

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

N160433593

|  |                               |                           |
|--|-------------------------------|---------------------------|
| FACILITY: Kent County Waste to Energy Facility   |                               | SRN / ID: N1604           |
| LOCATION: 950 Market Ave SW, GRAND RAPIDS  |                               | DISTRICT: Grand Rapids    |
| CITY: GRAND RAPIDS   |                               | COUNTY: KENT              |
| CONTACT: Terry Madden , Environmental Compliance Specialist                                |                               | ACTIVITY DATE: 03/07/2016 |
| STAFF: Steve Lachance  | COMPLIANCE STATUS: Compliance | SOURCE CLASS: MAJOR       |
| SUBJECT: Unannounced Scheduled Inspection for FY '016 - CA_N160433593. (SLachance, 3/7/16) |                               |                           |
| RESOLVED COMPLAINTS:   |                               |                           |

On March 7, 2016, SL conducted a scheduled, unannounced inspection of the Kent County Waste to Energy facility located at 950 Market Avenue SW, Grand Rapids, Michigan. The purpose of the inspection was to determine the facility's compliance with Renewable Operating Permit No. MI-ROP-N1604-2013. The facility was represented by Mr. Terry Madden of Covanta. (Covanta operates the facility for Kent County.)

SL presented Mr. Madden with DEQ's brochure entitled " Environmental Inspections: Rights and Responsibilities" and announced his intention to inspect the facility upon his arrival at about 1 PM, March 7, 2016.

Primary Facility Contact: Mr. Terry Madden 616-235-3210 ext. 264

Weather conditions were mostly sunny, about 60 degrees F, with southerly winds at about 10 mph.

### FACILITY DESCRIPTION

The facility is a nominal 625 ton per day waste to energy facility firing municipal solid waste and natural gas. Two identical municipal solid waste mass burn waterwall combustors can be co-fired with natural gas. The combustors produce steam for process use and/or for electrical generation. Each combustor is equipped with a baghouse, a dry scrubber, a carbon injection system, and a selective non catalytic reaction system. Support equipment and operations on-site consist of ash and lime handling systems.

The facility is located on the Grand River just southwest of downtown Grand Rapids. The immediate surrounding area is largely industrial.

The stationary source is located in Kent County, which is currently designated as attainment for all criteria pollutants.

The stationary source is subject to 40 CFR Part 70 because the potential to emit of sulfur dioxide and nitrogen oxides exceeds 100 tons.

The stationary source is considered a major source of Hazardous Air Pollutant (HAP) emissions because the potential to emit of a single HAP (Hydrogen Chloride) regulated by the Clean Air Act, Section 112 exceeds 10 tons per year. Moreover, the facility has been required to otherwise obtain a Part 70 Renewable Operating Permit since it is a solid waste incinerator regulated by Section 129 of the Clean Air Act.

The stationary source is subject to Prevention of Significant Deterioration (PSD) (40 CFR 52.21) regulations because the stationary source has the potential to emit of sulfur dioxide

and nitrogen oxides greater than 100 tons. Emission levels of particulate matter, carbon monoxide, lead, mercury, sulfuric acid mist, and beryllium were also subject to PSD review.

The stationary source is subject to the New Source Performance Standards (NSPS), Subpart C Emission Guidelines for municipal waste combustors promulgated in 40 CFR Part 60 Subpart Cb, which in turn references and incorporates portions of 40 CFR Part 60 Subpart Eb. The stationary source is not subject to the NSPS for Industrial-Commercial-Institutional Steam Generating Units (40 CFR Part 60 Subpart Db) based on acceptance of a restriction in the use of fossil fuel (natural gas).

The facility is not subject to Acid Rain requirements of Title IV of the Clean Air Act, based on the size of the electrical generator (approximately 18.1 megawatts.)

The facility's original Renewable Operating Permit application was submitted prior to the effective date of the federal Compliance Assurance Monitoring (CAM) rule. However, subsequent changes at the facility to accommodate NSPS requirements after April, 1998 may have triggered CAM applicability for certain non-NSPS pollutant-specific emission limits. However, the facility has elected to subsume certain hydrogen chloride limits under the CAM-exempt limit promulgated through NSPS; and has also successfully demonstrated that compliance with non-NSPS emission limits for nitrogen oxides does not rely on the use of a control device. Therefore, CAM is not applicable to this current Renewable Operating Permit.

Two diesel-fired pump engines for fire protection are regulated under 40 CFR 63, ZZZZ; these emission units have been added to the most recent ROP.

The facility is subject to R 336.1932, which has not yet been incorporated into Michigan's State Implementation Plan. As such, the facility is also subject to a Federal Implementation Plan promulgated under 40 CFR 62 Subpart FFF.

A Fugitive Dust Control Strategy, Rule 911 Malfunction Abatement Plan, and a Consolidated Plan for Municipal Solid Waste Handling/Odor Control are referenced and required by the Renewable Operating Permit. Each of these has been recently reviewed, renewed and submitted to AQD as part of the most recent Operating Permit renewal.

## COMPLIANCE EVALUATION

The Renewable Operating Permit contains tables of applicable requirements for the following emission units: EU-ASHSYSTEM; EU-LIMESYSTEM; EU-COOLINGTOWER; FG-COMBUSTORS (consisting of two identical combustor units, identified respectively as EU-COMBUSTOR-1 and EU-COMBUSTOR-2); EU-PUMPHOUSE1 and EU-PUMPHOUSE2 (two separate fire pump engines); FGCOLDCLEANERS and FGRULE290. The facility is also subject to a source-wide fugitive dust control strategy, and has submitted and up-dated the requested Malfunction Abatement Plans and a Consolidated Waste Acceptance/Odor Management Plan.

No visible emissions were noted from the main stacks upon approaching the facility. No fugitive dust issues were observed while circling the property prior to entry.

Both units were operating on MSW only (no natural gas used)

The following CEMS-based results were observed at about 2 PM, 3/7/16:

| Pollutant        | Limit (ppmc)           | Averaging Time | Unit 1 | Unit 2 |
|------------------|------------------------|----------------|--------|--------|
| SO <sub>2</sub>  | 29                     | 24-hour        | (4)*   | (6)    |
|                  | 50                     | 8-hour         | 4      | 5      |
| NO <sub>x</sub>  | 205                    | 24-hour        | (167)  | (186)  |
|                  | 350                    | 3-hour         | 168    | 186    |
|                  | 400                    | 1-hour         | 159    | 188    |
| CO               | 50                     | 8-hour         | 5      | 1      |
|                  | 100                    | 4-hour         | 2      | 0      |
|                  | 200                    | 1-hour         | 0      | 0      |
| <b>Parameter</b> |                        |                |        |        |
| Opacity          | 10%                    | 6-minute       | 2.7    | 2      |
| Steam Load       | 81,000 pph             | 4-hour         | 74,200 | 75,400 |
| Carbon Injection | 11.5 pph<br>(per test) | 8-hour         | 12.5   | 12.5   |

\*(Numbers in parentheses) indicate a daily average until this point of the day; a 24-hour block period is not yet available for the day. All other values are for the most recently completed applicable "block" period.

Each value indicates compliance; moreover, each CEMS had properly passed calibration for the day and so these values are considered valid. Calibration Reports for each CEMS for this day are attached. No issues noted or reported.

Other items discussed:

\*\*\*A compilation/copying error with the Annual Certification of Deviations for the period ending 12/31/15 was noted and corrected; specifically, the previously submitted semi-annual report for the period ending 6/30/15 had not been included in AQD's copy to "complete" this annual report. Once included, the report was considered sensible and complete. Mr. Madden will also re-submit to EPA Region V based on uncertainty of the contents of the report submitted to them; especially since the Annual Report is the only one submitted to EPA.

\*\*\*All of the deviations reported in the Annual Report for the period ending 12/31/15 have been previously reported and reviewed; and SL considers the report complete, timely and consistent with previously submitted reports.

\*\*\*Upon review of required quarterly Excess Emissions/CEMS Performance Reports; required Emission Guideline (g) and (h) reports; required annual and semi-annual reports for the periods ending 12/31/15; and each Rule 912 event (0) since the last inspection, SL found these reports to be consistent and complete. Each has been analyzed separately. See the Full Compliance Evaluation (FCE) cover sheet.

\*\*\*Operations for this day were "normal", with no known performance issues; and no natural gas was in use (all combustion on MSW.)

\*\*\*A planned semi-annual maintenance outage is scheduled for later this month.

\*\*\*All requested records (including Daily Inspection logs, CEMS calibrations, CEMS down time reports, Rule 912 reporting records, any Periodic Maintenance Reports, RICE records, Position Certifications, etc.) were available and consistent with permit requirements.

Each of the following areas was further observed/discussed during the ongoing inspection:

#### Reciprocating Internal Combustion Engine (RICE) MACT

SL reviewed operations/records for two emergency fire pump engines (EU-PUMPHOUSE1 and EU-PUMPHOUSE2.) Each is <10mmBtu heat input based on physical size and so exempt from R201 permitting requirements. Each is subject to different sets of RICE MACT requirements (May 2013) and so is included in the renewed ROP. Neither engine was operating at this time; they are simply briefly exercised weekly in preparedness/readiness for use. Each is diesel-fired.

#### FUGITIVE DUST CONTROL STRATEGY

Based on site observations and discussions with Mr. Madden, the Fugitive Dust Control Strategy appears to be implemented properly. Design elements of the plan include enclosures; maintaining moisture levels of ash; maintaining negative pressure within the combustor building; and paved road surfaces. Trucks are more likely to be kept indoors (under negative pressure and contained) as opposed to waiting outside, and this helps with "drippings" and subsequent track-out. Pavement conditions were good, and no wind-swept fugitive dust was observed. Operational procedures include washing and sweeping; Covanta owns their own sweeper. SL believes that these areas are maintained in good condition and no fugitive dust issues were identified during the site inspection. No complaints regarding fugitive dust from the facility have been received by AQD.

#### EU-ASHSYSTEM

This table outlines the applicable requirements for the ash storage and handling equipment. There is a separate ash handling system for each combustor. Bottom ash and fly ash are quenched before being combined and transported by a single covered vibrating conveyor to an inclined belt conveyor and then to an enclosed ash storage building.

##### \*\*\* design parameters\*\*\*

The equipment is designed as required by the ROP. There have been no recent changes to this equipment. Most of the equipment is enclosed, and any emissions from the enclosed areas are controlled by roof vent filters.

##### \*\*\* material usage/emission limits\*\*\*

Visible emissions of fugitive dust are evaluated on a weekly basis; and an annual Method 22 evaluation is completed. No visible emissions from ash handling were noted during the on-site portion of this inspection.

**\*\*\* monitoring/recordkeeping\*\*\***

The required records for the required inspections were available, and no issues were identified.

**\*\*\* testing/recordkeeping/reporting\*\*\***

Required testing has been completed/reported and no issues have been identified.

**EU-LIMESYSTEM**

This table outlines the applicable requirements for the lime storage and handling equipment. The lime is used in the dry scrubber for sulfur dioxide control. Pebble lime is transferred from bulk trucks through an enclosed conduit to a vented storage silo equipped with a filter to control particulate emissions from displaced silo air. Note, these requirements (inspections and maintenance) are also being applied to the "new" dolomite silo, which was installed under a Rule 290 exemption.

**\*\*\* design parameters\*\*\***

There are no such requirements.

**\*\*\* material usage/emission limits\*\*\***

Compliance with the particulate matter and opacity limits is based on proper operation and maintenance of the equipment, in conjunction with the periodic monitoring that is required. At the time of the inspection, no visible emissions were noted from either the lime or dolomite silo; but no active pneumatic loading from a truck was observed to be taking place during the inspection.

**\*\*\* monitoring/recordkeeping\*\*\***

The required records for the required inspections were available, and no issues were identified.

**\*\*\* testing/recordkeeping/reporting\*\*\***

No testing of this equipment has been required.

**EU-COOLINGTOWERS**

The counter flow mechanical-induced draft cooling tower is equipped with mist eliminators. It is physically inspected at least twice a year; records of the inspections are maintained.

**FG-COMBUSTORS**

There are two identical municipal solid waste (MSW) mass burn waterwall combustor units. Each is equipped with a baghouse, a dry scrubber, a carbon injection system, and a selective non-catalytic reduction (SNCR) system. The MSW combustors produce steam for process use and for electrical generation. Each unit is rated at 312.5 tons per day MSW at a higher heating value (hhv) of 4,800 Btu/lb., and 125 mmBtu per hour.

**\*\*\* design parameters\*\*\***

There have been no recent changes to the design of the combustors.

**\*\*\* material usage/emission limits\*\*\***

Refer to the table above for specific values; each value recorded indicates compliance with applicable emissions/process operations limits.

The units are each subject to a variety of material usage and emission limits, as follows:

Steam Load; steam loads observed were about 74,000 pph (Unit 1) and 75,000 pph (Unit 2). This represents virtually full load for each unit; each unit's capacity is restricted to 110% of load at testing each year (or to 81,000 pph, whichever is less.)

Natural Gas: None in use at the time of the inspection. Daily records are totalized on a monthly, semi-annual, and annual basis to demonstrate compliance with the yearly limit.

Baghouse Inlet Temperature: about 325 F (Unit 1) and 310 F (Unit 2). The maximum acceptable value (350 F) for this parameter is established during each annual emissions test.

**Emission Limits:**

See above. The basis for compliance for each of the emission limits is either periodic (annual or bi-annual) stack testing, or certified Continuous Emissions Monitoring Systems (CEMS). No compliance issues were identified as a consequence of the testing completed June 2015.

**\*\*\* monitoring/recordkeeping\*\*\***

Monitoring consists of various CEMS; Continuous Opacity Monitoring Systems (COMS); various process monitoring systems; control device monitoring; training requirements; and records in accordance with the Malfunction Abatement Plan.

CEMS and COMS data are reviewed quarterly. No actionable items have been identified as a result of the review of these and other required reports. A RATA was completed as part of the 2015 annual testing. SL requested and received Daily Calibration Summaries for each Unit's CEMS for 3/7/16; these are attached. No issues were identified.

Various process monitoring is completed, such as carbon injection rates, ammonia injection rates, lime flow, lime slurry density, roof top and baghouse inlet temperatures, control device differential pressures, steam flow, natural gas usage, etc. These appear to be sufficient to meet required limits for criteria pollutants based on current CEMS values; and exceed the rates established during the last compliance tests (where applicable). These values are also consistent with observations made during previous inspections of the facility.

In summary, all requested monitoring items were readily available. Specific items reviewed for content indicated compliant operating conditions.

**\*\*\* testing/recordkeeping\*\*\***

Timely testing has been completed in accordance with the provisions outlined in this table and in Appendix 5 of the RO Permit. There were no issues identified as a result of the 2015. There are no outstanding compliance issues based on previous rounds of testing.

**\*\*\* reporting\*\*\***

In addition to the RO Permit reporting requirements pertaining to the Title V program, the

facility submits quarterly excess emissions and monitoring systems performance reports; stack test reports; semi-annual Emission Guideline operating and data availability summary reports; and semi-annual Emission Guideline excess emission reports. Each of these has been submitted in a timely manner and reviewed by AQD. See the attached FCE Completion Summary for references to specific report review documentation.

\*\*\* operational parameters/other requirements\*\*\*

Data monitored and collected pursuant to the monitoring/recordkeeping requirements discussed above indicated compliance with the RO Permit's operational parameters/ other requirements for the combustors.

### FGCOLDCLEANERS

This table contains the requirements for any future, new cold cleaner that is exempt from NSR permitting by R 336.1281(h) or R 336.1285 (r)(iv). In addition to non-regulated, citrus-based cleaning agents for small degreasing tasks, the facility has a single Safety-Kleen cold cleaner on-site for support of architectural coating (maintenance) activities. This unit is <10 square feet in size, and does not use heated solvents or agitation. Appropriate signage has been observed to be in place. This unit appears to be compliant with applicable regulations.

### FGRULE290


This table contains the requirements for any existing or future emission unit that emits air contaminants which are exempt from the requirements of R 336.1201 pursuant to R 336.1290. The "new" lime silo has been installed per this rule. The manufacturer's efficiency guarantees in conjunction with the loading schedule for the unit supply the basis for complying with the Rule 290 emission limits. (As noted above, emissions occur only during a few loadings per year, and are minimal.) Additionally, this silo is subjected to the same monitoring and maintenance activities as the existing equipment on-site.

### **EVALUATION SUMMARY**

SL considers the facility to be in compliance with applicable air use rules, regulations and requirements at the time of the completion of this inspection. This is based on review of all reports and activities associated with this Full Compliance Evaluation, as well as the observations and records collected as part of the on-site inspection activities conducted on March 7, 2016, above.

### **ATTACHMENT(S)**

A; Daily Calibration Summary 3/7/16

NAME  DATE 3/10/16 SUPERVISOR 