

Michigan Department of Environmental Quality  
Air Quality Division

State Registration Number  
B6145

**RENEWABLE OPERATING PERMIT  
STAFF REPORT**

ROP Number  
MI-ROP-B6145-2011

Detroit Edison  
Greenwood Energy Center

SRN: B6145

Located at

7000 Kilgore Road, Avoca, St. Clair County, Michigan 48006

Permit Number: MI-ROP-B6145-2011

Staff Report Date: May 23, 2011

This Staff Report is published in accordance with Sections 5506 and 5511 of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Specifically, Rule 214(1) requires that the Michigan Department of Environmental Quality (MDEQ), Air Quality Division (AQD), prepare a report that sets forth the factual basis for the terms and conditions of the Renewable Operating Permit (ROP).

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**RENEWABLE OPERATING PERMIT**

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**May 23, 2011, STAFF REPORT**

**Purpose**

Major stationary sources of air pollutants, and some non-major sources, are required to obtain and operate in compliance with a ROP pursuant to Title V of the federal Clean Air Act of 1990 and Michigan's Administrative Rules for air pollution control pursuant to Section 5506(1) of Act 451. Sources subject to the ROP program are defined by criteria in Rule 211(1). The ROP is intended to simplify and clarify a stationary source's applicable requirements and compliance with them by consolidating all state and federal air quality requirements into one document.

This report, as required by Rule 214(1), sets forth the applicable requirements and factual basis for the draft permit terms and conditions including citations of the underlying applicable requirements, an explanation of any equivalent requirements included in the draft permit pursuant to Rule 212(5), and any determination made pursuant to Rule 213(6)(a)(ii) regarding requirements that are not applicable to the stationary source.

**General Information**

Stationary Source Mailing Address:	Detroit Edison Greenwood Energy Center 7000 Kilgore Road Avoca, Michigan 48006
Source Registration Number (SRN):	B6145
North American Industry Classification System (NAICS) Code:	221112
Number of Stationary Source Sections:	2
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	2010000060
Responsible Officials:	1. Mark VanderHeuvel, Plant Manager Section 1, Main Boiler (810) 324-3218 2. Thomas J. Tanciar, Plant Manager – Peakers Section 2, Combustion Turbine Generators (313) 897-1065
AQD Contact:	Francisco Lim, Sr. Environmental Engineer (586) 753-3742
Date Permit Application Received:	June 28, 2010
Date Application Was Administratively Complete:	July 14, 2010
Is Application Shield In Effect?	Yes
Date Public Comment Begins:	May 23, 2011
Deadline for Public Comment:	June 22, 2011

## **Source Description**

Detroit Edison Company is engaged in the generation of electricity for sale. Greenwood Energy Center, located at 7000 Kilgore Road is an electric generating facility which operates a 785-Megawatt gross output boiler-electric generator, with two auxiliary boilers, and three natural gas-fired combustion turbine electric generators each rated at 82.4 Megawatts. The main boiler can be fired on any combination of natural gas, residual oil, distillate oil, and recycled used oil, while the auxiliary boilers burn fuel oil exclusively. This facility operates in a cyclic mode to meet peak system load demands.

Section 1 of the ROP contains permit conditions regarding the operations and equipment associated with the electrical generation of the 785-MW main unit. This includes the main boiler, auxiliary boilers, cold cleaners, and gasoline dispensing tanks. Section 2 deals with the operation of the three (3) natural gas-fired combustion turbine generators. Continuous emissions monitors (CEMS) are installed to measure emissions of NO<sub>x</sub>, SO<sub>2</sub> and opacity for the main boiler. Predictive emissions monitoring system (PEMS) are installed to measure NO<sub>x</sub> emissions for the combustion turbine generators.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System in the **2009** submittal.

### **TOTAL STATIONARY SOURCE EMISSIONS**

<b>Pollutant</b>	<b>Tons per Year</b>
Carbon Monoxide (CO)	88
Nitrogen Oxides (NO <sub>x</sub> )	115
Particulate Matter (PM/PM <sub>10</sub> )	9
Sulfur Dioxide (SO <sub>2</sub> )	50
Volatile Organic Compounds (VOCs)	5

\*\*As listed pursuant to Section 112(b) of the federal Clean Air Act.

See Parts C and D in the draft ROP for summary tables of all processes at the stationary source that are subject to process-specific emission limits or standards.

## **Regulatory Analysis**

The following is a general description and history of the source. Any determinations of regulatory non-applicability for this source are explained below in the Non-Applicable Requirement part of the Staff Report and identified in Part E of the ROP.

The Detroit Edison Greenwood Energy Center's initial renewable operating permit was issued on May 30, 2002. The initial ROP's expiration date was January 1, 2005 to coincide with the expiration date of the Acid Rain Permits for this source. The initial renewal of this ROP was issued in January 1, 2006. This is the second renewal for this ROP.

The facility is located in St. Clair County, which is currently designated as attainment with the National Ambient Air Quality Standards for Carbon Monoxide, Nitrogen Dioxide, Ozone, Sulfur Dioxide, Particulate Matter less than 10 microns (PM<sub>10</sub>), and lead. St. Clair County is currently designated as nonattainment for annual and 24-hour PM<sub>2.5</sub> (Particulate Matter less than 2.5 microns).

The stationary source is subject to 40 CFR Part 70 because the potential to emit nitrogen oxides, carbon monoxide, sulfur dioxide, and PM<sub>10</sub> exceeds 100 tons.

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 nitrogen oxides, carbon monoxide, sulfur dioxide, and particulate matter greater than 250 tons per year.

The main boiler, also identified as Boiler No. 1 (EUBOILER1) is subject to the New Source Performance Standards (NSPS) for Fossil-Fuel-Fired Steam Generators promulgated in 40 CFR Part 60 Subparts A and D. The three (3) natural gas-fired combustion turbine generators (FGCTGS) are subject to the New Source Performance Standards for Stationary Gas Turbines specified in 40 CFR 60 Subparts A and GG.

The Boiler MACT Standard (Maximum Achievable Control Technology Standards for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63 Subpart DDDDD) has been vacated. However, the auxiliary boilers (FGAUXBOILERS) are potentially subject to the Boiler MACT if the MACT will be reinstated. Since the auxiliary boilers are considered large existing units using liquid fuel only, the boilers are potentially subject only to the initial notification requirement.

The stationary source has emission units (EUBOILER1 and FGCTGS) subject to the federal Acid Rain program promulgated in 40 CFR Part 72. EUBOILER1 and FGCTGS are also subject to the Clean Air Interstate Rule NO<sub>x</sub> annual trading program pursuant to Rules 802a, 803, 821, and 830 through 834; Clean Air Interstate Rule NO<sub>x</sub> ozone season trading program pursuant to Rules 802a, 803 and 821 through 826; and the Clean Air Interstate Rule SO<sub>2</sub> annual trading program pursuant to Rule 420).

The stationary source has no emission units that were subject to R 336.1220 for Major Offset Sources at the time of permitting.

The stationary source is not subject to the federal Compliance Assurance Monitoring (CAM) rule (40 CFR 64) because EUBOILER1 and FGCTGS do not have a control device to control particulate matter (PM) emissions. The emission limitations for NO<sub>x</sub> and SO<sub>2</sub> from EUBOILER1 and NO<sub>x</sub> from FGCTGS are exempt from the federal CAM rule because the emission limitations meet the CAM exemption for Acid Rain monitoring requirements.

Gasoline dispensing facilities included in Section 1 are subject to the Area Source Maximum Achievable Control Technology Standards for Gasoline Distribution promulgated in 40 CFR, Part 63, Subparts A and CCCCC. For gasoline dispensing facilities with monthly throughput less than 10,000 gallons, there are no emission and material limits; no testing, notification submission, and report submission requirements (but must have records available within 24 hours, as requested, to document gasoline throughput).

The gasoline storage tanks are not subject to R336.1703 for dispensing facilities since the gasoline storage tanks are located in St. Clair County, which is not included in Table 61 of Part 6 of the Michigan Administrative Rules.

The monitoring conditions contained in the ROP are necessary to demonstrate compliance with all applicable requirements and are consistent with the "Procedure for Evaluating Periodic Monitoring Submittals."

Please refer to Parts B, C and D in the draft ROP for detailed regulatory citations for the stationary source. Part A contains regulatory citations for general conditions.

### **Source-wide Permit to Install (PTI)**

Rule 214a requires the issuance of a Source-wide PTI within the ROP for conditions established pursuant to Rule 201. All terms and conditions that were initially established in a PTI are identified with a footnote designation in the integrated ROP/PTI document.

The following table lists all individual PTIs that were incorporated into previous ROPs. PTIs issued after the effective date of ROP No. MI-ROP-2006a are identified in Appendix 6 of the ROP.

PTI Number	
180-72C	
320-98A	

**Equivalent Requirements**

This permit does not include any equivalent requirements pursuant to Rule 212(5). Equivalent requirements are enforceable applicable requirements that are equivalent to the applicable requirements contained in the original PTI, a Consent Order/Judgment, and/or the State Implementation Plan.

**Non-applicable Requirements**

Part E of the draft ROP lists requirements that are not applicable to this source as determined by the AQD, if any were proposed in the application. These determinations are incorporated into the permit shield provision set forth in Part A (General Conditions 26 through 29) of the draft ROP pursuant to Rule 213(6)(a)(ii).

**Processes in Application Not Identified in Draft ROP**

The following table lists processes that were included in the ROP application as exempt devices under Rule 212(4). These processes are not subject to any process-specific emission limits or standards in any applicable requirement.

Exempt Emission Unit ID	Description of Exempt Emission Unit	ROP Exemption	PTI Permit Exemption
EUGASUST	Underground Storage Tank for Unleaded Gasoline, 2,500 gallons	R336.1212(3)(c)	R336.1284(g)(i)
EU3HASTINGS	Three (3) natural gas-fired area heaters, (2) on first floor and (1) on third floor of power house.	R336.1212(4)(b)	R336.1282(b)(i)

**Draft ROP Terms/Conditions Not Agreed to by Applicant**

This permit does not contain any terms and/or conditions that the AQD and the applicant did not agree upon pursuant to Rule 214(2).

**Compliance Status**

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements as of the effective date of this ROP.

### **Action taken by the DEQ**

The AQD proposes to approve this permit. A final decision on the ROP will not be made until the public and affected states have had an opportunity to comment on the AQD's proposed action and draft permit. In addition, the U.S. Environmental Protection Agency (USEPA) is allowed up to 45 days to review the draft permit and related material. The AQD is not required to accept recommendations that are not based on applicable requirements. The delegated decision maker for the AQD is Christopher Ethridge, Acting Southeast Michigan District Supervisor. The final determination for ROP approval/disapproval will be based on the contents of the permit application, a judgment that the stationary source will be able to comply with applicable emission limits and other terms and conditions, and resolution of any objections by the USEPA.

**August 1, 2011 STAFF REPORT ADDENDUM**

**Purpose**

A Staff Report dated May 23, 2011, 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 Officials:	1. Mark VanderHeuvel, Plant Manager Section 1, Main Boiler (810) 324-3218 2. Nader Rajabain, Plant Manager - Peakers Section 2, Combustion Turbine Generators (313) 897-1492
AQD Contact:	Francisco Lim, Sr. Environmental Engineer (586) 753-3742

**Summary of Pertinent Comments**

A. During the 30-day public comment period, AQD received the following comments from Detroit Edison regarding the draft ROP. AQD's response follows each comment.

1. Section 1, EUBOILER1, I.

In the current ROP, the second sentence from footnote #2 has been deleted from this working draft of the ROP. Detroit Edison sees no reason to delete the sentence "Michigan Rule 912 reporting requirements do not apply during periods of startup, shutdown or malfunction." Both Detroit Edison and MDEQ agree that the statement clarifies what exists in Rule 912. Since in the case of this unit, false indicators of high NOx emissions occurs frequently due to the mathematical "blow up" of the NOx emission calculation that has a very small CO<sub>2</sub> percentage value (under 5%) in the denominator, the sentence reinforces that no additional Rule 912 reports are needed.

**AQD Response:** The ROP is not the place to clarify whether the occurrence described above merits exemption from Rule 912 reporting requirements. AQD cannot reinsert the requested sentence.

2. Section 1, FGBOILERS, VI.1.

A superscript number "1" was deleted after the term "Specification Used Oil" from the previous version of the ROP. We would like to have that superscript reinserted. However, we believe that it should be footnote 2.

**AQD Response:** Footnote 2 was inserted in the applicable requirement.

3. Section 1, FGAUXBOILERS, I.2.

There is a typo under the "Equipment" column. The "S" is not needed in the term "Each auxiliary boiler S".

**AQD Response:** The typo error was corrected.

B. During the 30-day public comment period, AQD received the following comments and request for additional language from Detroit Edison regarding the draft Staff Report. AQD's response follows each comment/request for additional language.

1. The Responsible Official for Section 2 has changed. Please change the following under "General Information":

Mr. Nader Rajabain, Plant Manager – Peakers  
Section 2, Combustion Turbine Generators  
(313) 897-1492

**AQD Response:** In the Staff Report, AQD changed the Responsible Official for Section 2 .

2. The company believes additional language needs to be added to MDEQ's Staff Report to assure the exemptions allowed in the Michigan rules are applied to the facility (for example, under "Regulatory Analysis"):

Detroit Edison's Power Plants operates devices and conducts activities related to those devices which are exempt from the requirements to obtain a Permit to Install or to be included in the ROP under Part 2 of the Michigan Air Rules as amended 07/01/2003. These devices and activities include:

- 1) Rule 282(b) for fuel burning space heaters, including Number 1, or 2 fuel oil, distillate oil, gaseous fuels in paragraph (i), or combinations which contains not more than 0.40% sulfur by weight and equipment rated not more than 20 MM Btu/hr;
- 2) Rule 280, including comfort air conditioning and ventilation systems;
- 3) Rule 281, including vacuum cleaning systems, portable steam cleaning equipment, blast cleaning/portable blast cleaning equipment, and washing/drying equipment (not using VOCs and no fuel burned);
- 4) Rule 283, including laboratory, hydraulic/hydrostatic testing equipment and process sample valves;
- 5) Rule 284, including containers for storage and surge capacity of lubricating, hydraulic, and thermal oils and indirect fluids; storage of ASTM-D-96 specified No. 1 to No. 6 fuel oils; storage of inorganic salt water solutions, bases and certain acids;
- 6) Rule 285, including routine maintenance as specified under paragraph (a) – such as replacing baghouse bags; ESP wires, plates, rappers, controls, circuitry (doesn't decrease design efficiency); boiler tubes; or maintenance to clean boiler tubes; process or process equipment changes as specified under paragraph (b) – such as raw material formulation, method of raw material addition, equal or more thermally efficient fuel burner replacement; process or process equipment changes as specified under paragraph (c) – such as fuel suppliers, storage location, equal or more efficient like-kind replacement / reconstruction of air pollution control devices, air pollution control for NESHAP compliance, air pollution control to existing process; lagoons and certain wastewater treatment processes; appropriate soil and fuel spill remediation processes; asbestos removal / stripping; boiler tube & related steam components cleaning and combustion of non-RCRA hazardous boiler

cleaning solution; landfill equipment; open burning; fire extinguisher filling, testing, spraying, and repairing; hand-held aerosol spray can use;

- 7) Rule 288, for oil and gas processing equipment, including gas odorizing, glycol dehydrator, and sweet gas flare.

Furthermore, Rule 212(2) lists the following activities as insignificant activities at a stationary source under Part 2 of the Michigan Air Rules as amended 7/1/2003. These devices and activities at the power plants include:

- 1) Rule 212 (2)(i) - fire protection equipment, fire fighting and training in preparation for fires;
- 2) Rule 212 (2)(j) – use, servicing, and maintenance of motor vehicles;
- 3) Rule 212 (2)(k) – construction, repair, and maintenance of roads;
- 4) Rule 212 (2)(l) - venting from pressure relief valves and purging of natural gas lines.

**AQD Response:** Only exempt devices that are listed in Rule 212(4) and not subject to any process-specific emission limits or standards need to be included in the ROP staff report. The devices and activities listed in 2.2 to 2.7 are not specifically identified in Rule 212(4). Therefore, these do not need to be included in the ROP staff report.

### **Changes to the May 23, 2011 Draft ROP**

The following changes were made to the May 23, 2011 draft ROP:

1. For Section 1, FGBOILERS, VI.1, footnote 2 was inserted.
2. For Section 1, FGAUXBOILERS, I.2, the typo error was corrected in “Each auxiliary boiler”.

Prepared by Francisco S. Lim, Sr. Environmental Engineer