

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

N294030223

FACILITY: DCP Antrim Gas LLC		SRN / ID: N2940
LOCATION: 6250 OLD STATE RD, JOHANNESBURG		DISTRICT: Cadillac
CITY: JOHANNESBURG		COUNTY: OTSEGO
CONTACT: Dave Bennett , Assistant Plant Manager		ACTIVITY DATE: 07/01/2015
STAFF: Shane Nixon	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: On site inspection and records review		
RESOLVED COMPLAINTS:		

AQD staff traveled to Otsego County to perform an inspection of DCP Antrim Gas' South Chester CO₂ Removal Facility. The purpose of the inspection was to determine the facility's compliance with Renewable Operating Permit No. MI-ROP-N2940-2009a and applicable state and federal air pollution control regulations. Mr. Jay Laughlin of DCP Midstream accompanied AQD staff during the inspection. Mr. Laughlin was provided a copy of "Environmental Inspections: Rights and Responsibilities" which provides a brief outline of what a facility can expect during an inspection.

The facility consists of six plants for removing CO₂ from natural gas produced from the Antrim formation. The CO₂ dilutes the natural gas composition causing it to contain less BTU than commercial standards allow. Therefore, removing CO₂ prior to selling the natural gas is necessary.

Prior to gas entering the main facility, it is passed through EUCHESTER10 (one of the six plants) as a "first pass" to remove a portion of the CO₂. The gas is then routed to the remaining five plants to reduce the CO₂ concentration of the gas to approximately 1% by volume.

In addition to the CO₂ removal plants, the facility contains six electrical generators. Two of these are powered by gas turbines and the remaining four are powered by reciprocating engines. The turbines and generators use natural gas as fuel. There are also glycol dehydrators and heaters associated with each plant.

1. SOURCE-WIDE – There are no source-wide requirements associated with this facility; therefore, this section is not applicable.

2. EUCHESTER10 – Amine plant for removing CO₂ from the incoming North Chester system natural gas. EUCHESTER10 was not operating at the time of the inspection and plant personnel indicated that it has been down since July 2014 as a result of issues related to the amine contactor tower. AQD staff observed the contactor tower was removed and stored alongside the building enclosing the process. A mechanical integrity inspection on the tower in 2014 by plant personnel indicated corrosion on the vessels walls that warranted replacement. The replacement contactor tower will be the same size as the previous tower and will use the same internal and external parts from the old tower. The natural gas processing rate will remain the same as the existing pump will remain at 500 gallons per minute.

Emission Limits – CO₂ emissions are limited to 574,250 pounds per day. Records maintained at the facility for the past year indicates carbon dioxide emissions are zero pounds per day.

Material Limits – There are no material limits associated with this emission unit; therefore, this section is not applicable.

Process/Operational Restrictions – The facility is not allowed to treat more than 4,950,000 cubic feet of natural gas per day. Due to the operational status of the emission unit, no natural gas has been treated for the past year.

Design/Equipment Parameters – There are no design or equipment parameters associated with this emission unit; therefore, this section is not applicable.

Testing/Sampling – There are no sampling or testing requirements associated with this emission unit; therefore, this section is not applicable.

Monitoring/Recordkeeping – At the time of the inspection no natural gas was treated at EUCHESTER10; therefore, the CO₂ content and flow rate of the natural gas was not monitored and recorded.

Reporting – All reports submitted pursuant to the requirements of the ROP were previously reviewed and documented.

Stack/Vent Restrictions – The stack associated with the emission unit appeared to be constructed in accordance with the parameters listed in the ROP.

Other Requirements – There no other requirements associated with this emission unit; therefore, this section is not applicable.

3. EUPLANT101 - Plant 1 heat medium heater.

Emission Limits - The NO_x emissions from the heater are limited to 5.6 pounds per hour, based upon a three hour average. Stack testing performed in June 2014 indicates the NO_x emission rate is 2.93 pounds per hour, as determined by the average of three 1-hour test runs, which is in compliance with the emission limit.

Material Limits - There are currently no material limits associated with this emission unit; therefore, this section is not applicable.

Process/Operational Restrictions - As required by the ROP, the facility can only burn sweet natural gas as fuel in the heater. Fuel testing indicates that the H₂S concentration in the gas is non-detectable.

Design/Equipment Parameters - There are currently no design or equipment parameters associated with this emission unit; therefore, this section is not applicable.

Testing/Sampling - NO_x testing is to be completed every five years per requirements of the ROP. The source fulfilled the applicable requirement when testing was performed in June 2014.

Monitoring/Recordkeeping - Hours of operation of the heater are recorded on a daily basis and summarized in a monthly log. NO_x emission calculations and fuel usage records are also maintained. Review of the records indicates the facility is in compliance with the recordkeeping requirements of the ROP.

Reporting - All reports submitted pursuant to the requirements of the ROP were previously reviewed and documented.

Stack/Vent Restrictions - At the time of the inspection, it appeared that the stack for the heater was sized in accordance with the parameters listed in the ROP.

Other Requirements – There are no other requirements associated with this emission unit; therefore, this section is not applicable.

4. **FGENGINES** – Two 930 horsepower Caterpillar 399 TA engines equipped with catalytic converters to reduce emissions used in conjunction with EUCHESTER10. The engines have been down since July 2014 and will not be restarted until the amine contactor tower has been replaced.

Emission Limits – Combined NOx emissions from the engines is not allowed to exceed 18 tons per 12 month rolling time period. Due to the operational status of the engines, the emission limit was not exceeded.

Material Limits – There are no material limits associated with this flexible group; therefore, this section is not applicable.

Process/Operational Restrictions – There are no operational or process restrictions associated with this flexible group; therefore, this section is not applicable.

Design/Equipment Parameters – The engines are not allowed to operate unless the catalytic converters are installed and operating properly. The permit indicates that proper operation includes the manufacturer’s recommended maintenance on the catalytic converter. Mr. Laughlin indicated maintenance on the catalysts has not been performed in the past year based on the fact that the engines have not operated.

Testing/Sampling – There are no testing or sampling requirements associated with this flexible group; therefore, this section is not applicable.

Monitoring/Recordkeeping – NO_x emission calculations, natural gas usage, and catalyst maintenance records were available for AQD staff upon request. AQD staff reviewed the records and determined them adequate.

Reporting - All reports submitted pursuant to the requirements of the ROP were previously reviewed and documented.

Stack/Vent Restrictions – There are no stack or vent restrictions associated with this flexible group; therefore, this section is not applicable.

Other Requirements – There are no other requirements associated with this flexible group; therefore, this section is not applicable.

5. FGGEN6789 - Generators 6, 7, 8, and 9 powered by natural gas reciprocating engines at Plants 3 and 4.

Emission Limits – NOx emissions from each engine are limited to 5.5 pounds per hour based on a three hour average and 2.0 tons per month. CO emissions from each engine are limited to 4.0 pounds per hour based on a three hour average and 1.5 tons per month. With the exception of generator engine 7, stack testing in 2014 (summarized in the table below) demonstrated compliance with the pound per hour limits and calculations submitted by the company (attached) indicate compliance with the ton per month limits. Ton per month NOx and CO emissions from each engine are less than 1.0 ton per month.

	NOx emissions (pounds per hour)	CO emissions (pounds per hour)
Engine 6	1.8	2.7
Engine 8	3.1	2.4
Engine 9	1.1	2.2

Generator engine 7 was not tested in 2014 as the engine is currently inoperable and awaiting repairs. The facility expects the engine to be brought back on-line in 2015 and stack testing will be performed at that time.

Material Limits - There are currently no material limits associated with this flexible group; therefore, this section is not applicable.

Process/Operational Restrictions - As required by the ROP, the facility can only burn sweet natural gas as fuel in the generators. The gas feeding the plant meets the definition of sweet gas. Since there is no sour gas present at the facility, the facility is currently in compliance with this restriction.

Design/Equipment Parameters - There are currently no design or equipment parameters associated with this flexible group; therefore, this section does not apply.

Testing/Sampling - NO_x and CO testing is required to be performed every five years. As previously referenced, stack testing was performed in 2014.

Monitoring/Recordkeeping - Records of the NO_x and CO emissions were available upon request and were adequate for demonstrating compliance with the emission limits.

Reporting - All reports submitted pursuant to the requirements of the ROP were previously reviewed and documented.

Stack/Vent Restrictions - At the time of the inspection, it appeared that the stack was sized according to the specifications listed in the ROP.

Other Requirements - There are no other requirements associated with this flexible group; therefore, this section is not applicable.

6. FGTUR1AND2 - Two natural gas fired turbines which power a generator in Plant 5.

Emission Limits - NO_x emissions are limited to 167 ppmv, corrected to 15% O₂ on a dry gas basis and 17.1 pounds per hour. Stack testing performed in 2014 was used to demonstrate compliance with the emission limits. Results of the testing indicate NO_x emissions from Turbine 1 is 81 ppmv and 14.5 pounds per hour and emissions from Turbine 2 is 83 ppmv and 13.9 pounds per hour.

CO emissions are limited to 50 ppmv, corrected to 15% O₂ on a dry gas basis and 2.3 pounds per hour. Similar to the NO_x emission compliance demonstration, the facility uses stack testing, which was performed in 2014, to demonstrate compliance with the emission limits. Results of the testing indicate CO emissions from Turbine 1 are 24 ppmv and 2.6 pounds per hour and emissions from Turbine 2 is 22 ppmv and 2.2 pounds per hour.

Based upon the stack test results, Turbine 1 did not comply with the CO pound per hour emission limit. AQD staff sent a violation notice for the determination of noncompliance at the time stack test results were submitted. The facility obtained a revision to the CO emission limit through a Permit to Install which resolved the violation. Escalated enforcement was not recommended nor pursued by AQD staff as a means of resolving the violation.

Process/Operational Restrictions - Gas sampling analysis of the fuel burned in the turbines resulted in a non-detectable level of H₂S. Therefore, the gas burned in the turbines is considered sweet gas.

Design/Equipment Parameters - There are no design or equipment parameters listed for this flexible group; therefore, this section is not applicable.

Testing/Sampling - NO_x and CO testing is required every five years. As mentioned previously, stack testing was performed in 2014.

Monitoring/Recordkeeping - As required by the ROP, the fuel gas is sampled and monitored for H₂S to demonstrate compliance with the material limit as well as the operational restriction.

Reporting - All reports submitted pursuant to the requirements of the ROP were previously reviewed and documented.

Stack/Vent Restrictions - At the time of the inspection, it appeared that the stack was sized according to the specifications listed in the ROP.

Other Requirements – There are no other requirements associated with this flexible group; therefore, this section is not applicable.

7. FGPLANTPH - Heat medium heaters 2, 3, 4, and 5.

Emission Limits – Pound per hour emission limits and 2014 stack tests results for each process heater are summarized in the table below. As evidenced in the table, the facility is currently in compliance with the NO_x and CO emission limits contained in the ROP.

	NO _x emission rate (pounds per hour)	NO _x emission limit (pounds per hour)	CO emission rate (pounds per hour)	CO emission limit (pounds per hour)
Plant 2 heater	4.8	5.2	0.0	3.0
Plant 3 heater	3.8	5.2	0.0	3.0
Plant 4 heater	3.8	5.2	0.0	3.0
Plant 5 heater	4.7	5.2	2.7	4.0

NO_x and CO emissions from each process heater are also limited to 1.9 tons per month and 1.1 tons per month, respectively. Records maintained by the facility indicate the highest ton per month emissions was from Plant 2 heater. The highest NO_x and CO emissions in the past year were 1.79 tons per month and 0.0037 tons per month, respectively.

Material Limits - There are no material limits associated with this flexible group; therefore, this section is not applicable.

Process/Operational Restrictions – Gas used in the process heaters is considered sweet based on a recent gas analysis.

Design/Equipment Parameters - There are no design or equipment parameters associated with this flexible group; therefore, this section is not applicable.

Testing/Sampling - CO and NO_x testing is required every five years and the most recent stack testing was performed in 2014.

Monitoring/Recordkeeping - Natural gas usage, hours of operation, and emission calculations were available upon request. Based upon a review of the records, the facility is considered to be in compliance with the recordkeeping requirements of the ROP.

Reporting - All reports submitted pursuant to the requirements of the ROP were previously reviewed and documented.

Stack/Vent Restrictions - At the time of the inspection, it appeared that the stack was sized according to the specifications listed in the ROP.

Other Requirements – There are no other requirements associated with this flexible group; therefore, this section is not applicable.

8. FGPLANTRA - Amine reflux accumulators for Plants 1, 2, 3, 4, and 5.

Emission Limits - CO₂ emissions are limited to 73,343 tons per calendar month. Records submitted by the company indicate the maximum monthly CO₂ emissions in the past 12 months was 53,523 tons, which was in July 2014.

Material Limits - There are no material limits associated with this flexible group; therefore, this section is not applicable.

Process/Operational Restrictions - There are no process or operational restrictions associated with this flexible group; therefore, this section is not applicable.

Design/Equipment Parameters - There are no design or equipment parameters associated with this flexible group; therefore, this section is not applicable.

Testing/Sampling - There are no testing or sampling requirements associated with this flexible group; therefore, this section is not applicable.

Monitoring/Recordkeeping - Records of the daily gas processing rate, CO₂ concentration of the gas entering the plant, and monthly CO₂ emissions were available upon request. At the time of the inspection, AQD staff observed the equipment used to monitor the CO₂ concentration of the gas entering the plant.

Reporting - All reports submitted pursuant to the requirements of the ROP were previously reviewed and documented.

Stack/Vent Restrictions - At the time of the inspection, it appeared that the stack was sized according to the specifications listed in the ROP.

Other Requirements – There are no other requirements associated with this flexible group; therefore, this section is not applicable.

9. FGGD01 - Glycol dehydration systems for Plants 1, 2, 3, 4, and 5. Applicable requirements associated with this flexible group include those found in 40 CFR 63 Subpart HH. The facility is not a major source or hazardous air pollutants and the AQD has not been delegated authority to enforce 40 CFR 63 Subpart HH, AQD staff did not determine if the facility was in compliance with those requirements.

EMISSION LIMITS – There are no emission limits associated with this flexible group; therefore, this section is not applicable.

MATERIAL LIMITS – There are no material limits associated with this flexible group; therefore, this section is not applicable.

PROCESS/OPERATIONAL RESTRICTIONS – The dehydrators are not allowed to operate unless a flash tank and process water tank is installed and generated VOCs are routed to a process heater for use as fuel. As observed during the inspection, flash tanks were installed on each of the dehydrators and VOCs fuel consumption to each heater was monitored and recorded.

DESIGN/EQUIPMENT PARAMETERS – Each glycol dehydrator is required to be equipped with a flash tank and process water tank. As mentioned in the above section, flash tanks and process water tanks were installed.

TESTING/SAMPLING – There are no specific testing or sampling requirements associated with this flexible group; therefore, this section is not applicable.

MONITORING/RECORDKEEPING - Specific monitoring and recordkeeping requirements associated with this flexible group were established pursuant to 40 CFR 63 Subpart HH. A compliance determination with the regulations was not made.

REPORTING – All reports submitted pursuant to the conditions of the ROP were previously reviewed and documented.

STACK/VENT RESTRICTIONS – There are no stack or vent restrictions associated with this flexible group; therefore, this section is not applicable.

OTHER REQUIREMENTS – There are no other requirements associated with this flexible group; therefore, this section is not applicable.

10. FGCOLDCLEANERS – Any cold cleaner that is exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule (r)(iv). AQD staff observed one cold cleaner while performing the inspection of the facility.

EMISSION LIMITS – There are no emission limits associated with this flexible group; therefore, this section is not applicable.

MATERIAL LIMITS – Cleaning solvents used in the cold cleaner is limited to not more than 5% by weight of halogenated compounds. The material safety data sheet for the cleaning solvent (attached) demonstrates that no halogenated solvents are used.

PROCESS/OPERATIONAL RESTRICTIONS – The cold cleaner was not in use at the time of the inspection and AQD staff was unable to determine if cleaned parts were allowed to drain for no less than 15 seconds.

DESIGN/EQUIPMENT PARAMETERS - Per the requirement of the ROP, the air/vapor interface of the cold cleaner must be less than 10 square feet or emissions from the cold cleaner must be released to the general in-plant environment. Even though the stationary source can comply with one of the two options available, AQD staff observed that the cold cleaner was in compliance with both options at the time of the inspection.

A perforated platform inside the cold cleaner to allow cleaned parts to drain and a cover were observed by AQD staff. The cover was in a closed position as the cold cleaner was not in use.

TESTING/SAMPLING – There are no testing or sampling requirements associated with this flexible group; therefore, this section is not applicable.

MONITORING/RECORDKEEPING – Records and information, including the model, serial number, and air/vapor interface, were provided to AQD staff for review.

REPORTING – All reporting submitted pursuant to conditions of the ROP were previously reviewed and documented.

STACK/VENT RESTRICTIONS – There are no stack or vent restrictions associated with this flexible group; therefore, this section is not applicable.

OTHER REQUIREMENTS – There are no other requirements associated with this flexible group; therefore, this section is not applicable.

Conclusion - Based upon the on-site inspection and records review, AQD staff considers the facility to be in compliance with ROP No. MI-ROP-N2940-2009a

NAME Shane Nelson

DATE 8/21/15

SUPERVISOR 