

**DOCKETED**

<b>Docket Number:</b>	23-AFC-03
<b>Project Title:</b>	Black Rock Geothermal Project (BRGP)
<b>TN #:</b>	250728
<b>Document Title:</b>	Black Rock Geothermal Project Imperial County APCD Air Permit Application Completeness Determination
<b>Description:</b>	N/A
<b>Filer:</b>	Jerry Salamy
<b>Organization:</b>	Jacobs
<b>Submitter Role:</b>	Applicant Consultant
<b>Submission Date:</b>	6/23/2023 3:39:07 PM
<b>Docketed Date:</b>	6/23/2023

AIR POLLUTION CONTROL DISTRICT



June 22, 2023

Black Rock Geothermal, LLC  
7030 Gentry Rd.  
Calipatria, CA 92233

Subject: Permit Application to Construct for the Black Rock Geothermal Project, located on APN 020-110-008 within the Salton Sea Known Geothermal Resource Area in Imperial County, California.

Dear Jon Trujillo:

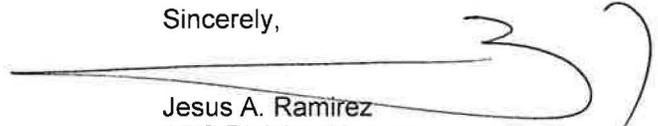
The Imperial County Air Pollution Control District (ICAPCD) received a permit application to construct for the Black Rock Geothermal Project (BRGP) on April 27, 2023. After an initial review of the submitted materials, the ICAPCD deemed the application package incomplete and included a list of identified issues in a letter to the applicant dated May 30, 2023. On June 12, 2023, the applicant responded to this letter and provided additional information. Upon review of the additional information, the ICAPCD is deeming the application complete.

The following issues have been addressed through the applicant's response to the completeness review:

- **BACT Analyses:** The applicant confirmed the BACT analysis for the Elmore North facility is intended to be representative of the BRGP emission sources.
- **Confidential Appendix:** The applicant provided the requested confidential appendix which includes detailed mass balance information.
- **Equipment IDs:** The applicant confirmed that they have not assigned unique IDs to identify equipment.
- **Other Facilities:** The applicant confirmed that no other stationary sources are owned or operated by Black Rock Geothermal, LLC in California outside of the emissions sources included in the application.
- **Electronic Files:** The applicant provided electronic versions of the emission calculations and modeling files.
- **Storage Tanks/Vessels:** The applicant confirmed that tanks containing toxic air contaminants (TACs), or volatile organic compounds (VOCs) are present and provided emissions calculations and material contents for the tanks. The applicant confirmed that none of the tanks have control devices.
- **Operational Trips:** The applicant explained where in the application's emissions calculations emissions associated with operational onsite and offsite trips are represented.

Please be aware that additional information may be needed during the course of our full engineering evaluation. Your cooperation is key to the timely review of the applications. If you have any questions regarding your permit applications, please contact me at 442-265-1800.

Sincerely,

  
Jesus A. Ramirez  
APC Division Manager



Black Rock Geothermal LLC  
4124 NW Urbandale Drive  
Urbandale, IA 50322

Jon Trujillo  
General Manager, Geothermal Development

June 12, 2023

Mr. Jesus Ramirez  
APC Division Manager  
Imperial County Air Pollution Control District  
150 South Ninth Street  
El Centro, California 92243

**RE: Permit Application to Construct the Black Rock Geothermal Project – Imperial County Air Pollution Control District Incompleteness Determination**

Dear Mr. Ramirez:

Black Rock Geothermal, LLC (the Applicant), an indirect, wholly owned subsidiary of BHE Renewables, LLC, submitted an Imperial County Air Pollution Control District (ICAPCD) Application to Construct (ATC) for the Black Rock Geothermal Project (BRGP) on April 27, 2023. This application was submitted to ICAPCD in conjunction with an Application for Certification (AFC) that was filed with the California Energy Commission (CEC) on April 18, 2023<sup>1</sup>. In a letter dated May 30, 2023, ICAPCD identified several issues that resulted in an incompleteness determination for the application package.

The Applicant has reviewed each of the completeness issues identified by ICAPCD and provided a response to each issue in the table below, with any necessary additional data attached to this letter. As requested by ICAPCD, Black Rock Geothermal, LLC does not own or operate any current or planned emission sources other than those included in the BRGP application. Therefore, demonstration of compliance with the Clean Air Act and emission limitations is not currently applicable to Black Rock Geothermal, LLC.

<b>Issue Topic</b>	<b>Identified Issue</b>	<b>Applicant Response</b>
BACT Analyses	The BACT analysis in Appendix 5.1E of the BRGP application contains the BACT analysis for the Elmore North location. Please clarify whether this analysis is mislabeled, or if the submitted analysis for the Elmore North location is intended to be representative of the Black Rock location.	The BACT Analysis presented in Appendix 5.1E of the BRGP application is an analysis that was performed for the existing Elmore Facility. This Elmore Facility BACT analysis is considered representative of the proposed geothermal sources at the BRGP and serves as the BACT analysis for the BRGP application.
Confidential Appendix	The application is lacking in detailed mass balance information but refers to a confidential appendix (not supplied) with this information. To help us further track material flows, please	This confidential appendix is included as Attachment A of this letter and is <b><u>submitted with the request of remaining confidential</u></b> as it contains proprietary information crucial to BRGP's planned operations.

<sup>1</sup> The CEC's website for the BRGP proceeding is available at <https://www.energy.ca.gov/powerplant/steam-turbine/black-rock-geothermal-project-brgp>.



Jon Trujillo  
 General Manager, Geothermal Development

	provide a copy of this confidential appendix.	Analytical data accompanying the process flow diagram shown in this confidential appendix are presented in Appendix 5.1A of the ATC.
Equipment IDs	The application did not appear to assign unique equipment IDs. Please confirm that no unique IDs are assigned to identify equipment.	Specific equipment IDs have not been developed for equipment at the BRGP.
Storage Tank Vessels	We noted that the application (e.g., Section 2.3.3.4.15 Yard Tanks) refers to various chemical holding tanks but does not specify the contents of those tanks. Please provide additional information on the chemicals and materials stored in tanks and other storage vessels. Further, if any tanks contain toxic air contaminants (TACs) or volatile organic compounds (VOCs), please provide information on potential emissions and any control devices installed on tanks, if present.	The BRGP will include multiple tanks for storing various liquids, only several of which would be expected to emit VOCs based on the composition of the stored liquid. Emission calculations for these select tanks have been developed and included in Attachment B of this letter. None of the tanks at the BRGP will have emission control devices beyond best business practices.
Other Facilities	Please provide confirmation that all other stationary sources owned or operated by Black Rock Geothermal in California which are subject to emissions limitations, if any, are either in compliance or on a schedule for compliance with all applicable emissions limitations under the Clean Air Act (CAA) per ICAPCD Rule 207(C)(5)(c).	Black Rock Geothermal, LLC does not own or operate any current or planned emission sources other than those included in the BRGP application.
Operational Trips	We did not locate information on operational trips, such as worker, vendor, or haul trips associated with facility operations. Please provide this information as applicable to the facility's normal operation.	Emissions associated with operational onsite support vehicles and worker and haul truck trips are included in Appendix 5.1A in the "O&M Emission Calculations" tables of the BRGP ATC as "Onsite Pickup Truck", "Off-Site Pickup Trucks", and "Off-Site Haul Trucks", respectively. Additionally, the Off-Site Haul Truck category is inclusive of operational vendor and haul trips. The miles traveled associated with these trips has been increased to more closely align with vehicle trip data presented in Section



Black Rock Geothermal LLC  
4124 NW Urbandale Drive  
Urbandale, IA 50322

Jon Trujillo  
General Manager, Geothermal Development

		5.12.2.1.2 of the AFC. These emission increases do not change Project permitting and significance conclusions. Calculations are included in the electronic files submitted with this letter.
Electronic Files	To facilitate our review and validate the methodology and emissions calculations, please provide electronic versions of the emission calculations and modeling files.	Electronic copies of the air quality and public health modeling files and emission calculations from Appendices 5.1A and 5.1D of the BRGP ATC will be provided via electronic file transfer protocol (ftp) by Jacobs Engineering.

The Applicant looks forward to working with the ICAPCD during its review of these ATC materials and would like to request confirmation that the responses and additional data provided with this letter are adequate for ICAPCD to issue a completeness determination no later than June 26, 2023, thereby allowing the Applicant to fully respond to the CEC's data adequacy review. Please contact Anoop Sukumaran at (760) 348-4275 (email address: Anoop.Sukumaran@calenergy.com) or Andrew Dunavent at (707) 372-7810 (email address: Andrew.Dunavent@jacobs.com) if you have any questions or if you need additional information.

Sincerely,

Anoop  
Sukumaran

Digitally signed by  
Anoop Sukumaran  
Date: 2023.06.12  
09:08:07 -07'00'

Anoop Sukumaran – Director, Environmental Services  
on behalf of Jon Trujillo General Manager, Geothermal Development

cc: Jon Trujillo/BHE Renewables  
Linda Poksay/SWCA  
Andrew Dunavent/Jacobs  
Jerry Salamy/Jacobs



Black Rock Geothermal LLC  
4124 NW Urbandale Drive  
Urbandale, IA 50322

Jon Trujillo  
General Manager, Geothermal Development

# Attachment A: Confidential Appendix

(Note: See Transaction Number 250019)



Black Rock Geothermal LLC  
4124 NW Urbandale Drive  
Urbandale, IA 50322

Jon Trujillo  
General Manager, Geothermal Development

# Attachment B: Tank Emission Calculations

**Black Rock Geothermal Project**  
**ICAPCD Completeness Determination Response**  
**BRGP Tank Emission Calculations**  
**June 2023**

Emission Source	Tank Size (gallons)	Annual Throughput (gal/year)	VOC Emission Factor (lbs/1000 gal)	Annual VOC Emissions (TPY)
3.49 MW Diesel Emergency Generator Tank <sup>a</sup>	< 10,000	10,950	2.80E-03	1.53E-05
3.49 MW Diesel Emergency Generator Tank <sup>a</sup>	< 10,000	10,950	2.80E-03	1.53E-05
3.49 MW Diesel Emergency Generator Tank <sup>a</sup>	< 10,000	10,950	2.80E-03	1.53E-05
2.7 MW Diesel Emergency Generator Tank <sup>a</sup>	< 10,000	8,750	2.80E-03	1.23E-05
Diesel Fire Pump Tank <sup>a</sup>	< 10,000	300	2.80E-03	4.20E-07
Used Oil Tank <sup>b</sup>	< 10,000	2,000	9.21E-01	9.21E-04
Turbine (TG) Lube Oil Console <sup>b</sup>	< 10,000	6,868	9.21E-01	3.16E-03
Norms Inhibitor Tank <sup>c</sup>	< 10,000	73,000	9.21E-01	3.36E-02

<sup>a</sup> Emission factor based upon South Coast Air Quality Management District's *Supplemental Instructions for Liquid Organic Storage Tanks* (October 2019) for service station diesel above ground tanks. Tank throughputs based on each engine's hourly fuel throughput and annual hours of operation.

<sup>b</sup> Emission factor based upon South Coast Air Quality Management District's *Supplemental Instructions for Liquid Organic Storage Tanks* (October 2019) for service station gasoline above ground tanks. This emission factor is conservative as gasoline is more volatile than the Project tank constituent. The used oil tank and turbine lube reservoir throughput assume one full tank volume every 90 days.

<sup>c</sup> Emission factor based upon South Coast Air Quality Management District's *Supplemental Instructions for Liquid Organic Storage Tanks* (October 2019) for service station gasoline above ground tanks. This emission factor is conservative as gasoline is more volatile than the Project tank constituent. Tank throughput assumes up to 13 deliveries per year.

AIR POLLUTION CONTROL DISTRICT



May 30, 2023

Black Rock Geothermal, LLC  
7030 Gentry Rd.  
Calipatria, CA 92233

Subject: Permit Application to Construct for the Black Rock Geothermal Project, located on APN 020-110-008 within the Salton Sea Known Geothermal Resource Area (KGRA) in Imperial County, California.

Dear Jon Trujillo:

The Imperial County Air Pollution Control District (ICAPCD) received a permit application to construct for the Black Rock Geothermal Project (BRGP) on April 27, 2023. As a first step in our review process, we have briefly evaluated the application to determine whether it is complete and ready for review. Based on our initial review of the submitted materials it has been determined that the application package is incomplete.

The following issues have been identified during the completeness review:

- **BACT Analyses:** The BACT analysis in Appendix 5.1E of the BRGP application contains the BACT analysis for the Elmore North location. Please clarify whether this analysis is mislabeled, or if the submitted analysis for the Elmore North location is intended to be representative of the Black Rock location.
- **Confidential Appendix:** The application is lacking in detailed mass balance information but refers to a confidential appendix (not supplied) with this information. To help us further track material flows, please provide a copy of this confidential appendix.
- **Equipment IDs:** The application did not appear to assign unique equipment IDs. Please confirm that no unique IDs are assigned to identify equipment.
- **Storage Tanks/Vessels:** We noted that the application (e.g., Section 2.3.3.4.15 Yard Tanks) refers to various chemical holding tanks but does not specify the contents of those tanks. Please provide additional information on the chemicals and materials stored in tanks and other storage vessels. Further, if any tanks contain toxic air contaminants (TACs) or volatile organic compounds (VOCs), please provide information on potential emissions and any control devices installed on tanks, if present.
- **Other Facilities:** Please provide confirmation that all other stationary sources owned or operated by Black Rock Geothermal in California which are subject to emissions limitations, if any, are either in compliance or on a schedule for compliance with all applicable emissions limitations under the Clean Air Act (CAA) per ICAPCD Rule 207(C)(5)(c).
- **Operational Trips:** We did not locate information on operational trips, such as worker, vendor, or haul trips associated with facility operations. Please provide this information as applicable to the facility's normal operation.

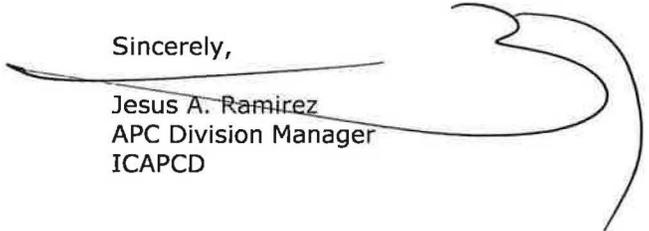
In addition to the items identified above required to deem the application complete, we request the following:

- **Electronic Files:** To facilitate our review and validate the methodology and emissions calculations, please provide electronic versions of the emission calculations and modeling files.

Please be aware that additional information may be needed during the course of our full engineering evaluation. Your cooperation is key to the timely review of the application. If you have any questions regarding your permit application, please contact me at 442-265-1800.

Sincerely,

Jesus A. Ramirez  
APC Division Manager  
ICAPCD





Black Rock Geothermal LLC  
4124 NW Urbandale Drive  
Urbandale, IA 50322

Jon Trujillo  
General Manager, Geothermal Development

April 24, 2023

Mr. Jesus Ramirez  
APC Division Manager  
Imperial County Air Pollution Control District  
150 South Ninth Street  
El Centro, California 92243

**RE: Black Rock Geothermal, LLC Imperial County Air Pollution Control District Permit Application to Construct the Black Rock Geothermal Project**

Dear Mr. Ramirez:

Black Rock Geothermal, LLC (the Applicant), an indirect, wholly owned subsidiary of BHE Renewables, LLC (BHER), is submitting five copies of the application materials for an Imperial County Air Pollution Control District (ICAPCD) Authority to Construct (ATC) for the Black Rock Geothermal Project (BRGP). This application is being submitted to ICAPCD in conjunction with an Application for Certification (AFC) that was submitted to the California Energy Commission (CEC) on April 18, 2023<sup>1</sup>.

The BRGP will provide an efficient method for meeting power needs in California by providing firm, clean power from a renewable geothermal source. The Project design applies known equipment, operational lessons learned, and corrosion-resistant materials for a planned operational life of 40 years. BRGP's maximum continuous rating is approximately 87 megawatts (MW) gross output, with an expected net output of approximately 77 MW.

The BRGP consists of a proposed geothermal Resource Production Facility, a geothermal-powered Power Generation Facility, and associated facilities. The RPF includes geothermal production wells, pipelines, fluid and steam handling facilities, a solid handling system, a Class II surface impoundment, a service water pond, a retention basin, process fluid injection pumps, power distribution centers, and injection wells. The RPF also includes steam-polishing equipment designed to provide turbine-quality steam to the PGF. The PGF electrical power is generated using a triple pressure condensing turbine/generator set with a surface condenser, a non-condensable gas (NCG) removal system, an NCG sparger abatement system (located within the cooling tower basin), condensate bio-oxidation abatement systems adjacent to the cooling tower, a heat rejection system cooling tower, and a generator step-up transformer. Heat rejection for the steam turbines will be accomplished with a mechanical draft counterflow wet cooling tower. The PGF also includes a 230 kilovolt substation, power distribution centers, and five emergency standby diesel-fueled engines (four generators and one fire water pump). The Project also includes a control building, a service water pond, and other ancillary facilities.

The contents of this application package include the required ICAPCD forms and the following sections from the AFC:

- Section 1.0: Executive Summary
- Section 2.0: Project Description

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<sup>1</sup> The CEC website for the project - <https://www.energy.ca.gov/powerplant/steam-turbine/black-rock-geothermal-project-brgp>



Black Rock Geothermal LLC  
4124 NW Urbandale Drive  
Urbandale, IA 50322

Jon Trujillo  
General Manager, Geothermal Development

- Section 5.1: Air Quality (includes Appendices 5.1A through 5.1E)
  - Section 5.9: Public Health (includes Appendices 5.9A through 5.9B)
- As described in Sections 5.1 and 5.9 of the AFC, the Applicant conducted a health risk assessment (HRA) and a criteria pollutant air quality impact analysis consistent with the current practice of estimating emissions from the cooling towers, geothermal brine systems, and diesel combustion engines and associated modeling guidelines. Emissions of criteria pollutants, air toxics, and greenhouse gases associated with operation of the BRGP were estimated using emission factors approved by the California Air Resources Board and the U.S. Environmental Protection Agency or representative analytical data from other geothermal power plants in the area, as detailed in Section 5.1 and Appendices 5.1A and 5.1B of the AFC. Section 5.9 of the AFC also summarizes the air toxics emissions used for the HRA. The results of these analyses indicate that BRGP would result in less than significant impacts with respect to air quality and public health. The BRGP is also not expected to require any offsets or emission reduction credits.

Emissions to the air due to BRGP operation will be minimized through the use of high-efficiency drift eliminators and a combination of hydrogen sulfide sparging and bio-oxidation box, which are considered best available control technology for the BRGP's cooling towers and geothermal processes, respectively. The diesel-fired emergency generators will be Tier 4 certified engines, meaning diesel particulate matter and criteria pollutant emissions will be minimized through the use of Tier 4 controls, including selective catalytic reduction, diesel particulate filtration, and a diesel oxidation catalyst.

Attached to this application is a check in the amount of \$213.00 for the requisite application filing fee.

The Applicant looks forward to working with the ICAPCD during the review of these application materials and the issuance of the ICAPCD ATC. Please contact Anoop Sukumaran at (760) 348-4275 (email address: Anoop.Sukumaran@calenergy.com) or Andrew Dunavent at (707) 372-7810 (email address: Andrew.Dunavent@jacobs.com) if you have any questions or if you need additional information. Sincerely,

Jon Trujillo  
General Manager, Geothermal Development



# AIR POLLUTION CONTROL DISTRICT

150 S 9th Street  
El Centro, CA 92243  
P. 442.265.1800  
F. 442.265.1799

## APPLICATION FOR

<input checked="" type="checkbox"/> Authority to Construction	<input type="checkbox"/> Permit to Operate	<input type="checkbox"/> Emission Credit Banking
<input type="checkbox"/> New	<input type="checkbox"/> Transfer of Ownership	<input type="checkbox"/> Change of Permit Conditions
<input type="checkbox"/> Amendment	<input type="checkbox"/> Relocation	<input type="checkbox"/> Equipment Modification or Addition
	<input type="checkbox"/> Name change	

PERMIT NUMBER (if any) \_\_\_\_\_

1. Name of Applicant <b>Black Rock Geothermal, LLC</b>			2. Responsible Person <b>Jon Trujillo</b>		
3. Mailing Address <b>7030 Gentry Road</b>			4. Title <b>GM, Geothermal Development</b>		
5. City <b>Calipatria</b>	State <b>CA</b>	Zip Code <b>92233</b>	6. Phone <b>(760) 604-0045</b>	Cell Phone	
7. Type of Organization (Corp., Government, Individual, etc.) <b>Corporation</b>					
8. Brief Description of Project/Activity <b>Geothermal Resource Production and Power Generation Facility</b>					
9. Location of Project/Activity <b>APN 020-110-008 Bounded by Mckendry Road, Boyle Road, and Sever Road</b>					
10. Property Owner <b>BHE Renewables, LLC</b>					
11. Person in Charge at Location <b>Anoop Sukumaran</b>		12. Title <b>Director</b>		13. Phone Number <b>(760) 348-4275</b>	
14. Anticipated Date of Construction Start <b>Apr 01, 2024</b>			15. Anticipated Life of Project <b>40 Years</b> Completion <b>Aug 31, 2026</b>		
16. Estimated Emissions		Uncontrolled lbs/day		Controlled lbs/day	
For largest single pollutant		<b>See Attachments.</b>		<b>See Attachments.</b>	
Total for all emissions		<b>See Attachments.</b>		<b>See Attachments.</b>	
17. Other Permits Have Been or Will be Obtained From: <b>Application for Certification was filed with the California Energy Commission on 04/18/23.</b>					
18. Plot plans, flow charts, calculations, equipment description and other information required by "List and Criteria" attached.					
19. The information previously submitted with <b>N/A</b> is still valid and no changes have been made except as shown on attachment.					
20. Request for confidential handling of attached.					
21. Total pages attached <b>807</b>					

"I am familiar with the Rules and Regulations of the Imperial County Air Pollution Control District and I certify that the operation of the plant and/or equipment which is subject to the application will comply with said Rules and Regulations."

**4/24/2023**

Date

Signature of Responsible Person

**OFFICE USE ONLY All payments must be made by Check or Money Order. Cash will not be accepted. An application fee of \$213.00 is due upon submission of an application for 2023. Thank you.**

Date application submitted: _____	Amount paid: _____
Received by: _____	Receipt Number: _____

Staff Comments:



**INTERNAL COMBUSTION ENGINE SUMMARY FORM**

Page 1 of 2

**NOTICE**

An application will not be processed unless ALL fields in "Section A" are complete.

**Section A**

Company/Agency <b>Black Rock Geothermal, LLC</b>	Phone Number <b>760-348-4275</b>
Equipment Location <b>Black Rock Geothermal Project</b>	Existing Permit # (if any)
Engine Manufacturer <b>Clarke</b>	Model Number <b>JU6H-UFADPO</b>
Engine Serial Number: <b>TBD</b>	EPA/C.A.R.B. 12-character Engine Family Name <b>NJDXL13.5103</b>
Manufacturer Date: <b>TBD</b>	Is unit equipped with a non-resettable hour meter? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Utilization of Engine <input type="checkbox"/> Electrical Generator _____ Kw <input type="checkbox"/> Compressor Driver _____ cfm <input type="checkbox"/> Pump Driver _____ gpm	<input checked="" type="checkbox"/> Fire Pump <input type="checkbox"/> Portable <input type="checkbox"/> Rental <input type="checkbox"/> Other _____
Fuel Information <input type="checkbox"/> Natural Gas <input type="checkbox"/> Gasoline <input type="checkbox"/> Digester Gas <input type="checkbox"/> Landfill Gas	Air to Fuel Ratio _____ <input type="checkbox"/> LPG <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> Diesel Oil
Engine Size (Manufacturers Rating)	BHP@ <b>316</b> RPM <b>2400</b>
Operating Schedule <b>1</b> _____ Hr/Days <b>1</b> _____ Days/Week <b>50</b> _____ Weeks/Year Maximum Operating Hours <b>Varies</b> _____ Hrs/Days	
<input checked="" type="checkbox"/> Emergency Only (indicate hours operated for testing & maintenance)	

**Section B**

Is this unit designed to be moved or carried from one location to another, or does it have wheels, skids, <input type="checkbox"/> Yes (Portable) <input checked="" type="checkbox"/> No (Stationary)
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**INTERNAL COMBUSTION ENGINE SUMMARY FORM**

**Section C**

Engine Description Number of Cylinders: 6

Two Cycle or  Four Cycle  
 Lean Burn or  Rich Burn  
 Turbocharged  Turbocharged/Aftercooled  Naturally Aspirated

Sulfur Content of Disgester Gas, Landfill Gas or Diesel  
15 ppm

Maximum Rated Fuel Consumption (Gas/Hr, Cu. Ft/Hr)  
6 gal/hr

Average Load Percentage % 100

Energy Recovery From Exhaust  Yes  No If yes, please explain

Emission Control Device  Yes  No If yes, please explain  
OEM Manufacturer Certification

Emission Data:

POLLUTANT	EMISSION BEFORE CONTROL Gr/BHP PPM Lb/Day	EMISSION AFTER CONTROL Gr/BHP PPM Lb/Day
NMHC or TOC	<u>N/A</u>	<u>0.07</u>
NOx	<u>N/A</u>	<u>2.56</u>
CO	<u>N/A</u>	<u>0.6</u>
PM10	<u>N/A</u>	<u>0.08</u>
SOx	<u>N/A</u>	<u>&lt;0.00001</u>

Manufacturer Data  Source Test Data

**Section D**

**Stationary Engines Only**

Stack Dimensions  
 Height Above Grade 15 Ft Height Above Building 5 Ft

Exhaust Cross Section  
 Diameter 6 In Width In Length In

Exhaust Temperature 737 °F Direction of Stack Outlet  Horizontal  Vertical  
 Other

End of the Stack  Open  Capped  Flapper Valve

Stack Serves  
 Only this equipment Exhaust Flow 1995 CFM  
 Other equipment also Total Flow Rate \_\_\_\_\_ CFM  
Exhaust Pressure \_\_\_\_\_ CFM

**Receptor Information. A receptor is a residence or business whose occupants could be exposed to toxic emissions from your facility.**

Nearest offsite receptor Agricultural Land

Distance to nearest offsite receptor 470 feet  
 Distance to nearest school grounds >10,000 feet

Andrew Dunavent  
 Name of preparer

4/24/2023  
 Date



**INTERNAL COMBUSTION ENGINE SUMMARY FORM**

Page 1 of 2

**NOTICE**

An application will not be processed unless ALL fields in "Section A" are complete.

**Section A**

Company/Agency <b>Black Rock Geothermal, LLC</b>	Phone Number <b>760-348-4275</b>
Equipment Location <b>Black Rock Geothermal Project</b>	Existing Permit # (if any)
Engine Manufacturer <b>Kohler</b>	Model Number <b>KD62V12</b>
Engine Serial Number: <b>TBD</b>	EPA/C.A.R.B. 12-character Engine Family Name <b>TBD</b>
Manufacturer Date: <b>TBD</b>	Is unit equipped with a non-resettable hour meter? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Utilization of Engine <input checked="" type="checkbox"/> Electrical Generator <b>2700</b> Kw <input type="checkbox"/> Compressor Driver _____ cfm <input type="checkbox"/> Pump Driver _____ gpm	<input type="checkbox"/> Fire Pump <input type="checkbox"/> Rental <input type="checkbox"/> Portable <input type="checkbox"/> Other _____
Fuel Information <input type="checkbox"/> Natural Gas <input type="checkbox"/> Gasoline <input type="checkbox"/> Digester Gas <input type="checkbox"/> Landfill Gas	Air to Fuel Ratio _____ <input type="checkbox"/> LPG <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> Diesel Oil
Engine Size (Manufacturers Rating)	BHP@ <b>3621</b> RPM <b>1800</b>
Operating Schedule <b>1</b> Hr/Days <b>1</b> Days/Week <b>50</b> Weeks/Year Maximum Operating Hours <b>Varies</b> Hrs/Days	
<input checked="" type="checkbox"/> Emergency Only (indicate hours operated for testing & maintenance)	

**Section B**

Is this unit designed to be moved or carried from one location to another, or does it have wheels, skids, <input type="checkbox"/> Yes (Portable) <input checked="" type="checkbox"/> No (Stationary)
--





**INTERNAL COMBUSTION ENGINE SUMMARY FORM**

Page 1 of 2

**NOTICE**

An application will not be processed unless ALL fields in "Section A" are complete.

**Section A**

Company/Agency <b>Black Rock Geothermal, LLC</b>	Phone Number <b>760-348-4275</b>
Equipment Location <b>Black Rock Geothermal Project</b>	Existing Permit # (if any)
Engine Manufacturer <b>Kohler</b>	Model Number <b>KD83V16</b>
Engine Serial Number: <b>TBD</b>	EPA/C.A.R.B. 12-character Engine Family Name <b>TBD</b>
Manufacturer Date: <b>TBD</b>	Is unit equipped with a non-resettable hour meter? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Utilization of Engine <input checked="" type="checkbox"/> Electrical Generator <b>3490</b> Kw <input type="checkbox"/> Compressor Driver _____ cfm <input type="checkbox"/> Pump Driver _____ gpm	<input type="checkbox"/> Fire Pump <input type="checkbox"/> Rental <input type="checkbox"/> Portable <input type="checkbox"/> Other _____
Fuel Information <input type="checkbox"/> Natural Gas <input type="checkbox"/> Gasoline <input type="checkbox"/> Digester Gas <input type="checkbox"/> Landfill Gas	Air to Fuel Ratio _____ <input type="checkbox"/> LPG <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> Diesel Oil
Engine Size (Manufacturers Rating)	BHP@ <b>4680</b> RPM <b>1800</b>
Operating Schedule <b>1</b> Hr/Days <b>1</b> Days/Week <b>50</b> Weeks/Year Maximum Operating Hours <b>Varies</b> Hrs/Days	
<input checked="" type="checkbox"/> Emergency Only (indicate hours operated for testing & maintenance)	

**Section B**

Is this unit designed to be moved or carried from one location to another, or does it have wheels, skids, <input type="checkbox"/> Yes (Portable) <input checked="" type="checkbox"/> No (Stationary)
--



**INTERNAL COMBUSTION ENGINE SUMMARY FORM**

Page 2 of 2

**Section C**

Engine Description		Number of Cylinders: <b>16</b>
<input type="checkbox"/> Two Cycle	or	<input checked="" type="checkbox"/> Four Cycle
<input checked="" type="checkbox"/> Lean Burn	or	<input type="checkbox"/> Rich Burn
<input checked="" type="checkbox"/> Turbocharged	<input type="checkbox"/> Turbocharged/Aftercooled	<input type="checkbox"/> Naturally Aspirated
Sulfur Content of Disgester Gas, Landfill Gas or Diesel <b>15 ppm</b>		
Maximum Rated Fuel Consumption (Gas/Hr, Cu. Ft/Hr) <b>219 gal/hr</b>		
Average Load Percentage % <b>100</b>		
Energy Recovery From Exhaust	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No If yes, please explain
Emission Control Device	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No If yes, please explain
<b>Tier 4 Certified Unit with SCR, Diesel Oxidation Catalyst and Diesel Particulate Filter</b>		
Emission Data:		
POLLUTANT	EMISSION BEFORE CONTROL Gr/BHP PPM Lb/Day	EMISSION AFTER CONTROL Gr/BHP PPM Lb/Day
NMHC or TOC	N/A	<b>0.14</b>
NOx	N/A	<b>0.5</b>
CO	N/A	<b>2.61</b>
PM10	N/A	<b>0.02</b>
SOx	N/A	<b>&lt;0.00001</b>
<input checked="" type="checkbox"/> Manufacturer Data		<input type="checkbox"/> Source Test Data

**Section D**

<b>Stationary Engines Only</b>			
Stack Dimensions			
Height Above Grade	<b>20.5</b>	Ft	Height Above Building <b>6</b> Ft
Exhaust Cross Section			
Diameter	<b>12.6</b>	In	Width In Length In
Exhaust Temperature	<b>887</b>	°F	Direction of Stack Outlet <input type="checkbox"/> Horizontal <input checked="" type="checkbox"/> Vertical <input type="checkbox"/> Other
End of the Stack	<input type="checkbox"/> Open	<input type="checkbox"/> Capped	<input checked="" type="checkbox"/> Flapper Valve
Stack Serves			
<input checked="" type="checkbox"/> Only this equipment	Exhaust Flow	<b>23700</b>	CFM
<input type="checkbox"/> Other equipment also	Total Flow Rate		CFM
	Exhaust Pressure		CFM
<b>Receptor Information. A receptor is a residence or business whose occupants could be exposed to toxic emissions from your facility.</b>			
Nearest offsite receptor <b>Agricultural Land</b>			
Distance to nearest offsite receptor <b>150</b> feet			
Distance to nearest school grounds <b>&gt;10,000</b> feet			

**Andrew Dunavent**  
 Name of preparer

**4/24/2023**  
 Date



**INTERNAL COMBUSTION ENGINE SUMMARY FORM**

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**NOTICE**

An application will not be processed unless ALL fields in "Section A" are complete.

**Section A**

Company/Agency <b>Black Rock Geothermal, LLC</b>	Phone Number <b>760-348-4275</b>
Equipment Location <b>Black Rock Geothermal Project</b>	Existing Permit # (if any)
Engine Manufacturer <b>Kohler</b>	Model Number <b>KD83V16</b>
Engine Serial Number: <b>TBD</b>	EPA/C.A.R.B. 12-character Engine Family Name <b>TBD</b>
Manufacturer Date: <b>TBD</b>	Is unit equipped with a non-resettable hour meter? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Utilization of Engine <input checked="" type="checkbox"/> Electrical Generator <b>3490</b> Kw <input type="checkbox"/> Compressor Driver _____ cfm <input type="checkbox"/> Pump Driver _____ gpm	<input type="checkbox"/> Fire Pump <input type="checkbox"/> Rental <input type="checkbox"/> Portable <input type="checkbox"/> Other _____
Fuel Information <input type="checkbox"/> Natural Gas <input type="checkbox"/> Gasoline <input type="checkbox"/> Digester Gas <input type="checkbox"/> Landfill Gas	Air to Fuel Ratio _____ <input type="checkbox"/> LPG <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> Diesel Oil
Engine Size (Manufacturers Rating)	BHP@ <b>4680</b> RPM <b>1800</b>
Operating Schedule <b>1</b> Hr/Days <b>1</b> Days/Week <b>50</b> Weeks/Year Maximum Operating Hours <b>Varies</b> Hrs/Days	
<input checked="" type="checkbox"/> Emergency Only (indicate hours operated for testing & maintenance)	

**Section B**

Is this unit designed to be moved or carried from one location to another, or does it have wheels, skids, <input type="checkbox"/> Yes (Portable) <input checked="" type="checkbox"/> No (Stationary)
--



**INTERNAL COMBUSTION ENGINE SUMMARY FORM**

**Section C**

Engine Description		Number of Cylinders: <b>16</b>
<input type="checkbox"/> Two Cycle	or	<input checked="" type="checkbox"/> Four Cycle
<input checked="" type="checkbox"/> Lean Burn	or	<input type="checkbox"/> Rich Burn
<input checked="" type="checkbox"/> Turbocharged	<input type="checkbox"/> Turbocharged/Aftercooled	<input type="checkbox"/> Naturally Aspirated
Sulfur Content of Disgester Gas, Landfill Gas or Diesel <b>15 ppm</b>		
Maximum Rated Fuel Consumption (Gas/Hr, Cu. Ft/Hr) <b>219 gal/hr</b>		
Average Load Percentage % <b>100</b>		
Energy Recovery From Exhaust	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No If yes, please explain
Emission Control Device	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No If yes, please explain
<b>Tier 4 Certified Unit with SCR, Diesel Oxidation Catalyst and Diesel Particulate Filter</b>		
Emission Data:		
POLLUTANT	EMISSION BEFORE CONTROL Gr/BHP PPM Lb/Day	EMISSION AFTER CONTROL Gr/BHP PPM Lb/Day
NMHC or TOC	N/A	<b>0.14</b>
NOx	N/A	<b>0.5</b>
CO	N/A	<b>2.61</b>
PM10	N/A	<b>0.02</b>
SOx	N/A	<b>&lt;0.00001</b>
<input checked="" type="checkbox"/> Manufacturer Data		<input type="checkbox"/> Source Test Data

**Section D**

<b>Stationary Engines Only</b>			
Stack Dimensions			
Height Above Grade	<b>20.5</b>	Ft	Height Above Building <b>6</b> Ft
Exhaust Cross Section			
Diameter	<b>12.6</b>	In	Width In Length In
Exhaust Temperature	<b>887</b>	°F	Direction of Stack Outlet <input type="checkbox"/> Horizontal <input checked="" type="checkbox"/> Vertical <input type="checkbox"/> Other
End of the Stack	<input type="checkbox"/> Open	<input type="checkbox"/> Capped	<input checked="" type="checkbox"/> Flapper Valve
Stack Serves			
<input checked="" type="checkbox"/> Only this equipment	Exhaust Flow	<b>23700</b>	CFM
<input type="checkbox"/> Other equipment also	Total Flow Rate		CFM
	Exhaust Pressure		CFM
<b>Receptor Information. A receptor is a residence or business whose occupants could be exposed to toxic emissions from your facility.</b>			
Nearest offsite receptor <b>Agricultural Land</b>			
Distance to nearest offsite receptor <b>175</b> feet			
Distance to nearest school grounds <b>&gt;10,000</b> feet			

**Andrew Dunavent**  
 Name of preparer

**4/24/2023**  
 Date



**INTERNAL COMBUSTION ENGINE SUMMARY FORM**

Page 1 of 2

**NOTICE**

An application will not be processed unless ALL fields in "Section A" are complete.

**Section A**

Company/Agency <b>Black Rock Geothermal, LLC</b>	Phone Number <b>760-348-4275</b>
Equipment Location <b>Black Rock Geothermal Project</b>	Existing Permit # (if any)
Engine Manufacturer <b>Kohler</b>	Model Number <b>KD83V16</b>
Engine Serial Number: <b>TBD</b>	EPA/C.A.R.B. 12-character Engine Family Name <b>TBD</b>
Manufacturer Date: <b>TBD</b>	Is unit equipped with a non-resettable hour meter? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Utilization of Engine <input checked="" type="checkbox"/> Electrical Generator <b>3490</b> Kw <input type="checkbox"/> Compressor Driver _____ cfm <input type="checkbox"/> Pump Driver _____ gpm	<input type="checkbox"/> Fire Pump <input type="checkbox"/> Rental <input type="checkbox"/> Portable <input type="checkbox"/> Other _____
Fuel Information <input type="checkbox"/> Natural Gas <input type="checkbox"/> Gasoline <input type="checkbox"/> Digester Gas <input type="checkbox"/> Landfill Gas	Air to Fuel Ratio _____ <input type="checkbox"/> LPG <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> Diesel Oil
Engine Size (Manufacturers Rating)	BHP@ <b>4680</b> RPM <b>1800</b>
Operating Schedule <b>1</b> Hr/Days <b>1</b> Days/Week <b>50</b> Weeks/Year Maximum Operating Hours <b>Varies</b> Hrs/Days	
<input checked="" type="checkbox"/> Emergency Only (indicate hours operated for testing & maintenance)	

**Section B**

Is this unit designed to be moved or carried from one location to another, or does it have wheels, skids, <input type="checkbox"/> Yes (Portable) <input checked="" type="checkbox"/> No (Stationary)
--



**INTERNAL COMBUSTION ENGINE SUMMARY FORM**

Page 2 of 2

**Section C**

Engine Description		Number of Cylinders: <b>16</b>
<input type="checkbox"/> Two Cycle	or	<input checked="" type="checkbox"/> Four Cycle
<input checked="" type="checkbox"/> Lean Burn	or	<input type="checkbox"/> Rich Burn
<input checked="" type="checkbox"/> Turbocharged	<input type="checkbox"/> Turbocharged/Aftercooled	<input type="checkbox"/> Naturally Aspirated
Sulfur Content of Disgester Gas, Landfill Gas or Diesel <b>15 ppm</b>		
Maximum Rated Fuel Consumption (Gas/Hr, Cu. Ft/Hr) <b>219 gal/hr</b>		
Average Load Percentage % <b>100</b>		
Energy Recovery From Exhaust	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No If yes, please explain
Emission Control Device	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No If yes, please explain
<b>Tier 4 Certified Unit with SCR, Diesel Oxidation Catalyst and Diesel Particulate Filter</b>		
Emission Data:		
POLLUTANT	EMISSION BEFORE CONTROL Gr/BHP PPM Lb/Day	EMISSION AFTER CONTROL Gr/BHP PPM Lb/Day
NMHC or TOC	N/A	<b>0.14</b>
NOx	N/A	<b>0.5</b>
CO	N/A	<b>2.61</b>
PM10	N/A	<b>0.02</b>
SOx	N/A	<b>&lt;0.00001</b>
<input checked="" type="checkbox"/> Manufacturer Data		<input type="checkbox"/> Source Test Data

**Section D**

<b>Stationary Engines Only</b>			
Stack Dimensions			
Height Above Grade	<b>20.5</b>	Ft	Height Above Building <b>6</b> Ft
Exhaust Cross Section			
Diameter	<b>12.6</b>	In	Width In Length In
Exhaust Temperature	<b>887</b>	°F	Direction of Stack Outlet <input type="checkbox"/> Horizontal <input checked="" type="checkbox"/> Vertical <input type="checkbox"/> Other
End of the Stack	<input type="checkbox"/> Open	<input type="checkbox"/> Capped	<input checked="" type="checkbox"/> Flapper Valve
Stack Serves			
<input checked="" type="checkbox"/> Only this equipment	Exhaust Flow	<b>23700</b>	CFM
<input type="checkbox"/> Other equipment also	Total Flow Rate		CFM
	Exhaust Pressure		CFM
<b>Receptor Information. A receptor is a residence or business whose occupants could be exposed to toxic emissions from your facility.</b>			
Nearest offsite receptor <b>Agricultural Land</b>			
Distance to nearest offsite receptor <b>200</b> feet			
Distance to nearest school grounds <b>&gt;10,000</b> feet			

**Andrew Dunavent**  
 Name of preparer

**4/24/2023**  
 Date