

**Air Quality Effects Analysis (AQEA)
for
ONEOK Rockies Midstream, L.L.C.
Tree Top Compressor Station**

**NW ¼, NW ¼, Sec. 23, T142N, R100W
Lat/Long 47.109306, -103.32785
Billings County, ND**

Associated with Permit No.:

ACP-18280 v1.0



North Dakota Department of Environmental Quality

Division of Air Quality

Date of Draft Analysis: April 29, 2026	Dates of Public Comment Period: MMMM DD, YEAR through MMMM DD, YEAR
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1. Project Description

ONEOK Rockies Midstream, L.L.C. (ONEOK) submitted a minor source Permit to Operate (PTO) renewal application to the North Dakota Department of Environmental Quality – Division of Air Quality (Department) on February 19, 2024, for the Tree Top Compressor Station, located in Billings County, North Dakota. During the PTO renewal, the Department determined it would be appropriate to reevaluate certain emission limits previously established in ACP-17389 v1.0.

Additionally, ONEOK has requested synthetic minor limits on the condensate storage tanks to avoid NSPS OOOOa applicability. During this update, emission unit and emission point identifiers were revised, to be more consistent with identifiers used in other ONEOK permits.

The pound per hour (lb/hr) NO_x and CO limits on the Superior engines (EUs C1 & C2) are state limits that ONEOK requested to keep. The engines are considered remote under MACT ZZZZ applicability and have no limits under the subpart.

ACP-17389 v1.0 included duplicative emission limits on the Caterpillar compressor engine (EU C3) in pound per hour (lb/hr) and grams per horsepower-hour (g/hp-hr). The lb/hr limits are rescinded. The g/hp-hr remains as the regulatory limit (NSPS Subpart JJJJ) for the engine.

The ACP-17389 v1.0 SO₂ limit and stack height requirements for the emergency flare (EU FL1) were re-evaluated based on current ambient air quality standards, emission limit standards, and North Dakota Air Quality permitting requirements. The SO₂ limit as set forth in ACP-17389 v1.0 was implemented to ensure compliance with the 1-hr SO₂ North Dakota Ambient Air Quality Standard (NDAAQS). The 1-hr SO₂ NDAAQS was in place prior to EPA establishing the 1-hr SO₂ National Ambient Air Quality Standard (NAAQS) in 2010. In 2011, North Dakota adopted the EPA NAAQS into the North Dakota Administrative Code¹, lowering the allowable 1-hr SO₂ from 715 µg/m³ to 196 µg/m³. Therefore, the previous permit SO₂ limit and stack height requirements for the emergency flare no longer ensures compliance with the NAAQS and are henceforth rescinded. The emergency flare's (EU FL1) potential to emit (PTE) and subsequent emission limit as established in ACP-17389 v1.0 was based on the combustion of sour gas with significantly higher H₂S content (which primarily converts to SO₂ when combusted) than the gas currently received at the facility. Introduction of an SO₂ limit was common with North Dakota's pre-Bakken oil and (sour) gas production but is no longer appropriate for facilities which receive sweet (low H₂S) gas. As a result, the rescinded SO₂ limit will not be replaced in this permit action and the emergency flare (EU FL1) PTE has been updated.

On July 1, 2022, the Department sent an email to ONEOK approving the installation of two additional condensate storage tanks (EUs TK8 & TK9), the 400 barrel (bbl) methanol storage tank (EU MTK10) and the tank flare (EU FL2). These new emission units are incorporated into this PTC. This approval is integrated into this permit.

ONEOK requested the condensate tanks (EUs TK1, TK2, TK3, TK8, & TK9) be limited to less than 6 tons per year (tpy) of VOC emissions per tank. This limit keeps the tanks below the

¹ NDAC 33.1-15-02, Table 1 <https://ndlegis.gov/information/acdata/pdf/33.1-15-02.pdf?20150602082326>

threshold for NSPS OOOOa applicability, and thus is a synthetic minor limit.

After a complete review of the proposed limits indicating that the facility is expected to comply with applicable federal and state air pollution rules and regulations, the Department will make a recommendation on PTC issuance for Tree Top Compressor Station following the completion of a 30-day public comment period.

2. Permit Description

The facility will be a synthetic minor source of VOC with limits on the condensate storage tanks to remain out of NSPS OOOOa applicability. The facility is an area source of Hazardous Air Pollutants (HAPs).

The facility emission units are found in ACP-18280 v1.0, Table 1-1.

3. Facility Emission Profile

For all emission units associated with the Project, Table 1 lists the potential to emit (PTE) for all criteria air pollutants. Table 1 abbreviations are as follows: oxides of nitrogen (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), sulfur dioxide (SO₂), and filterable and condensable particulate matter (PM).

Table 1 – Project PTE Summary. All units are in tons per year (tpy). ^A

Emission Unit Description	EU	NO_x	CO	VOCs	SO₂	PM	HAP
White Superior engine	C-1	23.17	23.17	0.77	0.02	0.51	0.01
White Superior engine	C-2	23.17	23.17	0.77	0.02	0.51	0.01
Caterpillar engine	C-3	13.33	26.65	9.33	0.03	0.44	1.60
Glycol heater	H-1	0.85	0.72	0.05	0.01	0.06	0.02
400-bbl condensate tank	TK-1	-	-	5.99 ^A	-	-	0.04
400-bbl condensate tank	TK-2	-	-	5.99 ^A	-	-	0.02
400-bbl condensate tank	TK-3	-	-	5.99 ^A	-	-	0.02
400-bbl condensate tank	TK-8	-	-	5.99 ^A	-	-	0.01
400-bbl condensate tank	TK-9	-	-	5.99 ^A	-	-	0.01
Condensate truck loading	TL-1	-	-	12.80	-	-	3.88
Process flare	FL-1	0.13	0.27	0.17	6.10	0.01	0.00
Tank flare	FL-2	0.41	1.57	2.95	0.00	0.01	0.36
400-bbl methanol tank	MTK-10	-	-	0.34	-	-	0.34
Fugitive Emissions	FUG	-	-	5.84	-	-	0.81
Misc Vent & Blowdowns	BD	-	-	3.54	-	-	0.02
Totals:		61.06	75.55	36.57	6.17	1.53	7.14

^A Synthetic minor limit.

4. Rules Analysis

This section details the potential applicability and expected compliance status of each rule under the North Dakota Administrative Code (NDAC) 33.1-15—Air Pollution Control Rules.

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

This chapter covers the following topics: 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:

This chapter requires that the facility complies with the North Dakota and Federal Ambient Air Quality Standards (AAQS).

Applicability and Expected Compliance

The facility is not subject to PSD nor does the facility's PTE trigger the modeling thresholds listed in the "Criteria Pollutant Modeling Requirements for a Permit to Construct"², therefore, preconstruction modeling for this facility was not required. Based on the facility PTE and proposed stack heights, compliance with the ambient air quality standards is expected to be maintained.

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

This chapter requires all non-flare emission sources at new facilities to comply with an opacity limit of 20% except for one six-minute period per hour when 40% opacity is permissible. For all flare emission sources, the limits are 20% and 60% respectively. Fugitive emissions must not exceed 40% for more than one six-minute period per hour. The chapter establishes exceptions to opacity requirements and that compliance shall be determined using EPA Reference Method 9 or 22.

Applicability and Expected Compliance

Based on Department experience with the emergency flare (EU FL1) and non-flare sources (EUs C1, C3, & C3), the facility is expected to comply with the 20% opacity limit as applicable to each source. The tank flare (EU FL2) used to control vapors from the

² See October 6, 2014, Criteria Pollutant Modeling Requirements for a Permit to Construct. Available at: https://www.deq.nd.gov/publications/AQ/policy/Modeling/Criteria_Modeling_Memo.pdf

condensate storage tanks (EUs T1, T2, T3, T8 & T9) is subject to additional restrictions to avoid NSPS OOOOa applicability and shall comply with the requirements of ACP-18280 v1.0 Condition 2.F in lieu of the Department's 20% opacity restriction.

D. NDAC 33.1-15-04 – Open Burning:

No person may cause, conduct, or permit open burning of refuse, trade waste, or other combustible material—as part of a salvage operation or otherwise—except as provided under NDAC 33.1-15-04-02 or 33.1-15-10-02.

Applicability and Expected Compliance

No open burning operations are permitted unless approved in advance by the Department.

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

This chapter establishes particulate matter emission limits, restrictions, and measurement methods for industrial processes, fuel burning equipment used for indirect heating (where emissions do not interact with process materials), waste incinerators, and crematoriums.

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 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.

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

This chapter applies to any installation in which SO₂ emissions are substantially due to the sulfur content of burned fuel used primarily to produce heat. This chapter establishes requirements for measurement methods, continuous emission monitoring, reporting, and recordkeeping. This chapter is not applicable to installations which are subject to an SO₂ emission limit under NDAC 33.1-15-12 (NSPS, see Section 1.L) or which burn pipeline quality natural gas.

Applicability and Expected Compliance

The facility is exempt from this chapter since each engine (EUs C1, C2, & C3) and the glycol heater (EU H1) will be fired on gas containing no more than 2 grains of sulfur per 100 standard cubic feet.

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

This chapter establishes requirements for the construction of organic compound facilities related to closed-vent systems, control devices, and seals. This chapter requires organic compound vapors to be controlled by a continuously burning pilot flare or other equally effective control device. This chapter also requires hydrogen sulfide (H₂S) to be controlled effectively.

Applicability and Expected Compliance

The condensate storage tanks (EUs T1, T2, T3, T8 & T9) comply with this chapter by being operated with a submerged fill pipe and with tank vapors being controlled using a flare (EU FL2).

The condensate truck loadout (EU TL-1) has the potential to handle over 20,000 gallons per day of volatile organic liquids and complies with this chapter by equipping and operating the loadout facility with a submerged fill arm.

For the flares (EUs FL1 & FL2), the facility will comply with this chapter by equipping and operating an automatic igniter or a continuous burning pilot.

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 facility compressor engines (EUs C1, C2, & C3) are also subject to opacity requirements under NDAC 33.1-15-03-02. Additionally, the Caterpillar engine (EU C3) is subject to the requirements of NSPS Subpart JJJJ. 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.

I. NDAC 33.1-15-09 – [repealed]

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

This chapter provides restrictions on pesticide use, disposal, and the proper handling of 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:

This chapter requires facilities to develop abatement strategy plans for use during an air pollution episode—as determined by the Department—to prevent emergencies and adverse effects to human health.

Applicability and Expected Compliance

When an air pollution episode is declared by the Department, the facility shall comply with the requirements in this chapter.

L. NDAC 33.1-15-12 – Standards of Performance for New Stationary Sources (40 CFR 60):

This chapter adopts most of the New Source Performance Standards (NSPS) and appendices under 40 CFR 60 as of July 1, 2019, to which the facility is subject:

1) NSPS A – General Provisions

This subpart is applicable to any facility in which an NSPS applies and contains general requirements for control devices and work practices, notification, performance tests, monitoring, reporting and recordkeeping.

Applicability and Expected Compliance

The facility will comply with all requirements of this subpart. In addition, any physical or operational changes to the facility after it is built will be evaluated with respect to this subpart and others.

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

This subpart applies to stationary spark ignition internal combustion engines that commence construction after July 1, 2007. Engines are categorized based on usage, size, and fuel type. This chapter establishes emission standards and requirements for compliance, testing, monitoring, reporting, and recordkeeping.

Applicability and Expected Compliance

The Caterpillar natural gas compressor engine (EU C3) is subject to the requirements of NSPS Subpart JJJJ. The Caterpillar engine is rated at 1,380 horsepower (hp), was manufactured on January 4, 2011, and is equipped with a catalytic oxidizer.

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

- NO_x of 1.0 g/hp-hr or 82 ppmvd @ 15% O₂
- CO of 2.0 g/hp-hr or 270 ppmvd @ 15% O₂
- VOC of 0.7 g/hp-hr or 60 ppmvd @ 15% O₂

To demonstrate compliance with the above limits, the facility must conduct emissions testing every 8,760 hours of operations or every three years, whichever comes first.

The facility is also expected to comply with Subpart JJJJ requirements by 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 CFR 61):

This chapter adopts most of the National Emission Standards for Hazardous Air Pollutants (NESHAP) and appendices under 40 CFR 61 as of July 2, 2010.

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 air contaminant sources that are required to obtain a PTC and a Permit to Operate (PTO) and the requirements for permits of various types, including public comment.

Applicability and Expected Compliance

As a result of this permit action, the facility will be considered a synthetic minor source via federally enforceable restrictions limiting the VOC emissions from the condensate storage tanks (EUs TK1-3, TK8 & TK9) below the NSPS Subpart OOOOa threshold of applicability.

The permit must undergo public comment per NDAC 33.1-15-14-06.5.a.

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 PSD program (40 CFR 52.21) as of January 1, 2019. A facility is subject to PSD review if it is classified as a “major stationary source” or undergoes a “major modification” as defined by 40 CFR 52.21(b)(1-2). Major stationary sources are either: (1) facilities which fall under one of the specified source categories and the PTE exceeds 100 tpy of any NSR pollutant or, (2) facilities that do not fall under a specified category and the PTE exceeds 250 tpy of any NSR pollutant.

Applicability and Expected Compliance

This facility is not classified as a “major stationary source” under 40 CFR 52.21(b)(1)(i)(a) and is therefore only subject to PSD review if emissions of a regulated new source review (NSR) pollutant³ exceed 250 tpy (excluding fugitive emissions). The PTE for this facility,

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))

as shown in Table 1, is below the 250 tpy threshold and therefore not subject to PSD review.

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

This chapter restricts the discharge of objectionable odorous air contaminants which measure seven odor concentration units or greater outside the property boundary. This chapter addresses emissions of H₂S. This chapter also establishes the method of measurement using certified inspectors, scentometers, and other approved instruments.

Applicability and Expected Compliance

Based on Department experience with sources having similar emission units, processes, and low H₂S concentrations, the facility is expected to comply with this chapter without additional controls. Any odor-related complaints received by the Department will be investigated and resolved in accordance with this chapter.

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

This chapter restricts PM and gaseous fugitive emissions that would violate Chapters 2 (AAQS), 3 (visible emissions), 15 (PSD), 16 (odor), or 19 (visibility), providing suggested abatement measures.

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.

R. NDAC 33.1-15-18 – Stack Heights:

This chapter restricts the use of stack heights above good engineering practices (GEP) and dispersion techniques to affect pollutant concentrations in the ambient air as defined by 40 CFR 51.100(hh-kk). Stack heights in exceedance of GEP are permissible if they undergo a demonstration study which is made available for review by the Department and the public.

Applicability and Expected Compliance

The stack height of the engines (EUs C1, C2, & C3) 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.

S. NDAC 33.1-15-19 – Visibility Protection:

This chapter requires new major stationary sources or major modifications⁴ to demonstrate the emissions will not cause or contribute to adverse impact on visibility in federal Class I areas. This chapter establishes requirements for visibility impact analysis, visibility

⁴ Chapter 19 applies to a “new major stationary source” or “major modification” as defined in NDAC 33.1-15-15-01.

models, notification, review by federal land managers, public participation, and visibility monitoring.

Applicability and Expected Compliance

The facility is not a new major stationary source and therefore is not subject to the requirements of this chapter. Given the minor source levels of the visibility impairing air pollutants, such as NO_x, SO₂, and PM_{2.5}, it is expected that the facility will not adversely contribute to visibility impairment within the three units of the Theodore Roosevelt National Park (nearest federal Class I areas) or at the Lostwood National Wildlife Refuge.

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

This chapter regulates emissions from oil and gas well production facilities, requiring operators to register new wells and report gas composition changes. It establishes PSD applicability for major sources and mandates compliance with air quality standards for pollutants like sulfur dioxide and hydrogen sulfide.

Applicability and Expected Compliance

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 under 40 CFR 72, 75, & 76 and appendices as of January 1, 2012.

Applicability and Expected Compliance

The facility is not subject to the acid rain provision since it is not an electric utility.

V. NDAC 33.1-15-22 – Emissions Standards for Hazardous Air Pollutants for Source Categories [40 CFR 63 a.k.a. MACT (Maximum Achievable Control Technology)]:

This chapter adopts most of the MACT standards and appendices under 40 CFR 63 as of July 1, 2019.

1) MACT A – General Provisions

This subpart is applicable to any facility to which a MACT standard applies and contains general requirements for control devices and work practices, notification, performance tests, monitoring, reporting and recordkeeping.

Applicability and Expected Compliance

The facility's potential HAP emissions are less than 10 tpy of any single HAP and less than 25 tpy for combined HAP, so the facility is an area (minor) source of HAP.

The facility will comply with all requirements of this subpart.

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

This subpart applies to stationary reciprocating internal combustion engines (RICE) at major and area sources of HAP, establishing HAP emission and operating limits and requirements for compliance, testing, reporting, and recordkeeping.

Applicability and Expected Compliance

The facility engines (EUs C1, C2, & C3) are subject to the requirements under this subpart. EUs C1 and C2 are equipped with NSCR controls, and EU C3 is equipped with a catalytic oxidizer, and as a result, all engines are expected to comply with the applicable Subpart ZZZZ limits. The requirements of Subpart ZZZZ for the Caterpillar engine (EU C3) are met by complying with the requirements of NDAC 33.1-15-12 [40 CFR 60], Subpart JJJJ.

W. NDAC 33.1-15-23 – Fees:

This chapter establishes a filing fee of \$325 for PTC applications, plus any additional fees based on actual processing costs assessed upon issuance of the draft PTC. This chapter also requires an annual PTO fee for Title V major and minor sources and well registrations.

Applicability and Expected Compliance

This permit to construct was a result of an internal review and no fees are being assessed.

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

This chapter establishes standards and requirements for the accreditation, notification, and fees of procedures, training programs, certification, and licensing for individuals and firms engaged in lead-based paint activities.

Applicability and Expected Compliance

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

Y. NDAC 33.1-15-25 – Regional Haze Requirements (40 CFR 51.308):

This chapter establishes requirements for stationary sources (which were in existence between 1962 and 1977) which have the potential to “contribute to visibility impairment” in Class I Federal areas, as defined by 40 CFR 51.301, to implement best available retrofit technology. In addition, existing stationary sources or groups of sources are required to implement emission reduction measures to make reasonable progress toward North Dakota’s reasonable progress goals established in accordance with 40 CFR 51.308 at the discretion of the Department.

Applicability and Expected Compliance

The facility is an existing source. Based on low PTE of visibility impairment pollutants, the facility is not expected to contribute to visibility impairment. Therefore, the facility is not subject to the requirements of this chapter.

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