

# Iowa Department of Natural Resources

## Draft Title V Operating Permit Fact Sheet

This document has been prepared to fulfill the public participation requirements of 40 CFR Part 70 and 567 Iowa Administrative Code (IAC) 22.107(6). 40 CFR Part 70 contains operating permit regulations pursuant to Title V of the Clean Air Act.

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The Iowa Department of Natural Resources (IDNR) finds that:

1. MidAmerican Energy Company: Sycamore Combustion Turbines, EIQ Number: 92-5849 Facility File Number: 77-09-002, located at 6141 Northwest Beaver Drive, Johnston, Iowa 50131 has applied to renew their Title V Operating Permit. The designated responsible official of this facility is Mr. Stacy L. Earll, General Manager- Fluid Generation.
2. MidAmerican Energy Company: Sycamore Combustion Turbines is a NAICS Code 221112: Electric Utility. This facility consists of two (2) significant emission units with potential emissions of:

<b>Pollutant</b>	<b>Abbreviation</b>	<b>Potential Emissions (Tons per Year)</b>
Particulate Matter ( $\leq 10 \mu\text{m}$ )	PM <sub>10</sub>	1,747.62
Particulate Matter	PM	1,747.62
Sulfur Dioxide	SO <sub>2</sub>	3,914.80
Nitrogen Oxides	NO <sub>x</sub>	6,990.62
Volatile Organic Compounds	VOC	17.82
Carbon Monoxide	CO	696.06
Lead	Lead	0.12
Hazardous Air Pollutants <sup>(1)</sup>	HAP	10.22
Greenhouse Gases (mass basis)	GHG	1,285,931.84
Greenhouse Gases (CO <sub>2</sub> e basis)	GHG	1,290,203.28

<sup>(1)</sup> May include the following: 1,3-Butadiene, Acetaldehyde, Acrolein, Arsenic compounds, Benzene, Cadmium compounds, Chromium compounds, Ethylbenzene, Formaldehyde, Lead compounds, Manganese compounds, Naphthalene, Nickel compounds, Polycyclic Organic Matter, Propylene Oxide, Selenium Compounds, Toluene, and Xylene (Mixed Isomers).

3. MidAmerican Energy Company: Sycamore Combustion Turbines submitted a Title V Operating Permit renewal application on April 2, 2009 and any additional information describing the facility on October 1, 2012. Based on the information provided in these documents, IDNR has made an initial determination that the facility meets all the applicable criteria for the issuance of an operating permit specified in 567 IAC 22.107.
4. IDNR has complied with the procedures set forth in 567 IAC 22.107, including those regarding public notice, opportunity for public hearing, and notification of EPA and surrounding state and local air pollution programs.

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IDNR procedures for reaching a final decision on the draft permit:

1. The public comment period for the draft permit will run from October 29, 2012 through November 27, 2012. The beginning date of this public comment period also serves as the beginning of the U.S. Environmental Protection Agency's (EPA) 45-day review period, provided the EPA does not seek a separate review period. During this time, anyone may submit written comments on the permit. Mail signed comments to Jeff Gabby at the Polk County address shown below.
2. Written requests for a public hearing concerning the permit may also be submitted during the comment period. Any hearing request must state the person's interest in the subject matter, and the nature of the issues proposed to be raised at the hearing. IDNR will hold a public hearing upon finding, on the basis of requests, a significant degree of relevant public interest in a draft permit. Mail hearing requests to Jeff Gabby at the Polk County address shown below.
3. IDNR will keep a record of the issues raised during the public participation process, and will prepare written responses to all comments received. The comments and responses will be compiled into a responsiveness summary document. After the close of the public comment period, IDNR will make a final decision on the renewal application. The responsiveness summary and the final permit will be available to the public upon request.

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IDNR concludes that:

1. IDNR has authority under 455B.133 Code of Iowa to promulgate rules contained in 567 IAC Chapters 20-31, including, but not limited to, rules containing emission limits, providing for compliance schedules, compliance determination methods and issuance of permits.
2. IDNR has the authority to issue operating permits for air contaminant sources and to include conditions in such permits under 455B.134 Code of Iowa.
3. The emission limits included in this permit are authorized by 455B.133 Code of Iowa and 567 IAC Chapters 20-31.
4. IDNR is required to comply with 567 IAC Chapter 22 in conjunction with issuing a Title V Operating Permit.
5. The issuance of this permit does not preclude the IDNR from pursuing enforcement action for any violation.

Applicant: MidAmerican Energy: Sycamore Combustion Turbines

Review Engineer:

EIQ Number: 92-5849

Jeff Gabby

Facility File Number: 77-09-002

Facility Description: SIC 4911: Generation of Electricity

NAICS Code 221112: Electric Utility

## Application Evaluation

### A. Project Briefing:

This project regards a Part 70 Title V permit renewal to operate application for two (2) 867,000,000 BTU/ Hr combustion turbines, one (1) fuel oil storage tank, one (1) parts washer, and two (2) 3,100 gallon turbine lubricating oil systems. The two combustion turbines are permitted under Polk County Construction Permit 0118, which doesn't have any operating conditions to transfer into the Title V permit. The fuel oil storage tank is pre-PSD adoption and therefore doesn't have a construction permit.

The parts washer, fuel oil storage tank, and two (2) 3,100 gallon turbine lubricating oil systems are insignificant, per 567 IAC 22.103. The 3,100 gallon turbine lubricating oil systems were previously included and permitted as inherent process equipment with the combustion turbines. They have insignificant emission VOC PTE, and have been separated out by the applicant in the renewal application, since they have separate emission points.

### B. Applicable rules and regulations:

#### 1. Emission limits and conditions:

Opacity: Polk County Board of Health Rules and Regulations: Chapter V, Article IV, Section 5-9 limits opacity to <20%.

PM: Polk County Board of Health Rules and Regulations: Chapter V, Article V, § 5-12 limits the PM using the log formula for the turbines. The equation calculates a limit of 0.21 lb/MM BTU for both turbines.

SO<sub>2</sub>: Polk County Board of Health Rules and Regulations: Chapter V, Article IX, § 5-27 limits the SO<sub>2</sub> to 0.5 lbs SO<sub>2</sub>/ MMBtu for the turbines when burning #2 fuel oil and 500 ppm for the turbines when burning natural gas.

The Polk County Chapter V limits are more restrictive than corresponding IDNR- AQB Rules and therefore the IDNR Rules are not referenced as the authority for requirements.

PTE and actual emission calculations: MidAmerican Energy Company based PTE and Actuals on emission factors from Polk County Chapter V Rules, AP-42, and Fire. PTE for each turbine is the worst case of natural gas or #2 fuel oil combustion.

2. Opacity for the facility: Less than 20% opacity. Polk County Board of Health Rules and Regulations: Chapter V, Article IV, Section 5-9, which is more restrictive than the corresponding IDNR-AQB Rule and hence the IDNR Rule is not referenced as the authority for requirement.

3. NSPS: Not Applicable until a new source is added.

4. NESHAP: Not applicable at this time. 40 CFR 63, Subpart YYYYY, MACT Standards for Stationary Combustion Turbines, Sec. 63.6090, states that the MACT standard applies to each affected source, which is any existing, new, or reconstructed stationary combustion turbine located at a major source of HAP emissions. The facility has HAP PTEs of less than 10 TPY individual HAP and 25 TPY combined HAP thresholds, (facility total is 10.22 TPY HAP, per FIRE).

Asbestos Demolition and Renovation NESHAP, 40 CFR 61.145, applies for any building demolition/ renovation, upon initiation of said activities.

40 CFR 63 Subpart T does not apply to the parts washer, since the worst case solvent used is Safety-Kleen 105 Solvent, which contains less than 1% by weight HAPs.

5. PSD: Source is major (PSD) for PM/ PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, and GHG. The facility is not subject to NSR until the company makes a qualifying change.

6. NAAQS: Facility is located in an attainment area. Air modeling is not required at this time.

7. Title IV: Not applicable since the turbines are older than 11/15/90.

8. CAIR: EU 001 and EU 002 are CAIR affected units. The facility submitted CAIR permit applications by the required deadlines. The issued CAIR permits are attached to the Title V permit in Appendix 1.

9. Stratospheric ozone: the only ozone depleting chemicals (regulated by 40 CFR 82) at Sycamore are those used for air conditioning. 40 CFR 82, Subpart F, applies to the disposal of appliances containing Class I or Class II substances (i.e. air conditioners).

10. Green House Gases: IDNR's GHG calculation spreadsheet was used in determining GHG PTE. Entries were made for both natural gas and #2 fuel oil. #2 fuel oil resulted in the worst case scenario, with 642,965.92 TPY CO<sub>2</sub> PTE, and 645,101.64 TPY CO<sub>2</sub>e PTE. This is for each of 2 identical turbines, resulting in an overall PTE of 1,285,931.84 TPY GHG mass basis, and 1,290,203.28 TPY CO<sub>2</sub>e basis.

C. Monitoring consideration:

The facility has submitted documentation showing the following hours of operation by year:

Year:	EU 001- hours of operation	EU 002- hours of operation
2007	126.1	105.1
2008	11.8	25.1
2009	152.1	144.5
2010	909.1	888.5
2011	619.0	529.0

Calculated actual emissions are being used in lieu of potential emissions, for monitoring purposes, due to the low actual operating hours per year. The IDNR Monitoring Policy indicates only a test for NOx using this criterion, based on this modified PTE methodology. EU 001 and EU 002 do not have applicable NOx limits, and therefore a NOx test will not be required.

Monitoring for Sulfur Oxides (SOx) and Particulate Matter (PM) when burning #2 Fuel Oil is additionally not warranted, as indicated by the MidAmerican submissions which show the following:

- a) Turbines 1 and 2 operated less than 876 hours per year in 2007 through 2011, with the exception of 2010, which was slightly higher than 876 hours, (see table above)..
- b) Previous #2 Fuel Oil testing performed by MidAmerican has, in all cases, met the emission limit for SOx of 0.5 lbs./ mm Btu.

Sulfur content in #2 Fuel Oil: The permittee will be required to monitor the percent of sulfur by weight in the fuel oil as delivered. The documentation may be vendor supplied or facility generated. This will ensure that the #2 Fuel oil as received meets the assumed sulfur content, which is used for actual emissions calculations.

Monitoring for SOx and PM when burning Natural Gas is not warranted since the Turbines use only pipe line quality Natural Gas which has a SO<sub>2</sub> default emission rate of 0.0006 lb./ MMBtu, per 40 CFR 75, App. D § 2.3.2. AP-42 § 3.1 states that “Particulate emissions are typically non-detectable with natural gas firing because of low ash content”.

Opacity monitoring will be required to be observed once per week when #2 Fuel Oil is combusted, in order to validate that the <20% opacity requirement is being met. If no VEs are observed, the staff person will be required to note it in a log book and the test will be complete. If VEs are observed, immediate corrective action will be required. If corrective action does not return the opacity to no VEs, a Method 9 reading will be required. Opacity equal to or greater than 20% is a violation of Polk County Board of Health Rules and Regulations: Chapter V, Article IV, Section 5-9. Combustion of #2

Fuel Oil typically has no VEs associated, other than SSM. Opacity monitoring of natural gas combustion is not warranted, since particulate in pipeline quality natural gas is normally non-detect levels.

D. CAM:

The two significant combustion turbines, (EU 001 and EU 002), do not have control devices and are therefore not subject to CAM.

E. CAIR:

The Clean Air Interstate Rule (CAIR) Permit issued by IDNR-AQB is attached to the Title V Permit as Appendix 1.

F. Responsible Official: Mr. Stacy L. Earll, General Manager- Fluid Generation, is in charge of a principle business function, that of producing and selling electricity, as well as making a profit for MidAmerican Energy Company. He meets the definition of a Responsible Official found in 567 IAC 22.100.