

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Scheduled Inspection

B719829921

|  |                               |                           |
|--|-------------------------------|---------------------------|
| FACILITY: ANR Pipeline-Cold Springs12 /Blue Lk/ Cold Springs 1 |                               | SRN / ID: B7198           |
| LOCATION: 10000 Pflum Rd., MANCELONA                           |                               | DISTRICT: Gaylord         |
| CITY: MANCELONA  |                               | COUNTY: KALKASKA          |
| CONTACT: Brad Stermer , Senior Environmental Specialist        |                               | ACTIVITY DATE: 06/23/2015 |
| STAFF: Gloria Torello  | COMPLIANCE STATUS: Compliance | SOURCE CLASS: MAJOR       |
| SUBJECT: 2015 Scheduled inspection.                            |                               |                           |
| RESOLVED COMPLAINTS:   |                               |                           |

The ANR facilities are located at 10000 Pflum Road Mancelona in Kalkaska County. This is a sectioned ROP consisting of three facilities, Cold Springs 12 (CS12), Blue Lake (BL), and Cold Springs 1 (CS1), each used in natural gas storage (compression) and transmission. All three facilities function to inject and withdraw natural gas from the underground reservoir. Typically, from April through November the compressor engines operate to push natural gas into the underground storage area. From December through March the natural gas is withdrawn from the underground storage area. The glycol dehydration systems are used when the gas is withdrawn from underground storage to clean the gas before the gas moves down the line. CS1, in addition to the natural gas injection operation, also has the liquid stabilization system (LSS).

The AQD issued the ROP on July 23, 2014, and on November 21, 2014 incorporated a minor modification into MI-ROP-B7198-2014a to increase the glycol recirculation rate. The facility is major for NOx and CO, and synthetic minor for VOC, and minor for HAPs.

The ROP expires on July 23, 2019. The ROP renewal application is due between January 23, 2018 and January 23, 2019.

Site Visit. Gloria Torello of AQD staff visited the site on June 23, 2015 and July 13, 2015 to complete the FCE. Brad Stermer of ANR met with Torello. Brad provided records for review, and copies of records as requested. Brad gave a tour of the facility.

MAERS. The 2014 MAERS used emission unit names from the previous ROP. Torello contacted the permittee and requested the 2015 MAERS include the emission unit names as written in the new ROP. Additional emission units needed in the 2015 MAERS include:

For CS12:

- EU CS12HEATER-A
- EU CS12HEATER-B

For CS1:

- EU CS1GLYDHY
- EU CS1LSHEATER
- EU CS1 WDHEATER

MACTS.

At all three facilities the glycol dehydrators are subject to 40 CFR, Part 63, Subpart HHH.

At CS12, EU CS12EMRGEN-A and EU CS12EMRGEN-B are subject 40 CFR, Part 63, Subpart ZZZZ.

At all three facilities the boilers and heaters are subject to 40 CFR, Part 63, Subpart DDDDD.

**MACES.** MACES' Facility Information and Regulatory Information were reviewed and updated.

### CS12

CS12 is the oldest facility. CS12's heaters were not operating. CS12's boiler was not operating.

CS12's glycol dehydrator was undergoing scheduled maintenance, and there were distinct and definite odors in the general area near the dehydrator.

CS12 has three compressor engines. During the July 13 2015 visit only compressor engine B operated. The engine had instances of over 20 percent opacity/visible emission. General condition 11 allows for 20 percent visible emission. Torello took one 6-minute VE reading showing 19.5 percent VE. CS12 had Excelsior staff on site to trouble shoot why there were excess visible emissions and/or visible emissions near the permitted limit.

Ultimately it was concluded when the Bristol compressor engine was last shut down, the computer memory was lost. Upon startup, the computer memory had to be restored. Instead of using operating data from the last compliance test, there was an error and the computer memory was restored using outdated operating data from an outdated compliance test. Brad Stermer and Matt Brenner, plant operator, agreed to update the CS12 compressor engines' malfunction abatement plan (MAP) with text to address this issue. Some draft text was worked on, attached is the draft text.

CS12 has two backup emergency generator engines. When needed, the generator engines are powered by natural gas. They were not operating. On a monthly basis the engines are started to assure they will start on an emergency basis. CS12's tank battery includes Methanol tanks. The tanks are exempt from permitting under Rule 284 (n) and were not included in the ROP.

### BL

The glycol dehydrator is controlled with a condenser and a thermal oxidizer, and the glycol dehydrator was not operating during the site visit. BL has two heaters and a boiler. BL's heaters were not operating. BL's boiler was not operating.

BL has three compressor engines. During the visit compressor engines A and C operated. Engine C had noticeable emissions at 5 percent opacity. General condition 11 allows for 20 percent visible emission.

BL has three generator engines and B and C operated and had 5 percent visible emissions. Torello reviewed the BL generator engine records including records showing rise in temperature across the catalyst, and maintenance records.

BL has a cold cleaner, the lid was closed.

### CS1

CS1 is the newest facility. This facility was not operating. The glycol dehydrator has a condenser and a thermal oxidizer. The glycol regeneration system is a three phase system.

CS1 has two heaters and a boiler which were not operating.

CS1 has four condensate storage tanks. During the site visit the condensate was not stored in the tanks.

The facility's one generator engine runs the facility and the generator engine is powered by electricity from the power grid, and therefore the generator engine was not included in the ROP.

Exempt emission units include two glycol storage tanks and two brine/condensate storage tanks which are located closer to CS1 and they should not be confused as part of the liquid stabilization system (LSS).

CS1, in addition to the natural gas injection operation, also has the liquid stabilization system (LSS). The LSS receives hydrocarbon liquids from all three of the storage facilities (CS12, BL, and CS1). If the LSS goes down, then all three facilities are shut down. The LSS removes the lighter hydrocarbon components from the liquid condensates. The liquid condensate is stored in a tank battery which is controlled by the thermal oxidizer. The condensate leaves the site via pipeline which empties into Markwest's pipeline. Once in Markwest's pipeline, ANR is no longer in possession of the condensate.

The liquid natural gas (LNG) separated from the LSS is stored in two bullet tanks and are trucked off site. The bullet tanks are exempt from permitting because of their size.

CS1 has one exempt heater which was not operating.

**Brochure:** The inspection brochure will be forwarded to the permittee with the site inspection notes via email.

**Outstanding Compliance.** A review of AQD files and MACES report generator show no outstanding violation associated with SRN B7198. The MAP needs to be updated.

### ROP Conditions.

The ROP is 128 pages long. AQD staff's comments on review of all the ROP conditions and associated records are summarized below.

I. Emission Limits. Torello reviewed records representing compliance with the emission limits.

II. Material Limits. Only a single cold cleaner, found at BL, has material limits because of the type of cleaning solvent used. Torello viewed the safety data sheet showing

**“synonymous mineral spirits, petroleum naphtha parts cleaner solvent.” Crystal Clean picks up the used solvent.**

**III. Process/Operational Restrictions.** Compliance with process and operational restrictions is often documented in the records. Examples include records of operating a thermal oxidizer (TO) above 1400 degrees F, test results records of natural gas for sulfur content, and records of catalyst cleaning as required by the MAP. AQD’s staff’s review of the records documented compliance with the process and operational restrictions.

**IV. Design/Equipment Parameters.** In considering the ROP’s various Design/Equipment Parameters, AQD staff viewed these restrictions as built into the equipment-by design. Per conversation with Brad Stermer, Brad is not aware of any equipment re-design which would trigger the need for a revised ROP.

**VI. Monitoring/Recordkeeping.** The permittee consistently maintains their records and makes records available to AQD upon request. During the June 23, 2015 site visit Brad Stermer supplied records for AQD staff’s review. Records formats were paper and electronic, and some records were supplied as a follow up to the site visit. The permittee demonstrated ongoing compliance with the permit’s recordkeeping requirements for all three sections of the ROP and the MAP. The records demonstrated compliance with permit conditions. The records reviewed for this FCE include the previously mentioned and:

- Glycol dehydration:
  - Monthly and 12-month rolling Benzene and VOC emission calculations,
  - VOC emission in pounds per calendar day,
  - Daily temperature of the TO and/or condenser,
  - TO temperature alarm report,
  - Calculation showing the VOC destruction efficiency of the TO as 95 percent-from Tornado Technologies, Inc.’s design specifications,
  - Natural gas processed,
  - Total hours of glycol dehydration operation,
  - Number of hours the glycol dehydrator operated with the condenser, and/or the TO,
  - Alarm events,
  
- Test Results:
  - CS12CMPRS NOx,
  - BTEX and LDAR.
  
- BLGENS
  - Total hours of operation.
  
- CMPRS
  - Fuel consumption,
  - Hours of engine operation.

**VII. Reporting.** The permittee consistently submits in the timeframes described in the ROP the following: annual, semiannual and deviation reports; and test protocols and results.

**VIII. Stack Vent Restrictions.** Per conversation with Brad Stermer, and thru AQD staff's on site observations, there has been no stack vent diameter or height modification that would trigger the need for a revised ROP.

**GLYDHY Table.** Each of the three facilities has a GLYDHY Table. In March 2014 the permittee analyzed the pre-dehydration natural gas processed in the glycol dehydrators. In 2011 the permittee analyzed the sweet natural gas fuel supplied to the glycol dehydrators. Any issue with past testing results would have been addressed then.

Per the permit, the permittee monitors and records GLYDHY alarm events actuated because the temp of the thermal oxidizer (TO) or condenser was not met, and actions taken in response to the alarm. The permittee records events that last two minutes or longer. Torello discussed with Janis Ransom, DS AQD, the possibility of only recording events that last, for example 5 or 10 or more minutes. AQD staff determined this would not be allowed because of the wording and UARS of the conditions.

**HHH Table.** Each of the three facilities has a HHH Table. October 15, 2015 is the deadline for compliance with 40 CFR Part 63 Subpart HHH. The BTEX emission limit is not a specific number, but a percent reduction efficiency. The TO is the primary control, and the condenser is the secondary control. The Hourly Dehydration System Monitoring Report (report), Control Device, records T for TO only and B for both TO and condenser. The report includes gas thru put in mmscf/Hr, TO and condenser temps, and BTEX emissions in lbs/Hr. The report documents TO temps above 1400 degrees F, and condenser temps below 120 degrees F. Annually the TO and condenser are calibrated for temperature accuracy.

In February 2015 the permittee completed at all three facilities Subpart HHH testing for BTEX and Leak Detection LDAR. At CS12 only, the permittee did not test for BTEX because the stack has no ports. As an alternative to CS12 BTEX testing the permittee shall develop a condenser curve. The permittee and AQD staff (Torello and Kurt Childs) are working together on the condenser curve. Currently Kurt Childs contacted EPA and EPA is reviewing our issue.

There are some typos in the HHH table that need to be cleanup when the ROP is renewed.

**DDDDD Table.** Each of the three facilities has a DDDDD Table, for the Boiler MACT. Brad said the heaters and boilers tune-ups were completed in April 2015. Brad said the onetime energy assessment was completed in April 2015. The first annual compliance report is not due until 2018.

**CS12CMPRS Table.** This stands for CS12's compressor engines table. In 2012 the NOx was tested. The test results show a maximum level of NOx at 58.36 pph, 99.2 pph is permitted. In 2011 the permittee tested the engine fuel for grains of total sulfur; any issue with test results would have been addressed then. Records were provided of

**CS12 compressor engine for: fuel consumption, hours of operation, calculated NOx emissions.**

**BLCMPRS Table.** This stands for BL's compressor engines table. In 2012 the permittee tested and developed an engine operating envelope including engine torque and speed. The operating envelope is posted in the operations room. In 2011 the permittee tested the engine fuel for grains of total sulfur. Records were provided of BL compressor engine for: fuel consumption, hours of operation, calculated NOx, CO, and VOC emissions.

**CS12ZZZZ.** This stands for CS12's emergency generators. The engines are started up once a month, or less often. Torello reviewed records at the facility documenting engine operation was less than 100 hours in 2014. In 2016 the first annual report is due to AQD.

**BLHEATERS.** This stands for BL's gas withdrawal heaters. Brad said only sweet natural gas was used in the heaters. In February 2012 the heaters were tested. In 2011 the permittee tested the engine fuel for grains of total sulfur. Any issue with past testing results would have been addressed then. Torello reviewed records at the facility documenting fuel consumption. In 2014 BL heaters consumed 2.39 mmscf fuel- there is no permit limit on fuel consumption.

**BLGENS.** This stands for BL's generator engines. In February 2013 the engines were tested for NOx, CO, and VOC emissions. In 2011 the permittee tested the engine fuel for grains of total sulfur. Any issue with past testing results would have been addressed then. An oxidation catalyst is installed on each engine for control. Torello reviewed records at the facility documenting the three engine operated 10,200 hours in 2014, the permit allows 16,380 hours per calendar year. At this time the permittee monitors the catalyst inlet and outlet temperatures, and plans to use pressure in the future as a demonstration of compliance for proper catalyst operation.

**BLCLEANERS.** This stands for BL's one cold cleaner. The cleaner lid is closed when not in use. The MSDS sheet shows the solvent is Crystal Clean 142 Mineral Spirits.

**MAP.** On December 11, 2014 the AQD approved the MAP for all three facilities.

**CS12**

The MAP will be updated to address issues with CS12 compressor engines including:

1. When the Bristol compressor engine was last shut down, the computer memory was lost. Upon startup, the computer memory had to be restored. Instead of using operating data from the last compliance test, there was an error and the computer memory was restored using outdated operating data from an outdated compliance test. Brad Stermer and Matt Brenner, plant operator, agreed to update the CS12 compressor engines' MAP with text to address this issue. Some draft text was worked on, attached is the draft text.
2. On a weekly basis facility staff will make and record observation of stack vents from non-certified VE readers. Torello suggests including CS12's compressor engines, and BL's compressor and generator engines.

3. The permittee will include ongoing staff training to include making stack observations as a daily routine.

Torello reviewed records at the facility of the CS12 compressor engine maintenance log.

BL

Torello reviewed records showing BL compressor engines operate within the operational envelope variables of: air manifold temp & pressure, speed, and torque. The operational envelope is posted in the operations room.

Torello viewed the compressor engine maintenance log showing dates of preventative maintenance including: replacing spark plugs, oil filters, etc.

Brad provided records of BL's generator engine's catalytic oxidizer's results from using a portable analyzer for CO. The results include CO at 9 ppm, the ROP allows 0.9 pph. The MAP includes showing the CO in lb/hr. Gloria spoke with Brad and requested the ppm be put into a formula to convert ppm to pph. Also, look at Data Summary Sheet for results in pph.

#### Conclusions.

The MAP will be updated to address issues with CS12 compressor engines.

HHH Table. As an alternative to CS12 BTEX testing the permittee shall develop a condenser curve. The permittee and AQD staff (Torello and Kurt Childs) are working together on the condenser curve. Currently Kurt Childs contacted EPA and EPA is reviewing our issue.

With the updated MAP and the CS12 condenser curve pending, via onsite inspection, discussion with ANR staff, and review of records, the permittee demonstrates compliance with the conditions of MI-ROP-B7198-2014a.

NAME Gloria Torello DATE 7-29-15 SUPERVISOR 

