

N1099

MANILA

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

N109949178

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: 06/14/2019
STAFF: Stephen Weis	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Compliance inspection of the Consumers Energy - Northville Compressor Station facility in Northville Twp. The Consumers facility is scheduled for inspection in FY 2019.		
RESOLVED COMPLAINTS:		

Location:

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

Date of Activity:

Friday, June 14, 2019

Personnel Present:

Steve Weis, EGLE-AQD Detroit Office
Frank Rand, Environmental Coordinator, Consumers Energy
Paul Jergens, Senior Field Leader – Northville Storage, Consumers Energy
Amy Kapuga, Senior Environmental Engineer, Environmental Services, Consumers Energy (via phone and e-mail)

Purpose of Activity

A self-initiated inspection of the Consumers Energy Northville Compressor Station facility (hereinafter "Northville Station") was conducted on Friday, June 14, 2019. The Northville Station was on my list of sources targeted for an inspection during FY 2019. 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-B1099-2017.

Facility Site Description

The Northville Station facility is located on approximately 28 acres on the east side of Napier Road about halfway between 7 and 8 Mile 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 populated 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 it shares a fence line.

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 they are also the point in the process at which the odorant (methyl mercaptan) is added to the natural gas.

Facility Operations

The Northville Station is part of Consumers Energy's natural gas distribution system in their Michigan service area. A map from Consumer's website is attached that shows the utility's 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.

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 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.

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 it 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 that is collected is pumped to the natural gas condensate tanks. All of the 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. As mentioned in the last section of this report, at the Northville Station 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 the compressors at the facility. The compressors are used to compress natural gas for injections into the 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/mechanic shops, and EUDEGREASER2, which is identified as a small cold cleaner used for parts cleaning that is located in the garage.
- FGENGINEs– this Flexible Group summarizes the permitting and regulatory requirements for the four

engines (1-1 through 1-4).

- FGPROCESSHTRS – this Flexible Group addresses two natural gas-fired heaters, both rated at 250,000 BTU/hour. EUFUELHEATER1 is a fuel gas heater, and EULINEHEATER3 is a pipeline heater.
- 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 current ROP's staff report that summarizes all of the exempt equipment that is not included in the ROP.

Inspection Narrative

I arrived at the facility at 9:40am. I checked in at the main office at the Northville Station, and I was met by Frank Rand. I began the site visit watching the company/facility safety video. After watching the video, Frank and I began the site visit with a tour of the facility.

Our first stop was the building referred to as the Plant 1 Auxiliary Building. This building houses the control room for the facility, and it contains an emergency engine that is designated in the facility's ROP as EUAUXGENERATOR, a small boiler (having a maximum rated heat input capacity of 500,000 BTU/hour), and a parts cleaner that utilizes Zep material. We entered the building via the entrance at the southwest corner of the building, and we walked past the control room area, which is located in the southwest corner of the building. We walked to take a look at the previously referenced equipment. Frank told me that the emergency generator in the building is going to be decommissioned and removed, and that a new emergency engine is going to be installed. He said that the plan is to install the new emergency engine near the maintenance building, which is located on the south side of the driveway to the west/southwest of the office, to provide electrical backup to the maintenance building. We checked the non-resettable hour meter on the existing emergency engine, which is located at the rear of the unit. We walked by the cold cleaner, which was affixed with a DEQ cold cleaner sticker and a label instructing facility staff to keep the lid on the unit closed when it is not in use. We took a look in the building to the east of the Auxiliary Building, the Parts Storage/Store Room Building. As its name suggests, the building is used for facility stock and storage, and it also houses some offices for company engineers.

We next walked through the large building that houses the four engines, which is located directly to the west of the Auxiliary Building. All of the engines are Clark Model TLA-8.

We then walked outside to the west of the engine building to look at the facility infrastructure in this part of the property. We looked at the fuel gas heater that is designated in the ROP as EUFUELHEATER1. I read the boilerplate label attached to the unit, which showed it to be a JW Williams heater with a maximum rated heat input capacity of 250,000 BTU/hour, and a manufactured year of 2014. Frank told me that the Salem City Gate building and the odorant structure were taken down in 2018. I noted that a new heater had been installed. I gathered the following information from the unit's boilerplate label – the unit was manufactured by Cimarron Energy, Inc., it has a manufactured year of 2017, its burner is a Flame Company flame arrested burner with a maximum rated heat input capacity of 500,000 BTU/hour, and serial number of the unit is HTRCMS0002-1. After my site visit, Amy Kapuga and I exchanged e-mail messages about a few topics from the site visit, one of them being the heaters. She confirmed that the pipeline heater, designated in the ROP as EULINEHEATER3, was removed in fall of 2018, and replaced with the Cimarron Energy unit. The regulatory aspects of the heater replacement will be discussed in the next section of this report.

We looked at some of the other facility infrastructure in this area, including condensate tanks and the new odorant building. Frank told me that there are three natural gas storage fields located to the west and northwest of the facility – the Reef, which is in Salem Township in Washtenaw County, and Lyon 29 and Lyon 34 in Lyon Township in Oakland County.

We walked along the driveway. Frank said that there are three small above ground storage tanks to the southwest of the office building, one each for diesel, unleaded gasoline and methanol. Frank pointed out the building on the south side of the driveway, the Equipment, Maintenance and Storage Building; he explained that the east part of the building is used for equipment maintenance and storage and that the west side of the building contains a fitness center, laundry and office. He said that the new emergency generator is planned to be installed near this building.

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, Frank and Paul showed me records, as necessary, and provided copies upon request. I exchanged a couple of e-mails with Amy Kapuga over the next week after the site visit to discuss and clarify a few of the requirements at the facility. The Northville Station's compliance with the ROP and applicable regulations is discussed in the next section of this report.

I left the facility at 12:45pm.

Permits/Orders/Regulations

Permits

Renewable Operating Permit

Renewable Operating Permit No. **MI-ROP-N1099-2017** was issued to Consumers Energy with an effective date of October 17, 2017. This permit addresses all of the Emission Units and Flexible Groups referenced in the "Facility Operations" section of this report.

The following paragraphs provide a description of the Northville Station's compliance with the terms and conditions put forth by ROP No. MI-ROP-N1099-2017, with the headings representing the sections of the ROP.

Source-Wide Conditions

There are no Source-Wide Conditions applicable to the facility in ROP No. MI-ROP-N1099-2017.

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)**. As mentioned earlier in this report, Consumers plans to decommission and remove this generator from the facility. According to a June 18, 2019 e-mail from Amy Kapuga, "...there is a project to replace the existing emergency stationary RICE with a new emergency RICE...", and Consumers has "determined that the installation of the new emergency RICE is exempt from the requirement to obtain a permit to install (PTI) pursuant to Rule 201, based upon the exemption in Rule 285(2)(g)." Her e-mail goes on to state that the new engine will be subject to 40 CFR Part 60 Subpart JJJJ and 40 CFR Part 63 Subpart ZZZZ, that Consumers will comply with all applicable requirements that apply to the new emergency engine, and that they will submit a M-001 form to address the installation of the new engine in the facility's ROP. A copy of the e-mail is attached to this report.

At the time of the site visit, the emergency engine that is included in the current ROP and identified in this Emission Unit is still in place and operating. The paragraphs that follow provide a summary of the Northville Station's compliance with the Special Conditions in this Emission Unit.

I. Emission Limits

There are no emission limits in the Emission Unit table for the engine.

II. Material Limits

There are no material limits put forth in the Emission Unit table for the engine.

III. Process/Operation Restrictions

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

SC III.2 and III.4 – **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. The unit is tested once a week for maintenance checks during the cold weather months. I was provided with a copy of the Northville Compressor Station Emergency Log Sheet for 2019 to the date of the site visit, 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. There was one identified use of the engine

during an electrical outage on June 2, when the engine was operated for 19.4 hours. The other instances during which the engine was operated in 2019 were identified as being for readiness checks, and the duration was 0.1 or 0.2 hours on each of these occasions.

SC III.3 – Consumers stated that the engine does not operate, and is not contractually obligated to be available, for the purposes identified in this SC and in 40 CFR 63.6640(f)(2)(ii).

SC III.5 – Compliance. According to facility staff, the engine is being operated and maintained in a manner consistent with good air pollution control practices for minimizing emissions. Operation and maintenance records are maintained.

SC III.6 – This condition requires that the engine time spent at idle during start-up be minimized, and that the startup time be minimized so as not to exceed 30 minutes. Most of the times that the engine was operated were for maintenance checks that lasted for less than 30 minutes.

SC III.7 – This condition puts forth maintenance requirements for the engine, requiring that oil and filter changes, air cleaner inspections and hose and belt inspections take place within designated frequencies. I was shown and provided with copies of an internal tracking form titled "RICE Generator Maintenance, Operations and Record Keeping Requirement". This form tracks the maintenance that is performed on the engine. I was provided with copies of the form for the last two rounds of maintenance on the engine, which took place on July 2, 2018 and April 18, 2019, which are attached to this report for reference. These forms show that the engine maintenance was performed after 28.1 hours of engine operation had elapsed. The facility is complying with the requirements of this condition.

SC III.8 – The oil analysis program is not being used.

SC III.9 – **Compliance.** Consumers stated that they are following recommended maintenance practices for the engine. Frank pointed out that the maintenance tracking form presents a maintenance plan for the engine. He said that the work orders for the maintenance activities also reference the maintenance plan.

IV. Design/Equipment Parameters

The engine is equipped with a non-resettable hour meter.

V. Testing/Sampling

SC V.1 presents the option of utilizing the oil analysis program to extend the specific oil change frequency requirement. Consumers is not utilizing this option, so the requirements of SC V.1 are not applicable at this time.

VI. Monitoring/Recordkeeping

SC VI.1 – As described in the discussion for SC III.7, Consumers is keeping records of engine maintenance. A copy of example records is attached. **Compliance.**

SC VI.2 – **Compliance.** Consumers is tracking the hours of operation of the engine, as described in the discussion for SCs III.2 and III.4.

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

SC VI.4 – Compliance. A preventative maintenance plan has been developed and is being implemented for the engine.

VII. Reporting

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

VIII. Stack/Vent Restrictions

There are no stack/vent restrictions associated with the engine.

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 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, process/operational restrictions, design/ equipment parameters, or testing/sampling requirements.

In the "II. Material Limits" section, SC II.1 limits the compressor engines to fire only natural gas; this is the only fuel that is used in these engines. 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. I was provided with a copy of a worksheet that is maintained that tracks the amount of fuel used at the facility; I received a copy of the worksheet for May 2019, and it is attached to this report for reference. Each month, a beginning and ending gas meter reading is taken, as well as a beginning and ending reading of the engine hours.

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

IX. Other Requirements

SC IX.1 – 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.

SC IX.1 – This SC requires that the four engines comply with all applicable provisions of 40 CFR Part 60 Subpart JJJJ. The installation dates of the four engines pre-dates the applicability requirements of Subpart JJJJ, so, like SC IX.1, it is assumed that this SC was included in the Flexible Group as a place holder in case the engines are moved or modified in the future.

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.

I have been told by Consumers staff that 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. I have been told during past site visits that the amount of time between fire gate events is not to exceed 15 months.

I was told that the amount of natural gas that is vented depends on the pressure in the system at the facility. Consumers has created a calculation sheet for the Northville Station that estimates the amount of natural gas that will be vented under specific pressures in the system. Paul provided me with a copy of the calculation sheet, which is attached this report for reference. The cells that are highlighted in yellow show the amounts of natural gas that are vented at the targeted systems pressures at the facility, which results in less than 1 million cubic feet (1 MMCF) of natural gas being vented. I was told that if greater than 1 MMCF of natural gas is vented, 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.

I was told that the last fire gate event took place on June 3, 2019, and that an estimated 650,000 cubic feet of natural gas was vented.

The Northville Station is **in compliance** with the requirements of this section. The conditions address situations during which greater than 1 MMCF of natural gas is vented.

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.

I was told that there are currently two cold cleaners on site; one is located in the mechanic's shop in the Auxiliary Building (which was looked at during the site visit), and the other is located in the garage area of the Equipment, Maintenance and Storage Building. The units are ZEP Dynaflo II units, Model No. 906101. These cold cleaners are used for the general cleaning of parts that are used in maintenance activities. Information in onsite facility files that I reviewed during a facility site visit in 2015 indicated that the units were installed in September 1994.

Frank described the inspection and maintenance procedures for the cold cleaners. The procedures follow an internal air quality regulation related maintenance procedure. I was told that 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 provided with a copy of the "Parts Cleaner Maintenance and Inspection Record" form for the cleaner in the Auxiliary Building for 2018, which shows the date of each inspection and maintenance activity that was performed on the cold cleaner in 2018 (it includes a work order number), and an example work order from March 11, 2019 for this cold cleaner. This information is attached to the report for reference. Frank told me that the cold cleaner in the Auxiliary Building is considered part of the Compression group, and the records are kept in the main office, and that the cold cleaner in the garage area is considered part of the Pipeline/Metering and Regulation group and are kept by that group.

I was told that the cold cleaners are using the same material as in my past site visit. During a site visit in 2015, 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 walked by 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 FGCOLD CLEANERS.

FGPROCESSHTRS

The Flexible Group addresses the natural gas industrial boilers and process heaters at the facility, which is classified as a major source of hazardous air pollutants, that are subject to requirements of 40 CFR Part 63 Subpart DDDDD (National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers). The ROP identifies the emission units identified as EUFUELHEATER1 and EULINEHEATER3 as being included in this Flexible Group. However, EULINEHEATER3 was removed from the facility in the fall of 2018. As mentioned earlier in this report, a new line heater has been installed in its place. Amy Kapuga told me via e-mail that Consumers will be submitting a M-001 form to update the ROP to reflect the installation of the new line heater, which is exempt from Michigan Administrative Rule 201 permitting requirements.

The special conditions in this Flexible Group address the requirements of Subpart DDDDD. All of the individual conditions were not discussed during this site visit. Rather, an overview of the facility's compliance with Subpart DDDDD since the effective date of the regulation was discussed.

Regarding the initial notification requirements for the regulation, 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.

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. As previously mentioned, EULINEHEATER3 has been removed from service; EUFUELHEATER1 was replaced in July 2014 with a smaller unit rated at 25,000 BTU/hour; and EULINEHEATER1 and 2 were removed from service.

