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

B235735252

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| **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:** 06/29/2016 |
| **STAFF:** Steve Lachance | **COMPLIANCE STATUS:** Compliance | **SOURCE CLASS:** MAJOR |
| **SUBJECT:** FCE for FY '016. See CA_B235735252. (SLachance, 6/29/16) | | |
| **RESOLVED COMPLAINTS:** | | |

Site activities for the completion of a Full Compliance Evaluation (FCE) were primarily conducted on Wednesday, June 29, 2016. SL was accompanied by CRobinson of this office.

Prior to arrival on-site at about 9:10 AM on 6/29/16, SL conducted quick Visible Emissions readings from the 3 main stacks; 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 July, 2015. Most recently, SL and CR had conducted an evaluation of the wastewater treatment odor control system on June 21, 2016. The FCE Summary Report accompanying this report includes details on this and other activities and reviews.

Primary Facility Contact = Judy Visscher, 616-355-1210

## FACILITY DESCRIPTION

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

Until recently, three steam generating units (EU-UNIT-3, EU-UNIT-4, and EU-UNIT-5) were in use, each firing coal and natural gas. 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. However, with the promulgation of the federal Mercury Air Toxics Standard, 40 CFR 63 Subpart UUUUU, construction of the HBPW's new natural gas-fired turbine generating station on 5th Street and other energy/strategic municipal developments, EU-UNIT-3 is now retired (as of 6/1/16), and Units 4 and 5 will no longer fire coal. They remain in service as possible gas-fired units.

*These changes in operations and applicability, as discussed with facility personnel, result in the continued need to "maintain" the ROP for currency and completeness. Throughout this report, necessary items are flagged by (***).*

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; 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.

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. ***

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, previously incorporated into the ROP as Appendices 10 through 12. But note, CAIR requirements have been replaced by finalized Cross State Air Pollution Rule (CSAPR).

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. Any future demolition of the site will require extensive asbestos-related work.

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. Note, with discontinuation of coal firing, CAM will no longer be a factor on natural gas only. ***

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 | 2006 | 2009 | 2012 | 2015 |
|---|---|---|---|---|---|
| EU-UNIT-3 | 0.30 | 0.0026 | 0.0061 | 0.0197 | 0.00* |
| EU-UNIT-4 | 0.26 | 0.00195 | 0.0310 | 0.0029 | 0.00* |
| EU-UNIT-5 | 0.25 | 0.00285 | 0.0213 | 0.028 | 0.0079 |

**As rounded to the same significant digits as the limit; per June 24, 2016 memo from AQD-TPU.*

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.

**INSPECTION DETAILS**

SL and CRobinson arrived on-site for the inspection at about 9:10 AM. The facility was represented by Ms. Judy Visscher (entire facility) and Mr. Joel Davenport (Water Reclamation Facility only; previous visit on June 21, 2016.) Intern "Julie" 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 "Julie". 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 that no electric generating units were operating on this date. Unit 3 is officially "retired" as of 6/1/16 and there will no further operation on coal at this site.
- Recent operations have only been for periodic boiler warm-ups for chemistry

maintenance and monitoring.

- There were no known technical issue on this date.
- Boiler MACT requirements and implications were discussed. Unit 3 is retired; Unit 4 is now "Gas1 Only"; and the space heaters formerly included in the ROP are actually exempt from the rule based on size and use as comfort heaters. The complete list of Boiler MACT-subject equipment on site would be EU-Unit-4; EU-WWTP-BOILER-2; and EU-WWTP-BOILER-3a; these are all existing, Gas1-only units. ***
- SL requested and reviewed the required Boiler MACT Energy Assessment and Tune-up report(s) for Unit-4. (These are required to be completed, but need not be submitted. The findings of the Energy Assessment are not binding.) These were readily available.
- A quick run through the permit generated the following discussions:
- No changes with cold cleaners or the solvent used in them from previous inspections.
- EU-LIME-BIN has been removed, as the facility now uses lime slurry to neutralize sludge odors and stabilize sludge. ***
- 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. See attached. Also note, that this engine has replaced the EU-GENERAC engine on-site, which has been removed. ***
- Attached documentation demonstrates that the larger, diesel-fired Kohler emergency genset on-site (EU-CIENGINE) is EPA-certified.
- SL requested an array of specific records based on known site operating conditions and scenarios. These were individually reviewed and discussed at this time.

- SL had requested Daily Opacity Reports for June 21, 2016 (date of last site observations) to affirm operations and emissions consistent with visible emissions observations. See attached. This affirmed No Electric Generation on this date. No issues noted.
- SL requested Unit-5 data for the last day of operations on coal (October 2, 2015), including COMS Matrix and an Average Data Reports. See attached. No issues noted.
- An off-site, natural gas turbine plant (separate facility; P0465) has been permitted per PTI #107-13a. Construction is on-going with a projected operations date of November (+/-) 2016. (On-site activities ended with a quick tour of this construction site.)

The inspection continued with on-site observations and further record reviews. Mr. Davenport had previously assisted with the June 21 Water Reclamation Facility portion of the tour (see 6/21/16 Odor Evaluation in MACES), while Ms. Visscher assisted throughout the remainder of the inspection. 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-B2357-2013a 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.

General Notes for the Inspection of the Electric Generator Boilers

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. SL clarified the following program applicability (based on recent Unit 3 retirement and switch to natural gas-only operations) with Ms. Visscher per conversation:

| Unit | Status | Boiler MACT | EGU MACT | Part 8 | Retirement Date |
|---|---|---|---|---|---|
| **EU-UNIT-3** | RETIRED | NA | NA | NA | 6-1-16 |
| **EU-UNIT-4** | Available, NG Only | Existing Gas1 | NA (size, NG) | Yes | 2024 (?) |
| **EU-UNIT-5** | Available, NG Only | NA | NA (NG) | NA | 2024 (?) |

EG-UNIT-3;

This unit is retired as of June 1, 2016.

Opacity and COMS performance are evaluated quarterly, through the review of required quarterly excess emissions and semi-annual CAM reports. COMS have been maintained through June 30, 2016.

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.

Opacity and COMS performance are evaluated quarterly, through the review of required quarterly excess emissions and semi-annual CAM reports. COMS have been maintained through June 30, 2016. This is now a Gas1 unit w.r.t. the Boiler MACT.

FG-BOILERMACT

Per discussion above, EU-UNIT-4 has completed the requirements for an existing, Gas1 unit. 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. (Applicability of CAM should be reviewed as part of the next permit maintenance action, based on Unit 3's retirement and switching fuels for other boilers to natural gas only.)

EG-UNIT-5

Historically, 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, but use of coal has been discontinued. The unit was not in service on the day of the inspection.

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.) The last coal was fired in this unit last October.

Note, SL and CR visited the Control Room and interviewed the on-site operator and reviewed on-site panels; no on-site electric generation was taking place on this date.

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. SL provided the DEQ sticker of required practices for operation of such units (for here and at the WWTP.)

**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/stabilization 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. 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 on June 21. 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 not observed during this inspection; the same (Safety-Kleen Premium Gold) solvent is used as in previous inspections; sticker provided.

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 (2015) 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 (15 ppm

S.)

FG-EXISTINGGas1-WWTP
Although included in the most recent ROP, a multitude of small, existing natural gas-fired boilers and process heaters thought to be subject to the Boiler MACT have been determined to be exempt from the rule. Only EU-WWTP-Boiler-2 and EU-WWTP-Boiler-3a actually have Boiler MACT requirements. Required Energy Assessments and Tune-ups were completed by 1/31/16.

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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 June 29, 2016, as well as the other activities and document reviews contained in the FCE Summary Report.
ATTACHMENTS:

1. Small Kohler Engine (12 kW) Info
2. New Kohler (EU-ICENGINE) Documentation and EPA Certification
3. Opacity Reports for 6/21/16
4. Unit 5 COMS Report (10/2/16; last day of operation on coal)
5. Unit 5 Average Data Report (10/2/16; last day of operation on coal)

NAME [signature] DATE 7/18/16 SUPERVISOR [signature]