

Michigan Department of Environmental Quality
Air Quality Division

State Registration Number
B7196

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-B7196-2012

**ANR STORAGE COMPANY
EXCELSIOR COMPRESSOR STATION**

SRN: B7196

Located at

4963 State Road Northeast, Kalkaska, Kalkaska County, Michigan 49649

Permit Number: MI-ROP-B7196-2012

Staff Report Date: November 29, 2011

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) requires that the Michigan Department of Environmental Quality (MDEQ), 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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OCTOBER 24, 2011, STAFF REPORT

Purpose

Major stationary sources of air pollutants, and some non-major sources, are required to obtain and operate in compliance with a ROP pursuant to Title V of the federal Clean Air Act of 1990 and Michigan's Administrative Rules for air pollution control pursuant to 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 report, as required by Rule 214(1), sets forth the applicable requirements and factual basis for the draft permit terms and conditions including citations of the underlying applicable requirements, an explanation of any equivalent requirements included in the draft permit 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 Storage Company Excelsior Compressor Station 4963 State Road Northeast Kalkaska, Michigan 49646
Source Registration Number (SRN):	B7196
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:	201000079
Responsible Official:	Mr. Anthony Kornaga, Regional Director of Field Operations 248-205-7465
AQD Contact:	Mr. William Rogers, Environmental Quality Analyst 989-705-3406
Date Permit Application Received:	August 30, 2010
Date Application Was Administratively Complete:	August 30, 2010
Is Application Shield In Effect?	Yes
Date Public Comment Begins:	October 24, 2011
Deadline for Public Comment:	November 23, 2011

Source Description

The Excelsior Compressor Station is located near the northeast corner of Section 6, Excelsior Township, Kalkaska County. It is on State Road just over one mile west of Darragh, or approximately four miles east and two miles north of Kalkaska.

The facility consists of a compressor station and the associated underground gas reservoirs. The reservoirs are natural porous rock formations.

During the summer, natural gas is compressed and injected into the underground reservoirs for storage until needed. During the winter, the gas is withdrawn and transported by pipeline to customers for distribution. Before being sent off site, the natural gas is treated to remove moisture consisting of brine and liquid hydrocarbons. The liquid hydrocarbon is sold as a product and the brine is hauled to an injection well for disposal.

The compressors are powered by two 3750 horsepower reciprocating engines. The facility also uses two 490 horsepower reciprocating engines to generate electricity, two natural gas withdrawal heaters rated at 10 million BTU per hour heat input, a small boiler, a glycol dehydrator with associated glycol storage tanks, storage tanks for brine and/or hydrocarbon liquids extracted from the underground storage reservoir, for methanol, for lubricating oil, and for waste (used) lubricating oil.

All devices listed above which burn fuel, use sweet natural gas as their fuel.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System in the **2010** submittal.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	48.50
Lead (Pb)	0
Nitrogen Oxides (NO _x)	36.44
Particulate Matter (PM)	0.11
Sulfur Dioxide (SO ₂)	0.02
Volatile Organic Compounds (VOCs)	3.06
Individual Hazardous Air Pollutants (HAPs) **	
Total Hazardous Air Pollutants (HAPs)	

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

See Parts C and D in the draft 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 located in Kankaska County, which is currently designated by the U.S. 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 nitrogen oxides and carbon monoxide exceeds 100 tons each per year and the potential to emit of any single HAP regulated by the federal Clean Air Act, Section 112, is more than 10 tons per year and the potential to emit of all HAPs combined is more than 25 tons per year.

The compressor engines designated EUEXCOMP-A and EUEXCOMP-B at the stationary source were subject to review under the Prevention of Significant Deterioration regulations of 40 CFR 52.21 because at the time of New Source Review permitting the potential to emit of nitrogen oxides was greater than 250 tons per year.

The stationary source is subject to the Maximum Achievable Control Technology Standards for Natural Gas Transmission and Storage Facilities promulgated in 40 CFR, Part 63, Subparts A and HHH.

The generator engines designated EUEXGEN-A and EUEXGEN-B at the stationary source are subject to the Maximum Achievable Control Technology Standards for reciprocating internal combustion engines promulgated in 40 CFR, Part 63, Subparts A and ZZZZ.

The stationary source is not subject to the federal Compliance Assurance Monitoring rule (40 CFR 64) because all emission units at the source either do not have an active control (see explanation below) device (the compressor engines) or those with a control device do not have potential pre-control emissions over the major source thresholds. The glycol dehydrator has potential to emit (PTE), pre-controlled VOC emissions of 99.41 tpy. The AQD requested further clarification of the PTE calculation which result in emission of 99.41 tpy, which is just barely under the 100 tpy limit in which CAM requires action. The following is the answer to the AQD request that adequately demonstrates that CAM does not apply in this case:

“The potential to emit calculations for the dehydration unit submitted with the ANR Excelsior ROP renewal application are based on continuous operation of 8,760 hours per year. However, the calculations do not account for the operational and physical restraints associated with the gas storage fields that, in reality, would never allow the dehydration unit to operate for 8,760 hours per year, so the calculation methodology is very conservative.

The MDEQ definition of potential to emit is as follows:

(m) "**Potential to emit**" means the maximum capacity of a stationary source to emit an air contaminant under its **physical and operational design**. Any physical or operational limit on the capacity of the stationary source to emit an air contaminant, including air pollution control equipment and restrictions on the hours of operation or the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limit, or the effect it would have on emissions, is legally enforceable.

The operations of the Excelsior facility are regulated by the Federal Energy Regulatory Commission (FERC). The facility operates under a FERC certificated maximum natural gas withdrawal rate of 200 mmscf/day for both storage fields combined. (If MDEQ requests, ANR

can document the FERC requirement.) Both fields have a combined maximum storage capacity of 15.365 Bcf. (If requested, ANR can provide storage capacity documentation.) Under the MDEQ definition of potential to emit, the withdrawal rate and the storage field capacity are operational and physical restraints. These restraints were not considered while calculating the dehydration unit PTE.

1. The FERC 200 mmscf/day requirement is a federal operational restraint, like a permit restriction. If the facility were to withdrawal at the maximum flowrate, the dehydration unit would operate for about 1845 hours. Since gas cannot be injected and withdrawn simultaneously, the fields would need time to be filled before the station could again begin gas withdrawal. Gas injection requires twice as much time as withdrawal, approximately 3690 hours. The dehydration unit cannot operate while the facility is in the injection mode so the dehydration unit cannot operate 8,760 hours /yr.

2. The combined 15.365 Bcf maximum storage capacities of both natural gas storage fields creates a physical design limitations that do not allow the facility to maintain maximum withdrawal continuously for 8760 hours. Since gas cannot be simultaneously withdrawn and injected, time must be allotted in the PTE calculations to complete an injection cycle during which time the dehydration system cannot operate. This means the dehydration unit cannot operate 8760 hours/year.

Lastly, the 1845 hour withdrawal cycle scenario is a mathematical demonstration which is very conservative. According to operations personnel, complete depletion of the storage fields would take approximately 145 days under real world facility operation conditions.

These operational and physical restraints demonstrate the conservative nature of the VOC calculations in the Excelsior permit application which were based on continuous (8760 hours) of withdrawal operations. Please call if you have any questions or require additional support documentation.”

In 1997, the lean burn engines were modified by installing a NOx emission reduction package developed by the manufacturer which provided for better fuel mixing. This type of NOx reduction package is not an active control device because this type of control measure works by preventing NOx from forming, so it is not considered an active control device under the CAM rule definition of a control device. The CAM rule definition of control device in 40 CFR 64.1 states that for purposes of this part, a control device does not include passive control measures that act to prevent pollutants from forming, such as the use of seals, low pollutant fuel, etc.

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."

Based on the above considerations, the stationary source is not subject to the federal Compliance Assurance Monitoring rule (40 CFR 64) because all emission units at the source either do not have a control device or those with a control device do not have potential pre-control emissions over the major source thresholds.

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-B7196-2006 are identified in Appendix 6 of the ROP.

PTI Number			
67-80	77-97	3-01	

Streamlined/Subsumed Requirements

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

Non-applicable Requirements

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

Exempt Emission Unit ID	Description of Exempt Emission Unit	Rule 212(4) Exemption	Rule 201 Exemption
EUTANKCB-A	12,600 gallon Condensate/Brine Tank A with associated loading and unloading activities.	Rule 212(4)(c)	Rule 284(e)
EUTANKCB-B	12,600 gallon Condensate/Brine Tank B with associated loading and unloading activities.	Rule 212(4)(c)	Rule 284(e)
EUEXTANK-EG	5,515 gallon Ethylene Glycol Tank with associated loading and unloading activities.	Rule 212(4)(c)	Rule 284(i)
EUEXTANK-DG-A	2,300 gallon Diethylene Glycol Storage Tank with associated loading and unloading activities.	Rule 212(4)(c)	Rule 284(i)
EUEXTANK-DG-B	2,900 gallon Diethylene Glycol Storage Tank with associated loading and unloading activities.	Rule 212(4)(c)	Rule 284(i)
EUEXMETHANOL	16,800 gallon Methanol Storage Tank with associated loading and	Rule 212(4)(c)	Rule 284(n)

Exempt Emission Unit ID	Description of Exempt Emission Unit	Rule 212(4) Exemption	Rule 201 Exemption
	unloading activities		
EUEXHEATER-1	Three (3) heaters in vapor recovery building, 0.012 MMBtu/hr each.	Rule 212(4)(b)	Rule 282(b)(i)
EUEXHEATERS-2	Two (2) Bruest heaters in Pressure reduction Valve sheds, 0.012 MMBtu/hr each.	Rule 212(4)(b)	Rule 282(b)(i)
EUEXWTRHTR-1	Water heater in auxiliary building, 0.05 MMBtu/hr.	Rule 212(4)(b)	Rule 282(b)(i)
EUEXWTRHTR-2	Water heater in auxiliary building, 0.05 MMBtu/hr.	Rule 212(4)(b)	Rule 282(b)(i)
EUEXBOILER	Cleaver Brooks boiler, 2.51 MMBtu/hr	Rule 212(4)(b)	Rule 282(b)(i)
EUEXHTR-A	Sivalls withdrawal heater A, 10 MMBtu/hr	Rule 212(4)(b)	Rule 282(b)(i)
EUEXHTR-B	Sivalls withdrawal heater B, 10 MMBtu/hr	Rule 212(4)(b)	Rule 282(b)(i)

Draft ROP Terms/Conditions Not Agreed to by Applicant

This permit 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 as of the effective date of this ROP.

Action taken by the DEQ

The AQD proposes to approve this permit. 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 U.S. Environmental Protection Agency (USEPA) is allowed up to 45 days to review the draft permit 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 Ms. Janis Denman, Cadillac District Supervisor. The final determination for ROP approval/disapproval will be based on the contents of the permit 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.

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**NOVEMBER 29, 2011 STAFF REPORT
ADDENDUM**

Purpose

A Staff Report dated October 24, 2011, was developed in order to set forth the applicable requirements and factual basis for the draft Renewable Operating Permit (ROP) terms and conditions as required by R 336.1214(1). 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 R 336.1214(3). In addition, this addendum describes any changes to the draft ROP resulting from these pertinent comments.

General Information

Responsible Official:	Mr. Anthony Kornaga, Regional Director of Field Operations 248-205-7465
AQD Contact:	Mr. William Rogers, Environmental Quality Analyst 989-705-3406

Summary of Pertinent Comments

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

Changes to the October 24, 2011 Draft ROP

No changes were made to the draft ROP.