

Michigan Department of Environmental Quality  
Air Quality Division

State Registration Number  
B4292

**RENEWABLE OPERATING PERMIT  
STAFF REPORT**

ROP Number  
MI-ROP-B4292-2014a

**LAMBDA ENERGY RESOURCES, LLC - KALKASKA GAS PLANT**

SRN: B4292

Located at

1080 Prough Road Southwest, Kalkaska, Kalkaska County, Michigan 49646

Permit Number: MI-ROP-B4292-2014a

Staff Report Date: August 25, 2014

Amended Date: September 4, 2018

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).

## TABLE OF CONTENTS

<b>AUGUST 25, 2014 - STAFF REPORT</b>	<b>3</b>
<b>SEPTEMBER 25, 2014 - STAFF REPORT ADDENDUM</b>	<b>9</b>
<b>SEPTEMBER 4, 2018 - STAFF REPORT FOR RULE 216(1)(a)(i)-(iv) ADMINISTRATIVE AMENDMENT</b>	<b>10</b>

Michigan Department of Environmental Quality  
Air Quality Division

State Registration Number  
B4292

**RENEWABLE OPERATING PERMIT**

ROP Number

MI-ROP-B4292-2014

**AUGUST 25, 2014 - 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 ROP terms and conditions including citations of the underlying applicable requirements, an explanation of any equivalent requirements included in the draft ROP 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:	Merit Energy Company - Kalkaska Gas Plant P.O. Box 910 Kalkaska, Michigan 49646
Source Registration Number (SRN):	B4292
North American Industry Classification System (NAICS) Code:	211111
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	201200160
Responsible Official:	Kurt Jagoda, Operations Manager 231-258-6309
AQD Contact:	Shane Nixon, Senior Environmental Engineer 231-876-4413
Date ROP Application Received:	October 16, 2012
Date Application Was Administratively Complete:	October 16, 2012
Is Application Shield In Effect?	Yes
Date Public Comment Begins:	August 25, 2014
Deadline for Public Comment:	September 24, 2014

## Source Description

The Kalkaska Gas Plant, comprised of the North Plant and the South Plant, is an existing natural gas processing and fractionation plant located near the intersection of US-131 and Thomas Road, about four miles southwest of the Village of Kalkaska. The facility extracts propane and heavier hydrocarbons from natural gas using a cryogenic process located at the North Plant. The South Plant, which is currently idle, implements a lean oil absorption process to remove natural gas liquids from the natural gas. The facility is also comprised of several storage tanks, natural gas process heaters, emergency engines, and three natural gas fired turbines with supplemental waste heat recovery units with duct burners. Flares are used at each plant for emissions control and as safety relief devices.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) in the **2013** submittal.

### TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	23.8
Lead (Pb)	0
Nitrogen Oxides (NO <sub>x</sub> )	21.7
Particulate Matter (PM)	1.9
Sulfur Dioxide (SO <sub>2</sub> )	2.5
Volatile Organic Compounds (VOCs)	43.9
<b>Total Hazardous Air Pollutants (HAP)**</b>	<b>0</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 447,170. 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 draft ROP.

The stationary source is located in Kalkaska 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 nitrogen oxides and carbon monoxide exceeds 100 tons per year and 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 stationary source is considered a minor source of HAPs since the potential to emit of any single HAP regulated by the federal Clean Air Act, Section 112, is less than 10 tons per year and the potential to emit of all HAPs combined is less than 25 tons per year.

EU-KGPS-TURB-A, EU-KGPS-TURB-B, EU-KGPS-WHRUA, EU-KGPS-WHRUB, EU-KGPS-MED, EU-KGPS-FRAC, and EU-KGPS-STAB at the stationary source were subject to review under the Prevention of Significant Deterioration regulations of Part 18, Prevention of Significant Deterioration of Air Quality, of Act 451 because at the time of New Source Review permitting the potential to emit of carbon monoxide and nitrogen oxides was greater than 250 tons per year.

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

EU-KGPN at the stationary source is subject to the Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants promulgated in 40 CFR Part 60, Subparts A and KKK.

EU-KGPN and EU-KGPS at the stationary source are subject to the Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution promulgated in 40 CFR Part 60, Subparts A and OOOO.

EU-KGPS-TURB-A and EU-KGPS-TURB-B at the stationary source are subject to the Standards of Performance for Stationary Gas Turbines promulgated in 40 CFR Part 60, Subparts A and GG.

EU-KGPN-TURB-C at the stationary source is subject to the Standards of Performance for Stationary Combustion Turbines promulgated in 40 CFR Part 60, Subparts A and KKKK.

EU-KGPN-GENERATOR, EU-KGPS-GENERATOR, EU-KGPN-FIREWATER, EU-KGPS-FIREWATER at the stationary source are subject to the National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines Area Sources promulgated in 40 CFR Part 63, Subparts A and ZZZZ (RICE Area Source MACT). The ROP contains special conditions provided by Merit Energy Company for applicable requirements from 40 CFR Part 63, Subparts A and ZZZZ. The AQD is not delegated the regulatory authority for this area source MACT; therefore, the special conditions for the RICE Area Source MACT contained in FG-EMERGENS were not reviewed by the AQD.

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."

No emission units are subject to the federal Compliance Assurance Monitoring rule under 40 CFR Part 64, because all emission units at the stationary source either do not have a control device or those with a control device do not have potential pre-control emissions over the major source thresholds.

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-B4292-2008 are identified in Appendix 6 of the ROP.

PTI Number			
196-05B	121-82	525-78	72-76
14-75	311-72	311-72A	311-72B

### **Streamlined/Subsumed Requirements**

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

### **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 draft 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	Rule 212(4) Exemption	Rule 201 Exemption
EU-KGPS-PH1	0.1 MMBtu/hr natural gas space heater	Rule 212(4)(b)	Rule 282(b)(i)
EU-KGPS-PH2	0.1 MMBtu/hr natural gas space heater	Rule 212(4)(b)	Rule 282(b)(i)
EU-KGPS-PH3	0.1 MMBtu/hr natural gas space heater	Rule 212(4)(b)	Rule 282(b)(i)
EU-KGPS-PH4	0.1 MMBtu/hr natural gas space heater	Rule 212(4)(b)	Rule 282(b)(i)
EU-KGPS-PH5	0.1 MMBtu/hr natural gas space heater	Rule 212(4)(b)	Rule 282(b)(i)
EU-KGPS-PH6	0.08 MMBtu/hr natural gas space heater	Rule 212(4)(b)	Rule 282(b)(i)
EU-KGPS-PH7	0.1 MMBtu/hr natural gas space heater	Rule 212(4)(b)	Rule 282(b)(i)
EU-KGPS-PH8	0.1 MMBtu/hr natural gas space heater	Rule 212(4)(b)	Rule 282(b)(i)
EU-KGPS-KNOCKOUT	10,569 gallon flare knock-out tank	Rule 212(4)(c)	Rule 284(e)
EU-KGPS-LEANOIL1	16,800 gallon lean oil storage tank	Rule 212(4)(c)	Rule 284(i)
EU-KGPS-LEANOIL2	16,800 gallon lean oil storage tank	Rule 212(4)(c)	Rule 284(i)
EU-KGPS-LEANOIL3	8,820 gallon lean oil storage tank	Rule 212(4)(c)	Rule 284(i)

<b>Exempt Emission Unit ID</b>	<b>Description of Exempt Emission Unit</b>	<b>Rule 212(4) Exemption</b>	<b>Rule 201 Exemption</b>
EU-KGPS-LEANOIL4	6,300 gallon lean oil storage tank	Rule 212(4)(c)	Rule 284(i)
EU-KGPS-SLOP	16,800 gallon slop oil tank	Rule 212(4)(c)	Rule 284(i)
EU-KGPS-EG1	6,300 gallon ethylene glycol storage tank	Rule 212(4)(c)	Rule 284(i)
EU-KGPS-EG2	4,200 gallon ethylene glycol storage tank	Rule 212(4)(c)	Rule 284(i)
EU-KGPS-REFRIG	12,343 gallon refrigerant (propane) storage tank	Rule 212(4)(c)	Rule 284(b)
EU-KGPS-WATER	16,800 gallon waste water storage tank	Rule 212(4)(c)	Rule 284(i)
EU-KGPS-MED	20 MMBtu/hr natural gas fired heat medium heater	Rule (212(4)(b)	Rule 282(b)(i)
EU-KGPS-FRAC	18.5 MMBtu/hr natural gas fired fractionization heater	Rule (212(4)(b)	Rule 282(b)(i)
EU-KGPS-STAB	14 MMBtu/hr natural gas fired stabilizer heater	Rule (212(4)(b)	Rule 282(b)(i)
EU-KGPN-WATER1	8,820 gallon waste water storage tank	Rule 212(4)(c)	Rule 284(i)
EU-KGPN-FURNACE	21.5 MMBtu/hr natural gas fired heating oil furnace	Rule 212(4)(b)	Rule 282(b)(i)
EU-KGPN-MERCAPTAN	2,000 gallon ethyl mercaptan storage tank	Rule 212(4)(c)	Rule 284(i)
EU-KGPN-GASOLINE	500 gallon gasoline storage tank	Rule 212(4)(c)	Rule 284(g)
EU-KGPN-AMINE	1,000 gallon amine storage tank	Rule 212(4)(c)	Rule 284(i)
EU-KGPN-WATER2	1,000 gallon waste water storage tank	Rule 212(4)(c)	Rule 284(i)
EU-KGPN-WATER3	1,000 gallon waste water storage tank	Rule 212(4)(c)	Rule 284(i)
EU-KGPN-HEATER	10 MMBtu/hr natural gas fired heating medium heater	Rule 212(4)(b)	Rule 282(b)(i)

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

This draft ROP 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 draft ROP.

### **Action taken by the MDEQ**

The AQD proposes to approve this draft ROP. A final decision on the draft ROP will not be made until the public and affected states have had an opportunity to comment on the AQD's proposed action. In addition, the USEPA is allowed up to 45 days to review the draft ROP 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 Janis Ransom, Cadillac District Supervisor. The final determination for

ROP approval/disapproval will be based on the contents of the ROP 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.

State Registration Number

**RENEWABLE OPERATING PERMIT**

ROP Number

B4292

**SEPTEMBER 25, 2014 - STAFF REPORT  
ADDENDUM**

MI-ROP-B4292-2014

**Purpose**

A Staff Report dated August 25, 2014, 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:	Kurt Jagoda, Operations Manager 231-258-6309
AQD Contact:	Shane Nixon, Senior Environmental Engineer 231-876-4413

**Summary of Pertinent Comments**

No pertinent comments were received during the 30-day public comment period.

**Changes to the August 25, 2014 Draft ROP**

No changes were made to the draft ROP.

Michigan Department of Environmental Quality  
Air Quality Division

State Registration Number

**RENEWABLE OPERATING PERMIT**

ROP Number

B4292

**SEPTEMBER 4, 2018 - STAFF REPORT FOR  
RULE 216(1)(a)(i)-(iv)  
ADMINISTRATIVE AMENDMENT**

MI-ROP-B4292-2014a

**Purpose**

On November 10, 2014, the Department of Environmental Quality (DEQ), Air Quality Division (AQD), approved and issued Renewable Operating Permit (ROP) No. MI-ROP-B4292-2014 to Merit Energy Company - Kalkaska Gas Plant pursuant to R 336.1214. Once issued, a company is required to submit an application for changes to the ROP as described in R 336.1216. The purpose of this Staff Report is to describe the changes that were made to the ROP pursuant to R 336.1216(1)(a)(i-iv).

**General Information**

Responsible Official:	Jim McGrath, Plant Manager
AQD Contact:	Caryn E. Owens, Environmental Engineer 231-878-6688
Application Number:	201800092
Date Application for Administrative Amendment was Submitted:	July 20, 2018

**Regulatory Analysis**

The AQD has determined that the change requested by the stationary source meets the qualifications for an Administrative Amendment pursuant to R 336.1216(1)(a)(i).

**Description of Changes to the ROP**

This Administrative Amendment Application Number 201800092 is for a company name changed from Merit Energy Company to Lambda Energy Resources, LLC. This action took place on July 16, 2018

**Compliance Status**

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements associated with the emission unit(s) involved with the change as of the date of approval of the Administrative Amendment to the ROP.

**Action Taken by the MDEQ**

The AQD approved an Administrative Amendment to ROP No. MI-ROP-B4292-2014, as requested by the stationary source. The delegated decision maker for the AQD is the District Supervisor.