

**AIR QUALITY EFFECTS ANALYSIS
FOR
PERMIT TO CONSTRUCT
ACP-18210 v1.0**

Applicant:

Epitome Energy, LLC
1651 Old Highway 19
Redwing, MN 55066

Facility Location:

Epitome Energy, LLC
(TBD along 70th Avenue N and 55th St. N)
Grand Forks, ND 58201
Lat/Long: 47.99269/-97.1149
SE ¼, Sec. 12, T152N, R51W

Introduction:

Epitome Energy, LLC (Epitome) submitted a permit to construct application to the North Dakota Department of Environmental Quality – Division of Air Quality (Department) on June 16, 2023. The application was for constructing a new Soybean Processing Facility (Project) in Grand Forks County, North Dakota. The facility is expected to have a design capacity of 120,000 bushels per day (3,600 tons per day). In addition, Epitome will be a major source under federal New Source Review (NSR) Prevention of Significant Deterioration (PSD) regulations and under 40 CFR Part 63.

Epitome will be receiving soybean through rail and truck to be stored in storage bins. The soybean will then be transferred to a preparation area where the soybeans are conditioned, dehulled, cracked, and rolled flat into flakes. The flakes are sent to the extractor. And the hulls are sent to the hull grinder, where they undergo a hot dehulling process. In the extraction process, the flakes will be washed with hexane solvent which extracts oil from the soybean.

Table 1 lists the emissions units associated with Epitome Energy, LLC.

Table 1 - Source-wide Permitted Equipment.

| Emission Unit Description | Emission Unit (EU) | Emission Point (EP) | Air Pollution Control Equipment Description | |
|---|---------------------------|----------------------------|--|--|
| Rail Receiving (NSPS DD) | 1 | 100 | Bean Receiving Baghouse Filter | |
| Tuck Receiving (NSPS DD) | 2 | | | |
| Material Handling (NSPS DD) | 3 | | | |
| Bean Storage Bin A | 4 | 101 | Bean Storage Bin A Vent Filter ^A | |
| Bean Storage Bin B | 5 | 102 | Bean Storage Bin B Vent Filter ^A | |
| Bean Storage Bin C | 6 | 103 | Bean Storage Bin C Vent Filter ^A | |
| Bean Storage Bin D | 7 | 104 | Bean Storage Bin D Vent Filter ^A | |
| Scalper (NSPS DD) | 8 | 105 | Scalper Baghouse Filter ^A | |
| Day Bin #1 | 9 | 107 | Cleaning and Aspiration Baghouse Filter ^A | |
| Day Bin #2 | 10 | | | |
| Vertical Seed Conditioner Cyclone | 11 | | VSC Baghouse Filter ^A | |
| Hull Screener #1 Secondary Aspiration Cyclone | 12 | | Cleaning and Aspiration Baghouse Filter ^A | |
| Hull Screener #2 Secondary Aspiration Cyclone | 13 | | | |
| Conveyance Aspiration | 14 | | | |
| Whole Bean Aspirator Cyclone | 15 | | | |
| Hulloosinator/Cascade Dryer #1 CCD Cyclone | 16 | | | |
| Hulloosinator/Cascade Dryer #2 CCD Cyclone | 17 | | | |
| Hulloosinator/Cascade Dryer #3 CCD Cyclone | 18 | | | |
| Cracking/Cascade Cooler #1 CCC Cyclone | 19 | | | |
| Cracking/Cascade Cooler #2 CCC Cyclone | 20 | | | |
| Cracking/Cascade Cooler #3 CCC Cyclone | 21 | | | |
| Jet Dryer A | 22 | | | Jet Dryer A Baghouse Filter ^A |
| Jet Dryer B | 23 | | | Jet Dryer B Baghouse Filter ^A |
| Jet Dryer C | 24 | | | Jet Dryer C Baghouse Filter ^A |
| Flakers (8) | 25 | | Flakers Baghouse Filter ^A | |

| Emission Unit Description | Emission Unit (EU) | Emission Point (EP) | Air Pollution Control Equipment Description |
|--|---------------------------|----------------------------|---|
| Extractor Purge Fan (MACT GGGG) | 26 | 108 | -- |
| Dryer Cyclone A (MACT GGGG) | 27 | 109 | Dryer Cyclone A ^A |
| Dryer Cyclone B (MACT GGGG) | 28 | | Dryer Cyclone B ^A |
| Dryer Cyclone C (MACT GGGG) | 29 | | Dryer Cyclone C ^A |
| Cooler Cyclone D (MACT GGGG) | 30 | | Cooler Cyclone D ^A |
| 30,000-gallon Hexane Storage Tank #1 (MACT GGGG) | TK1 | 110 | Mineral Oil System ^B |
| 30,000-gallon Hexane Storage Tank #2 (MACT GGGG) | TK2 | | |
| 30,000-gallon Hexane Storage Tank #3 (MACT GGGG) | TK3 | | |
| Mineral Oil System Vent Fan (MACT GGGG) | 31 | | |
| Hull Grinding Hammermill #1 | 32 | 106 | Hull Grinding Baghouse Filter ^A |
| Hull Grinding Hammermill #2 | 33 | | |
| Hull Pelletizing | 34 | | Hull Pelletizing Cyclone ^A |
| Meal Grinding Hammermill #1 | 35 | | Meal Grinding Baghouse Filter ^A |
| Meal Grinding Hammermill #2 | 36 | | |
| Meal Grinding Hammermill #3 | 37 | | |
| Calcium Storage Bin | 38 | | 111 |
| Meal Storage Bin #1 | 39 | | |
| Meal Storage Bin #2 | 40 | | |
| Meal Storage Bin #3 | 41 | | |
| Meal Storage Bin #4 | 42 | | |
| Meal Storage Bin #5 | 43 | | |
| Hull Pellet Bin #1 | 44 | 112 | Hull Pellet Bin #1 Vent Filter ^A |
| Hull Pellet Bin #2 | 45 | 113 | Hull Pellet Bin #2 Vent Filter ^A |
| Hull Pellet Bin #3 | 46 | 114 | Hull Pellet Bin #3 Vent Filter ^A |
| Hull Pellet Bin #4 | 47 | 115 | Hull Pellet Bin #4 Vent Filter ^A |
| Hull Recovery/Reclaim | 48 | 116 | Hull Recovery/Reclaim Baghouse Filter ^A |
| Meal Loadout Storage Bin | 49 | 117 | Meal/Hull Pellet Loadout Baghouse Filter ^A |
| Meal/Hulls Train Loadout | 50 | | |

| Emission Unit Description | Emission Unit (EU) | Emission Point (EP) | Air Pollution Control Equipment Description |
|--|---------------------------|----------------------------|--|
| Meal/Hulls Truck Loadout | 51 | | |
| Hull/Pellet Loadout Storage Bin | 52 | 127 | Hull/Pellet Loadout Storage Bin Vent Filter ^A |
| Steam Boiler A rated at 92.1 MMBtu/hr and fired on natural gas (NSPS Dc, MACT DDDDD) | 53 | 118 | Low NOx Burners & Boiler A Flue Gas Recirculation |
| Steam Boiler B rated at 92.1 MMBtu/hr and fired on natural gas (NSPS Dc, MACT DDDDD) | 54 | 119 | Low NOx Burners & Boiler B Flue Gas Recirculation |
| Diesel fuel-fired emergency fire pump engine #1 rated at a maximum of 600 hp (NSPS III, MACT ZZZZ) | 55 | 123 | -- |
| Diesel fuel-fired emergency fire pump engine #2 rated at a maximum of 600 hp (NSPS III, MACT ZZZZ) | 56 | 124 | -- |
| Natural gas-fired emergency generator set #1 rated at a maximum of 620 hp (NSPS JJJ, MACT ZZZZ) | 57 | 125 | -- |
| Extraction Fugitive Loss (MACT GGGG) | FUG1 | FS1 | -- |
| Cooling Tower A, B, & C | FUG2 | FS2 | Mist Eliminators |
| Paved Roads | FUG3 | FS3 | -- |

^A Air Pollution Control equipment also function as Material Recovery Equipment (MRE)

^B Inherent Process Equipment (IPE) are considered part of the design under 40 CFR 52.21(b)(4)

**Facility Wide Emissions Profile
Potential to Emit (PTE)**

Table 2 - PTE (tons per year) ^A

| Emission Unit Description | Emission Unit (EU) | Emission Point (EP) | CO | NO _x | SO ₂ | VOCs | PM | PM ₁₀ | PM _{2.5} | Total HAPs | n-Hexane (Largest HAP) |
|-----------------------------------|--------------------|---------------------|-------------|-----------------|-----------------|--------------|-------------|------------------|-------------------|--------------|------------------------|
| Soybean Processing | Multiple | Multiple | -- | -- | -- | -- | 66.1 | 66.1 | 61.6 | -- | -- |
| Extractor Purge Fan | 26 | 108 | -- | -- | -- | 292.2 | -- | -- | -- | 187.0 | 187.0 |
| Extraction DTDC Cyclones | 27-30 | 109 | | | | | | | | | |
| Mineral Oil System Vent Fan | 31 | 110 | -- | -- | -- | 27.8 | -- | -- | -- | 17.8 | 17.8 |
| Steam Boilers A & B | 53 & 54 | 118 & 119 | 66.4 | 29.3 | 0.5 | 4.3 | 6.0 | 6.0 | 6.0 | 1.5 | 1.4 |
| Diesel Fire Pumps 1 & 2 | 55 & 56 | 123 & 124 | 0.2 | 1.7 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -- |
| Emergency Generator 1 | 57 | 125 | 1.4 | 0.7 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | -- |
| Extraction Fugitive Losses | FUG1 | FS1 | -- | -- | -- | 236.4 | -- | -- | -- | 151.3 | 151.3 |
| Cooling Towers A, B, C | FUG2 | FS2 | -- | -- | -- | -- | 0.1 | 0.1 | 0.0 | -- | -- |
| Paved Roads | FUG3 | FS3 | -- | -- | -- | -- | 16.7 | 3.3 | 0.8 | -- | -- |
| Total (without Fugitives): | | | 68.0 | 31.7 | 1.1 | 324.8 | 72.1 | 72.1 | 67.7 | 206.4 | 206.2 |
| Total (with Fugitives): | | | 68.0 | 31.7 | 1.1 | 561.2 | 88.9 | 75.5 | 68.5 | 357.7 | 357.5 |

^A Abbreviations:

PM: filterable and condensable particulate matter

PM_{2.5}: filterable and condensable particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($\leq 2.5 \mu\text{m}$)

PM₁₀: filterable and condensable particulate matter with an aerodynamic diameter less than or equal to 10 microns ($\leq 10 \mu\text{m}$) including PM_{2.5}

SO₂: sulfur dioxide

NO_x: oxides of nitrogen

CO: carbon monoxide

VOCs: volatile organic compounds

HAPs: hazardous air pollutants as defined in Section 112(b) of the Clean Air Act

Rules Analysis**Potentially Applicable Rules and Expected Compliance Status**

A. NDAC 33.1-15-01 – General Provisions:

The General Provisions chapter sets the basis for Air Pollution Control rules for any source or emission existing partially or wholly within North Dakota. The chapter includes definitions of key terms such as: "federally enforceable", "standard conditions", "fuel burning equipment", "fugitive emissions", "heat input", "control equipment", and "process weight rate". The document also outlines multiple topics, these include: entry onto premises - authority, variances, circumvention, severability, land use plans, and zoning regulations (only to provide air quality information), measurement of air contaminants, shutdown and malfunction of an installation - requirements for notification, time schedule for compliance, prohibition of air pollution, confidentiality of records, enforcement, and compliance certifications.

Applicability and Expected Compliance

Based on the review of the information provided, the facility will comply with all applicable sections of this rule.

B. NDAC 33.1-15-02 – Ambient Air Quality Standards:

The facility must comply with the North Dakota and Federal Ambient Air Quality Standards (AAQS). In addition to these standards, compliance with the "Criteria Pollutant Modeling Requirements for a Permit to Construct" guidelines¹.

Applicability and Expected Compliance

The facility triggers the prevention of significant deterioration (PSD) program emissions thresholds which require modeling. Therefore, preconstruction modeling for this facility was required. See NDAC 33.1-15-15 – Prevention of Significant Deterioration of Air Quality [40 CFR 52.21] for discussion on PSD. Preconstruction permit modeling was completed for PM₁₀ and PM_{2.5}.

The results of the preconstruction modeling demonstrate the potential emissions from the Project are not expected to cause or contribute to an exceedance of the AAQS. Details regarding the preconstruction permit modeling analysis and results are discussed in the Air Quality Impacts Analysis (AQIA) associated with this permitting action. See "ACP-18210 v1.0_AQIA" for details.

C. NDAC 33.1-15-03 – Restriction of Emission of Visible Air Contaminants:

This chapter requires all non-flare sources from new facilities to comply with an opacity limit of 20% except for one six-minute period per hour when 40% opacity is permissible.

¹ See October 6, 2014, Criteria Pollutant Modeling Requirements for a Permit to Construct. Available at: https://www.deq.nd.gov/publications/AO/policy/Modeling/Criteria_Modeling_Memo.pdf

This chapter also requires facility flares to comply with an opacity limit of 20% except for one six-minute period per hour when 60% opacity is permissible. Lastly, this chapter restricts the opacity of fugitive emissions transported off property to 40% except for one six-minute period per hour when 60% opacity is permissible. This chapter also contains exceptions under certain circumstances and provides the method of measurement to determine compliance with the referenced limits.

Applicability and Expected Compliance

Based on Department experience with similar sources, visible air contaminants from the facility are expected to be minimal and able to comply with the 20% opacity limit. Furthermore, EUs 1-25, 26-30, 32-52; FUGs 2-4 are subject to BACT for particulate matter and are expected to operate significantly below the 20% opacity limit.

D. NDAC 33.1-15-04 – Open Burning:

No person may dispose of refuse and other combustible material by open burning, or cause, allow, or permit open burning of refuse and 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.

Applicability and Expected Compliance

The facility is subject to this chapter and will comply with all open burning regulations.

E. NDAC 33.1-15-05 – Emissions of Particulates Matter Restricted:

This chapter establishes particulate matter emission limits and restrictions for industrial process equipment and fuel burning equipment used for indirect heating.

Applicability and Expected Compliance

Since the fuel burning equipment used for indirect heating is fired on gaseous fuels, the particulate matter limits in this chapter do not apply. It should be noted that the combustion of gaseous fuels in the units is expected to result in extremely low particulate matter emissions that are well below the allowable levels established by this chapter.

Of note, EUs 1-25, 26-30, 32-52; FUGs 2-4 are subject to BACT for particulate matter and are therefore expected to operate significantly below the allowable rates established in this chapter. All other units at the facility that emit particulate matter are subject to the Maximum Allowable Rates of Emission as outlined in 33.1-15-05-01.

F. NDAC 33.1-15-06 – Emissions of Sulfur Compounds Restricted:

This chapter applies to any installation in which fuel is burned and the SO₂ emissions are substantially due to the sulfur content of the fuel; and in which the fuel is burned primarily to produce heat. This chapter is not applicable to installations that are subject to an SO₂

emission limit under Chapter 33.1-15-12, Standards for Performance for New Stationary Sources, or installations that burn pipeline quality natural gas.

Applicability and Expected Compliance

All of the combustion equipment at the facility not subject to an NSPS will burn natural gas or inherently low sulfur gaseous fuels and thus are compliant with sulfur restrictions in this chapter as part of its physical and operational design.

G. NDAC 33.1-15-07 – Control of Organic Compounds Emissions:

This chapter establishes requirements for the construction of organic compound facilities and the disposal of organic compounds gas and vapor generated as waste resulting from storage, refining, or processing operations at the facility.

Applicability and Expected Compliance

The Project is not considered an organic compound facility, but the Project will emit organic compounds via the stationary VOC storage tanks (TKs 1-3, EP110). EP110 utilizes various control processes (e.g., good process design, good solvent recovery practices, fixed roof tank design, and best management practices) that limit the emission of organic compounds. In addition, EP110 will also comply with this chapter by equipping and operating the tanks with submerged fill pipes or fitting with a vapor recovery system.

Additionally, EUs 27-31, TKs 1-3 & FUG-1 are subject to comply with 40 CFR Part 63 Subpart GGGG and BACT for the VOC emissions associated with the units. As a result of compliance with subpart GGGG and the VOC BACT, compliance with this chapter is also expected.

H. NDAC 33.1-15-08 – Control of Air Pollution from Vehicles and Other Internal Combustion Engines:

This chapter restricts the operation of internal combustion engines which emit from any source unreasonable and excessive smoke, obnoxious or noxious gas, fumes, or vapor. This chapter also prohibits the removal or disabling of motor vehicle pollution control devices.

Applicability and Expected Compliance

The emergency fire pump diesel fired engines (EUs 55 & 56, EPs 123 & 124) and the emergency natural gas fired generator engine (EU57, EP125) are also subject to opacity requirements under NDAC 33.1-15-03-02 and subject to the requirements of NSPS Subpart III and Subpart JJJJ, respectively. As a result of expected compliance with these provisions, the engines are not expected to emit any unreasonable and excessive smoke, obnoxious or noxious gases, fumes, or vapor.

Any vehicle operating onsite is also expected to comply with this chapter's provisions.

I. NDAC 33.1-15-09 – [repealed]

J. NDAC 33.1-15-10 – Control of Pesticides:

This chapter outlines the restrictions and regulations regarding the use and disposal of surplus pesticides and empty pesticide containers.

Applicability and Expected Compliance

The facility is subject to this chapter and is expected to comply with all applicable requirements should pesticides be used.

K. NDAC 33.1-15-11 – Prevention of Air Pollution Emergency Episodes:

When an air pollution emergency episode is declared by the Department, the facility shall comply with the requirements in Chapter 33.1-15-11 of the North Dakota Air Pollution Control (NDAPC) rules.

L. NDAC 33.1-15-12 – Standards of Performance for New Stationary Sources [40 Code of Federal Regulations Part 60 (40 CFR Part 60)]:

This chapter adopts most of the Standards of Performance for New Stationary Sources (NSPS) under 40 CFR Part 60. The facility is subject to the following subparts under 40 CFR Part 60 which have been adopted by North Dakota as of July 1, 2019:

Subpart A – General Provisions

Subpart A contains general requirements for plan reviews, notification, recordkeeping, performance tests, reporting, monitoring, and general control device requirements.

Applicability and Expected Compliance

The facility will comply with the general provisions of Subpart A through the submission of timely notifications, performance testing, reporting, and following the general control device and work practice requirements under Subpart A. In addition, any changes to the facility after it is built will be evaluated with respect to this subpart as well as others.

Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

This subpart details information on the applicability, definitions, standards, compliance, performance test methods, emission monitoring, and reporting and recordkeeping requirements for small steam generating units. The subpart applies to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989, and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h).

Applicability and Expected Compliance

The facility has two natural gas fired steam boilers with rated capacities of 92.06 MMBtu/hr each. These units are subject to Subpart Dc and include steam boiler A (EU53, EP118) and steam boiler B (EU54, EP119). Other fuel burning equipment at the facility is not subject to Subpart Dc since the equipment does not meet the definition of a steam generating unit.

The steam boilers will comply with NSPS Dc by exclusively firing pipeline quality natural gas and maintaining fuel records.

Subpart DD – Standards of Performance for Grain Elevators

This subpart provides detailed information on the applicability and designation of affected facilities, definitions, standards for particulate matter, test methods and procedures, and modifications for grain elevators.

The NSPS DD establishes standards for "affected facilities" at any grain terminal elevator with more than 2.5 million bushels of permanent storage capacity or any grain storage elevator with more than 1.0 million bushels of permanent storage capacity. An "affected facility" encompasses each truck unloading station, truck loading station, barge and ship unloading and/or loading station, railcar unloading and/or loading station, grain dryer, and all grain handling operations. To be subject to NSPS DD, the affected facility must have commenced construction, modification, or reconstruction after August 3, 1978.

Emission points subject to NSPS DD must adhere to the particulate matter standards outlined in 40 CFR §60.302(b). These standards include a particulate matter emission limit of 0.023 g/dscm (around 0.01 gr/dscf) and an opacity limit of 0%. Performance testing is required to demonstrate compliance with the particulate matter emission limit.

Applicability and Expected Compliance

The units subject to NSPS DD are also subject to BACT limits for PM, PM₁₀, and PM_{2.5}. The BACT limits are more stringent than the requirements of this subpart. The units covered under Subpart DD are Bean Receiving and Handling (EUs 1-3, EP100), and Scalper (EU8, EP105). As defined in §60.302(b) and (c), the applicable requirements for the affected facilities include Standards for Particulate Matter for process emissions, including particulate matter and opacity limits. In general, these include:

- On or after the date of the performance test is completed, shall not cause to be discharged any process emission which:
 - 1) Contains particulate matter in excess of 0.01 gr/dscf.
 - 2) Exhibits > 0 percent opacity.
- On or after the 60th day of achieving the maximum production rate at which the facility will be operated, but no later than 180 days after initial startup, shall not cause to be discharged any fugitive emission from:
 - 1) Any individual truck unloading station, railcar unloading station, or railcar loading station, which exhibits greater than 5 percent opacity.
 - 2) Any grain handling operation which exhibits greater than 0 percent opacity.

- 3) Any truck loading station which exhibits greater than 10 percent opacity.

The emissions units covered in this section are expected to comply with the subpart DD.

Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

This subpart applies to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines. It covers provisions and requirements related to emission standards, certification, labeling and recordkeeping, performance tests, monitoring requirements, and compliance with standards and maintenance requirements. The subpart also includes definitions and general provisions that apply to the regulations.

Applicability and Expected Compliance

The diesel emergency fire pump engines #1 & 2 (EUs 55 & 56, EPs 123 & 124) are subject to Subpart IIII. The engines will have a maximum rating capacity of 600HP each, will be constructed after July 1, 2006, and will have National Fire Protection Association (NFPA) certification. The facility will maintain applicable records for the emergency engines and will comply with the following emission standards²:

- NMHC + NO_x of 4.0 g/KW-hr or 3.0 g/HP-hr
- CO: 3.5 g/KW-hr or 2.6 g/HP-hr
- PM: 0.20 g/KW-hr or 0.15 g/HP-hr

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

Subpart JJJJ establishes emissions standards (NO_x, CO, VOC) and compliance schedules for all new, modified, and reconstructed stationary spark ignition (SI) internal combustion engines (ICE) and equipment manufactured on or after July 1, 2007, regardless of size. The subpart applies to manufacturers, owners, and operators of such engines and equipment. SI ICE are categorized in this subpart by usage, size, and fuel type.

Applicability and Expected Compliance

The natural gas emergency generator engine (EU57, EP125) is subject to the requirements of NSPS Subpart JJJJ. The facility engine is rated at 620 brake horsepower (bhp) and will be constructed/purchased in 2024.

Subpart JJJJ requires the engine to comply with the following emissions standards:

- NO_x of 2.0 g/hp-hr or 160 ppmvd @ 15% O₂
- CO of 4.0 g/hp-hr or 540 ppmvd @ 15% O₂
- VOC of 1.0 g/hp-hr or 86 ppmvd @ 15% O₂

² Table 4 to Subpart IIII of Part 60, Title 40 (Nov. 17, 2023)

The facility is expected to comply with Subpart JJJJ requirements by purchasing and operating a certified engine. In addition, will be properly maintaining and operating an air-to-fuel ratio controller and keeping a maintenance plan and records of conducted maintenance and, to the extent practicable, will maintain and operate the engines in a manner consistent with good air pollution control for minimizing emissions.

- M. NDAC 33.1-15-13 – Emission Standards for Hazardous Air Pollutants [40 Code of Federal Regulations Part 61 (40 CFR Part 61)]

This chapter discusses emission standards for hazardous air pollutants. It specifically incorporates a majority of the subparts and appendices of the National Emission Standards for Hazardous Air Pollutants (NESHAP) under 40 CFR Part 61.

Applicability and Expected Compliance

The facility does not appear to have any applicable requirements under this chapter.

- N. NDAC 33.1-15-14 – Designated Air Contaminant Sources, Permit to Construct, Minor Source Permit to Operate, Title V Permit to Operate

This chapter designates that federally regulated sources are required to obtain a Permit to Construct and a Permit to Operate and comply with specific emission control and air quality standards.

Applicability and Expected Compliance

The facility has submitted an application for a permit to construct and has met all requirements necessary to obtain a permit to construct. The facility will be considered a major source under PSD. This source will also be a future major source under the Title V permit to operate program and must submit an initial Title V permit application within one year of start-up (Condition 6.F of ACP18210 v1.0).

The permit must undergo public comment per NDAC 33.1-15-14-02.6.c.

Once the facility completes construction and meets the permit to construct requirements, a facility inspection will be performed by the Department. After the Project start-up, the facility will be required to submit a timely Title V permit to operate application.

Compliance assurance monitoring (CAM) will be required for each emissions unit that has an uncontrolled potential emission greater than 100 tpy. CAM plans are to be developed and submitted with the Part 70 (TV) permit application.

- O. NDAC 33.1-15-15 – Prevention of Significant Deterioration of Air Quality [40 CFR 52.21]

This chapter adopts the federal provisions of the Prevention of Significant Deterioration of air quality (PSD) program (40 CFR 52.21). A facility is subject to PSD review if it is classified as a “major stationary source” under Chapter 33.1-15-15.

Applicability and Expected Compliance

This facility is classified as a “major stationary source” under 40 CFR 52.21(b)(1)(i)(a) and is therefore subject to PSD review since emissions of a regulated new source review (NSR) pollutant³ exceed 250 tpy (excluding fugitive emissions). The PTE for this facility, as shown in Table 2, is above the 250 tpy threshold. PSD requires the installation of the Best Available Control Technology (BACT); an air quality analysis (i.e., air dispersion modeling); an additional impacts analysis, and public involvement.

BACT Review

Epitome Energy, LLC submitted a BACT analysis supporting the control equipment proposed for the facility on the emission sources listed below. The Department reviewed the proposed BACT limits and agrees with the proposed emission limits.

A BACT analysis was completed for the species of PM/PM₁₀/PM_{2.5}, VOC, and CO_{2e}. The BACT analysis was conducted on the Material Handling and Processing (EUs 1-25, 32-52; EPs 100-107, 109, 111-117, 127), Emergency Fire Pumps and Generator (EUs 55-57, EPs 123-125), Steam Boilers A & B (EUs 53 & 54, EPs 118 & 119), VOC from Extraction Sources (EUs 26-30, TKs 1-3, FUG-1; EPs 108-110, FS1), and Cooling Tower A-C (FUGs 2-4, FSs 2-4). The submitted BACT analysis for PM/PM₁₀/PM_{2.5}, VOC, and CO_{2e} was reviewed and is approved by the Department. The control measures adopted as BACT for the facility are listed in ACP-18210 v1.0 Table 1-1. BACT emissions limits are listed in ACP-18210 v1.0 Table 3-1.

1. Fabric Filter Baghouse – EUs 1-25, 32, 33, 35-52; EPs 100-107, 111-117, 127
2. Process cyclones – EUs 27-30, 34; EPs 106, 109
3. Good process design and good solvent recovery practices – EUs 26-31, TKs 1-3, FUG-1; EPs 108-110, FS1
4. Fixed roof tank design and best management practices – TKs 1-3; EP110
5. Good combustion practices and use of natural gas fuel – EUs 53 & 54; EPs 118, 119
6. Good combustion practices, preventative maintenance, engine design, and use of Ultra-low-sulfur diesel for the fire pump engines and pipeline quality natural gas for the emergency generator– EUs 55-57; EPs 123-125
7. Drift loss limit – FUG 2; FS 2

Ambient Air Analysis

An air quality analysis was completed to demonstrate that the Project’s potential emissions will not cause or contribute to a violation of any applicable NAAQS or PSD increment. The Department has reviewed the air quality analysis and completed an independent analysis to verify the results. See "NDAC 33.1-15-02 – Ambient Air Quality Standards:" and “ACP-18210v1.0_AQIA” for details.

Additional Impacts Analysis

³ See 40 CFR 52.21(b)(50). Available at: [https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-52/subpart-A/section-52.21#p-52.21\(b\)\(50\)](https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-52/subpart-A/section-52.21#p-52.21(b)(50))

An additional impacts analysis was completed to assess the impacts of air, ground, and water pollution on soils, vegetation, and visibility caused by any increase in emissions of any regulated pollutant from the Project, and from associated growth. Associated growth is industrial, commercial, and residential growth that will occur in the area due to the source. The Department has reviewed the additional impacts analysis included in the June 2023 application and believes it accurately assesses the additional impacts associated with the Project.

Public Participation

The permit must undergo public comment per NDAC 33.1-15-14-02.6.c and NDAC 33.1-15-15. See the “Summary:” section for details on the public comment period.

P. NDAC 33.1-15-16 – Restriction of Odorous Air Contaminants

This chapter restricts the discharge of objectionable odorous air contaminants which measures seven odor concentration units or greater outside the property boundary. The emission of hydrogen sulfide is also addressed with strict concentration limitations. The chapter also establishes the method of measurement using certified inspectors, scentometers, and other approved instruments.

Applicability and Expected Compliance

Based on the Department's experience with sources having similar emission units, processes, and low hydrogen sulfide concentrations, the facility is expected to comply with this chapter.

Q. NDAC 33.1-15-17 – Restriction of Fugitive Emissions

This Chapter provides guidelines and restrictions to control fugitive emissions from particulate matter and gaseous emissions that would violate Chapter 2 (ambient air quality standards), Chapter 15 (PSD), Chapter 16 (odor), or Chapter 19 (visibility).

Applicability and Expected Compliance

The facility will be required to take reasonable precautions to prevent fugitive emissions in violation of the above referenced NDAC chapters. In addition, the gaseous fugitive emission sources and particulate matter sources at the facility are regulated by BACT. Compliance with BACT will result in compliance with this chapter.

R. NDAC 33.1-15-18 – Stack Heights

This chapter restricts the use of stack heights above good engineering practices (GEP). The chapter primarily adopts federal regulations listed under 40 CFR 51.100(ii). This chapter also restricts the use of dispersion techniques to affect the concentration of a pollutant in the ambient air. Demonstrations of good engineering practice stack heights must be made available for review.

Applicability and Expected Compliance

The proposed stacks at the facility do not exceed GEP and will not use dispersion techniques to affect the pollutant concentration in the ambient air.

The stack heights at the facility are listed in Table 5-1, ACP-18210 v 1.0.

S. NDAC 33.1-15-19 – Visibility Protection

This chapter outlines regulations regarding visibility protection and applies to new major stationary sources and modifications as defined in Section 33.1-15-15-01. It contains provisions regarding visibility impact analysis, visibility models, notification requirements for permit applications, review by federal land managers, permit issuance criteria, and visibility monitoring.

Applicability and Expected Compliance

The facility is a new major stationary source and therefore is subject to the requirements of this chapter. The nearest Class I areas to the facility are the Voyageurs National Park (MN) and Lostwood Wilderness Area (ND) which are greater than 250 kilometers away from the facility. Due to the relatively large distances from the facility to the Class I areas, impacts to the Class I areas' visibility from the proposed Project are anticipated to be negligible. A visibility analysis was also performed and included in Section 4.5 of the permit application.⁴ The Department has reviewed this analysis and agrees with the conclusions reached.

T. NDAC 33.1-15-20 – Control of Emissions from Oil and Gas Well Production Facilities

The facility is not an oil or gas well facility and is therefore not subject to the requirements of this chapter.

U. NDAC 33.1-15-21 – Acid Rain Program

This chapter adopts the acid rain provisions of the Clean Air Act specified under 40 CFR Parts 72-78. The facility is not subject to the acid rain provision as they are not an electric utility.

V. NDAC 33.1-15-22 – Emissions Standards for Hazardous Air Pollutants for Source Categories [40 Code of Federal Regulations Part 63 (40 CFR Part 63)]

This chapter adopts most of the National Emission Standards for Hazardous Air Pollutants for Source Categories (NESHAP) under 40 CFR Part 63. The facility is subject to the following subparts under 40 CFR Part 63 which have been adopted by North Dakota as of July 1, 2019. Typically, these standards apply to major sources of air pollution that are from a regulated source category. In addition to the major source requirements, some of the regulations have “area source” standards (for non-major HAP sources). Some of the area source standards have not been adopted by the Department and compliance will be

⁴ See Epitome Energy PSD Air Emissions Permit Application from June 2023, pdf pages 48-49.

determined by the United States Environmental Protection Agency (USEPA) (i.e. 40 CFR 63, Subpart ZZZZ area source provisions have not been adopted by the Department).

Applicability

The facility's potential HAP emissions are greater than 10 tpy of any single HAP and greater than 25 tpy for combined HAP, so the facility is a major source of HAPs. N-hexane is the single largest HAP with the potential to emit greater than 10 tons per year, see Table 2, and accounts for over 99% of all facility HAP emissions.

Subpart A – General Provisions

Subpart A contains general requirements for prohibited activities and circumvention, preconstruction review and notification, standards and maintenance requirements, performance tests, monitoring, recordkeeping, reporting, and control device work practice requirements.

Applicability and Expected Compliance

The facility will comply with the general provisions of Subpart A through submission of timely notifications, performance testing, monitoring, recordkeeping, reporting, and following the control device work practice requirements under Subpart A.

Subpart GGGG – National Emissions Standards for Hazardous Air Pollutants: Solvent Extraction for Vegetable Oil Production

Subpart GGGG covers the purpose of the subpart, definitions, applicability, compliance requirements, monitoring and testing, notifications, reports, and records. The regulation sets requirements for solvent loss, the volume fraction of hazardous air pollutants (HAPs), and the quantity of oilseed processed. It also requires a plan for demonstrating compliance, following site-specific operating limits for temperature and pressure, and reporting for startup, shutdown, and malfunctions.

Applicability and Expected Compliance

The following emission units will be subject to Subpart GGGG, Extractor Purge Fan (EU26), Dryer Cyclone A-C (EUs 27-29), Cooler Cyclone D (EU30), Mineral Oil System Vent Fan (EU31), Hexane Storage Tank #1-3 (TKs 1-3) and Extraction Fugitive Losses (FUG1). Emission units listed are also subject to BACT which establishes lower emission limits than required under Subpart GGGG. The chapter defines the Oilseed solvent loss factor for conventional soybean facilities as 0.2 gal/ton, whereas the BACT limit is 0.15 gal/ton (Condition 3.B of ACP18210 v1.0).

Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

The subpart establishes emission limits and operating requirements for stationary internal combustion engines. It covers engines located at major or area sources of hazardous air

pollutants. The subpart requires performance testing to demonstrate emissions compliance and includes requirements for monitoring and reporting emissions data. The subpart also lists the provisions for petitioning the administrator for alternative standards and for exemptions from the standards.

Applicability and Expected Compliance

The facility's diesel emergency fire pump engines #1 & 2 (EUs 55 & 56, EPs 123 & 124) and natural gas emergency generator engine (EU57, EP125) are subject to the requirements under this subpart. The requirements of Subpart ZZZZ are met by complying with the requirements of NDAC 33.1-15-12 [40 CFR 60], Subpart IIII, and Subpart JJJJ.

Subpart DDDDD – National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters

Subpart DDDDD applies to major sources of HAPs and establishes national emission limitations, work practice standards, and requirements to demonstrate initial and continuous compliance with the emission limitations and work practice standards.

Applicability and Expected Compliance

Steam boiler A (EU53, EP118) and steam boiler B (EU54, EP119) will become subject to Subpart DDDDD upon start-up and will be subject to the periodic tune-up (every 5 years) and oxygen level requirements under 40 CFR 63.7500.

W. NDAC 33.1-15-23 – Fees

This chapter requires a filing fee of \$325 for a permit to construct applications, plus any additional fees based on actual processing costs. The additional fees based on processing costs will be assessed upon issuance of the draft permit to construct. The annual operating Title V permit fees will also become applicable upon receipt of a Title V permit.

The applicant has paid the \$325 filing fee and will be required to pay the additional fees associated with the permit processing.

X. NDAC 33.1-15-24 – Standards for Lead-Based Paint Activities

The facility will not perform any lead-based painting and is therefore not subject to this chapter.

Y. NDAC 33.1-15-25 – Regional Haze Requirements

This chapter is specific to existing stationary sources or groups of sources that have the potential to “contribute to visibility impairment” as defined in Section 33.1-15-25-01.2. Existing stationary sources or groups of sources determined to contribute to visibility impairment may be required to implement emissions reduction measures to help the Department make reasonable progress toward North Dakota's reasonable progress goals established in accordance with 40 CFR 51.308.

Applicability and Expected Compliance

The facility is a new major stationary source therefore the chapter is not applicable to the facility. However, Section 33.1-15-19 ensures emissions from the proposed facility will have negligible impacts to the Class I areas' visibility and will not expect to interfere with North Dakota's reasonable progress goals. Additionally, the nearest Class I areas to the facility are more than 250 km away from the facility.

Summary:

A complete review of the proposed project indicates that the facility is expected to comply with the applicable federal and state air pollution rules and regulations. The Department will make a final recommendation on the issuance of a Permit to Construct for Epitome Energy, LLC following completion of a 30-day public comment period. The public comment period will run from March 28, 2024, and end on April 27, 2024.

The Department will hold a public meeting followed by a public hearing in Grand Forks, North Dakota on April 23, 2024, for interested parties. Upon completion of the public comment period, the Department will address all comments applicable to the state and federal air quality rules and regulations and make a final determination regarding the issuance of a Permit to Construct for the Project.

Update post comment period:

[Reserved]

Date of Draft Analysis: March 18, 2024

Date of Final Analysis: [Reserved]

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