

State Registration Number
B7220

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-B7220-2022

ANR Pipeline Company - Woolfolk Compressor Station

State Registration Number (SRN): B7220

Located at

11039 150th Street, Big Rapids, Mecosta County, Michigan 49307

Permit Number: MI-ROP-B7220-2022

Staff Report Date: July 4, 2022

This Staff Report is published in accordance with Sections 5506 and 5511 of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Specifically, Rule 214(1) of the administrative rules promulgated under Act 451, requires that the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), prepare a report that sets forth the factual basis for the terms and conditions of the Renewable Operating Permit (ROP).

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July 4, 2022 - STAFF REPORT

ROP Number

MI-ROP-B7220-2022

Purpose

Major stationary sources of air pollutants, and some non-major sources, are required to obtain and operate in compliance with an ROP pursuant to Title V of the federal Clean Air Act; and Michigan’s Administrative Rules for Air Pollution Control promulgated under Section 5506(1) of Act 451. Sources subject to the ROP program are defined by criteria in Rule 211(1). The ROP is intended to simplify and clarify a stationary source’s applicable requirements and compliance with them by consolidating all state and federal air quality requirements into one document.

This Staff Report, as required by Rule 214(1), sets forth the applicable requirements and factual basis for the draft ROP terms and conditions including citations of the underlying applicable requirements, an explanation of any equivalent requirements included in the draft ROP pursuant to Rule 212(5), and any determination made pursuant to Rule 213(6)(a)(ii) regarding requirements that are not applicable to the stationary source.

General Information

Stationary Source Mailing Address:	ANR Pipeline Company 700 Louisiana Street, Suite 700 Houston, Texas 77002
Source Registration Number (SRN):	B7220
North American Industry Classification System (NAICS) Code:	486210
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	202100219
Responsible Official:	Keith Mossman, Director, Great Lakes Regions 248-205-4520
AQD Contact:	Chris Robinson, Environmental Quality Analyst 616-286-0083
Date Application Received:	October 27, 2021
Date Application Was Administratively Complete:	November 9, 2021
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	July 4, 2022
Deadline for Public Comment:	August 3, 2022

Source Description

The ANR Pipeline Company owns and operates facilities throughout Michigan for natural gas transmission and storage. The Woolfolk Compressor Station (Woolfolk) is located near Big Rapids in Austin Township, Mecosta County, in a remote rural area. This facility consists of a Compressor Station and an associated naturally occurring underground reservoir used for storing natural gas. The reservoir is comprised of natural porous rock, ideal for storing natural gas. The reservoir is located in the Austin Field (Austin formation), which was discovered in the 1930's.

Woolfolk is used to maintain pipeline pressure to allow for the temporary storage of natural gas and for transporting natural gas, via pipelines, to storage and distribution facilities located throughout Michigan. Woolfolk consists of seventeen natural gas-fired Reciprocating Internal Combustion Engines (RICE), a sorbead gas-liquid separator/dehydrator (Austin Dehydrator) and auxiliary equipment. The Austin Dehydrator uses desiccant beds to remove liquid from the gas which are regenerated using a natural gas fired furnace (EUWLFURN002). During periods of natural gas withdrawal, natural gas flows freely from the Austin Formation into the pipeline, slowly reducing the pressure in the reservoir. When the reservoir pressure drops too low, gas cannot move freely requiring one or more of the seventeen engines to compress the natural gas for transport.

The facility operates six (6) two-stroke engines and eleven four-stroke engines. These engines are further characterized as rich-burn or lean-burn. Rich-burn engines operate near the stoichiometric air-to-fuel ratio (16:1), with exhaust excess oxygen levels less than 4%. Lean-burn engines may operate up to the lean flame extinction limit, with exhaust oxygen levels of 12% or greater. The air-to-fuel ratios of lean-burn engines ranges from 20:1 to 50:1 and are typically higher than 24:1.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2021**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	297.15
Nitrogen Oxides (NO _x)	452.64
Particulate Matter (PM)	3.88
Sulfur Dioxide (SO ₂)	0.12
Volatile Organic Compounds (VOCs)	13.29

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2021 by TC Energy:

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
1,1,2,2-tetrachloroethane	0.01
1,1,2-TRICHLOROETHANE	0.004
1,3-BUTADIENE	0.09
1,3-DICHLOROPROPENE	0.004
2,2,4-TRIMETHYLPENTANE	0.04
Acetaldehyde	0.81
Acrolein	0.66
Benz(a)anthracene	0.00001
Benzene	0.20
Benzo(b)fluoranthene	0.00001
BIPHENYL	0.01
CARBON TETRACHLORIDE	0.005
CHLOROBENZENE	0.004

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
CHLOROFORM	0.004
Ethylbenzene	0.01
Fluorene	0.0003
Formaldehyde	5.57
Methylene Chloride	0.01
NAPHTHALENE	0.01
n-Hexane	0.06
PHENOL	0.002
STYRENE	0.004
Toluene	0.09
VINYL CHLORIDE	0.002
Xylene (mixed Isomers)	0.03
Total Hazardous Air Pollutants (HAPs)	7.61

**As listed pursuant to Section 112(b) of the federal Clean Air Act.

See Parts C and D in the ROP for summary tables of all processes at the stationary source that are subject to process-specific emission limits or standards.

Regulatory Analysis

The following is a general description and history of the source. Any determinations of regulatory non-applicability for this source are explained below in the Non-Applicable Requirement part of the Staff Report and identified in Part E of the ROP.

The stationary source is in Mecosta County, which is currently designated by the United States Environmental Protection Agency (USEPA) as attainment/unclassified for all criteria pollutants. The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because the potential to emit of nitrogen oxides, carbon monoxide, and volatile organic compounds exceed 100 tons per year each and the potential to emit of any single HAP (formaldehyde and Acetaldehyde) regulated by Section 112 of the federal Clean Air Act, is equal to or more than 10 tons per year and/or the potential to emit of all HAPs combined is equal to or more than 25 tons per year.

The stationary source is considered a “synthetic minor” source in regards to the Prevention of Significant Deterioration (PSD) regulations of 40 CFR 52.21 because the stationary source accepted legally enforceable permit conditions limiting the potential to emit of nitrogen oxides to less than 250 tons per year (85.7 tons per year) for compressor engine Model 12Q145H (EGWL017), which was installed in 1980. All the remaining processes at the facility are currently not subject to the PSD regulations because the process equipment was either constructed/installed prior to June 19, 1978, the promulgation date of the PSD regulations or because the potential to emit was less than 250 tons per year.

Changes to the ROP include removing Rule 818 requirements, updating emission unit tables to the most recent version, updating emission unit summary and flexible group summary tables, and adding an exempt emergency generator, EUWLGEM004, to Flexible Group tables FGWLNSPS4J (new) and FGLIMITED-RICEMACT, and adding Flexible Group table FGRULE285(2)(mm).

Compressor engines EUWL001, EUWL002, EUWL003, EUWL004, EUWL005, EUWL006, EUWL007, EUWL008, and EUWL009 were installed prior to August 15, 1967. As a result, this equipment is considered "grandfathered" and is not subject to New Source Review (NSR) permitting requirements. However, future modifications of this equipment may be subject to NSR.

Although compressor engine EUWL016 was installed after August 15, 1967 (1973), this equipment was exempt from New Source Review (NSR) permitting requirements at the time it was installed. However, future modifications of this equipment may be subject to NSR.

ANR Woolfolk has been subject to Rule 818 nitrogen oxide limits for stationary internal combustion engines. As allowed by Rule 818(3)(a), ANR submitted a compliance plan on April 25, 2006, to establish emission reductions at the Woolfolk Compressor Station and the ANR Bridgman Compressor Station in Bridgman, Michigan. Engine EUBG009 at ANR's Bridgman Compressor Station was subject to Rule 818 because it was considered a Large NOx SIP call engine under the rule. A Large NOx SIP call engine is an engine that emits more than 1 ton of oxides of nitrogen per average ozone control period day in 1995. Compliance with the NOx limitation for Bridgman was addressed by proposing NOx limitations for units EUWL001, EUWL002, EUWL003, EUWL004, EUWL005, EUWL006, EUWL007, EUWL008, and EUWL009 at ANR Woolfolk and ANR Bridgman's unit EUBG009. The compliance plan established the 20.50 g/bh-hr emission limit for ANR Woolfolk which was approved by the AQD in a letter dated January 23, 2007. ANR Woolfolk's engines (units 1-9) were not considered Large NOx Sip Call engines on their own. In May of 2022, EUBG009 at Bridgeman was officially decommissioned, therefore ending the Rule 818 applicability status for ANR Woolfolk. As a result, the Rule 818 limits were removed from FGRICE-818-WLENGINES and at ANR's request Flexible Group FGRICE-818-WLENGINES was renamed to FGRICE-WLENGINES.

The sorbead dehydrator equipment was initially installed prior to August 15, 1967. It consists of six (6) dry bed adsorption towers and a Broch furnace for drying the sorbeads. Any water evaporated out of the sorbeads is later condensed and stored in an onsite storage tank. The Broch furnace was replaced in 2017 under exemption Rule 282(b)(i) for boilers rated at no more than 50,000,000 BTU/hr and burns only sweet natural gas. Since the towers can operate completely independently of the Broch furnace they remain grandfathered from Rule 201 permitting requirements.

EUWLBOILER001, EUWLBOILER002, EUWLBOILER003, EUWLBOILER004, and EUWLFURN002 at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters promulgated in 40 CFR Part 63, Subparts A and DDDDD.

Compressor engines EUWL001, EUWL002, EUWL003, EUWL004, EUWL005, EUWL006, EUWL007, EUWL008, and EUWL009 at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) promulgated in 40 CFR Part 63, Subparts A and ZZZZ. The facility must maintain the catalyst on each engine so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst measured during the initial performance test. In addition, the catalyst inlet temperature must be greater than or equal to 750°F and less than or equal to 1250°F as required by 40 CFR 63.6600. The facility maintains a Continuous Parameter Monitoring System (CPMS) Monitoring Plan as required by 40 CFR 63.6625(b). Emission units EUWL010, EUWL011, EUWL012, EUWL013, EUWL014, EUWL015, EUWL016, and EUWL017 are not subject to the RICE MACT because they are lean burn engines.

Emergency generators EUWLGEN003 and EUWLGEN004 at the stationary source are also subject to the National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) promulgated in 40 CFR Part 63, Subparts A and ZZZZ. However, since EUWLGEN004 was installed after June 12, 2006, and is subject to NSPS 40 CFR Part 60, Subpart JJJJ, compliance with this NESHAP is demonstrated by complying with 40 CFR Part 60, Subpart JJJJ. Emission unit EUWLGEN003 was installed prior to June 12, 2006, therefore it is not subject to 40 CFR Part 60, Subpart JJJJ.

The monitoring conditions contained in the ROP are necessary to demonstrate compliance with all applicable requirements and are consistent with the "Procedure for Evaluating Periodic Monitoring Submittals."

The emission limitation(s) or standard(s) for Formaldehyde at the stationary source with the underlying applicable requirement(s) of NESHAP 40 CFR Part 63, Subpart ZZZZ, from EUWL001, EUWL002, EUWL003, EUWL004, EUWL005, EUWL006, EUWL007, EUWL008 and EUWL009 are exempt from the federal Compliance Assurance Monitoring (CAM) regulation pursuant to 40 CFR 64.2(b)(1)(i) because reduction of $\geq 76\%$ and/or concentration of ≤ 350 ppbvd @ 15% O₂ (40 CFR 63.6600(1) Table 1a) meet the CAM exemption for a MACT proposed after November 15, 1990.

Please refer to Parts B, C and D in the draft ROP for detailed regulatory citations for the stationary source. Part A contains regulatory citations for general conditions.

Source-Wide Permit to Install (PTI)

Rule 214a requires the issuance of a Source-Wide PTI within the ROP for conditions established pursuant to Rule 201. All terms and conditions that were initially established in a PTI are identified with a footnote designation in the integrated ROP/PTI document.

The following table lists all individual PTIs that were incorporated into previous ROPs. PTIs issued after the effective date of ROP No. MI-ROP-B7220-2017a are identified in Appendix 6 of the ROP.

PTI Number			
148-80			

Streamlined/Subsumed Requirements

This ROP does not include any streamlined/subsumed requirements pursuant to Rules 213(2) and 213(6).

Non-applicable Requirements

Part E of the ROP lists requirements that are not applicable to this source as determined by the AQD, if any were proposed in the ROP Application. These determinations are incorporated into the permit shield provision set forth in Part A (General Conditions 26 through 29) of the ROP pursuant to Rule 213(6)(a)(ii).

Processes in Application Not Identified in Draft ROP

The following table lists processes that were included in the ROP Application as exempt devices under Rule 212(4). These processes are not subject to any process-specific emission limits or standards in any applicable requirement.

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
EUWLBOILER005	Manifold Bldg. natural gas-fired boiler, 0.40 MMBTU/hr	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
EUWLHTR001	Seventeen (17) natural gas-fired furnaces/space heaters, 240,000 BTU/hr or less each	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
EUWLHTR002	Six (6) natural gas-fired water heaters, 50,000 BTU/hr or less	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
EUWLTNK001	Condensate Tanks: T16 – 12,800 gal	R 336.1212(4)(d)	R 336.1284(2)(e)

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
	T20 – 4,200 gal T25 – 4,500 gal		
EUWLTNK003	Ambitrol Tanks: V401 – 10,350 gal T2 – 10,000 gal T4 – 10,000 gal T8 – 13,000 gal	R 336.1212(4)(d)	R 336.1284(2)(i)
EUWLTNK004	Wastewater Tanks: T22 & T23 – 20,000 gal each	R 336.1212(4)(d)	R 336.1284(2)(i)
EUWLTNK005	Brine Tanks: T17 – 1,000 gal T18 – 1,000 gal	R 336.1212(4)(d)	R 336.1284(2)(e)
NA	Diesel Tank (A1), 500 gal	R 336.1212(3)(e)	R 336.1284(2)(d)
NA	Twenty (20) lubricating, hydraulic, maintenance, new or used oil tanks, Cap.: 68 – 13,000 gal	R 336.1212(3)(e)	R 336.1284(2)(c)
NA	Inhibitor, 94 gal	R 336.1212(3)(e)	R 336.1284(2)(c)

Draft ROP Terms/Conditions Not Agreed to by Applicant

This draft ROP does not contain any terms and/or conditions that the AQD and the applicant did not agree upon pursuant to Rule 214(2).

Compliance Status

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements at the time of issuance of the ROP.

Action taken by EGLE, AQD

The AQD proposes to approve this ROP. A final decision on the ROP will not be made until the public and affected states have had an opportunity to comment on the AQD’s proposed action and draft permit. In addition, the USEPA is allowed up to 45 days to review the draft ROP and related material. The AQD is not required to accept recommendations that are not based on applicable requirements. The delegated decision maker for the AQD is Heidi Hollenbach, Grand Rapids District Supervisor. The final determination for ROP approval/disapproval will be based on the contents of the ROP Application, a judgment that the stationary source will be able to comply with applicable emission limits and other terms and conditions, and resolution of any objections by the USEPA.

State Registration Number

B7220

RENEWABLE OPERATING PERMIT

August 5, 2022 - STAFF REPORT ADDENDUM

ROP Number

MI-ROP-B7220-2022

Purpose

A Staff Report dated July 4, 2022, was developed to set forth the applicable requirements and factual basis for the draft Renewable Operating Permit (ROP) terms and conditions as required by Rule 214(1) of the administrative rules promulgated under Act 451. The purpose of this Staff Report Addendum is to summarize any significant comments received on the draft ROP during the 30-day public comment period as described in Rule 214(3). In addition, this addendum describes any changes to the draft ROP resulting from these pertinent comments.

General Information

Responsible Official:	Keith Mossman, Director, Great Lakes Regions 248-205-4520
AQD Contact:	Chris Robinson, Environmental Quality Analyst 616-286-0083

Summary of Pertinent Comments

No pertinent comments were received during the 30-day public comment period.

Changes to the July 4, 2022 Draft ROP

No changes were made to the draft ROP.