

Michigan Department of Environmental Quality  
Air Quality Division

State Registration Number  
B2815

**RENEWABLE OPERATING PERMIT  
STAFF REPORT**

ROP Number  
MI-ROP-B2815-2012

**DTE Energy – Harbor Beach Power Plant**

SRN: B2815

Located at

755 North Huron Road, Harbor Beach, Michigan 48441

Permit Number: MI-ROP-B2815-2012

Staff Report Date: October 10, 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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**OCTOBER 10, 2011**

**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:	DTE Energy - Harbor Beach Power Plant 755 North Huron Road Harbor Beach, Michigan 48441
Source Registration Number (SRN):	B2815
North American Industry Classification System (NAICS) Code:	4911
Number of Stationary Source Sections:	2
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	MI-ROP-B2815-2011
Responsible Official: Section 1	Mr. Mark VandenHeuvel Plant Manager - North Area
Responsible Official: Section 2	Mr. Nader Rajabian 313-897-1492
AQD Contact:	George Eurich, Environmental Quality Analyst 989-894-6218
Date Permit Application Received:	August 2, 2010
Date Application Was Administratively Complete:	August 3, 2010
Is Application Shield In Effect?	Yes
Date Public Comment Begins:	October 10, 2011
Deadline for Public Comment:	November 9, 2011

## Source Description

The Detroit Edison Company, Harbor Beach Power Plant, located at 755 North Huron, Harbor Beach, Michigan, is engaged in the generation and transmission of electricity for sale. Currently, the Harbor Beach Power Plant operates one 1034 million BTU per hour heat input, pulverized coal-fired boiler with fuel oil startup capabilities, referred to as No. 1 Boiler. Particulate emissions from No. 1 Boiler are controlled via a sulfur trioxide flue gas conditioning system and an electrostatic precipitator (ESP). NOx emissions are reduced through the utilization of low NOx burner technology. The No. 1 Boiler is equipped with continuous monitoring systems for the measurement of sulfur dioxide (SO<sub>2</sub>), nitrogen oxide (NO<sub>x</sub>), and carbon dioxide (CO<sub>2</sub>) emissions, stack gas flow, as well as opacity. In addition to boiler operation, the Harbor Beach Power Plant maintains a coal handling facility. Elements of the coal handling facility include a storage area, a crusher, feeders, conveyor belts, and coal bunkers. Finally, the Harbor Beach Power Plant maintains two fuel oil fired peaking units, referred to as DG 11-1 and DG 11-2. These units were installed in 1967, are currently considered grandfathered from Permit to Install requirements (R 336.1201) and are not used routinely. Other emission sources at the facility include a flyash handling system for the No. 1 Boiler, cold parts cleaners, and a diesel fired auxiliary boiler that has a maximum rated capacity of 16,681,606 mmBtu.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System in the **2010** submittal.

### **TOTAL STATIONARY SOURCE EMISSIONS**

<b>Pollutant</b>	<b>Tons per Year</b>
Carbon Monoxide (CO)	24
Lead (Pb)	<1
Nitrogen Oxides (NO <sub>x</sub> )	586
Particulate Matter (PM)	9.5
Sulfur Dioxide (SO <sub>2</sub> )	1391
Volatile Organic Compounds (VOCs)	<1
<b>Total Hazardous Air Pollutants (HAPs)</b>	<b>&lt;1</b>

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

In addition to the pollutants listed above that have been reported in MAERS, the potential to emit of Greenhouse Gases in tons per year of CO<sub>2</sub>e is 187,273, as calculated by DTE based on 2010 data. CO<sub>2</sub>e is a calculation of the combined global warming potentials of six Greenhouse Gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride).

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 stationary source is located in Huron 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 (CFR), Part 70, because the potential to emit sulfur dioxide, nitrogen dioxide, and particulate matter exceeds 100 tons per year.

The potential to emit of Greenhouse Gases is 100,000 tons per year or more calculated as carbon dioxide equivalents (CO<sub>2</sub>e) and 100 tons per year or more on a mass basis.

The Harbor Beach Power Plant installed No. 1 Boiler (including the electrostatic precipitator) in 1966. The No. 1 Boiler is a 1034 million BTU per hour pulverized coal fired boiler with fuel oil startup capabilities. The Harbor Beach Power Plant obtained additional particulate control via the installation of a sulfur trioxide flue gas conditioning system in 1979. The addition of the sulfur trioxide flue gas conditioning system is not considered a "modification" pursuant to New Source Performance Standards (NSPS), 40 CFR 60, Subpart A (General Provisions). The facility installed low NO<sub>x</sub> burners in Boiler No. 1 in 2004. Thus, based upon the construction commencement date and the maximum design heat input capacity of No. 1 Boiler, the Harbor Beach Power Plant is not subject to the provisions of 40 CFR 60, Subpart D (Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction Is Commenced After August 17, 1971), Da (Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978), Db (Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units), or Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units). Similarly, the coal handling operation is not subject to the provisions of 40 CFR, Subpart Y (Standards of Performance for Coal Preparation Plants).

No emissions 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.

At this time, there are no GHG applicable requirements to include in the ROP. The mandatory Greenhouse Gas Reporting Rule under 40 CFR 98 is not an ROP applicable requirement and is not included in the ROP.

EU-00 was 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.

EU-00 at the stationary source is subject to the federal Acid Rain program promulgated in 40 CFR of Part 72.

EU-00 at the stationary source is subject to the Clean Air Interstate Rule NO<sub>x</sub> annual trading program pursuant to Rules 802a, 803, 821, and 830 through 834.

EU-00 at the stationary source is subject to the Clean Air Interstate Rule NO<sub>x</sub> ozone season trading program pursuant to Rules 802a, 803 and 821 through 826.

EU-00 at the stationary source is subject to the Clean Air Interstate Rule SO<sub>2</sub> annual trading program pursuant to Rule 420.

EU-03 and EU-04 at the stationary source are subject to the Maximum Achievable Control Technology Standards for Stationary Reciprocating Internal Combustion Engines (RICE) promulgated in 40 CFR, Part 63, Subparts A and ZZZZ. The applicable limits in this regulation do not take effect until May 3, 2013.

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."

EU-00 at the stationary source is subject to the federal Compliance Assurance Monitoring (CAM) rule under 40 CFR, Part 64. This emission unit has a control device and potential pre-control emissions of particulate matter greater than the major source threshold level.

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.

PTI Numbers			
89-68	89-68A	320-74	840-88
109-04			

**Streamlined/Subsumed Requirements**

This permit does not include any streamlined/subsumed requirements pursuant to Rules 213(2) and 213(6).

**Equivalent Requirements**

The following table lists explanations of any equivalent requirements or other significant changes requested by the applicant pursuant to Rule 212(5) and included in the draft permit pursuant to Rule 213(2)(c). Equivalent requirements are enforceable applicable requirements which are equivalent to the applicable requirements contained in the original New Source Review (NSR) permit, a Consent Order/ Judgment, and/or the State Implementation Plan (SIP).

Emission Unit/Flexible Group ID	Equivalent Requirement and Significant Changes Discussion
EG-00	In a letter dated October 23, 1990, the U.S. EPA Region V required, pursuant to Section 114(a) of the Act, that the Harbor Beach Power Plant sample, analyze, calculate, and report, for each day of operation, the sulfur content of fuel combusted (or the fuel's equivalent sulfur dioxide emission rate) for the purpose of determining whether the plant is in continuous compliance with Michigan Rule 401. In lieu of conducting daily as-fired fuel sampling and analysis and reporting maximum sulfur content of the fuel, the plant shall report the monthly average sulfur dioxide emission rate as determined by the sulfur dioxide continuous emission monitoring system on a quarterly basis. The Harbor Beach Power Plant is required to install, calibrate, maintain and operate a continuous monitoring system for the measurement of sulfur dioxide pursuant to 40 CFR, Part 75 (Continuous Emission Monitoring).

**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.

<b>Exempt Emission Unit ID</b>	<b>Description of Exempt Emission Unit</b>	<b>Rule 212(4) Exemption</b>	<b>Rule 201 Exemption</b>
DV01-029	Auxiliary Boiler	R335.1212(3)(b)	R336.1282(b)(ii)

**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 Chris Hare, Saginaw Bay 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.

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**STAFF REPORT ADDENDUM**

**Purpose**

A Staff Report dated October 10, 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 Official Section 1:	Mr. Mark VandenHeuvel Plant Manager - North Area
Responsible Official Section 2:	Mr. Nader Rajabian 313-897-1492
AQD Contact:	George Eurich, Environmental Quality Analyst 989-894-6218

**Summary of Pertinent Comments**

During the 30-day public comment period, the following comments were submitted:

Comment 1: EU-00 Condition V.1., company requested replacing test “Method 5” with “Method 17 or other AQD approved test method”.

AQD Response 1: AQD agreed to the change.

Comment 2: Company noted typographical errors/omissions.

AQD Response 2: Typographical errors/omissions resolved.

Comment 3: Detroit Edison attended a MMA meeting during the summer of 2006, in which Lynn Fiedler presented discussion held between MDEQ and EPA regarding exemptions that are approved (and not approved) in the State Implementation Plan. 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 operate devices and conduct 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 7/1/2003. 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 20,000,000 Btu/hr;
2. Rule 280, including comfort air conditions 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; and
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 specifies 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 and related steam components cleaning and combustion of non-RCRA hazardous boiler cleaning solutions' landfill equipment, open burning; fire extinguisher filling, testing, spraying, and repairing; hand-help aerosol spray can use.

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; and
3. Rule 212 (2)(k) – construction, repair, and maintenance of roads.

It should be noted that these devices and activities are not new to the site and have been present to some degree since the inception of the facility.

AQD Response 3:

The MDEQ feels the all exempt equipment has been adequately described in the Staff Report. Therefore no changes to the ROP have been made.

Comment 4: Comments regarding Coal Handling System (EU-01) and Flyash Handling System (EU-02)

Comment 4(a) Commenter questions specific frequency between non-certified visible emissions observations required under the monitoring schedule detailed in Appendix 1.3, Section 1.3.2.

AQD Response 4(a): There is no prescribed frequency between observations. The key to these readings is that they are performed and recorded during routine operating conditions. These observations are recorded and available for review during on-site inspections. The AQD is satisfied

that the monitoring requirement, as cited in Appendix 1.3, Section 1.3.2 is sufficient to provide a reasonable assurance of compliance with the opacity limitations that EU-01 and EU-02 are subject to.

Comment 4(b) Commenter questions the use of “non-certified visible emissions observation” as opposed to Method 22 observations

AQD Response 4(b): Both EU-01 and EU-02 utilize baghouses that are limited to 20% opacity as noted in the General Conditions of the ROP. On an annual basis, the source is required to determine and record the opacity from the coal handling transfer point baghouse stack (EU-01) and flyash silo bag filter collector stack (EU-02) using Method 9 during routine maximum operating conditions. Method 9 provides the quantitative method by which visible emissions are measured.

Unlike Method 9, Method 22 only determines the amount of time a visible emission occurs. Method 22 is not quantitative. It indicates only the presence or absence of visible emissions, not the value of those visible emissions.

The source is required to show compliance with the noted opacity limit rather than the presence or absence of opacity. The degree of opacity is the appropriate measure. The AQD is satisfied that use of non-certified Method 9 as a ‘qualitative’ measure, along with the required recordkeeping, is an appropriate periodic monitoring surveillance tool such that the source can certify to continuous compliance with the opacity limit.

Comment 5: Noted various minor typographical errors.

AQD Response 5: Typographical errors have been corrected.