

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

B372130588

FACILITY: ANR Pipeline - Reed City Compressor Station		SRN / ID: B3721
LOCATION: 7677 230th Ave., REED CITY		DISTRICT: Cadillac
CITY: REED CITY		COUNTY: OSCEOLA
CONTACT:		ACTIVITY DATE: 08/13/2015
STAFF: Kurt Childs	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: MI-ROP-B3721-2014 2015 FCE, site inspection and records review.		
RESOLVED COMPLAINTS:		

MI-ROP-B3721-2014 Full Compliance Evaluation, Site inspection, Records review, and Reporting.

I conducted a compliance inspection of the ANR Reed City Compressor Station to complete the scheduled FCE for 2015. Prior to the inspection I traveled around the facility and did not observe any visible emissions or significant odors. A flame was visible from the flare with some intermittent opacity at the tip of the flames. The weather was sunny, 80 degrees, light winds. At the facility I met with Mr. Ross Momany, Operations Area Manager, and Mr. Matt Feltman who accompanied me on the inspection and assisted in providing information and records that I requested.

BACKGROUND

The Reed City Compressor Station is a natural gas storage facility utilizing two separate storage formations, the Loreed field and the Reed City Stray field. The main facility and the Loreed dehy are located on the west side of 230th Ave. while the Reed City Stray glycol dehydrator is located on the east side. At the time of the inspection, the plant was in injection mode which normally requires the operation of compressor engines to pump natural gas into the storage formation. However, due to high gas demands and maintenance work being done on a pipeline, no engines were running at the time of the inspection.

EURC015 – Loreed Glycol Dehydration

The dehydration process operates during the withdrawal season to remove water from natural gas that is being sent from storage to the sales pipeline. As a result, it was not operating at the time of the inspection.

Process/Operational

III.1. Thermal Oxidizer installed and operating?

The thermal oxidizer was installed and equipped with temperature monitor. It was not operating at the time of the inspection.

Minimum 1400 degree F maintained?

The attached "Monthly Dehydration System Monitoring Report" records indicate the temperature is maintained above 1400 degrees. The system includes alarms and automatic shutdown prior to reaching the permit limit.

III.2. Condenser operation?

The dehydrator was equipped with a condenser.

Max. condenser temp 120 degrees F?

Equipment was not operating due to the plant injection operating scenario. The condenser is a back-up control device to the thermal oxidizer. The "Monthly Dehydration System Monitoring Report" records indicate which control device was operating each day. Records indicate that when the condenser was operating the temperature was well below 120 degrees F (below 32 degrees in February 2015 e.g.) the station control computer system includes a monitor readout and alarm setting below 120 degrees F.

III.3. Flash tank installed and operating?

The dehydrator was equipped with a flash tank routed to the thermal oxidizer. Emissions from the flash tank are supposed to be routed to the reboiler or the thermal oxidizer. A flow diagram for the Dehy's at ANR Reed City was previously provided which indicate that the dehy still vent is controlled by the condenser and the thermal oxidizer and the flash tank vent gas is controlled either by use as fuel in the reboiler or thermal oxidizer.

III.4 Limit hours of operation of EURC015 to 6800 hrs./12mos. rolling?

Hours of operation are limited due to the seasonal nature of the process. The withdrawal season is generally November through March with a maximum hourly operation potential of 3624 hours.

III.5. Stripping Gas used?

Company records (attached) state that stripping gas is not used at this facility.

Testing**V.1. Analyze gas for VOC content 1/5yrs.?**

Testing is conducted annually; I obtained the attached 2013 and 2014 data. The testing results are used in GRI-Glycalc to calculate VOC emissions. There is no VOC content limit but the data is used in emission calculations. Test data fulfills the requirement of this special condition.

Monitoring/Recordkeeping**VI.1. Thermal oxidizer temp.?**

The equipment was not operating but the station control computer system includes a monitor readout and alarm setting. Records indicate that temperature was above 1400 degrees when operating.

VI.2. Condenser exhaust gas temp.?

The equipment was not operating but the station control computer system includes a monitor readout and alarm setting. Records indicate that the temperature remained below 120 degrees while operating.

VI.3,4. Calculate VOC, Benzene emissions?

Emissions are calculated daily when operating; the "Dehydration System Rolling Total Monitoring Report" (attached) includes monthly VOC and benzene emissions. The records indicate emission rates are in compliance with the 19 tpy limits for VOC and the 1 tpy limit for benzene.

VI.5,6. Record hours of operation?

Hours of operation are recorded continuously when operating. This data is included in the Monthly Dehydration System Monitoring Report.

VI.7. Daily natural gas usage?

Natural gas usage is recorded daily when in use.

Stacks**VIII.1,2. 35 Feet?**

The dehy stacks appeared to meet the specifications in the ROP.

EURC024 – Reed City Stray Glycol Dehydration Process/Operational**III.1. Thermal Oxidizer installed and operating?**

The thermal oxidizer was installed and equipped with temperature monitor. It was not operating at the time of the inspection.

Minimum 1400 degree F maintained?

The attached "Monthly Dehydration System Monitoring Report" records indicate the temperature is maintained above 1400 degrees. The system includes alarms and automatic shutdown prior to reaching the permit limit.

III.2. Condenser?

The dehydrator was equipped with a condenser.

Condenser operation < 2300 hours/yr.?

Yes, thermal oxidizer is primary control device.

Max. condenser temp 115 degrees F?

Equipment was not operating due to the plant injection operating scenario. The condenser is a back-up control device to the thermal oxidizer. The "Monthly Dehydration System Monitoring Report" records indicate which control device was operating each day. The condenser did not operate during periods reviewed. The station control computer system includes a monitor readout and alarm setting below 115 degrees F.

III.3. Flash tank installed and operating?

The dehydrator was equipped with a flash tank routed to the thermal oxidizer. Emissions from the flash tank are supposed to be routed to the reboiler or the thermal oxidizer. A flow diagram for the Dehy's at ANR Reed City was previously provided which indicate that the dehy still vent is controlled by the condenser and the thermal oxidizer and the flash tank vent gas is controlled either by use as fuel in the reboiler or thermal oxidizer.

III.4. Stripping Gas used?

Company records (attached) state that stripping gas is not used at this facility.

Testing**V.1. Analyze gas for VOC content 1/yr.?**

Testing is conducted annually; I obtained the attached 2013 and 2014 data. The testing results are used in GRI-Glycalc to calculate VOC emissions. There is no VOC content limit but the data is used in emission calculations. Test data fulfills the requirement of this special condition.

Monitoring/Recordkeeping

VI.1. Thermal oxidizer temp.?

The equipment was not operating but the station control computer system includes a monitor readout and alarm setting. Records indicate that temperature was above 1400 degrees when operating.

VI.2. Condenser exhaust gas temp.?

The equipment was not operating but the station control computer system includes a monitor readout and alarm setting to prevent exceeding the 115 degree limit.

VI.3,4. Calculate VOC, Benzene emissions?

Emissions are calculated daily when operating; monthly monitoring report includes daily VOC and benzene emissions. The records indicate emission rates are in compliance with the 90 lb/day and 15.4 tpy limits for VOC and the 1 tpy limit for benzene.

VI.5. Record hours of operation?

Hours of operation are recorded continuously when operating. This data is included in the Monthly Dehydration System Monitoring Report.

VI.6. Daily natural gas usage?

Natural gas usage is recorded daily when in use.

Stacks**VIII.1,2. 25 Feet?**

The dehy stacks appeared to meet the specifications in the ROP.

FGRC001, 9 NATURAL GAS FIRED COMPRESSOR ENGINES.

At the time of the inspection none of the engines were operating due to the pause in gas injection. EURC011 and EURC012 are both White Superior 8G825 660hp engines equipped with catalytic converters, they are used for the oil tank vapor recovery system and normally run most of the time. EURC008 is the 8600hp Clark TCVD 16M engine which is used for injection. It would normally be running this time of year. The compressor engines are subject to the RICE MACT, 40 CFR 63 Subpart ZZZZ. Engines EURC002 through EURC008 do not have any requirements under the MACT due to their installation dates. EURC011 and EURC012 are the only compressor engines with requirements under the MACT (there are also two emergency generator engines with separate RICE MACT requirements). All RICE MACT requirements are addressed in FGMACTZZZZ. I observed the following with regard to the ROP requirements for the compressor engines:

Process/Operational

III.1. Natural gas sulfur content ≤ 20 grains of total sulfur per 100 cubic feet of natural gas. Not reviewed at the time of the inspection. Gas analysis provided indicate max. H₂S concentration of 24.9 ppm which is equivalent to less than 2 grains of total sulfur per 100 cubic feet of natural gas.

There are no other applicable requirements for FGRC001

FGMACTZZZZ**EURC011, EURC012****Emission limit****I.1 76% Formaldehyde reduction?**

Compliance with this limit is demonstrated through Testing (V.1) and the continuous parameter monitoring system (CPMS) described in Monitoring and Recordkeeping (VI.4).

Process/Operation Restrictions

III.1. Comply with 76% reduction requirement at all times except start-up.

III.2. Minimize the amount of time the engine spends at idle during start-up.

According to Mr. Feltman, the engine is on-line immediately upon ignition there is no bypass for the compressor so essentially there is no start-up period and engine speed responds to load.

III.3. Catalyst installed and operating properly:

- Within 2 inches DP of test data.

Records observed indicate DPs were within this range

- Catalyst inlet temperature \geq 750 degrees F and \leq 1250 degrees F.

Records observed indicate inlet temperatures were within this range.

- Not to exceed 75% load for EURC011 and 87% load for EURC012. Not reviewed.

Testing

V.1 Determine Formaldehyde reduction and re-establish operating parameters during stack testing.

The most recent stack test occurred on 2/26/2015. The results of the test indicate formaldehyde reduction is 94% for EURC011 and 98% for EURC012. The DP was 2 inches for EURC011 and 2.5 inches for EURC012.

Monitoring/Recordkeeping

VI.1 Install CPMS temperature monitor.

Temperature monitor is installed and operating as required.

VI.2. Monitor continuously.

The temperature and DP monitors operate continuously when the engines are running and log data every 15 minutes as required.

VI.3. Monitoring records.

ANR maintains the necessary records. During the inspection I reviewed malfunction and maintenance records which were up to date.

VI.4. Monitor data requirements for demonstrating compliance with formaldehyde reduction limit.

This condition requires collection and recording of catalyst inlet temperature and differential pressure data. These parameters are monitored continuously and recorded every 15 minutes (temp.) and daily (DP) (monthly recording required) as required. As indicated in Process/Operations Restrictions above, the recorded data indicates compliance with the established data ranges and therefore the 76% formaldehyde reduction limit.

Reporting

VII.1-3. ROP reporting.

ROP reports have been reviewed as received throughout the year. Reports were timely and certified no deviations were reported.

VII.4-5. Test reporting requirements.

Compliance testing of the catalytic converters was conducted on 2/26/2015. Test plans and test results were provided with in the 60 day timeframes.

VII.6. Subpart ZZZZ semi-annual compliance report.

The compliance reports were submitted along with ROP reporting. The report followed the format specified in the regulation and there were no incidents of excess emissions, malfunctions, deviations, or periods during which the CPMS was out of control.

Other Requirements

IX.1 Site specific monitoring plan.

All of the requirements of the plan have been addressed.

FGMACTEMERGENCY

EURC019, EURC020

Process/Operational Restrictions

III.1. Unlimited hours of operation during emergencies.

The engines were not operated during emergencies during the past year.

III.2. 100 hour per year limit on maintenance checks and readiness testing.

Each engine was operated only on hour per month for maintenance.

III.3. Up to 50 hours per year allowed for non-emergency operation.

Neither engine was operated except for monthly maintenance.

III.4. Operate engine in accordance with manufacturer's emission related written instructions.

Not reviewed.

III.5. Operational requirements for oil changes, spark plug inspection, hose and belt inspections.

Records indicate spark plugs, hoses and belts are inspected, oil changed as necessary based on oil analysis (see attached).

III.6. Oil analysis program.

ANR utilizes oil analysis to dictate oil change frequency.

III.7. Minimize time spent at idle.

Engines only run 1 hr. each month.

III.8. Maintain compliance with operating limits.

Records indicate FGMACTZZZZ is in compliance with the operating limits.

Monitoring/Recordkeeping**VI.1. Compliance records.**

Engines operated only for maintenance, no malfunctions. Attached records demonstrate compliance with operating limits. Records also maintained of maintenance and hours of operation. The log indicates engines are operated one hour each month for maintenance. At the time of the inspection EURC019 had 717.8 hrs. of total operation and EURC020 had 155 hrs.

FGMACTHHH**EURC015, EURC024**

Compliance date 10/15/2015. No applicable requirements at the time of the inspection. ANR has taken actions to ensure the dehy processes will meet the 40 CFR Part 63, Subpart HHH requirements at the compliance date. Controls and monitoring are in place and testing has been conducted.

FGMACTDDDDD**EURC001**


Compliance date 1/31/2016. No applicable requirements at the time of the inspection. ANR has taken actions to ensure the process heaters will meet the 40 CFR Part 63, Subpart DDDDD requirements at the compliance date.

OTHER**EURC016, EURC017**

ANR Reed City Compressor Station has two new Gas1 process heaters subject to Subpart DDDDD. These heaters are used to warm the inlet gas to the Loreed dehydrator. The ROP is currently being re-opened to include requirements for these units. ANR has submitted compliance notifications for these heaters. A contractor was hired to conduct tune-ups but the burners have no adjustable parameters, nothing to tune. Likewise start up and shut down are largely irrelevant since the units come on and off line based on demand to maintain gas temperature.

CONCLUSION

Following the inspection and review of records I determined that the facility appeared to be in compliance with the ROP and Air Pollution Control Rule requirements.

NAME  DATE 8-18-15 SUPERVISOR 