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

N290136260

FACILITY: Consumers Energy - Muskegon River Compressor Stat		**SRN / ID:** N2901
LOCATION: 8613 Pine Rd., CHURCH BRIDGE		**DISTRICT:** Saginaw Bay
CITY: CHURCH BRIDGE		**COUNTY:** CLARE
CONTACT: Parish Geers , Compressor Station Field Leader		**ACTIVITY DATE:** 08/30/2016
STAFF: Benjamin Witkopp	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Compressor station inspection		
RESOLVED COMPLAINTS:		

On August 30, 2016, Ben Witkopp of the Michigan Department of Environmental Quality - Air Quality Division (MDEQ-AQD) inspected the Muskegon River Compressor Station owned by Consumers Energy. It is located east of Marion Michigan and north of Temple near the the west bank of the Muskegon River. The facility is covered by Renewable Operating Permit (ROP) MI-ROP-N2901-2014. The facility consists of compressor buildings, a glycol dehydration system, and a maintenance shop. The dehydrator is equipped with a thermal oxidizer.

During the late spring, summer, and early fall months natural gas is taken from a pipeline and routed into underground geological formations. This encompasses three different well fields. During the fall and winter the situation is basically reversed. Gas is withdrawn, water is removed by the glycol dehydrator, and the gas is sent into the pipeline distribution system.

Mr. Parish Geers was the facility contact and a records review was conducted in his office. The dehydration system has a benzene limit of 0.8 tpy. The thermal oxidizer should maintain a daily average minimum temperature of 1,400 +/- 50 degrees F. During operating months, the benzene emissions were typically in the range of 0.004 and 0.006 tons per month. The 12 month rolling time period values were around 0.02 tons. The company tries to maintain a normal operating temperature of about 1,500 degrees F to provide a cushion well above the minimum required. If / when the temperature falls below a set point, or an electric eye senses a flame out, an alarm is triggered and the operator begins checking and fixing the problem. The down time was very small in relation to "up" time. Logs showed that many of the problems were caused by objects blocking the electric eye thereby causing the alarm to activate.

Wet gas stream analysis was being performed and the results used in computing emissions. The following components are included in the analysis: nitrogen, carbon dioxide, C1 through C6 series, benzene, toluene, xylene, ethylbenzene (BTEX) and hexane. Because the dehydrator has a thermal oxidizer and the benzene emissions are restricted to less than one ton per year, the system is exempt from 40 CFR 63 Subpart HHH.

The site has three emergency generators. Two are located south of Pine Rd and the other is located on the north side. The generators are subject to subpart ZZZZ. A review of the records show the units are started for testing and run for two to three minutes each week. The company draws oil samples in lieu of changing the oil as allowed by the regulations. The oil is checked for degradation. The total acid number for the engines was typically 1.2 to 1.7. The viscosity values showed no degradation and the percentage of water was below detection limits. The most usage occurred in early August 2015 during a power outage. During that period engines two and three were run. Engine 2 ran for 30.1 hours while three ran for 38.4 hours.

The turbine is not subject to the subpart YYYY of the MACT standards for stationary combustion turbines because it was constructed prior to January 14, 2003. It is also not subject to NSPS subpart GG because it was constructed prior to October 3, 1977. If the unit is reconstructed then it might become subject to the aforementioned standards. There is a requirement to record usage of natural gas and the records are present. It should be noted the unit is typically run from November through February.

The compressors are all natural gas fired units and are required to have records of gas consumption rates which were present. The compressors aren't subject to subpart ZZZZ due to their age. If they are reconstructed then they may become subject.

One cold cleaner is used on site and it is located in the maintenance shop. Records show it was installed in 1994. It was being used at the time of inspection. Dyna 143 is used as the solvent and it is essentially hydrotreated light distillates. Operating instructions were posted and it has filters, parts drainer, and lid. The solvents vapor pressure was listed as being 0.0077 psi.

The facility also has two very small process heaters and one very small comfort / process heater. They are subject to Subpart DDDDD, the boiler MACT. Due to the small size, the units are subject to the initial energy assessment, tune-up, and notification requirements. which were all completed.

Only a few compressors were running at the time of inspection and those were in the facility on the south side of the road.

The glycol dehydration system was not in operation due to maintenance activity.

Parish provided the following information concerning the horsepower and serial numbers of the engines.

2,600 HP

Clark H-9 serial #49009

Clark H-10 serial #49010
Clark H-11 serial #49011
Clark H-12 serial #49012

3,400 HP

Clark T-11 serial #79011
Clark T-12 serial #79012

3,450 HP

Delaval 3-1 serial #72044
Delaval 3-2 serial #72045

Ingersoll Rands – 800 horsepower serial #'s
82FL306
82FL316
82FL319
82FL320

Plant 2 Generators – Waukesha – 325 KW serial #'s
C-93420-901/1
C-93420-904/1

Plant 3 Generator – Catepillar – 606 horsepower serial #
7NJ00028

Cooper Bessemer Centrifugal compressor serial #278RC

NAME B. Whipp DATE 9-16-16 SUPERVISOR C. Hall