DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

B719860347

FACILITY: ANR Pipeline-Cold Sprngs12 /Blue Lk/ Cold Sprngs 1		**SRN / ID:** B7198
LOCATION: 10000 Pflum Rd., MANCELONA		**DISTRICT:** Gaylord
CITY: MANCELONA		**COUNTY:** KALKASKA
CONTACT:		**ACTIVITY DATE:** 08/18/2021
STAFF: Becky Radulski	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: FY21 inspection and records review		
RESOLVED COMPLAINTS:		

B7198 ANR Storage Company was inspected on November 24, 2020 and August 18, 2021 as a FY21 scheduled inspection to determine compliance with ROP MI-ROP-B7198-2014a. The renewable operating permit (ROP) is a 3 sectioned ROP:

Section 1 Cold Springs 12,
Section 2 Blue Lake, and
Section 3 Cold Springs 1.

The facility is located SE of Mancelona in Kalkaska County. From Mancelona, travel south on S Maple St/Darragh Rd. Turn east on Starvation Lake Rd; south on Barnhartd Rd; east on Pflum Rd; south on ARN Storage Rd to the site entrance. All entrance is through the main gate, see attached map. Staff must check in and check out at main entrance building. Hard hat, safety glasses and steel toe boots are required. ANR staff mentioned FRC clothing is no longer required onsite.

Cold Springs 12, Blue Lake, and Cold Springs 1 consist of three separate natural gas compression and transmission stations operating separate natural gas storage fields. The Blue Lake reservoir is the largest reservoir in North America at 48 billion cubic feet storage.
Cold Springs 12 operates three compressor engines, two generator engines, a glycol dehydration system, one boiler, and two withdrawal gas heaters. Cold Spring 12 was not operating during the inspection.

Blue Lake operates three compressor engines, three generator engines, a glycol dehydration system, one boiler, two withdrawal gas heaters, and a cold cleaner. Blue Lake was operating in injection mode during the inspection. No visible emissions or odors were present.

Cold Springs 1 operates one electric motor compressor, a liquid stabilization plant, a glycol dehydration system, one boiler, and one withdrawal gas heater. Cold Springs 1 was operating in injection mode during the inspection. No visible emissions or odors were present.

The three reservoirs have not met maximum capacity and continue to inject. The change to withdrawal depends on the weather, but is expected to be at the beginning of November.

During the November site visit, the facility was in withdraw, while in August the facility was compressing gas. Typically the facility switches March 1 and November 1 each year. Radulski met with Operations Manager, Eric Parrett (eric_parrett@tcenergy.com, 989-339-0789) in August 2021. At that time, CS1 was offline, CS12 had one engine operating (unit C), and Blue Lake had one engine operating (unit B). BL Generator B was also operating, while the other two generators were down for repair.

REGULATORY DISCUSSION
The facility is subject to MI-ROP-B7198-2014a, which was issued July 23, 2014. The facility has the potential to emit over 100 tons per year of each nitrogen oxide (NOx) and carbon monoxide (CO). An application has been received by AQD for ROP renewal.

The facility is major for HAPS.

No emission units at the facility are subject to CAM.

EU CS12GLYDHY, EU BLGLYDHY, and EU CS1GLYDHY at Cold Springs 12, Blue Lake, and Cold Springs 1 respectively are subject to the National Emission Standards for Hazardous Air Pollutants for Natural Gas Transmission and Storage Facilities promulgated in 40 CFR, Part 63, Subparts A and HHH.

EU CS12EMRGEN-A and EU CS12EMRGEN-B at Cold Springs 12 are subject to the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR, Part 63, Subparts A and ZZZZ.

EU CS12CMPR-A, EU CS12CMPR-B, and EU CS12CMPR-C at Cold Springs 12 are not subject to the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR, Part 63, Subparts A and ZZZZ because the engines are existing 4-stroke lean burn engines. EU BLGEN-A, EU BLGEN-B, and EU BLGEN-C at Blue Lake are also existing 4-stroke lean burn engines not subject to Subpart ZZZZ, although the current Staff Report lists these engines as 2-stroke engines subject to Subpart ZZZZ. This will be addressed during the next ROP renewal.

EU BLCMPR-A, EU BLCMPR-B and EU BLCMPR-C at Blue Lake are not subject to the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR, Part 63, Subparts A and ZZZZ because the engines are existing spark ignition, 2-stoke lean burn engines greater than 500 hp.

EU CS12HEATER-A, EU CS12HEATER-B, EU CS12BOILER, EU BLHEATER-A, EU BLHEATER-B, EU BLBOILER, EU CS1SHEATER, EU CS1BOILER, and EU CS1WDHEATER at Cold Springs 12, Blue Lake, and Cold Springs 1 respectively are subject to the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters promulgated in 40 CFR, Part 63, Subparts A and DDDDD.

SPECIAL CONDITIONS AND RECORDS REVIEW

SECTION 1 – COLD SPRINGS 12 COMPRESSOR STATION

EU CS12GLYDY – glycol dehydration system for Cold Springs 12. The glycol dehydration system can operate in two modes. Glycol injection occurs when a process called low temperature separation is used to remove liquids from the gas stream. Di-ethylene glycol (DEG) is injected into the gas stream and mixes with the liquids to prevent freezing during low temperature separation. Glycol absorption is used when low temperature separation does not adequately remove the liquids from the gas stream. DEG is circulated through a contactor tower countercurrent to the gas stream. The DEG absorbs the liquid from the gas stream during the glycol absorption process. During both modes of operation, the glycol enriched gas stream liquid is regenerated in a reboiler for continual use.

Emission Limits:
The facility has emission limits for benzene (less than 1 ton per 12 month rolling), VOC (86 pounds per day) and VOC (15.7 tons per year). The facility is meeting these conditions.

Material Limits:
None.

Process/Operational Restrictions:
The facility is required to not use stripping gas, install and operate a glycol flash tank, use a thermal oxidizer and/or condenser. The facility meets all of these conditions.

Design/Equipment Parameters:
The facility is required to be equipped with a thermal oxidizer, condenser and flash tank. Working temperature monitors with alarm systems are required on the thermal oxidizer and condenser. The facility has this equipment in place and meets this condition.

Testing:
Requires analysis of the gas every five years. Analysis was discussed with staff and reviewed onsite.

Monitoring/Recordkeeping:
The facility is required to calculate VOC emissions and benzene emissions; monitor and record temperatures of the condenser and thermal oxidizer; record natural gas throughput; record number of hours of hours of use of condenser only. These conditions were discussed onsite; VOC emissions for 2020 were less than 1 ton. Records are being maintained.

Reporting:
The facility completes semi and annual reporting as required.

Stacks:
The stacks were viewed and appear to meet the requirements based on visual observation.

FG CS12CMPRS - Three natural gas-fired, 3,750, HP 4-stroke lean burn Ingersoll Rand 410 KVR IC compressor engine used to compress natural gas into the storage reservoir during injection, and into the pipeline during withdrawal.

Emission Limits and Design/Equipment Parameters:
This FG has a NOx limit of 99.2 pph and 12 grams per brake horsepower hour, which are confirmed during testing.

Material Limits:
None.

Process/Operational Restrictions:
The facility is required to maintain an approved malfunction abatement plan (MAP) and limit sulfur content of natural gas fuel for the compressors to 20 grains of total sulfur per 100 cubic feet of natural gas. The facility maintains an approved MAP and uses only sweet natural gas for fuel. The fuel is from the storage field, and composition was reviewed.

Testing/Sampling:
Testing is required every 5 years. The compressors had passing tests as of the following dates:
EUCS12CMPR-A – 8/15/17
EUCS12CMPR-B – 6/6/17
EUCS12CMPR-C – 11/21/18

Monitoring/Recordkeeping:
The facility is required to track fuel consumption, hours of operation, and NOx emissions. The facility tracks and calculates each record as required.

Reporting:
The facility completes semi and annual reporting as required.

Stacks:
The stacks were viewed and appear to meet the requirements based on visual observation.

Other:
CS12 (EUCS12HHH) is subject to the National Emission Standards for Hazardous Air Pollutants for Natural Gas Transmission and Storage Facilities promulgated in 40 CFR, Part 63, Subparts A and HHH. Requirements are contained in the ROP for the vent system and the control. Testing took place in 2015 and 2016 to meet the requirements of Subpart HHH.

CS12 (FG CS12DDDDD) is subject to the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters promulgated in 40 CFR, Part 63, Subparts A and DDDDD. This applies to EU CS12HEATER-A, EU CS12HEATER-B and EU CS12BOILER. Requirements are contained in the ROP for initial tune up and one-time energy assessment. These documents have been submitted by the facility as required.

CS12 (FG CS12ZZZZ) is subject to the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR, Part 63, Subparts A

and ZZZZ. This applies to EU CS12EMRGEN-A and EU CS12EMRGEN-B. Maintenance requirements are maintained per Subpart ZZZZ.

SECTION 2 – BLUE LAKE COMPRESSOR STATION
– glycol dehydration system for Blue Lake. The glycol dehydration system can operate in two modes. Glycol injection occurs when a process called low temperature separation is used to remove liquids from the gas stream. Di-ethylene glycol (DEG) is injected into the gas stream and mixes with the liquids to prevent freezing during low temperature separation. Glycol absorption is used when low temperature separation does not adequately remove the liquids from the gas stream. DEG is circulated through a contactor tower countercurrent to the gas stream. The DEG absorbs the liquid from the gas stream during the glycol absorption process. During both modes of operation, the glycol enriched gas stream liquid is regenerated in a reboiler for continual use.

Emission Limits:
The facility has emission limits for benzene (less than 1 ton per 12 month rolling), VOC (28 pounds per day) and VOC (5 tons per year). The facility is meeting these conditions.

Material Limits:
None.

Process/Operational Restrictions:
The facility is required to not use stripping gas, install and operate a glycol flash tank, use a thermal oxidizer and/or condenser. The facility meets all of these conditions.

Design/Equipment Parameters:
The facility is required to be equipped with a thermal oxidizer, condenser and flash tank. Working temperature monitors with alarm systems are required on the thermal oxidizer and condenser. The facility has this equipment in place and meets this condition.

Testing:
Requires analysis of the gas every five years. Analysis was discussed with staff and reviewed onsite.

Monitoring/Recordkeeping:
The facility is required to calculate VOC emissions and benzene emissions; monitor and record temperatures of the condenser and thermal oxidizer; record natural gas throughput; record number of hours of hours of use of condenser only. These conditions were discussed onsite; VOC emissions for 2020 were less than 1 ton. Records are being maintained.

Reporting:
The facility completes semi and annual reporting as required.

Stacks:
The stacks were viewed and appear to meet the requirements based on visual observation.

FG BLCMPRS - Three natural gas-fired, 6,000 HP 4-stroke lean burn Dresser Rand TCVD-12 compressor engine used to compress natural gas into the storage reservoir during injection, and into the pipeline during withdrawal.

Emission Limits and Design/Equipment Parameters:
This FG has a NOx limit of 26.4 pph, CO limit of 37.0 pph, VOC limit of 9.7 pph and grams per brake horsepower hour emission rate of 2 for NOx, 2.8 for CO and 0.73 for VOC, which are confirmed during testing.

Material Limits:
None.

Process/Operational Restrictions:
The facility is required to maintain an approved malfunction abatement plan (MAP) and limit sulfur content of natural gas fuel for the compressors to 20 grains of total sulfur per 100 cubic feet of natural

gas. The facility maintains an approved MAP and uses only sweet natural gas for fuel. The fuel is from the storage field, and composition was reviewed.

Testing/Sampling:
Testing is required every 5 years. The compressors had passing tests as of the following dates:
EU BLCMPR-A – 8/30/17
EU BLCMPR-B – 6/6/17
EU BLCMPR-C – 6/6/17

Monitoring/Recordkeeping:
The facility is required to track fuel consumption, hours of operation, and NOx emissions. The facility tracks and calculates each record as required.

Reporting:
The facility completes semi and annual reporting as required.

Stacks:
The stacks were viewed and appear to meet the requirements based on visual observation.

FG BLHEATERS – Two natural gas-fired Sivalls 16 MMBtu/hr indirect gas withdrawal heaters, used only during the withdrawal season.

Emission Limits and Design/Equipment Parameters:
This FG has a NOx limit of 2.8 pph and 0.14 lb/MMBtu, CO limit of 0.7 pph and 0.035 lb/MMBtu, which are confirmed during testing.

Material Limits:
None.

Process/Operational Restrictions:
The limit sulfur content of natural gas fuel for the heaters to 10 grains of total sulfur per 100 cubic feet of natural gas. The facility uses only sweet natural gas for fuel. The fuel is from the pipeline, and composition was reviewed.

Testing/Sampling:
Testing is required every 5 years. The heaters had passing tests as of the following dates:
EU BLHEATER-A – 2/20/20
EU BLHEATER-B – 2/20/20

Monitoring/Recordkeeping:
The facility is required to track fuel consumption. The facility tracks and calculates the records as required.

Reporting:
The facility completes semi and annual reporting as required.

Stacks:
The stacks were viewed and appear to meet the requirements based on visual observation.

FG BLGENS - Three natural gas-fired, 1,125 HP 4-stroke lean burn Caterpillar 3516 generator engine used to provide primary power to the Blue Lake compressor station, and can produce a maximum of 800 KW of energy. Blue Lake is not connected to the electrical grid and FG BLGENS provide power to the station during both injection and withdrawal seasons.

Emission Limits and Design/Equipment Parameters:
This FG has a NOx limit of 5.7 pph, CO limit of 1.6 pph, VOC limit of 0.9 pph and grams per brake horsepower hour emission rate of 2 for NOx, 1.4 for CO and 0.55 for VOC, which are confirmed during testing.

Material Limits:
None.

Process/Operational Restrictions:
The facility is required to maintain an approved malfunction abatement plan (MAP) and limit sulfur content of natural gas fuel for the compressors to 10 grains of total sulfur per 100 cubic feet of natural gas. The facility maintains an approved MAP and uses only sweet natural gas for fuel. The fuel is from the pipeline, and composition was reviewed.

Testing/Sampling:
Testing is required every 5 years. The compressors had passing tests as of the following dates:
EU BLGEN-A – 3/22/18
EU BLGEN-B – 11/28/17
EU BLGEN-C – 11/28/17

Monitoring/Recordkeeping:
The facility is required to track fuel consumption, hours of operation, and NOx emissions. The facility tracks and calculates each record as required.

Reporting:
The facility completes semi and annual reporting as required.

Stacks:
The stacks were viewed and appear to meet the requirements based on visual observation.

SECTION 3 – COLD SPRINGS 1 COMPRESSOR STATION
EUCS1GLYDHY - Glycol Dehydration system has a 1.75MM BTU/Hr glycol reboiler. Cold Springs 1 uses ethylene glycol injection into the withdrawal gas stream for prevention of hydrate formation and freeze protection. During regeneration, process water and other hydrocarbon constituents are removed and lean glycol is returned to the injection system. The regenerator's still column off-gases are routed first through a condenser for bulk water and hydrocarbon removal. The remaining hydrocarbon-rich vapors are then sent to the thermal oxidizer.

The facility has emission limits for benzene (less than 1 ton per 12 month rolling, .995 pph with condenser only, .02 with condenser and thermal oxidizer in series). Records were discussed and reviewed onsite; the facility is meeting these conditions.

Material Limits:
None.

Process/Operational Restrictions:
The facility is required to install and operate a glycol flash tank, use a thermal oxidizer and/or condenser. The facility meets all of these conditions.

Design/Equipment Parameters:
The facility is required to be equipped with a thermal oxidizer, condenser and flash tank. Working temperature monitors with alarm systems are required on the thermal oxidizer and condenser. The facility has this equipment in place and meets this condition.

Testing:
Requires analysis of the gas every five years. Analysis was discussed with staff and reviewed onsite.

Monitoring/Recordkeeping:
The facility is required to calculate benzene emissions; monitor and record temperatures of the condenser and thermal oxidizer; record natural gas throughput; record number of hours of hours of use of condenser only. These conditions were discussed onsite; VOC emissions for 2016 were less than 1 ton. Records are being maintained.

Reporting:
The facility completes semi and annual reporting as required.

Stacks:
The stacks were viewed and appear to meet the requirements based on visual observation.

FG CS1CNDTANKS - Four condensate storage tanks each with a maximum capacity of 16,800 gallons used to store stabilized condensate liquids. This includes EU CS1TANK1, EU CS1TANK2, EU CS1TANK3, and EU CS1TANK4.

Emission Limits:
None.

Material Limits:
None.

Process/Operational Restrictions:
The facility is required to have an approved MAP, and properly operating thermal oxidizer. This process was reviewed with staff onsite, and meets the conditions.

Design/Equipment Parameters:
None.

Testing/Sampling:
None.

Monitoring/Recordkeeping:
The facility is required to record the exhaust temperature of the thermal oxidizer. Records were discussed onsite. The system with shut in if the thermal oxidizer temperature goes below 1400 degrees Fahrenheit.

CS1 (EUCS1HHH) is subject to the National Emission Standards for Hazardous Air Pollutants for Natural Gas Transmission and Storage Facilities promulgated in 40 CFR, Part 63, Subparts A and HHH. Requirements are contained in the ROP for the vent system and the control. Testing took place in 2015 to meet the requirements of Subpart HHH.

CS1 (FG CS12DDDDD) is subject to the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters promulgated in 40 CFR, Part 63, Subparts A and DDDDD. This applies to EU EU CS1SHEATER, EU CS1BOILER, and EU CS1WDHEATER. Requirements are contained in the ROP for initial tune up and one-time energy assessment. These documents have been submitted by the facility as required.

MAERS – MAERS has been reviewed, no issues. See MAERS for details.

Compliance Determination – Based on the site inspection and records review, the facility appears to be in compliance with ROP MI-ROP-B7198-2014a.

Becky Radulski, Environmental Engineer
Digitally signed by Becky Radulski, Environmental Engineer
Date: 2021.10.27 10:58:44 -04'00'

NAME _____ DATE _____

Shane Nixon, Cadillac/ Gaylord District Supervisor
Digitally signed by Shane Nixon, Cadillac/Gaylord District Supervisor
Date: 2021.12.08 13:56:33 -05'00'

SUPERVISOR _____