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

N178437791

FACILITY: ADA COGENERATION LIMITED PARTNERSHIP		**SRN / ID:** N1784
LOCATION: 7575 FULTON STREET EAST, ADA		**DISTRICT:** Grand Rapids
CITY: ADA		**COUNTY:** KENT
CONTACT: Buck Surratt , Facility Manager		**ACTIVITY DATE:** 12/05/2016
STAFF: Steve Lachance	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: On-Site Scheduled Inspection Activities for FY '017; see CA_N178437791. (SLachance, 12/5/16)		
RESOLVED COMPLAINTS:		

On December 5, 2016 SL and CR of this office ("Staff") conducted an unannounced, scheduled inspection of the Ada Cogeneration Limited Partnership facility located at 7575 Fulton Road, NE, Ada, Michigan. The purpose of the inspection (which commenced at about 10 AM) was to determine the facility's compliance with Renewable Operating Permit (ROP) No. MI-ROP-N1784-2015. The facility was represented by Mr. Buck Surratt, Facility Manager and Mr. Andy Kurcharczyk, Operations and Maintenance Manager. This Full Compliance Evaluation incorporates all AQD compliance-related activities with the facility for the past year. Results of these activities are summarized on the attached Full Compliance Evaluation (FCE) Summary form.

Source Description

This facility, an electricity and steam cogeneration operation, is a separate stationary source located at the Access Business Group, LLC's (f.k.a. Amway Corporation's) manufacturing and administrative headquarters in Ada, Michigan. The cogeneration unit is owned and operated by Ada Cogeneration Limited Partnership. Less than 50% of the cogeneration plant steam is supplied to Access Business Group, LLC for their process, space heating and hot water requirements. All of the electricity produced is purchased by Consumer's Energy Company.

The cogeneration plant consists of a gas turbine-generator prime mover, a heat recovery system generator, a steam turbine-generator and a supplementary firing duct burner. While the equipment was originally permitted for firing fuel oil in addition to natural gas, the turbine and duct burner fire pipeline quality natural gas only. The equipment, as currently constructed, does not have the capability of firing oil.

Emissions of nitrogen oxides are controlled by water injection. Both fuel usage and water injection volumes are monitored, and a minimum water injection: fuel combusted ratio, as set during periodic performance testing, is maintained.

Regulatory Analysis

The stationary source is located in Kent County, which is currently designated by the U.S. Environmental Protection Agency (USEPA) as attainment/unclassified for all criteria pollutants.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR), Part 70, because the potential to emit exceeds 100 tons of NOx per year.

The stationary source is not considered a major source of Hazardous Air Pollutant (HAP) emissions because the potential to emit of any single HAP regulated by the Clean Air Act, Section 112 is less than 10 tons per year and the potential to emit of all HAPs combined is less than 25 tons per year. As such, the source is not subject to the Stationary Combustion Turbine National Emission Standard for Hazardous Air Pollutants (40 CFR 63, Subpart YYYY).

At the time of New Source Review permit issuance, the stationary source was subject to Prevention of Significant Deterioration (PSD) (40 CFR 52.21) regulations, because this type of facility was included in the PSD named source category "fossil fuel-fired steam electric plants of more than 250 million Btus per hour of heat input" and the source has the potential to emit greater than 100 tons per year for nitrogen

oxides. During the initial Permit to Install application process, the facility underwent Best Available Control Technology (BACT) review of the cogeneration unit, due to the PSD applicability for this source. The facility also underwent Air Quality Impact Analysis for each pollutant emitted in excess of the designated PSD significance levels. The pollutants requiring BACT review were nitrogen oxides, carbon monoxide and sulfur dioxide.

The stationary source is subject to the Standards of Performance for New Stationary Sources (i.e., New Source Performance Standards (NSPS)) for Stationary Gas Turbines promulgated in 40 CFR Part 60 Subparts A and GG. Certain requirements (emission limits for nitrogen oxides and sulfur dioxide, monitoring of sulfur and nitrogen content of fuels, and related fuel testing) have been streamlined, based on other, more stringent applicable requirements (i.e., BACT and use of pipeline quality natural gas). Streamlined requirements are identified in Table EUTURBINE of the ROP. Compliance with streamlined requirements shall be considered compliance for the subsumed requirements.

All required NSPS initial performance testing has been completed. Testing requirements in the ROP pertain to ongoing and future testing. The required testing for EUTURBINE and EUDUCTBURNER will be completed as part of the same tests, as EUDUCTBURNER does not operate independently of EUTURBINE. Compliance will be assessed based on comparison of the results with the emissions limits in EUTURBINE and FGENERGY, and continued recordkeeping of EUDUCTBURNER operations.

As discussed above, while the source equipment was originally permitted for the firing of oil in addition to natural gas, it cannot do so as currently constructed. Use of oil as a source fuel would require New Source Review. Conditions from the original Permit to Install pertaining exclusively to the use of fuel oil have not been carried forward in the current ROP.

The monitoring conditions contained in the ROP are necessary to demonstrate compliance with all applicable requirements and are consistent with the DEQ's "Procedure for Evaluating Periodic Monitoring Submittals."

The stationary source is not subject to the federal Compliance Assurance Monitoring (CAM) rule (40 CFR 64) because the emission limitations or standards for EUTURBINE meet the CAM exemption of a continuous compliance determination method. The continuous monitoring of water injection: fuel combustion was included in, and practically enforceable through, the facility's original ROP, effective March 1, 1999. Thus, EUTURBINE is exempt from further CAM requirements per 40 CFR 64.2(b)(1)(vi).

The facility is not subject to Acid Rain (Title IV) regulations or Michigan Air Pollution Control Rules, Part 8 (Emission Limitations and Prohibitions – Oxides of Nitrogen), since the nameplate capacity of the electrical generator is less than 25 megawatts.

COMPLIANCE EVALUATION

The inspection began with an introductory meeting with Mr. Surratt (Facility Manager) and Mr. Kurcharczyk (O&M Manager.) Staff conveyed intention to conduct a compliance inspection relative to air quality requirements and requested certain records (see below.)

2016 Stack Testing established the following water: fuel injection rates. Compliance with these injection rates (i.e., meeting or exceeding these water:fuel injection rates) is required to be documented on an hourly basis:

Full, w/ Duct Burner	<42 ppm	0.80
Full, w/o Duct Burner		0.82
Low, w/o Duct Burner		0.65
Low, w/ Duct Burner		0.60

These injection ratios must be maintained on an hourly basis in order to support compliance; and operators have targeted injection rates (per hour) slightly higher than these levels to assure compliance. See the attached "Ada Cogeneration NOx Hourly Logs" for December 2,3 and 4, 2016 as Attachment A.

Staff requested and received the following records and process information; each of these supports compliant operation of the facility with respect to MI-ROP-N1784-2015.

- Daily/Hourly Load and NOx Water Gas Ratio for December 2, 3 and 4, 2016 (B)
- MONTHLY and 12-MONTH ROLLING PERIOD Emissions SUMMARIES through November 2016 (C)

Staff spot-verified ratio calculations on the hand-written log and no problems were noted. The operator's target water: fuel injection rate (as noted on the lower left-hand portion of the hourly log template) is in excess of the required (2016 stack-test derived) rate. Operations still allow for a little margin to spare.

Logged values for the hour of the inspection are consistent with Staff's Control Room observations. Furthermore, Staff compared current gas and water-meter values and calculated the current injection ratio; and these were consistent with those recorded at this production rate earlier in the day. .

This raw data is condensed into a daily summary (Attachment B; where values are properly transferred from the Control Room Operators through management for additional assessment.) Operating data is compiled on monthly and 12-month rolling periods (Attachment C). These latter reports are being revised per AQD request to incorporate the emission factors derived from the last stack test (SL confirmed this with consultant FTC&H on 12/9/16; and also verified that these same emission factors will be used for subsequent MAERS reporting.) SL verified various cell contents and calculations; and concludes that changes in emission factors will have very little impact on these rolling estimates, and no impact on overall compliance determination.

Mr. Surratt also provided access to his electronic summaries, in which daily operations data are compiled into these monthly emissions estimates using stack test emission factors; and other than allowing for updates to the 2016 test results as emission factors, SL confirmed that these are in accordance with the requirements of Appendix 3 of the ROP.

SL compared these to reported values in MAERS (for the period ending December 2015), and found them to be consistent. See Attachment D.

EUTURBINE EMISSION UNIT CONDITIONS
EMISSION LIMITS; stack testing (historic and current) have demonstrated compliance with the NOx and CO limits.

MATERIAL LIMITS; Mr. Surratt confirmed that only pipeline quality natural gas is used.

PROCESS/OPERATIONAL RESTRICTIONS; the turbine's water injection is operated in accordance with written operational standards and at rates indicating compliance per stack tests.

TESTING/SAMPLING; initial required testing per ROP and NSPS, Subpart GG has been completed. Testing was most recently completed in May, 2016.

MONITORING/RECORDKEEPING; the records requested, reviewed, and previously discussed fulfill these requirements. Specifically, water and fuel usage rates and ratios are continuously recorded and logged on an hourly basis; target injection rates are established per most recent stack test results; and daily records are compiled for use in monthly and 12-month period records.

REPORTING; the facility fulfills these requirements. See the attached FCE Summary cover sheet.

STACK/VENT RESTRICTIONS; the stack appears to comply with these requirements.

OTHER REQUIREMENTS; the facility complies with NSPS, Subpart GG through historic testing, water injection, monitoring, recordkeeping, and reporting.

EUDUCTBURNER EMISSION UNIT CONDITIONS
The duct burner does not operate by itself; compliance with these terms is through compliance with the conditions for FGENERGY (which includes both the turbine and the duct burner.)

FGENERGY FLEXIBLE GROUP CONDITIONS

EMISSION LIMITS; compliance has been established per results of previous stack tests in combination with ongoing monitoring of operations per Appendix 3. See the water:fuel ratios established through testing, referenced above.

MONITORING/RECORDKEEPING; heat input, load, and operating hours are logged on an hourly basis, and records per Appendix 3 are maintained. (See discussions above.)

REPORTING; is completed in a timely manner. See above.

STACK/VENT RESTRICTIONS; the existing stack appears to meet these requirements.

Staff observed current operating conditions at about 11 AM on December 5, 2016;

"High Load' + Duct Burner; 29.3 MW electricity and steam production
Instantaneous water: fuel injection rate = 0.87
Hourly water: fuel injection rate = 0.865
Target water: fuel injection rate = 0.85
Compliant water:fuel injection rate = 0.83

Per notes on Attachment A, these are consistent with current records and Staff's observations of meters and calculated water:fuel injection rates.

FGCOLDCLEANERS FLEXIBLE GROUP CONDITIONS; Operating instructions and the "DEQ Highlight Sticker" are posted. New stickers were provided. No changes in the use or operation of this unit. The unit uses Safety Kleen Premium Gold (mineral spirit) solvent; Mr. Kurcharczyk had previously provided a current MSDS for AQD review. The cleaner was observed to be closed while not in use, and to be physically small enough to be considered exempt from permitting per Rule 281(h).

FGRULE290 FLEXIBLE GROUP CONDITIONS; Mr. Surratt reports that no such units are in service on-site.

EVALUATION SUMMARY

Based on these observations, records and reviews of required reports, SL considers the facility to be in compliance with applicable air use requirements, including the conditions of MI-ROP-N1784-2015.

ATTACHMENTS:

A Ada Cogeneration NOx Hourly Logs – December 2, 3 and 4, 2016
B December 2, 3 and 4, 2016 Hourly Water:Fuel Ratio Confirmation
C Monthly and 12-Month Rolling Emissions Summary (Current)
D MAERS Total Source Emissions for 2105

NAME SD Jackson DATE 12/9/16 SUPERVISOR