investigations of malfunctions and visible emissions shall be recorded. The permittee shall comply with the visible emissions emission limit and nothing in this condition shall be construed as authorizing otherwise.

5) For all equipment subject to the standard, the permittee shall comply with the inspection, monitoring and maintenance requirements of 40 CFR 60, Subpart OOOO, §60.5400 or Subpart OOOOa, §60.5397a and §60.5400a, as applicable.

C. In addition to the requirements outlined in Conditions 4.A and 4.B, monitoring shall be in accordance with the following requirements of the North Dakota Air Pollution Control Rules (NDAC) 33.1-15-12 and 33.1-15-22, as applicable.

1) NDAC 33.1-15-12-02 and 40 CFR 60, Subpart A, § 60.13, Monitoring Requirements

2) NDAC 33.1-15-12-02 and 40 CFR 60, Subpart Dc, §60.46c and §60.47c, Emission Monitoring

3) NDAC 33.1-15-12-02 and 40 CFR 60, Subpart OOOO, Continuous Compliance and Monitoring

4) NDAC 33.1-15-12-02 and 40 CFR 60, Subpart OOOOa, Continuous Compliance and Monitoring

5) NDAC 33.1-15-22-03 and 40 CFR 63, Subpart A, § 63.8, Monitoring Requirements

Applicable Requirements: NDAC 33.1-15-12 and NDAC 33.1-15-22

5. **Recordkeeping Requirements**:

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

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

2) The date(s) testing was performed.

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

4) The testing techniques or methods used.

5) The results of such testing.

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

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

Monitoring Records

Emission Unit Description	**EP**	**Pollutant/ Parameter**	**Compliance Monitoring Record**
Caterpillar engines	1 through 9	NO_x/CO/VOC Opacity	Stack Test Data & Rod Packing Monitoring Data Fuel Type Data
Natural gas-fired hot oil heater	10	Opacity	Fuel Type Data
Emergency and process flare	11	Opacity	Recordkeeping & VEO Data
Caterpillar engines	17 & 19	NO_x/CO/VOC Opacity	Stack Test Data & Rod Packing Monitoring Data Fuel Type Data
Natural gas-fired hot oil heater	20	Opacity	Fuel Type Data
Fugitives – OOOO & OOOOa	FUG-1 & FUG-2	VOC	LDAR Inspection, Monitoring & Maintenance Records

B. In addition to requirements outlined in Condition 5.A, recordkeeping shall be in accordance with the following requirements of NDAC 33.1-15-12 and 33.1-15-22, as applicable:

1) NDAC 33.1-15-12 and 40 CFR 60:

a) Subpart A, §60.7, Notification and Recordkeeping

b) Subpart Dc, §60.48c, Reporting and Recordkeeping Requirements

c) Subpart JJJJ, §60.4245, Notification, Reports and Records for Owners and Operators

d) Subpart OOOO, §60.5420 and §60.5421, Notification, Reporting, and Recordkeeping Requirements and Additional Recordkeeping Requirements

e) Subpart OOOOa, §60.5420a and §60.5421a, Notification, Reporting, and Recordkeeping Requirements and Additional Recordkeeping Requirements

2) NDAC 33.1-15-22 and 40 CFR 63:

a) Subpart A, §63.10, Recordkeeping and Reporting Requirements

b) Subpart ZZZZ, §63.6655 and §63.6660, Notification, Reports and Records

Applicable Requirements: NDAC 33.1-15-12 and NDAC 33.1-15-22

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

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

6. **Reporting**:

A. Reporting shall be in accordance with the following requirements of NDAC 33.1-15-12 and 33.1-15-22, as applicable.

1) NDAC 33.1-15-12 and 40 CFR 60:

a) Subpart A, §60.7, Notification and Recordkeeping

b) Subpart Dc, §60.48c, Reporting and Recordkeeping Requirements

c) Subpart JJJJ, §60.4245, Notification, Reports and Records for Owners and Operators

d) Subpart OOOO, §60.5420 and §60.5422, Notification, Reporting, and Recordkeeping Requirements and Additional Reporting Requirements

e) Subpart OOOOa, §60.5420a and §60.5422a, Notification, Reporting, and Recordkeeping Requirements and Additional Reporting Requirements

2) NDAC 33.1-15-22 and 40 CFR 63:

a) Subpart A, §63.10, Recordkeeping and Reporting Requirements

b) Subpart ZZZZ, §63.6655 and §63.6660, Notification, Reports and Records

Applicable Requirements: NDAC 33.1-15-12 and NDAC 33.1-15-22

B. The permittee shall submit a semi-annual monitoring report for all monitoring records required under Condition 5 in a format provided or approved by the Department. All instances of deviations from the permit must be identified in the report. 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]

C. 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)

D. 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)

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

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

7. **Facility Wide Operating Conditions**:

A. **Ambient Air Quality Standards**:

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

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

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

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

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

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

Applicable Requirement: NDAC 33.1-15-17

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

Applicable Requirement: NDAC 33.1-15-04

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

Applicable Requirement: NDAC 33.1-15-13-02

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

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

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

Applicable Requirement: NDAC 33.1-15-07-02

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

Applicable Requirement: NDAC 33.1-15-07-01.5

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

1) Maintenance Shutdowns. In the case of shutdown of air pollution control equipment for necessary scheduled maintenance, the intent to shut down such equipment shall be reported to the Department at least 24 hours prior to the planned shutdown provided that the air

contaminating source will be operated while the control equipment is not in service. Such prior notice shall include the following:

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

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

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

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

e) The reasons that it would be impossible or impractical to 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

8. **General Conditions**:

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

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

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

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

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

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

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

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

E. **Submissions**:

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

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

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

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

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

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

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

action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

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

H. **Duty to Provide Information**: The permittee shall furnish to the Department, within a reasonable time, any information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. This includes instances where an alteration, repair, expansion, or change in method of operation of the source occurs. Upon request, the permittee shall also furnish to the Department copies of records that the permittee is required to keep by this permit, or for information claimed to be confidential, the permittee may furnish such recourse directly to the Department along with a claim of confidentiality. The permittee, upon becoming aware that any relevant facts were omitted, or incorrect information was submitted in the permit application, shall promptly submit such supplementary facts or corrected information. Items that warrant supplemental information submittal include, but are not limited to, changes in the ambient air boundary and changes in parameters associated with emission points (i.e., stack parameters). The permittee shall also provide additional information as necessary to address any requirements that become applicable to the source after the date a complete renewal application was submitted but prior to release of a draft permit.

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

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

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

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

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

4) Reopenings shall not be initiated before a notice of intent to reopen is provided to the permittee by the Department at least 30 days in advance of the date that this permit is to be reopened, except that the Department may provide a shorter time period in the case of an emergency. Proceedings to reopen and issue this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening shall be made as expeditiously as practicable.

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

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

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

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

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

2) Each change must comply with all applicable requirements.

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

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

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

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

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

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

1) Corrects typographical errors.

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

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

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

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

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

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

M. **Minor Permit 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

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

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

Applicable Requirement: NDAC 33.1-15-16

B. **Hydrogen Sulfide Restriction**: The permittee shall not discharge into the ambient air hydrogen sulfide (H_2S) in concentrations that would be objectionable on land owned or leased by the complainant or in areas normally accessed by the general public. For the purpose of complaint resolution, two samples with concentrations greater than 0.05 parts per million (50 parts per billion) sampled at least 15 minutes apart within a two-hour period and measured in accordance with Section 33.1-15-16-04 constitute a violation.

Applicable Requirement: NDAC 33.1-15-16-04