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MAWILA

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

N109940151

FACILITY: Consumers Energy - Northville Compressor Station		SRN / ID: N1099
LOCATION: 9440 NAPIER RD, NORTHVILLE		DISTRICT: Detroit
CITY: NORTHVILLE		COUNTY: WAYNE
CONTACT: Amy Kapuga , Environmental Engineer		ACTIVITY DATE: 06/07/2017
STAFF: Stephen Weis	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Compliance inspection of the Consumers Energy - Northville Compressor Station. The Northville Compressor Station is scheduled for inspection in FY 2017.		
RESOLVED COMPLAINTS:		

Location:

Consumers Energy (SRN N1099)
Northville Compressor Station
9440 Napier Road
Northville Township

Date of Activity:

Wednesday, June 7, 2017

Personnel Present:

Steve Weis, DEQ-AQD Detroit Office
Rebecca Loftus, DEQ-AQD Detroit Office
Amy Kapuga, Senior Environmental Engineer, Environmental Services, Consumers Energy
Spencer Turner, Field Leader – Northville Storage, Consumers Energy
Stephanie Watkins, Environmental Planner, Consumers Energy

Purpose of Activity

A self-initiated inspection of the Consumers Energy Northville Compressor Station facility (hereinafter "Northville Station") was conducted on Wednesday, June 7, 2017. The Northville Station was on my list of sources targeted for an inspection during FY 2017. The purpose of this inspection was to determine compliance of operations at the Northville Station with applicable rules, regulations and standards as promulgated by Public Act 451 of 1994 (NREPA, Part 55 Air Pollution Control) and Federal standards. The facility is also subject to the terms and conditions of Renewable Operating Permit No. MI-ROP-B1099-2011.

Facility Description

The Northville Station facility is located on approximately 28 acres on the east side of Napier Road about halfway between 7 and 8 Miles Roads in Northville Township. Napier Road marks the border between Wayne and Washtenaw Counties, with areas to the east being in Wayne County. The area around the facility is primarily a residential area with larger, rural lots. The closest residences are located directly across the street from the Northville Station, and directly to the south, sharing a fence line with the facility; the closest residence is located approximately 350 yards from the primary air emissions sources at the facility. Maybury State Park is located directly to the east and north of the facility, and shares a fence line.

The Northville Station is part of Consumers Energy's natural gas distribution system in their Michigan service area. The gas distribution system consists of gas storage fields, compressor stations and gas transmission pipelines, as well as associated infrastructure, such as city gates. Natural gas is transported to Michigan via underground pipelines, and it is directed either directly into the supply lines or into storage fields. According to Consumers Energy's website, this system has one of the largest underground storage systems in the country, consisting of 15 underground gas storage fields with a storage capacity of 151 billion cubic feet. The storage fields are natural porous rock formations.

The Northville Station is a compressor station, serving to assure that there is adequate pressure in the storage fields and the natural gas supply lines owned and operated by Consumers Energy and MichCon. The facility utilizes compressors that raise the pressure of the natural gas being stored in nearby storage fields in Washtenaw and southwest Oakland Counties. There are three different natural gas storage fields that are located 1-2 miles to the northwest of the Northville Station. As natural gas is needed, a valve is opened to allow the pressurized gas to flow from the storage fields to the natural gas distribution pipes as the pressure in the storage field is greater than the pressure in the pipes. The compressors are driven by four natural gas-fired engines; the compressors and engines are located in a building in the northeast part of the property. There are also an office building and some buildings used for maintenance activities and storage located in the eastern part of the property, and some above-ground storage tanks located to the west of the engine building that are used to store natural gas condensate. There are also some city gate structures at the facility. City gates are used to reduce the pressure of the natural gas prior to it entering the distribution lines, and are also the point in the process at which the odorant (methyl mercaptan) is added to the natural gas.

Facility Operations

The Northville Station operates Monday through Friday, from 7:00am until 3:00pm. The facility occasionally operates at additional times, as necessary, to address gas supply needs.

As mentioned in the last section, the Northville Station is part of Consumers Energy's natural gas distribution system. It is a compressor station that serves to assure that there is adequate pressure in the natural gas distribution system by pressurizing the natural gas in the gas storage fields in the area. Natural gas enters the Northville Station via a series of supply lines.

The gas that is transported directly into the distribution lines enters the facility at about 550-650 psi pressure, and the pressure is raised to 750-800 psi prior to distribution. This gas is of pipeline quality, and comes from other Consumers Energy stations (St. Clair) and MichCon. The natural gas that is sent to the storage fields is scrubbed to knock out moisture, and then compressed/pressurized to approximately 2,000 psi. The moisture collected is pumped to the natural gas condensate tanks. All of gas that is compressed by the engines is sent through coolers that cool the gas using radiant heat. The gas is cooled in order to meet pipeline temperature requirements.

The Northville Station is unique among the other natural gas storage fields in Michigan in that the natural gas flows directly from the storage fields to the distribution pipeline without the use of an engine to boost the flow. Recall that at this facility, natural gas is delivered to the distribution lines by opening a valve that allows the pressurized gas to flow from the storage fields to the natural gas distribution pipes as the pressure in the storage field is greater than the pressure in the pipes. The natural gas in the storage field is pipeline quality, and moisture has been removed prior to it being stored. As such, the Northville Station does not need to utilize a glycol dehydrator to remove moisture from the natural gas.

The Northville Station's Renewable Operating Permit defines Emission Units and Flexible Groups that represent the various processes that occur at the facility. These Emission Units and Flexible Groups are described below.

- EUENGINE 1-1, EUENGINE 1-2, EUENGINE 1-3 and EUENGINE 1-4 – all four engines represented by these Emission Units are 19 MMBTU/hour, 2,700 hp rated natural gas-fired reciprocating engine that are used to power compressors. The compressors are used to compress natural gas for injections into or withdrawal from natural gas storage fields.

The engines are Clark Model TLA-8 engines.

- EUAUXGENERATOR - a natural gas-fired emergency generator with a maximum rated heat input capacity of 2.16 MMBTU/hour, and a rated output of 332 hp.
- FGCOLDCLEANERS – this Flexible Group contains the general EUCOLDCLEANERS Emission Unit that applies to any cold cleaning equipment that is exempt from DEQ-AQD permitting requirements, and was placed into operation after July 1, 1979. In addition, this Flexible Group addresses two specific cold cleaners – EUDEGREASER1, which is identified as a small cold cleaner located in the fabrication building, and EUDEGREASER2, which is identified as a small cold cleaner used for pars cleaning.
- FGENGINES– this Flexible Group summarizes the permitting and regulatory requirements for the four

engines (1-1 through 1-4).

- FGRULE285(MM)– this Flexible Group addresses any Emission Unit that experiences routine and emergency venting of natural gas and meets the permit exemption requirements put forth in Michigan Administrative Rule 285(mm).

There is also additional equipment and processes located at the facility that are exempt from DEQ-AQD permitting requirements. I have attached the table from the draft ROP renewal staff report, created by Rebecca Loftus, that summarizes all of the exempt equipment that is not included in the ROP.

Inspection Narrative

I arrived at the facility at 2:00pm. I checked in at the main office at the Northville Station, and I was met by Amy Kapuga. We proceeded to the conference room, where Rebecca Loftus, Spencer Turner and Stephanie Watkins were waiting. Rebecca is writing the ROP renewal for the facility, and she accompanied me on the site visit in order to verify some information regarding the facility, and to pose some questions to Consumers to assist her in writing the ROP. I had sent Amy an e-mail on June 1, 2017. The purpose of this e-mail was to set up a date for the site visit, but also to pose some of the remaining questions that Rebecca had about the facility and the ROP to Consumers. Amy responded on June 2. A copy of this e-mail exchange is attached to this report for reference.

We started the site visit by having Consumers staff provide an overview of the Northville Station's operations. Spencer explained that the facility's storage field works as a peaker field; the gas in the storage field is kept under pressure, and it flows into the distribution pipes, when needed, with no engines used to boost the flow or pressure. The equipment at the Northville Station is used to move natural gas to and from the storage field. Natural gas is directed to the storage fields from natural gas supply lines. He showed us the general location of the storage fields, which are located 1-2 miles to the northwest of the facility. He told us that there are eight lines that feed/go through the Northville Station.

We then walked around the facility. Spencer mentioned that there are four departments at the facility – Measurement and Regulation, Compression, Storage, and Pipeline. We walked by the engine building. We (Rebecca and I) were told that there are four engines operating in the building. The engines are Clark Model TLA-8. Engines 1 and 2 are single stage engines, while engines 3 and 4 are two stage engines (it was explained that this is due to the higher pressure that is needed for the distribution lines). We walked to the west of the engine building. We took a look at the water-gas separator, and the condensate tanks were pointed out. We then looked at some small buildings in the western part of the property. These buildings are the fuel gas heater building and the Salem City Gate. Spencer pointed out a series of red fire gate boxes. The fire gates are valves that are used during emergencies that close valves on pipes that lead to the Northville Station. When this occurs, accumulated gas at the facility can be vented to the atmosphere.

We then walked through the Auxiliary Building. This building contains one emergency generator that is designated in the facility's permit as EUAUXGENERATOR. There is also a small boiler (500,000 BTU/hour) in this building, and a parts cleaner. The parts cleaner was affixed with a DEQ sticker and a label instructing staff to keep the lid closed when not in use. The lid was closed at the time of our visit. To the east of the Auxiliary Building is the Parts Storage/Store Room Building. This building also contains a 500,000 BTU/hour boiler. I was told during my last site visit on April 7, 2015 that three 500,000 BTU/hour Lochinvar boilers equipped with low NOx technology were installed in 2012. The third of these boilers is located in the Engine Building. I was told at the time that these boilers were not installed to operate continuously; rather, they are used on an as needed basis.

We then returned to the conference room in the main building, and we began to discuss the terms and conditions of the ROP. As we discussed the conditions, Spencer and Amy would provide the facility's compliance status. They showed us records, as necessary, and provided copies upon request. The Northville Station's compliance with the ROP and applicable regulations is discussed in the next section of this report.

Rebecca and I left the facility at 3:45pm.

Permits/Orders/Regulations

Permits

Renewable Operating Permit

Renewable Operating Permit No. **MI-ROP-N1099-2011** was issued to Consumers Energy with an effective date of December 1, 2011. This permit addresses all of the Emission Units and Flexible Groups referenced in the "Facility Operations" section of this report. Consumers Energy submitted an administratively complete ROP renewal application on March 9, 2016. As of the date of this report, the draft ROP renewal has completed to 30-day public comment period (it ended on August 23), and is currently in its 45-day EPA comment period, which began on August 29.

The following paragraphs provide a description of the Northville Station's compliance with the terms and conditions put forth by ROP No. MI-ROP-N1099-2011, with the headings representing the sections of the ROP.

Source-Wide Conditions

The Source-Wide Conditions table in the ROP contains only one Special Condition, IX.1, which states that the permittee shall comply with all of the applicable provisions of **40 CFR Part 63 (National Emission Standards for Hazardous Air Pollutants), Subpart DDDDD (Industrial/Commercial/Institutional Boilers and Process Heaters)** by the initial compliance date.

When MI-ROP-N1099-2011 was drafted, Subpart DDDDD had been promulgated, with an effective date of May 18, 2011. However, because of implementation delays due to judicial review, and requests to EPA to reconsider the rule, there were no final rule language or applicability criteria available when the ROP was written and issued. To address this, a high-level citation in the form of Special Condition IX.1 was placed in the Source-Wide Conditions section that requires Consumers Energy to comply with any applicable of requirements of Subpart DDDDD.

Consumers Energy addressed the requirements of Subpart DDDDD in the time since the ROP was issued. Per correspondence dated May 21, 2013, Consumers provided US EPA and DEQ-AQD with the Initial Notification of Applicability for Subpart DDDDD for all of their facilities in Michigan having equipment that was determined to be subject to the regulation, including the Northville Station. This notification identified three natural gas fired pipeline heaters, EULINEHEATER1, EULINEHEATER2 and EULINEHEATER3, and the natural gas-fired fuel gas heater identified as EUFUELHEATER1, as being subject to Subpart DDDDD. In addition, in correspondence dated October 9, 2014, Consumers Energy notified US EPA and DEQ-AQD that the heater identified as EUFUELHEATER1, which was a 750,000 BTU/hour rated unit, was replaced by a 25,000 BTU/hour rated natural gas-fired boiler. The October 9 correspondence also included the Initial Applicability Notification, in accordance with 40 CFR 63.9.

In the time since, Consumers submitted the Notification of Compliance Status (NOCS), in accordance with 40 CFR 63.7550. This notice includes EUFUELHEATER1 and EULINEHEATER3 as the Subpart DDDDD subject equipment at the Northville Station. The original emission unit that was identified as EUFUELHEATER1, which was a 750,000 BTU/hour unit, was replaced in July 2014 with a smaller unit rated at 25,000 BTU/hour. EULINEHEATER1 and 2 were removed from service.

During the site visit, we discussed the facility's compliance status with Subpart DDDDD. Amy told us that the one-time energy assessment required by 63.7530(e) was completed. The on-site portion was conducted on August 19, 2015, and she stated that the final written report was issued on January 15, 2016. The January 27, 2017 NOCS also includes a statement that the energy assessment was performed according to 63.7530(e). Amy also provided that the initial tune-ups were completed. The tune-ups are required of all boilers and process heaters that are covered by Subpart DDDDD, and are to be performed according to the procedures in 63.7540 (a)(10)(i) through (vi). Amy sent an e-mail dated June 8, 2017 that provided some follow-up details to the Subpart DDDDD discussion, a copy of which is attached to this report. Per the e-mail, the initial tune-up on EUFUELHEATER1 was conducted on January 6, 2016, and the initial tune-up on EULINEHEATER3 was conducted on December 21, 2015.

To this point, Consumers Energy looks to be **in compliance** with these requirements. A copy of the January 27, 2016 NOCS submittal is attached to this report for reference. The draft ROP renewal includes EUFUELHEATER1 and EULINEHEATER3 in The Emission Unit table. These two Emission Units are grouped in a Flexible Group, FGPROCESSHTRS; the Flexible Group condition table for FGPROCESSHTRS in the draft ROP includes the applicable requirements of Subpart DDDDD.

EUAUXGENERATOR

This Emission Unit addresses the requirements for the 2.16 MMBTU/hour natural gas-fired emergency generator. The generator is subject to the requirements of **40 CFR Part 63 Subpart ZZZZ (National mission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines)**. The paragraphs that follow provide a summary of the Northville Station's compliance with the Special Conditions in this Emission Unit.

III. Process/Operation Restrictions

Special Condition (SC) III.1 – **Compliance**. The generator is equipped with a non-resettable hour meter.

SC III.2 – **Compliance**. Consumers keep track of the hours in accordance with the emergency usage criteria in Subpart ZZZZ, paragraph 6640(f)(1)(i-iii). The records are kept in a log book in the Auxiliary Building. I was told that the engine was used twice in the last 6 months for emergency use. The unit is test once a week for maintenance checks. The duration of the run time varies. I was provided with a copy of the Northville Compressor Station Emergency Log Sheet, which is attached to this report for reference. This sheet shows the dates that the engine was operated, the amount of time that it was operated, and the reason for the operation.

SC III.3 – **Compliance**. Consumers stated that start up requirements in this SC are standard operating practice for the engine.

SCs III.4 and III.5 – **Compliance**. Consumers stated that they are following recommended maintenance practices for the engine. I was shown and provided with copies of internal documents that are used to track maintenance for this engine, which are attached to this report. One of the documents, "Generator Main/Insp", is a work order form that details each maintenance activity that was performed on the engine. I received a copy of the form for maintenance and inspections that were performed on the engine on March 14, 2017. The other form, the "RICE Generator Maintenance, Operations and Record Keeping Requirements", also summarizes a specific maintenance activity, and includes a listing of the MACT maintenance requirements. I was provided with a copy from April 3, 2017, which serves to summarize the maintenance and inspection that took place on March 14.

VI. Monitoring/Recordkeeping

SC VI.1 – As described in the discussion for SCs III.4 and 5, Consumers is keeping records of engine maintenance. A copy of example records is attached. **Compliance**.

VI.2 – **Compliance**. Consumers is tracking the hours of operation of the engine, as described in the discussion for SC III.2.

VI.3 – **Compliance**. Consumers has records of the notifications and other required records associated with Subpart ZZZZ.

VII. Reporting

The Northville Station is **in compliance** with all reporting requirements associated with EUAUXGENERATOR.

IX. Other Requirements

The Northville Station is **in compliance** with the permit conditions in this section. The operations, monitoring and maintenance of the engine complies with the applicable provisions of Subpart ZZZZ.

FGENGINES

This Flexible Group addresses the regulatory requirements for the four natural gas-fired engines that are used to compress natural gas for injections into or withdrawal from the natural gas storage fields. These engines are identified as EUENGINE1-1, EUENGINE 1-2, EUENGINE1-3, and EUENGINE1-4.

There are not many permit conditions associated with FGENGINES; there are no emission limits, material limits, process/operational restrictions, design/ equipment parameters, or testing/sampling requirements.

Under "VI. Monitoring/Recordkeeping", Special Condition VI.1 requires Consumers to record the natural gas usage for FGENGINES for each calendar month. The Northville Station is **in compliance** with this

requirement. Spencer described how the natural gas usage is tracked. The usage is logged on an internal share point site. The facility also maintains a worksheet that includes the natural gas meter readings. Each month, a beginning and engine gas meter reading is taken. For May 2017, the beginning reading for the Engine Building was 4271 CCF, and the end of the month reading was 4445 CCF.

The Northville Station is also **in compliance** with the reporting requirements in "VII.Reporting".

IX. Other Requirements

IX.1 – The facility is **in compliance** with the requirement. During my last site visit on April 7, 2015, I was shown a tariff sheet that shows compliance with the sulfur content requirements. The sheet references a company memo dated 10/26/05 which states that the sulfur content is less than 20 grains per 100 standard cubic feet. I was told that the company continues to maintain this information.

IX.2 – This SC requires that the four engines comply with all applicable provisions of 40 CFR Part 63, Subpart ZZZZ. The engines are not currently subject to 40 CFR Part 63, Subpart ZZZZ, as they are classified as existing spark-ignition two-stroke lean-burn engines. The engines may be subject to Subpart ZZZZ if they are reconstructed at any point in the future, so this SC is presumably included as a place-holder.

FGRULE285(mm)

This Flexible Group addresses routine and emergency venting of natural gas at the Northville Station.

Venting is part of a "fire gate event". The fire gate is a valve that is used during emergencies that closes valves on pipes that lead to the Northville Station. When this occurs, accumulated gas at the facility can be vented to the atmosphere.

A live test of a fire gate event is scheduled each year, typically in June. At this time, yearly maintenance activities are performed, which include checking the emergency systems, and checking connections, valves and pilot lights. Spencer told us that the amount of gas vented depends on the pressure, and is typically greater than 1 MMCF. Consumers Energy notifies the appropriate entities. He also told us that the amount of time between fire gate events is not to exceed 15 months.

The Northville Station is **in compliance** with the requirements of this section.

FGCOLDCLEANERS

This Flexible Group contains the requirements for cold cleaners at the facility that meet identified criteria. The Special Conditions in the Flexible Group are part of a template that addresses the various state requirements that apply to cold cleaners, as found in Parts 6 and 7 of the Michigan Administrative Rules.

Consumers staff told us that there are currently two cold cleaners on site, down from three during my last site visit. The two cold cleaners are located in the mechanic's shop in the Auxiliary Building, and in the garage. The units are ZEP Dynaflow II units, Model No. 906101. These cold cleaners are used for the general cleaning of parts that are used in maintenance activities. Information in the facility files that I reviewed during my last site visit in 2015 indicated that the units were installed in September 1994.

The inspection and maintenance procedures for the cold cleaners was described to us. The procedures follow an internal air quality regulation related maintenance procedure referred to as AQ-132. Once a month, the maintenance procedures are performed and the operating parameters are monitored in accordance with the company's procedures. This includes checking the drains and filters on the units. I was told that the materials used in the cleaners have not changed since my last site visit. During that visit, I was provided with a Material Safety Data Sheet (MSDS) for the material used in the cold cleaners, DYNA 143°. It shows that the material has a Reid Vapor Pressure of 0.067 kPa (0.5 mmHg), a specific gravity of 0.79, and that it is water insoluble. As mentioned earlier in this report, we saw the cold cleaner in the Auxiliary Building, and it was affixed with a DEQ sticker and a label instructing staff to keep the lid closed when not in use.

The Northville Station is **in compliance** with the conditions in FGCOLDCLEANERS.

Federal Regulations

As described earlier, there is equipment at the Northville Station that is subject to 40 CFR Part 63, Subpart

DDDDD and 40 CFR Part 63, Subpart ZZZZ. The facility is not subject to **40 CFR Part 63, Subpart HHH (National Emission Standards for Hazardous Air Pollutants for Natural Gas Transmission and Storage Facilities)** as the facility does not operate any glycol dehydrators.

Compliance Determination

Based upon the results of the June 7, 2017 site visit and subsequent records review, the Consumers Energy Northville Compressor Station appears to be in compliance with all of the terms and conditions of the facility's Renewable Operating Permit, as well as applicable State and Federal regulations.

Attachments to this report: a summary of the ROP and permit exempt equipment at the Northville Station, current as of the drafting of the ROP renewal; a copy of an e-mail exchange that includes some question and answer relating to the ROP renewal; a copy of an e-mail that provides some updates regarding the facility's compliance with Subpart DDDDD; a copy of the Subpart DDDDD NOCS submittal of January 27, 2016; a copy of the most recent Emergency Generator Log Sheets; a copy of maintenance and inspection sheets for the emergency engine; a printout of a diagram from Consumer Energy's website that shows the gas distribution system, with the location of the Northville Station highlighted.

NAME Steve Wen

DATE 9/22/17

SUPERVISOR JK