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

B235730371

FACILITY: Holland BPW, Generating Station & WWTP		**SRN / ID:** B2357
LOCATION: 64 Pine Ave, HOLLAND		**DISTRICT:** Grand Rapids
CITY: HOLLAND		**COUNTY:** OTTAWA
CONTACT: Judy N. Visscher , Environmental Specialist		**ACTIVITY DATE:** 07/29/2015
STAFF: Steve Lachance	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: FCE Narrative for FY '015; on-site visit 7/29/15. See CA_B235730371. (SLachance, 7/29/15)		
RESOLVED COMPLAINTS:		

Site activities for the completion of a Full Compliance Evaluation (FCE) were primarily conducted on Wednesday, July 29, 2015. Weather conditions were hazy, hot and humid, with increasing westerly easterly winds (10+ mph) and temperatures ranging from 80 to about 86 degrees F.

Prior to arrival on-site at about 9:15 AM on 7/29/15, SL completed an odor survey in the vicinity of the facility. No malodors were noted. SL also conducted quick Method 9 Visible Emissions readings from the 3 main stacks from the public park to the south and west; no visible emissions were observed.

Note, in addition to the on-site activities discussed in this report, the compliance determination is based on review of all required reports and site activities since the last Full Compliance Inspection in August, 2014. The FCE Summary Report accompanying this report includes details on these activities and reviews.

FACILITY DESCRIPTION

The facility consists of a municipal utility electricity generating station with an adjacent municipal wastewater treatment plant ("Water Reclamation Facility"). The facility is located in an industrial section of Holland, Ottawa County, near the eastern end of Lake Macatawa.

Three steam generating units (EU-UNIT-3, EU-UNIT-4, and EU-UNIT-5) are in use and each fires coal and natural gas. (EU-UNIT-3 fires natural gas only for ignition.) The units are rated at 11.5, 22 and 29 megawatts maximum capacity, respectively. Each unit is controlled with a dry plate electrostatic precipitator; the precipitator for EU-UNIT-4 is preceded by a cyclone. EU-UNIT-5 is equipped with low-NOx burners.

Continuous Emission Monitoring Systems for opacity are installed on each unit, while emissions from EU-UNIT-5 are also monitored by Continuous Emission Monitoring Systems for sulfur dioxide, oxygen, oxides of nitrogen and flow.

The wastewater treatment system is enclosed and odors are controlled with an oxidizing wet scrubber.

Other miscellaneous sources at the facility include fuel and flyash storage and handling; a lime storage bin associated with the odor control scrubber; cold cleaners; assorted natural gas-fired heaters and small boilers; reciprocating internal combustion engines; and occasional asbestos demolition projects.***

The stationary source is located in Ottawa 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, Part 70,

because the potential to emit nitrogen oxides, sulfur oxides, and particulate matter exceeds 100 tons per year. Moreover, the stationary source is considered a major source of Hazardous Air Pollutant (HAP) emissions because the potential to emit of any single HAP (HCl) regulated by the federal Clean Air Act, Section 112 is greater than10 tons per year, and the potential to emit of all HAPs combined is greater than 25 tons per year. Additionally, the source's potential to emit of Greenhouse Gases is 100,000 tons per year or more calculated as carbon dioxide equivalents (CO2e) and 100 tons per year or more on a mass basis.

No emission units at the stationary source are currently subject to the Prevention of Significant Deterioration (PSD) regulations of Part 18, Prevention of Significant Deterioration of Air Quality of Act 451 or 40 CFR, Part 52.21 because the process equipment was constructed/installed prior to June 19, 1978, the promulgation date of the PSD regulations. Subsequent installation of control equipment was not a modification subject to PSD permitting. Any future modifications of the process equipment at this stationary source may be subject to the PSD requirements for pollutants for which Ottawa County is in attainment.

EU-Unit-3, EU-Unit-4, EU-Unit-5 and associated coal and ash handling systems were installed prior to August 15, 1967. As a result, this equipment is considered "grandfathered" and is not subject to New Source Review (NSR) permitting requirements. However, future modifications of this equipment may be subject to NSR.

Current natural gas feeding systems for each unit were subject to permitting at the time of installation.

Each existing coal-fired unit (EU-UNIT-3, EU-UNIT-4, and EU-UNIT-5) is equipped with a Continuous
Opacity Monitoring System (COMS), operated and maintained in accordance with 40 CFR 60, Appendix B.

Sulfur emissions for the existing coal-fired units are limited by Rule 401 and the facility has accepted, through Air Use Permits, a 24-hour averaging time for the applicable limit. Compliance is based on use of compliant fuel/fuel blends, while EU-UNIT-5 has a Continuous Emissions Monitoring System (CEMS) for sulfur dioxide.

Units EU-Unit-3 and EU-Unit-4, as well as various small boilers and process heaters at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers and Process Heaters at Major Sources promulgated in 40 CFR, Part 63, Subparts A and DDDDD. The ROP includes tables of applicable requirements for existing solid/stoker fueled boilers (EU-Unit-3 and EU-Unit-4) and existing "Gas1" units. Note, EU-Unit-5 is not subject to 40 CFR Part 63, Subpart DDDDD because it is a defined Electric Generating Unit (based on size of the turbine served) and is instead subject to Acid Rain and Mercury and Air Toxics Standards as discussed below.

The facility has recently sought an extra year of compliance extrension for DDDDD for Units 3 and 4 based on a provision in Table 10 of the rules, where district heating and energy recovery projects can qualify as "installation of controls" for which extensions are available. However, the specific equipment is located at a separate location (the new Holland Energy Park, SRN =P0465, permitted by PTI No. 107-13.)

Two Reciprocating Internal Combustion Engines (RICE) are subject to the National Emission Standard for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines promulgated in 40 CFR, Part 63, Subparts A and ZZZZ. ***

EU-Unit-5 at the stationary source is subject to the federal Acid Rain program promulgated in 40 CFR, Part 72.

EU-UNIT-5 is regulated by Michigan's Part 8 Rules ("Emission Limitations and Prohibitions – Oxides of Nitrogen"). This is also subject to the Clean Air Interstate Rule (CAIR) NO_x annual trading program pursuant to Rules 802a, 803, 821, and 830 through 834; to the CAIR NO_x ozone season trading program pursuant to Rules 802a, 803 and 821 through 826; and to the CAIR SO_2 annual trading program pursuant to Rule 420. The applicable requirements are included in the CAIR permits, which are incorporated into the ROP as Appendices 10 through 12.

Note, CAIR requirements stand as ROP requirements until the finalized Cross State Air Pollution Rule (CSAPR) is implemented. ***

Additionally, EU-UNIT-4 is subject to the emission limitations and prohibitions – oxides of nitrogen pursuant to Rule 801(4)(g), and has successfully petitioned to AQD for an alternative (uncontrolled) emission rate for oxides of nitrogen during the defined ozone control period.

Part 15 of Michigan Air Pollution Control Rules, adopted pursuant to Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451) addresses new requirements pertaining to mercury in the State of Michigan. These rules were intended to limit mercury emissions from electric generation units as of January 1, 2015. Rule 1502a, however, recognizes that the Part 15 permitting requirements defer to a standing MATS/EGU MACT.

Visual inspections for opacity are required for miscellaneous pieces of equipment (EU-FLYASH, EU-LIME-BIN) not equipped with Continuous Emissions Monitoring Systems for opacity. These visual inspections are not Method 9 readings by qualified observers, but rather a more frequent visual assessment of equipment operation/emissions by persons familiar with normal site operations. Observation of any visible emissions initiates abatement action; and records of all visual inspections' results and actions are maintained.***

The stationary source occasionally undertakes renovation projects subject to the National Emission Standard for Hazardous Air Pollutants for Asbestos promulgated in Title 40 of the Code of Federal Regulations, Part 61, Subparts A and M.

The facility's cold cleaners are not subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for halogenated solvent cleaning operations, 40 CFR 63, Subpart T. These units are regulated by Rule 707.

The stationary source is subject to the federal Compliance Assurance Monitoring (CAM) rule for particulate matter under Title 40 of the Code of Federal Regulations, Part 64. EU-UNIT-3, EU-UNIT-4, and EU-UNIT-5 have both a control device and potential pre-control emissions of particulate matter greater than the major source threshold level. CAM requirements for these

emission units are included in this ROP. CAM is based on existing COMS. Opacity is used as a surrogate for PM for CAM purposes; opacity was selected as a useful performance indicator because it is indicative of operation and maintenance of the PM control device (electrostatic precipitators). Opacity is also continuously monitored with existing equipment, easily understandable, and enforceable. Through existing, continuous opacity monitoring, the facility can assess operations and properly implement existing maintenance procedures.

A CAM excursion (indicating a possible deviation from the allowed PM limit; or at the very least, probable abnormal operations of the boiler or associated ESP) for each boiler is defined as opacity greater than 12% for 24 hours; or any continuous two-hour period with opacity exceeding 20%. (Note, an incident such as the latter would already require reporting to the AQD as an abnormal condition per Rule 912.) These levels have been established based on plant operating experience; such opacity levels generally indicate a problem with or malfunction of the associated ESP.

The facility has been required to complete an acceptable stack test for particulate matter (PM) emissions from each unit every three years. Historical stack test results indicate compliance with the applicable emission limit by a wide margin in each case per the following summary of stack test results for particulate matter (all units are pound PM per 1,000 pounds exhaust gas, corrected to 50% excess air.)

Unit	PM Limit	2003	2006	2009	2012
EU-UNIT-3	0.30	0.0114	0.0226	0.0061	0.0197
EU-UNIT-4	0.26	0.0316	0.00195	0.0310	0.0029
EU-UNIT-5	0.25	0.0300	0.00285	0.0213	0.028

Given the wide margin of compliance at normal opacity operating levels (<12% continuous opacity), the CAM-established Excursions (above) should assure continued compliance with the applicable PM limits.

Note, testing for PM from Unit 5 was underway on this date (July 29, 2015); and is scheduled for other units when they are operating on coal later in the year.

*****Based on ongoing changes in on-site equipment with Water Reclamation Facility improvements and regulation changes on the federal level, changes to the ROP will be necessary for "maintenance" purposes. See specific discussions, below.**

INSPECTION DETAILS

SL arrived on-site for the inspection at about 9:15 AM. The facility was represented by Ms. Judy Visscher (entire facility) and Mr. Joel Davenport (Water Reclamation Facility only.) Intern "Steve" participated in the inspection, and other equipment-specific operators were brought into discussions on an as-needed basis.

The inspection began with an entry interview with Ms. Visscher and Mr. Davenport at the Water Reclamation Facility. SL stated his intention to complete an inspection and provided a copy of DEQ's "Environmental Inspections; Rights and Responsibilities" brochure. The following items were discussed:

- Ms. Visscher stated Units 3 and 4 were not operating on this date, while Unit 5 was operating on coal.
- There were no known technical issue on this date. Only Unit 5 was operating (on coal.)
- Units 3 and 4 were down for scheduled/economic reasons and will return to service in November.

- Boiler MACT requirements and implications, as well as the pending Extension Request Response, were discussed. The extension request was only for Units 3 and 4. Requirements for existing natural gas units at the Water Reclamation Facility have a firm 1/31/16 compliance date.
- SL acknowledged the urgency in responding to the facility's June 22, 2015 extension request and assured Ms. Visscher that a response was being developed.
- A quick, memory-based run through the permit generated the following discussions:
- *No changes with cold cleaners or the solvent used in them. See attached documentation of monthly inspections, unit maintenance, solvent replenishment and disposal, and continued use of "Premium Gold" solvent per previous inspections. SL
    - *The Odor Scrubber is being replaced with a new one with the same technology and operating principles. This is allowed per exemption Rule 285(d). SL noted that this could provide an opportunity for the source to review and maintain associated maintenance and operations plans associated with the facility's ROP.
    - *EU-LIME-BIN has been removed, as the facility now uses lime slurry to neutralize sludge odors and stabilize sludge. See attached memo indicating Lime Bin Removal as of 5/22/15. Further discussion clarified that EU-LIME-BIN is not associated with the permitted odor control system (EU-ODOR-SCRUBBER.)
    - Mr. Davenport provided documentation (attached) that broadly encompassed monitoring for the Odor Scrubber and its completion. See attached. SL inquired about the genesis of these records and verification of what was being summarized; and Mr. Davenport provided access to the main control screens of the Odor SCrubber operations. This included material use, flow and critical operating parameters, including liquor pH and ORP, both of which were within range per the Scrubber Operations Plan, both instantaneously, but also for the last week. See discussion, below.
    - A tiny, new natural gas-fired Emergency Genset (Kohler, 12kW) has been installed. This is exempt from permitting per Rule 285(g), but will need to be incorporated into the ROP (probably as a Flexible Group so as to allow for installation of any future necessary, new gas-fired engines.) Kohler web-site info

indicates that this model is certified to meet EPA Part 60 regulations. Also note, that this engine has replaced the EU-GENERAC engine on-site, which has been removed. See attached.
- Attached documentation demonstrates that the larger, diesel-fired Kohler emergency genset on-site (EU-CIENGINE) utilizes only 15 ppm Ultra-Low Sulfur Diesel (ULSD) oil.

- During RATA testing the previous day, SL had requested an array of specific records. These were individually reviewed and discussed at this time.
  - SL had requested Daily Opacity Reports for Sunday through "current" to affirm operations and emissions consistent with visible emissions observations. See attached. SL noted no issues with Unit 5 operation on coal with respect to opacity for this period based on these records. Values are consistent with Visible Emissions observations on July 28 and 29, 2015.
  - The RATA the previous day was reportedly successful; this was consistent with SL's understanding based on observations the previous day and subsequent discussions with Network and DPatterson of AQD-TPU. See attached memo.
- SL requested CEMS calibration reports for July 29, 2015. Based on this (attached) and the successful RATA, SL considers observed CEMS values to be valid on this date.
- The facility has probably received its last shipment of coal. The reported fuel mix is currently a purchased 35% blend (off-site) of Powder River Basin coal. Requested records (attached) indicate compliance with Rule 401 sulfur restrictions.
- An off-site, natural gas turbine plant (separate facility; P0465) has been permitted per PTI #107-13. Construction is on-going with a projected operations date of November (+/-) 2016.

The inspection continued with site observations and further record reviews. Mr. Davenport assisted with the Water Reclamation Facility portion of the tour, while Ms. Visscher assisted throughout. A discussion of these observations (supplemented by the various attachments discussed, above) relative to the facility's compliance with current Renewable Operating Permit (ROP) No. MI-ROP-B2357-2013 follows.

James DeYoung Electric Generating Station

EG-FLYASH-SILO

Flyash is pneumatically conveyed from the three boilers to a silo controlled by a baghouse. The ash is wetted and gravity loaded into open trucks for off-site disposal. At the time of the inspection, load-out was not taking place, nor were visible emissions noted from the baghouse vent. Housekeeping conditions in this area were currently good.

All requested records (documentation of required Environmental Inspections per Appendices 1-3.1 and 1-3.2 {attached}) were available.

NOTES PERTAINING TO THE COLLECTIVE INSPECTION OF COAL-FIRED BOILERS:

The facility burns a blend of approximately 65%/35% Bituminous:Powder River Basin

coal. Per Appendix 1-3.5, each source/shipment is specified and tested for various parameters including %Sulfur, %Ash, moisture, heat content, etc. Compliance with sulfur restrictions is based on these specification/test results, but also by compliance with SO2 emissions limits based on CEMS results.

Since each unit is burning the same fuel (when operating), the Unit 5 CEMS for SO2 can be used to determine compliance for each of the units; no deviations pertaining to gaseous emissions have been recorded in this inspection/FCE timeframe. Each CEMS had passed calibrations for July 29, 2015 and so each CEMS observation made during the inspection is considered to be valid.

EG-UNIT-3; FG-CAM; FG-BOILERMACT

The unit has a rated capacity of 11.5 MW and 125,000 pounds of steam per hour. This unit was not operating at the time of the inspection, based on economic considerations. PM emissions are controlled by an ESP, and the unit has natural gas startup capability.
The Unit was tested in March, 2012 for particulate emissions, and found to operate in compliance at an estimated emission rate of 0.01 lbs/1000 lbs exhaust gas (50% excess air). This represents about 3% of the allowable emission rate.

Fuel specifications and testing indicate the use of compliant coals with respect to sulfur dioxide emissions (see above.)

Opacity and COMS performance are evaluated quarterly, through the review of required quarterly excess emissions and semi-annual CAM reports.

EG-UNIT-4; FG-CAM; FG-BOILERMACT

This unit has a rated capacity of 22 MW and 220,000 pph steam. Particulate emissions are controlled by an ESP preceded by a cyclone. This unit also has natural gas startup capability.

This unit was not operating at the time of the inspection.

Fuel specifications and testing indicate the use of compliant coals with respect to sulfur dioxide emissions (see above.)
The Unit was tested in January, 2013 for particulate emissions, and found to operate in compliance at an estimated emission rate of 0.002 lbs/1000 lbs exhaust gas (50% excess air). This represents about 1% of the allowable emission rate.

Opacity and COMS performance are evaluated quarterly, through the review of required quarterly excess emissions and semi-annual CAM reports.

FG-BOILERMACT

Units 3 and 4 are subject to the Boiler MACT , 40 CFR 63 Subpart DDDDD. Compliance date is 1/31/16, but the facility has requested a one-year extension which is allowed under specific circumstances. Other than responding to the request, there are no actionable items for AQD relative to this at this time.

FG-CAM

Each of the boilers is subject to Compliance Assurance Monitoring (CAM) per 40 CFR 64. CAM is based on existing COMS and data collection and excursion identification provisions are in place per the required CAM Plan. Reports are received and reviewed on a semi-annual basis; no current issues known.

EG-UNIT-5

This unit has a maximum rated capacity of 29 MW and 290,000 pph steam. Particulate emissions are controlled by an ESP preceded by a cyclone. This unit also has natural gas startup capability. This unit was operating at the time of the inspection at a "High" load of about 20 MW (gross.)

The Unit was tested in August, 2012 for particulate emissions, and found to operate in compliance at an estimated emission rate of 0.0245 lbs/1000 lbs exhaust gas (50% excess air). This represents about 10% of the allowable emission rate. Required testing was underway on July 29, 2015 and all indications during the day were that the test was proceeding smoothly. DPatterson of AQD-TPU was on-site for oversight of this test.

Fuel specifications and testing indicate the use of compliant coals with respect to sulfur dioxide emissions, and as an Acid Rain-subject unit, SO2 CEMS are in place (see above.) Calibrations of each CEMS (attached) indicate valid CEMS data; no issues noted. The same can be said for the Unit's Opacity Zero and Span Calibration reports and 6-minute average opacity matrix report for operations since startup the previous Sunday.

At about 12:40 *P*M, July 29, 2015 , the following Control Room data was observed; the operator reported no current issues with Unit 5, the only operational unit at this time due to economics.

- 19.8 MW (gross)
- 2.6% (6-minute average) opacity
- 0.7# SO2/mmBtu
- 0.34# NOx/mmBtu

Note, this same coal was being burned at the last inspection, and a very similar SO2 emissions rate of 0.68#/mmmBtu was observed then.

The ESP was operating on "Adoptive Control Technology" and the operator described this as straightforward, computer-controlled operation of the ESP for optimum operations under current conditions. Acceptable performance of the ESP is reflected in opacity as recorded by COMS. Opacity and COMS performance are evaluated quarterly, through the review of required quarterly excess emissions and semi-annual CAM reports.

FG-PARTSCLEANERS

One unit was observed at the power plant during the inspection; this unit was observed to be closed while not in use, and procedures were properly posted. On-site parts cleaners continue to be maintained by Safety-Kleen; the observed

machine utilizes "Premium Gold" solvent that has been previously documented at this and other facilities.

Wastewater Treatment Plant (Water Reclamation Plant) Conditions

EU-LIME-BIN

This equipment is dismantled and the ROP will need maintenance to reflect this.

Lime is still used for odor control with sludges, but now is stored and introduced in a slurry form.

EU-ODOR-SCRUBBER

An oxidizing wet scrubber controls odors from various treatment portions of the plant. Scrubber liquor ORP; pH; and system area odors are the key monitoring components for the effective operation of this equipment. The targeted Oxidation Reduction Potential range for the scrubber is 650-800, and pH is 10.0 +/- 0.2. Scrubber operations are automatically/logistically controlled, and each of these components is evaluated/documented on a per-shift basis.

The area was free of malodors.

SL observed differential pressure across the scrubber of less than 0.5" water and instantaneous values of 704 (ORP) and 9.8 (pH); all within planned operational range. Graphical depiction of these parameters indicates steady control of pH and controlled maintenance of ORP >650 for the last week. (previous "*Odor Control System Screenshot*")

There have been no odor complaints received by this office relative to this facility in the last year.

FG-PARTSCLEANERS

The wastewater treatment plant's parts cleaner (new/replacement) was observed during this inspection; closed while not in use and with posted operational procedures. The same (Safety-Kleen Premium Gold) solvent is used as in previous inspections.

EU-GENERAC

This unit has been removed; ROP maintenance needed.

EU-ICENGINE

SL observed the "new" Kohler emergency engine/generator ("Gen-Set.") At the observed/documented size of 1,072 hp/800 kW engine, SL concluded that these values correspond to 2.73 mmBtu/hr capacity. Even at an assumed 60% efficiency the maximum heat input capacity fort this engine should be about 4.4 mmBtu/hr (well < 10

mmBtu/hr) and so this equipment is exempt from PTI per Rule 285(g). (The engine itself is small relative to the gen-set housing.) Note, this equipment has been included in the new ROP and appropriate RICE notification(s) have been submitted. Only ULSD is used and the required hour meter reads 13.2 hours currently (from weekly testing activities.)

FG-EXISTINGGas1-WWTP

A multitude of small, existing natural gas-fired boilers and process heaters are subject to the Boiler MACT. Requirements include completion of Energy Assessments and Tune-ups by 1/31/16. These have all been included in the ROP. No further action required by AQD until the upcoming compliance date.

****

At the time of the inspection, SL considers the facility to be in compliance with applicable requirements. This finding is based on the observations of July 29, 2015, as well as the other activities and document reviews contained in the FCE Summary Report.

ATTACHMENTS:

1. Parts Cleaner Documentation for both WWTP and JDY
2. Lime Bin Activity Memo dated May 22, 2015
3. Odor Control System Documentation
4. New Kohler 12 kW engine Documentation
5. EU-GENERAC Documentation
6. EU-CIENGINE fuel Documentation
7. Opacity Reports for 7/26 through 7/29/15 (current)
8. RATA results memo dated July 28, 2015
9. CEMS Calibration Detail Report for July 29, 2015
10. Coal Quality Documentation, as shipped and 12-month rolling usage
11. Daily Fly Ash Silo Inspection Form for Week of June 29, 2015

NAME _____ DATE 7/30/15 SUPERVISOR _____