

Purpose

A Staff Report dated August 7, 2017, was developed in order to set forth the applicable requirements and factual basis for the draft Renewable Operating Permit (ROP) terms and conditions as required by R 336.1214(1). The purpose of this Staff Report Addendum is to summarize any significant comments received on the draft ROP during the 30-day public comment period as described in R 336.1214(3). In addition, this addendum describes any changes to the draft ROP resulting from these pertinent comments.

General Information

Responsible Official:	1. Margaret Guillaumin, Plant Manager Section 1, Main Boiler 810-324-3218 2. Ryan A. Randazzo, Plant Manager Fossil Generation Section 2, Combustion Turbine Generators 734-231-1140
AQD Contact:	Robert Elmouchi, Environmental Quality Analyst 586-753-3736

Summary of Pertinent Comments

The following comments from the USEPA were received by the AQD.

1. EUBOILER1, page 17: Sulfur dioxide (SO₂), particulate matter (PM), and nitrogen oxides (NO_x) all have pounds per hour limits that do not appear to originate in the New Source Performance Standards for Fossil-Fuel-Fired Steam Generators (40 CFR Part 60 Subpart D). Please specify the origin and authority for these conditions in accordance with 40 CFR 70.6(a)(1)(i).

AQD RESPONSE:

The hourly **SO₂** emission limit is based upon the 40 CFR 60.43(a)(1) SO₂ emission limit times the maximum rated heat input of 7,200 MMBtu/hr.

The hourly **PM** emission limit is based upon the 40 CFR 60.42(a)(1) PM emission limit times the maximum heat input of 7,200 MMBtu/hr.

The hourly **NO_x** emission limit is based upon the 40 CFR 60.44(a)(1) NO_x emission limit times the maximum heat input of 7,200 MMBtu/hr.

To clarify the relation between the Part 60 emission limit and the hourly emission limit, the MDEQ/AQD (AQD) has split each of the SO₂, PM and NO_x emission limit underlying applicable requirements cells in EUBOILER1, I.1, 2 and 3 into two rows and added the underlying applicable requirement of R 336.1201(3) to each hourly limit.

2. [AQD designation 2.a] EUBOILER1, page 16: The PM emission limits reference SC V.2. for the monitoring/testing method. While this condition can be used to determine compliance during a

performance test, the permit does not address how the permittee will show on-going compliance with any operating parameters established during the test. Is additional monitoring required for any operating parameters to assure that the permit includes sufficient monitoring in accordance with 40 CFR 70.6(c)(1)?

AQD RESPONSE:

SC V.2 requires PM emission rate testing every third year. The third PM limit in the Emission Limits table is 0.10 lb. per 1,000 lbs. of exhaust gases on a wet basis, corrected to 50% excess air. The 2013 measured PM emission rate was 0.003 pound. The 2016 emission rate was 0.001 pound. Per these two emission tests, the actual PM emission rate from EUBOILER1 is approximately two orders of magnitude less than the permit limit. Furthermore, the permittee has a COM monitoring EUBOILER1. The AQD considers the actual low emission rate, compliance with opacity limits, and emission testing every three years to be a sufficient demonstration of ongoing compliance. Additionally, the AQD believes Special Conditions III.1, 2 and 3 ensure continuous compliance. Therefore, the AQD does not perceive a need for additional monitoring of operating parameters.

[AQD designation **2.b**] This question also applies to the PM and NOx limits for EUWESTAUXBOILER.

AQD RESPONSE:

EUWESTAUXBOILER is a limited use boiler. The AQD believes Special Conditions III.1, 2 and 3 ensure continuous compliance. Furthermore, special conditions V.2 and V.3 allows for emission testing if and when the AQD has concerns with PM and/or NOx emissions. Therefore, the AQD does not perceive a need for additional monitoring of operating parameters.

3. EUBOILER1, page 18: The material limits associated with the used oil list the broad authority of Rule 201(3) as the underlying applicable requirement. It appears that these material limits likely originated from a state toxics rule, which would be state-only enforceable. Please review the material limits and associated requirements for EUBOILER1 to verify whether these conditions should reference footnote 2, federally enforceable pursuant to Rule 201(1)(a), or footnote 1, state only enforceable pursuant to Rule 201(1)(b) and update the underlying applicable requirement as necessary.

AQD RESPONSE:

For EUBOILER1, The specification used oil material limits are specified in 40 CFR 279.11 and the PCB UAR is 40 CFR 761.20(e). The AQD has updated the Material Limits table with the appropriate UARs. Therefore, footnote 2 is appropriate.

4. EUBOILER1, page 17: Note a of the emissions table states that the sulfur limit of R 336.1401 has been subsumed with into SC I.1. However, the Staff Report states that the ROP does not include any streamlined/subsumed requirements. Please supplement the permit record to show the process MDEQ used to determine the set of permit terms and conditions that would assure compliance with all applicable requirements for EUBOILER1 in accordance with EPA's "White Paper Number 2." This comment also applies for the streamlined/subsumed requirement for EUWESTAUXBOILER on page 26.

AQD RESPONSE:

Streamlined/Subsumed Requirements

EUBOILER1 and EUWESTAUXBOILER have sulfur dioxide (SO₂) limits of 0.80 lb. per million Btu heat input, which the permit notes as equivalent to using oil fuels with 0.78% sulfur content and a heat value of 19,390 Btu's per pound. This limit, per 40 CFR 63.43(a)(1), is more stringent than the MDEQ R 336.1401(1),(2) and Table 41 maximum average sulfur content of 1.0 percent by weight, which is equivalent to 1.11 pounds of SO₂ per million Btu of heat input for liquid fuel at 18,000 Btu per pound.

The following calculation demonstrates that the 40 CFR 63.43(a)(1) SO₂ emission limit is equal to the R 336.1401(1), (2) and Table 41 SO₂ emission limit:

State of Michigan DEQ/AQD Emission Limit Conversion from Percent Sulfur by Weight to Pounds of Sulfur Dioxide per 1,000,000 Btu					
Btu HEAT INPUT	Btu per Pound of Liquid Fuel per R 401 Table 41, footnote (b): Sulfur content shall be calculated on the basis of 18,000 Btu per pound for liquid fuels.	Pounds Liquid Fuel per 1,000,000 Btu (calculated by dividing Btu by Btu per Pound of Liquid Fuel)	Maximum Average Sulfur Content in Fuel - PERCENT BY WEIGHT per R 401(1), Table 41,	Pounds Sulfur per 1,000,000 Btu (calculated by multiplying pounds of liquid fuel per 1,000,000 Btu times Maximum Avg. Sulfur Content weight percent.	Pounds of Sulfur Dioxide per 1,000,000 Btu (Note: One molecule of Sulfur Dioxide is 2 times the weight of one Sulfur atom.)
1,000,000	18,000	56	1.0%	0.56	1.11

- [AQD Designation 5.a.] EUEASTAUXBOILER, page 22; EUWESTAUXBOILER, page 27: The NO_x testing/sampling requirement (SC V.1. for EUEASTAUXBOILER and SC V.3 for EUWESTAUXBOILER) includes a high-level citation to Appendix A of 40 CFR Part 60 as the monitoring/testing method. Likewise, the PM testing/sampling requirement for EUWESTAUXBOILER (SC V.2.) also includes a high-level citation to Appendix A of 40 CFR Part 60. Please list a specific test method in accordance with 40 CFR 70.6(a)(3).

AQD RESPONSE:

The following text has been added to EUEASTAUXBOILER SC V.1, “Testing of NO_x emission rates shall be performed using EPA Method 7E...”

The following text has been added to EUWESTAUXBOILER SC V.2, “Testing of PM emission rates shall be performed using EPA Method 5...”

The following text has been added to EUWESTAUXBOILER SC V.3, “Testing of NO_x emission rates shall be performed using EPA Method 7E...”

[AQD Designation 5.b.] USEPA (cont.) Furthermore, these testing/sampling conditions do not include a frequency for testing. Please justify that lack of a testing schedule by explaining how compliance with applicable requirements will be assured in accordance with 40 CFR 70.6(c)(1).

AQD RESPONSE: EUWESTAUXBOILER is a limited use boiler fired with No. 2, No. 6 oil or blends thereof. Per the MDEQ/AQD inspection conducted on August 4, 2017, “EUWESTAUXBOILER did not operate in 2016 and has not operated in 2017 to the date of this inspection (August 4, 2017). As of this inspection, EUWESTAUXBOILER was not operable and would need maintenance before operating again. DTE has elected to keep this emission unit permitted in the event DTE elects to return this emission unit to operating condition.” 40 CFR 63.7510(e) and (40 CFR 63.7510(j)), which are the UAR’s under EUWESTAUXBOILER special condition III.2, requires an initial tune-up after re-start of the affected source. Furthermore, special condition III.3 requires that tune-ups must be conducted no more than five years (61 months) after the previous tune-up. The MDEQ interprets these legally enforceable requirements to be sufficient requirements for compliant operation of this emission unit.

- EUWESTAUXBOILER, page 27: Some of the PM emission limits reference SC VI.1. as the monitoring/testing method. SC VI.1. requires the verification of visible emissions. Is Method 9 the appropriate monitoring/testing method for these limits?

AQD RESPONSE: The MDEQ/AQD believes that the application of Method 9 in conjunction with the initial tune-up per SC III.2, subsequent tune-ups required per SC III.3 and the visible emission observation schedule outlined in Appendix 3.5-1 are appropriate indicators of ongoing compliant operation of EUWESTAUXBOILER, which is a limited use boiler. Furthermore, SC V.2 establishes the authority of the MDEQ to request the permittee verify PM emission rates from EUWESTAUXBOILER, by testing at owner’s expense, in accordance with Department requirements should the MDEQ have a compliance concern regarding the PM emission rate from EUWESTAUXBOILER.

7. EUWESTAUXBOILER, page 27: Under time period/operating scenario for SC I.1., a note is listed. This note states that a requirement has been subsumed under this streamlined requirement and does not provide information about the time period/operating scenario associated with these limits. Please list a time period/operating scenario to be used for determining compliance with this emission limit in accordance with 40 CFR 70.6(a)(3) and (c)(1).

AQD RESPONSE: The MDEQ/AQD has split the I.1 Time Period/Operating Scenario row into two cells. The upper cell now identifies the time period as “As-fired fuel.” The lower cell identifies the time period as “Hourly.”

8. EUWESTAUXBOILER, page 28: SC V.1. requires the permittee to analyze and record the sulfur content of the oil fuels. A similar condition for EUBOILER1 references Appendix 3.1-1 Fuel Oil Sulfur Monitoring. Please review Appendix 3.1-1 and consider if the information contained there may be relevant for compliance with the sulfur emission limits in accordance with 40 CFR 70.6(a)(3) and (c)(1).

AQD RESPONSE: The AQD added a reference to Appendix 1-3.1 to EUWESTAUXBOILER SC V.1. MDEQ added language to App 3-1.1 to clarify that the fuel analyses values obtained by Appendix 3-1.1 will be used by permittee to calculate SO₂, emission rate (lb/hr) from EUWESTAUXBOILER.

9. FG-CTGS, page 78: The monitoring/testing method for the formaldehyde and PM limits reference SC V.6 which is not contained in the draft permit. Please review this reference and revise accordingly.

AQD RESPONSE: The AQD changed three SC V.6 references to SC V.4 because SC V.6 is an invalid reference.

10. FG-CTGS: The Staff Report states that predictive emissions monitoring system (PEMS) are installed to measure NO_x emissions from the combustion turbines. Please verify if PEMS are required as part of an applicable requirement, and update and include monitoring requirements as applicable.

AQD RESPONSE: Per 40 CFR 75.2(a), FG-CTGS is subject to 40 CFR Part 75 - Continuous Emission Monitoring because each emission unit in this flexible group is subject to Acid Rain emission limitations. Per 40 CFR Part 75.1(b) this flexible group is required to install CEMS to monitor NO_x emissions. Per Appendix E to Part 75 - Optional NO_x Emissions Estimation Protocol for Gas-Fired Peaking Units and Oil-Fired Peaking Units, 1.1 states, “This NO_x emissions estimation procedure may be used in lieu of a continuous NO_x emission monitoring system (lb/mmBtu) for determining the average NO_x emission rate and hourly NO_x rate from gas-fired peaking units and oil-fired peaking units as defined in 40 CFR 72.2 of this chapter.” Therefore, per Appendix E to Part 75, the permittee is using PEMS to estimate emissions from the natural gas-fired peaking units. Appendix 7-2 specifies the monitoring requirements and the requirement to develop correlation curves, which are used to predict emission rates.

The underlying applicable requirements of 40 CFR 75.2(a) and 40 CFR Part 75.1(b) have been added to FG-CTGS, VI.3.a.

Changes to the August 7, 2017, Draft ROP

The changes to the Draft ROP are identified below. Paragraph numbers 1 through 10 below correspond to the comment numbers 1 through 10 in the section above.

1. To clarify the relation between the Part 60 emission limit and the hourly emission limit, the MDEQ/AQD (AQD) has split each of the SO₂, PM and NO_x emission limit underlying applicable requirements cells in EUBOILER1, I.1, 2 and 3 into two rows and added the underlying applicable requirement of R 336.1201(3) to each hourly limit.

2. No changes were made to the Draft ROP in response to USEPA comment number 2.
3. The AQD has updated the EUBOILER1, Material Limits table with the appropriate UARs as follows: 40 CFR 279.11 for halogens, lead, cadmium, chromium, arsenic and flashpoint; 40 CFR 761.20(e) for PCB.
4. No changes were made to the Draft ROP in response to USEPA comment number 4.
5. [AQD Designation **5.a.**]
The following text has been added to EUEASTAUXBOILER SC V.1, "Testing of NO_x emission rates shall be performed using EPA Method 7E..."

The following text has been added to EUWESTAUXBOILER SC V.2, "Testing of PM emission rates shall be performed using EPA Method 5...", and SC V.3, "Testing of NO_x emission rates shall be performed using EPA Method 7E..."

[AQD Designation **5.b.**] No changes were made to the Draft ROP in response to the USEPA comment.
6. No changes were made to the Draft ROP in response to USEPA comment number 6.
7. The MDEQ/AQD has split the I.1 Time Period/Operating Scenario row into two cells. The upper cell now identifies the time period as "As-fired fuel." The lower cell identifies the time period as "Hourly."
8. The AQD added a reference to Appendix 1-3.1 to EUWESTAUXBOILER SC V.1.
9. The AQD changed three SC V.6 references to SC V.4.
10. The underlying applicable requirements of 40 CFR 75.2(a) and 40 CFR Part 75.1(b) have been added to FG-CTGS, VI.3.a.
11. The AQD deleted condition EUBOILER1, VII.8 and inserted the appropriate template text at condition VII.4, "The permittee shall submit any performance test reports to the AQD Technical Programs Unit and District Office, in a format approved by the AQD within 60 days following last date of test. **(R 336.1213(3)(c), R 336.2001(5)).**" Subsequent conditions have been renumbered.
12. The AQD added the following text to EUEASTAUXBOILER, V.1 to be consistent with current permit language, "*No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. Not less than 7 days before the test is conducted, permittee shall notify the AQD Technical Programs Unit and District Supervisor in writing of the time and place of the performance test. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test.*"
13. The AQD changed the EUWESTAUXBOILER, I.1 sulfur dioxide heat input time period/operating scenario from "see note" to "as-fired fuel." This change was made specify the time period/operating scenario and to be consistent with other permits issued to DTE.
14. The AQD changed the EUWESTAUXBOILER, I.1 sulfur dioxide pounds per hour time period/operating scenario from "see note" to "hourly." This change was made specify the time period/operating scenario.
15. The AQD changed the EUWESTAUXBOILER and FG-CTGS, VII.4 by adding the following text to the end of the sentence, "within 60 days following last date of test."

16. The AQD deleted condition EUWESTAUXBOILER, VII.8 and inserted the appropriate template text at condition VII.4, "The permittee shall submit any performance test reports to the AQD Technical Programs Unit and District Office, in a format approved by the AQD. **(R 336.1213(3)(c), R 336.2001(5)).**" Subsequent conditions have been renumbered.
17. The installation date/modification date for EUCOLDCLEANER in the emission unit summary table was changed to NA.
18. The emission unit IDs of "EUCOLDCLEANER" and "EU03-4" was added to FGCOLDCLEANERS in the flexible group summary table and "EUCOLDCLEANER, EU03-4 machine shop parts cleaner" in the FGCOLDCLEANERS table.
19. The FGRULE290 table was replaced with the current FGRULE290 template.
20. The AQD changed the text of Appendix 3.1-1, Fuel Oil Sulfur Monitoring to, "For EUBOILER1 and EUWESTAUXBOILER, the permittee shall maintain a complete record of fuel oil specifications and/or fuel analysis for each delivery, or storage tank, of fuel oil. These records may include purchase records for ASTM specification fuel oil, specifications or analyses provided by the vendor at the time of delivery, analytical results from laboratory testing, or any other records adequate to demonstrate compliance with the percent sulfur limit in fuel oil. The fuel analyses values shall be used to calculate SO₂ emission rates from EUWESTAUXBOILER."
21. Section 1, E. NON-APPLICABLE REQUIREMENTS, the template text was changed to, "At the time of the ROP issuance, the AQD has determined that no non-applicable requirements have been identified for incorporation into the permit shield provision set forth in the General Conditions in Part A pursuant to Rule 213(6)(a)(ii)." Also, the table was removed.
22. Appendix 6-1. Permits to Install; NA in each cell has been replaced with the appropriate information.
23. The AQD changed the FG-CTGS, I.3 and I.5 monitoring/test methods from SC V.6 to SC V.4.
24. The AQD changed the FG-CTGS, V.1 text to, "In accordance with 40 CFR 75, Appendix E, the permittee shall retest the NO_x emission rate of each turbine at least once every 20 calendar quarters. Testing shall be performed using test methods specified in 40CFR60.335 and 40 CFR 60, Appendix A. The permittee shall perform NO_x testing for at least four (4) approximately equally spaced operating load points, ranging from the maximum operating load to the minimum operating load. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. Not less than 7 days before the test is conducted, permittee shall notify the AQD Technical Programs Unit and District Supervisor in writing of the time and place of the performance test. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test.² **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004, 40 CFR Subparts GG, 40 CFR Part 60, Appendix A, 40 CFR 75 Appendix E, 40 CFR 75, 40 CFR 60.8 and 60.335).**" This change was made to insert current template language and specific text applicable to FG-CTGS.
25. The AQD changed the FG-CTGS, V.2 text to, "Permittee shall verify CO emission rates from each turbine in accordance with Department requirements. Testing must be done for each turbine in conjunction with NO_x testing and under the same operating load and test averaging period requirements. Testing shall be performed using test methods specified in 40 CFR 60, Appendix A. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. No less than 30 days prior to testing, the permittee shall submit a complete

test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. Not less than 7 days before the test is conducted, permittee shall notify the AQD Technical Programs Unit and District Supervisor in writing of the time and place of the performance test. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test.² **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004).** This change was made to insert current template language and specific text applicable to FG-CTGS.

26. The AQD changed the FG-CTGS, VII.4 text to, "The permittee shall submit any performance test reports to the AQD Technical Programs Unit and District Office, in a format approved by the AQD. **(R 336.1213(3)(c), R 336.2001(5)).**" This change was made to insert current template language.

The AQD made the following changes to the Draft Staff Report text:

Source Description

- Detroit Edison was changed to DTE Electric Company.
- R 336.1281(h) was changed to R 336.1281(2)(h) to accurately represent the updated rule.
- R 336.1285(r)(iv). Was changed to R 336.1285(2)(r)(iv) to accurately represent the updated rule.
- The following text was deleted because the gasoline dispensing facility (GDF) is not subject to a MACT. "*EUGDFMACT: Existing and new/reconstructed stationary gasoline dispensing facilities subject to the Gasoline Distribution Area MACT (maximum available control technology),*"
- FGGDFMACT was changed to EU-GDF
- "FGRULE290: The flexible group description was changed to, "Any emission unit that emits air contaminants and is exempt from the requirements of Rule 201; pursuant to Rules 278, 278a and 290."
- R 336.1285(g) was changed to R 336.1285(2)(g) to accurately represent the updated rule.

The following sentence was moved from the Section 2 paragraph to the Section 1 paragraph because CEMS are only used in Section 1, "*Continuous emissions monitors (CEMS) are installed to measure emissions of NOx, SO2 and opacity for the main boiler.*"

Regulatory Analysis

- Detroit Edison was changed to DTE Electric in two paragraphs.
- FGGDF was changed to EU-GDF two times in the same paragraph.

Processes in Application Not Identified in Draft ROP

- The following row of text was removed from the table because the process is identified in the ROP:

EU001-289, Tank Vent, UST Gasoline, R 336.1812(4)(d), R 336.1284(2)(g)(ii).

Additional Information

The NOx emissions from EUBOILER1 are controlled by flue gas injection. This control device is not subject to CAM per 40 CFR 64.2(b)(vi) because the permittee uses CEMS to monitor NOx emissions.