

DOCKETED

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PERMIT TO OPERATE

Lake County Air Quality Management District

2617 S. Main Street, Lakeport, CA 95453 (707) 263-7000, Fax (707) 263-0421

Permit # P/O 2014-07

By: Douglas G. Gearhart
Douglas G. Gearhart, APCO

Type of Issuance: Renewal Issuance Date: 10/31/2024 Valid through: 10/31/2025 Category: II

Operations under this permit must be conducted in compliance with all specifications and data included with the application under which this permit was issued. Equipment must be properly maintained and kept in good condition at all times. Post this permit or a facsimile (with conditions) in a conspicuous location on or near the equipment.

Contact: Ms. Susan Petty
Owner: Bottle Rock Power, LLC
Mailing: c/o AltaRock Energy, Inc.
Address: P.O. Box 31205
Seattle, WA 98103-8099

Facility: Bottle Rock Power Plant
Location: 7557 High Valley Rd., Cobb, CA.
Sec 5, T11N, R8W, MDB&M Lake County
Francisco/Coleman Leasehold

Name and Equipment Description: Emergency Backup Diesel Generator and Propane Generator

One (1) Condec-Lima Electric Model AA90614DK generator set, powered by a 1982 model year 760hp Cummins VTA-1710-6-1 diesel engine (S/N 37106133) and one (1) Generac Model 0046742 generator set, powered by a 16hp Generac VII18 propane engine (S/N 4350062).

Permit Conditions

Condition 1: Emissions

A. All equipment shall be regularly maintained in good working order pursuant to manufacturer's guidelines and operated in a manner to prevent or minimize air emissions. The Lake County Air Quality Management District (LCAQMD) shall be notified pursuant to Rule 510, regarding equipment breakdown.

B. The total ROG, PM-10, SOx or NOx emission rate for this facility shall not exceed 25 tons per 12-month period. This emission rate determination shall be consistent with the methodology and assumptions used to evaluate the application under which this permit was issued.

C. Visible emissions shall not exceed Ringelmann 1 (20% opacity) from the diesel engine generator exhaust stack for more than three (3) minutes in any one (1) hour.

Condition 2: Administrative

A. This permit has been issued and is valid for emergency diesel engine generator use when neither house power nor commercial line power is available because of an emergency or line maintenance outage. Use of the generator for any other purpose will subject the source to NSR and reassessment under the Air Toxics Control Measure (ATCM) for Compression Ignition engines to include control equipment retrofit or other upgrades. The propane generator may be used for prime power when commercial line power is not available.

B. Testing and Maintenance operations are allowed for up to 20 hours per 12-month period for the diesel engine.

C. Diesel fuel utilized shall be California Low Sulfur Diesel containing less than 15ppmw sulfur.

(Conditions 2 through 6 are continued on the back of this card)

THIS PERMIT BECOMES VOID UPON CHANGE OF OWNERSHIP OR LOCATION

This permit does not authorize the emission of air contaminants in excess of those allowed by the California Health and Safety Code or the Regulations of the Lake County Air Quality Management District. This permit cannot be considered permission to violate existing laws, ordinances, regulations, or statutes of other government agencies. The provisions of this Permit are severable. If any provision of this Permit is held invalid, the remainder of this Permit shall not be affected thereby.

D. Bottle Rock Power, LLC (BRP) shall comply with the requirements of the Air Toxics "Hot Spots" Information and Assessment Act as specified in Sections 44300 - 44394 of the California Health and Safety Code as well as the ATCM for Stationary Compression Ignition Engines.

E. Within 180 days of initial operation, BRP shall apply for a Permit to Operate, and prove compliance with these conditions.

F. A health risk assessment may be required for this facility should engine hours of operation exceed 200 hours per year for the diesel engine generator.

Condition 3: Records and Reporting

A. BRP shall maintain a monthly log of usage for each engine that shall list and document emergency use hours of operation, maintenance and testing hours of operation, initial startup hours, and all other hours of operation.

B. BRP shall document fuel usage for each engine by retention of fuel purchase records, accounting for all fuel used in the engines. Log entries shall be retained for a minimum of 36 months, with 24 months of the most recent entries retained on-site. The log shall meet all requirements of the ATCM for Stationary Compression Ignition Engines.

C. BRP shall maintain a non-resettable hour meter capable of displaying 9,999 hours for each engine.

D. BRP shall furnish for each engine, an annual record of fuel use (gallons), and generator use (hours), breaking down hours of testing, maintenance, and emergency (diesel engine) or prime (propane engine) use, meeting the reporting requirements of the ATCM for Stationary Compression Ignition Engines, and in a format acceptable to the LCAQMD within 15 days of request, and by October 31st of each year.

Condition 4: Modification

A. BRP shall apply for and receive an Authority to Construct permit prior to the addition of new equipment or significant modification of permitted equipment.

Condition 5: Monitoring

A. The herein permitted facility shall not cause a public nuisance nor make a measurable contribution to any Ambient Air Quality Standard exceed. Should this facility result in odor or health complaints, the LCAQMD may require under Sections 430 and 670, monitoring, testing and mitigation by BRP to abate said condition.

Condition 6: Identification and Access

A. This permit shall be posted at the equipment site and be available for BRP's reference and LCAQMD staff inspection. If locks or unmanned gates are used to secure the project area, the LCAQMD or its representative, will be given free access of entry for the purposes of monitoring, or inspecting during normal business hours or periods of generator use.



PERMIT TO OPERATE

Lake County Air Quality Management District

2617 S. Main Street, Lakeport, CA 95453 (707) 263-7000, Fax (707) 263-0421

Permit # P/O 2014-06

By: Douglas G. Gearhart
Douglas G. Gearhart, APCO

Type of Issuance: Renewal Issuance Date: 10/31/2024 Valid through: 10/31/2025 Category: II

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Contact: Ms. Susan Petty
Owner: Bottle Rock Power, LLC
Mailing: c/o AltaRock Energy, Inc.
Address: P.O. Box 31205
Seattle, WA 98103-8099

Facility: Bottle Rock Steamfield Office
Location: 7557 High Valley Rd.
Cobb, CA 95426

Name and Equipment Description: Emergency Backup Diesel Generators and Propane Generator

One (1) Condec generator set (S/N BC24958EG), powered by a 1982 model year 100.5 hp Deutz F6L413FR diesel engine (S/N 6710917), one (1) Air Diesel F-3592B generator set, powered by a 20 hp Deutz 2L912 diesel engine (S/N B22390FF) and one (1) Generac GH-410 (8 kW) generator set, powered by a 14.8 hp propane engine (S/N 6253552).

Permit Conditions

Condition 1: Emissions

A. All equipment shall be regularly maintained in good working order pursuant to manufacturer's guidelines and operated in a manner to prevent or minimize air emissions. The Lake County Management District (LCAQMD) shall be notified pursuant to Rule 510, regarding equipment breakdown.

B. The total ROG, PM-10, SOx or NOx emission rate for this facility shall not exceed 25 tons per 12-month period. This emission rate determination shall be consistent with the methodology and assumptions used to evaluate the application under which this permit was issued.

C. Visible emissions shall not exceed Ringelmann 1 (20% opacity) from the generator exhaust stack for more than three (3) minutes in any one (1) hour.

Condition 2: Administrative

A. This permit has been issued and is valid for emergency diesel engine generator use when neither house power nor commercial line power is available because of an emergency or line maintenance outage. Use of the generator for any other purpose will subject the source to NSR and reassessment under the Air Toxics Control Measure (ATCM) for Compression Ignition engines to include control equipment retrofit or other upgrades. The propane generator may be used for prime power when commercial line power is not available.

B. Testing and Maintenance operations are allowed for up to 20 hours per 12-month period per diesel engine.

C. Diesel fuel utilized shall be California Low Sulfur Diesel containing less than 15ppmw sulfur.

(Conditions 2 through 6 are continued on the back of this card)

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D. Bottle Rock Power, LLC (BRP) shall comply with the requirements of the Air Toxics "Hot Spots" Information and Assessment Act as specified in Sections 44300 - 44394 of the California Health and Safety Code as well as the ATCM for Stationary Compression Ignition Engines.

E. A health risk assessment may be required for this facility should engine hours of operation exceed 200 hours per year for the diesel engine generators.

Condition 3: Records and Reporting

A. BRP shall maintain a monthly log of usage for each engine that shall list and document emergency use hours of operation, maintenance and testing hours of operation, initial startup hours, and all other hours of operation.

B. BRP shall document fuel usage for each engine by retention of fuel purchase records, accounting for all fuel used in the engines. Log entries shall be retained for a minimum of 36 months, with 24 months of the most recent entries retained on-site. The log shall meet all requirements of the ATCM for Stationary Compression Ignition Engines.

C. BRP shall maintain a non-resettable hour meter capable of displaying 9,999 hours for each engine.

D. BRP shall furnish for each engine an annual record of fuel use (gallons) and generator use (hours), breaking down hours of testing, maintenance, and emergency (diesel engines) or prime use (propane engine) use, meeting the reporting requirements of the ATCM for Stationary Compression Ignition Engines, and in a format acceptable to the LCAQMD within 15 days of request, and by October 31st of each year.

Condition 4: Modification

A. BRP shall apply for and receive an Authority to Construct permit prior to the addition of new equipment or significant modification of permitted equipment.

Condition 5: Monitoring

A. The herein permitted facility shall not cause a public nuisance nor make a measurable contribution to any Ambient Air Quality Standard exceed. Should this facility result in odor or health complaints, the LCAQMD may require under Sections 430 and 670, monitoring, testing and mitigation by BRP to abate said condition.

Condition 6: Identification and Access

A. This permit shall be posted at the equipment site and be available for BRP's reference and LCAQMD staff inspection. If locks or unmanned gates are used to secure the project area, the LCAQMD or its representative, will be given free access of entry for the purposes of monitoring, or inspecting during normal business hours or periods of generator use.



PERMIT TO OPERATE

Lake County Air Quality Management District

2617 S. Main Street, Lakeport, CA 95453 (707) 263-7000, Fax (707) 263-0421

Permit # P/O 2014-08

By: *Douglas G. Gearhart*
Douglas G. Gearhart, APCO

Type of Issuance: Renewal Issuance Date: 10/31/2024 Valid through: 10/31/2025 Category: II

Operations under this permit must be conducted in compliance with all specifications and data included with the application under which this permit was issued. Equipment must be properly maintained and kept in good condition at all times. Post this permit or a facsimile (with conditions) in a conspicuous location on or near the equipment.

Contact: Ms. Susan Petty
Owner: Bottle Rock Power, LLC
Mailing: c/o AltaRock Energy, Inc.
Address: P.O. Box 31205
Seattle, WA 98103-8099

Facility: Coleman Padsite
Location: 600m N of S, 320m E of W, Section 5, T11N,
R8W, MDB&M, Lake County
Coleman Pad, Bottle Rock / Francisco
Leasehold, Cobb Valley, CA

Name and Equipment Description: Emergency Backup Propane Generator

One (1) Generac Guardian Model Generator, powered by a 32 HP, Generac 922cc V-Twin propane engine, S/N:5281627, Model Year 2008.

Permit Conditions

Condition 1: Emissions

- A. All equipment shall be regularly maintained in good working order, pursuant to manufacturer's guidelines, and operated in a manner to prevent or minimize air emissions.
- B. The total ROG, PM-10, SOx or NOx emission rate for this facility shall not exceed 25 tons per 12-month period.
- C. The Lake County Air Quality Management District (LCAQMD) shall be notified pursuant to Rule 510 regarding equipment breakdown.
- D. Visible emissions shall not exceed Ringelmann 1 (20% opacity) from the engine exhaust stack for more than three (3) minutes in any one (1) hour.

Condition 2: Administrative

- A. This permit has been issued and is valid for emergency generator use when commercial line power is not available because of an emergency or line maintenance outage. Load shedding for cost reduction is not allowed under this permit. Such anticipated use will subject the source to NSR and reassessment.
- B. Testing and maintenance operations are allowed for up to 50 hours per 12-month period.
- C. The generator shall be propane fueled only, conversion or replacement with diesel shall require reassessment and compliance with the Air Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines.

(Conditions 2 through 6 are continued on the back of this card)

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D. Bottle Rock Power, LLC (BRP) shall comply with the requirements of the Air Toxics "Hot Spots" Information and Assessment Act as specified in Sections 44300 - 44394 of the California Health and Safety Code.

Condition 3: Records and Reporting

A. BRP shall maintain a monthly log of usage that shall list and document emergency use hours of operation, maintenance and testing hours of operation, initial startup hours and all other hours of operation.

B. BRP shall document fuel usage by retention of fuel purchase records, accounting for all fuel used in the engine. Log entries shall be retained for a minimum of 36 months, with 24 months of the most recent entries retained on-site.

C. BRP shall maintain a non-resettable hour meter capable of displaying 9,999 hours.

D. BRP shall furnish an annual record of fuel use (gallons) and generator use (hours), breaking down hours of testing, maintenance, and emergency use in a format acceptable to the LCAQMD within 15 days of request, and by October 31st of each year.

Condition 4: Modification

A. BRP shall apply for and receive an Authority to Construct permit prior to the addition of new equipment or significant modification of permitted equipment.

Condition 5: Monitoring

A. The herein permitted facility shall not cause a public nuisance nor make a measurable contribution to any Ambient Air Quality Standard exceed. Should this facility result in odor or health complaints, the LCAQMD may require under Sections 430 and 670, monitoring, testing and mitigation by BRP to abate said condition.

Condition 6: Identification and Access

A. This permit shall be posted at the equipment site and be available for BRP's reference and LCAQMD staff during inspection. If locks or unmanned gates are used to secure the project area, the LCAQMD or its representative will be given free access of entry for the purposes of monitoring or inspecting during normal business hours or periods of generator use.



AUTHORITY TO CONSTRUCT

Lake County Air Quality Management District

2617 S. Main Street, Lakeport, CA 95453 (707) 263-7000, Fax (707) 263-0421

Permit # A/C 17-76-36A

By: Douglas G. Gearhart
Douglas G. Gearhart, APCO

Type of Issuance: Renewal Issuance Date: 10/31/2024 Valid through: 10/31/2025 Category: IV

Operations under this permit must be conducted in compliance with all specifications and data included with the application under which this permit was issued. Equipment must be properly maintained and kept in good condition at all times. Post this permit or a facsimile (with conditions) in a conspicuous location on or near the equipment.

Contact: Ms. Susan Petty
Owner: Bottle Rock Power, LLC
Mailing: c/o AltaRock Energy, Inc.
Address: P.O. Box 31205
Seattle, WA 98103-8099

Facility: Francisco Padsite
Location: 400m S of N, 310m E of W, Sections 5, T11N,
R8W, MDB&M, Lake County
Francisco Pad, Francisco / Bottle Rock
Leasehold, Cobb Valley, CA

Name and Equipment Description: Francisco 1-5

One (1) geothermal production well, associated valving, condensate and rock removal (catcher) and bleed muffler servicing the Bottle Rock Geothermal Power Plant.

Permit Conditions

Condition 1 Bottle Rock Power, LLC (BRP) shall perform and forward to the Lake County Air Quality Management District (LCAQMD), the following characterization of hot water, steam, particulates and/or gases emanating from the subject well(s) within sixty (60) days after completion of the initial geothermal drilling and testing. If the well is abandoned, no analyses will be necessary.

STEAM CONDENSATE/TOTAL STEAM: Benzene, Ammonium (total)*, Arsenic*, Bicarbonate and Carbonate, Sulfates, Chlorides, Nitrates, Boron (total)*, Hydrogen Sulfide (H₂S) (total)*, Fluorides (total), Mercury (total), pH, Total Dissolved Solids, Total Suspended Solids, Percent Non-Condensables, and Steam Flow and Temperature*.

GAS PHASE: Benzene, Particulate in Steam (ug particulate/g of Steam, Arsenic, Lead, Cadmium, Total Sulfur, Boron), Ammonia, Mercury Vapor, Radon 222 and Daughters, Methane, Non-Methane Hydrocarbons, Carbon Dioxide, and NESHAPS pollutants as requested. Tests can be performed utilizing the bleed of the subject well(s) or during flow testing. Gas phase (non-condensables or steam diluted with air as appropriate to maintain gas phase and integrity of sample) tests are to be performed if wells are placed on long term standby bleed. The test protocol shall be submitted to the LCAQMD at least three (3) weeks before such sample collection and analytical testing is planned and shall be approved by the LCAQMD prior to actual source testing. If the well is produced immediately, the LCAQMD may delay required testing (specifically those items without an asterisk) until circumstances require a sustained bleed status of the well, this shall be at the LCAQMD's option and BRP's request.

Condition 2 BRP shall notify the LCAQMD at least twenty-four (24) hours prior to initiating the planned venting of the herein permitted well or any associated group of well(s) in the LCAQMD owned or operated by BRP.

Condition 3 In the event source testing of the herein permitted geothermal well is deemed necessary by the Air Pollution Control Officer (APCO), BRP will be available within ten (10) days after written notice to open said well for a 4-8 hour duration.

Condition 4 If chemical or particulate analysis performed as part of Condition 1 suggests the need for further study, including air dispersion analysis, BRP will assist, perform or finance such studies if deemed reasonable and necessary by the APCO.

Condition 5 If locks or unmanned gates are used to secure the project area, the LCAQMD or its representative, will be given keys or combinations and

(Conditions 5 through 19 are continued on the back of this card)

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have free access of entry for purposes of monitoring, inspecting or collecting samples. If locks or combinations are periodically changed, BRP shall promptly forward new key(s) or combinations to the LCAQMD.

Condition 6 BRP shall limit emissions during drilling, initial clean out, and testing to a rate of no more than five (5.0) pounds of H₂S per hour. Certain exceptions for resource testing may be allowed in writing by the APCO if such tests are 12 hours or less in duration and coincident meteorological conditions are verified as acceptable to the APCO. Detached plume opacity shall be controlled to a 10% opacity by the injection of no less than 60 GPM of water, and excessive splashover or carry through drift shall be prevented by properly sizing of the cyclone scrubber or other acceptable methods.

Condition 7 The DWR H₂S Abatement Plan (Ex log) on file with the LCAQMD is accepted contingent upon changes incorporated in this condition, shall be followed and implemented and is incorporated herein by reference. Entries made into an onsite log book shall occur a minimum of four (4) times daily once abatement is initiated, and entries shall be made in ink and signed in a format acceptable to the LCAQMD. The abatement equipment, an abatement performance plan, and log book, shall be onsite prior to air drilling. The LCAQMD shall be promptly informed as to the responsible onsite person and location of the log book. The official log book shall be maintained at one location, and copies and/or any information contained therein shall be provided to the LCAQMD upon request. The wet cyclone particulate scrubber used as part of the emissions control system shall be maintained in good working order and supplied with a minimum of 60 GPM water. A device acceptable to the LCAQMD to ensure this flow shall be installed upon request of the LCAQMD. Any failures of this abatement system(s) while air drilling shall be logged in the referenced log book. Initial chemical storage shall be a minimum of 500 gallons of both peroxide and caustic to allow for the abatement of unexpected upset conditions and subsequently shall be maintained at a quantity necessary for a 24 hour minimum supply based upon the current chemical use rate.

Condition 8 Road, pad and yard dust for three (3) minutes or more duration in any one (1) hour shall be kept below Ringelmann 2 at all times by making use of oiling or surfacing of roads used regularly and using a dust palliative and water during construction.

Condition 9 If during air drilling excessively high H₂S levels are encountered, BRP shall either a) Put into operation additional H₂S abatement capacity, or b) Cease operation and close in the well according to appropriate standards of operation. For the purposes of this permit, excessively high pockets of H₂S will mean pockets resulting in abated emissions greater than five (5.0) pounds of H₂S per hour or abated emissions levels in excess of 500 ppm volume.

Condition 10 Once a well is placed on standby bleed status it shall be tested to determine H₂S emissions within three (3) days, and retested no sooner than one (1) week, and no less than two (2) weeks after the first test, and thereafter upon a 10 percent or greater change of flowrate. If approaching the allowable emissions limit, a program of testing may be required by the LCAQMD. A written brief monthly report shall be forwarded to the LCAQMD updating and clearly stating well status and estimated emissions of each well for the steamfield upon request of the LCAQMD.

Condition 11 BRP shall connect said development well to the Power Plant Steamfield Transmission Line within ninety (90) days of completion of the subject well(s). Under proven extenuating circumstances, exceptions to this condition can be allowed by the APCO.

Condition 12 The herein permitted well shall not create a nuisance or make a measurable contribution to Ambient Air Quality Standard exceeds. In the event that repeated and documented complaints are received, the LCAQMD reserves the rights to require under Section 430 of the Rules and Regulations additional monitoring, testing and mitigation to abate said nuisance(s) to acceptable levels.

Condition 13 BRP shall promptly notify the LCAQMD per Rule 510 and in writing should they learn of or encounter conditions where toxic air emissions of concern from an occupational standpoint occur and which are allowed to disperse into the ambient air as a mitigation.

Condition 14 BRP shall participate in the Geysers Air Monitoring Program or a similar air monitoring program, approved by the LCAQMD, in an equitable fashion with other developers to assist the LCAQMD in determining the compliance and validity of conditions set forth herein.

Condition 15 These conditions are for the herein listed geothermal development well. BRP agrees that this permit does not establish a precedent for issuing of future permits to BRP.

Condition 16 Within ninety (90) days, or sooner if practicable, after initial commercial operation, BRP will submit to the LCAQMD an application for a Permit to Operate for the herein listed geothermal well.

Condition 17 BRP agrees, consistent with conditions of initial permits issued for this project to promptly fund reasonable studies or tests as required by the LCAQMD, to ascertain the impact of steam production activities specifically at the residence located approximately 1900 feet east of the Francisco pad site. Reasonable mitigation steps shall be applied upon request to attempt to remedy any unlawful impacts of the development project upon the residence.

Condition 18 Should the phenomena described as a "pink or red plume" be encountered and sustained emissions occur during the construction or testing of the herein permitted geothermal well, BRP shall act to promptly enter such information into the abatement log book and shall promptly call the LCAQMD at 263-7000, and/or referenced staff members there at to ensure prompt notice. At the earliest possible time, BRP shall promptly provide for increased blowie line water injection capacity, higher efficiency separator and contactor or other system intended for the efficient abatement of high loading of small sized particulate (e.g., 0.5 to 5.0 micron) to control such abnormal emissions. Alternate technological approaches proposed by BRP and approved by the APCO shall be allowed and are encouraged.

Condition 19 In the event of generalized atmospheric conditions or localized dangerous contamination of such a nature as to constitute an emergency creating a danger to the health and welfare of the citizens of Lake County, the APCO will take immediate action by requiring the applicant to reduce H₂S or other emissions, or to discontinue emissions entirely. In the event emissions are discontinued entirely, a hearing shall be held by the LCAQMD Hearing Board as soon as practical after such action has been taken to determine whether such discontinuance shall continue and if so, under what conditions.



AUTHORITY TO CONSTRUCT

Lake County Air Quality Management District

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Permit # A/C 2006-07

By: Douglas G. Gearhart
Douglas G. Gearhart, APCO

Type of Issuance: Renewal

Issuance Date: 10/31/2024 Valid through: 10/31/2025 Category: IV

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Contact: Ms. Susan Petty
Owner: Bottle Rock Power, LLC
Mailing: c/o AltaRock Energy, Inc.
Address: P.O. Box 31205
Seattle, WA 98103-8099

Facility: Francisco Padsite
Location: 400m S of N, 310m E of W, Sections 5, T11N,
R8W, MDB&M, Lake County
Francisco Pad, Francisco / Bottle Rock
Leasehold, Cobb Valley, CA

Name and Equipment Description: Francisco 2-5 Re-Drill

Geothermal drilling rig and accessories (NCPA Rig #1), Four electrical generators (CAT D-398TA 750 HP diesel engines PERP Registered), three air compressors (Cummins QSK19-C700 700 HP turbocharged diesel powered air compressors), one down hole misting pump; hydrogen sulfide abatement system utilizing high pressure injection of NaOH and H₂O₂; and particulate control equipment consisting of misting down hole, constricting and non constricting venturi contactors, low pressure water spray, expanding blooie line, properly sized, smoothed, tangential wet cyclone, properly designed drop or hopper, water treatment and management systems, necessary metering and measuring devices and associated equipment.

Permit Conditions

Condition 1: Emissions

- A. Bottle Rock Power, LLC (BRP) shall limit hydrogen sulfide (H₂S) emissions during drilling, clean out, and testing to no more than five (5) pounds of H₂S per hour and no more than twenty-four (24) pounds per day during all other phases of this project. During verifiable breakdown and for any hot-liner runs, Rule 510 and procedures shall apply. In the event of atmospheric conditions (e.g., drainage, limited mixing, fumigation, downwash, etc.) that result in complaints and concern in receptor areas from high levels of H₂S, BRP agrees to reduce the H₂S emission limit to two (2) pounds of H₂S using abatement plan at the request of the Air Pollution Control Officer (APCO). Certain exceptions to the H₂S emission limitations may be allowed by the APCO, in writing, for resource testing if such tests are 12 hours or less in duration and coincide with acceptable meteorological conditions verified by the APCO to ensure good dispersion.
- B. If excessively high H₂S levels are encountered during drilling, BRP will either: 1) Place into operation additional H₂S abatement capacity, or 2) Cease operation and close in the well according to appropriate standards of operation. For the purposes of this permit, excessively high levels of H₂S means abated emissions greater than five (5) pounds of H₂S per hour or abated emission levels in excess of 500 ppmv.
- C. Visible emissions shall not exceed the values listed below for more than three (3) minutes in any one (1) hour: • Ringelmann 0.5 (10% opacity) for detached plume at the cyclone; • Ringelmann 0.5 (10% opacity) for combustion emissions of engine exhaust; and • Ringelmann 1 (20% opacity) for road and pad dust emissions.
- D. On commencement of air drilling in significant serpentine, the well logger shall obtain bulk samples that shall be analyzed for asbestos content using TEM, SEM or PLM (California Air Resources Board [ARB] Method 435 Procedures). For the purpose of defining a significant serpentine deposit during geothermal air drilling: "Significant Serpentine" shall mean: drill cutting samples from two consecutive ten-foot interval-drilling sections identified as having 10% or greater serpentine or other asbestos containing ore. The Lake County Air Quality Management District (LCAQMD) shall be promptly notified by phone at 263-7000, provided samples of the drilled material, and unless otherwise agreed upon in writing, notified of the bulk asbestos analysis results within ten working days of sampling.
- E. During drilling in significant serpentine visible emissions shall not exceed Ringelmann 0.25 (5% opacity) for detached plume at the cyclone. BRP shall: 1) Increase down hole misting; 2) Increase water loading at the venturi; 3) Reducing the drilling rate; 4) Use wetting agents; and/or 5) Implement additional solids filtration of working water. Such additional effort shall continue until drilling is clear of significant serpentine/asbestos.

Condition 2: Administrative

- A. This permit has been issued as a modification to include cleanout, forking or deepening of the well as described in the application and permit review. This permit does not establish a precedent for the issuance of additional permits.
- B. The submitted BRP (Tecton) H₂S abatement plan approved by the APCO shall be implemented and followed, and is incorporated herein by reference. Logbook entries shall be made a minimum of four (4) times daily while drilling on air or in steam.
- C. Diesel fuel utilized shall be California Low Sulfur Diesel containing less than 15ppmw sulfur.
- D. If a vapor dominated resource is encountered and it is determined that emissions cannot be maintained pursuant to Parts A & B of LCAQMD Rule 421; or the APCO determines that the well on stand-by (bleed) status will violate the intent of LCAQMD Rule 602 or the associated steamfield permit, then BRP shall with approval of the APCO, install and utilize additional abatement equipment as necessary to bring emissions into compliance. This may include, but is not limited to, immediate conversion to an injector, gas capping, down-hole plugging, and/or the complete closing in of any well in violation of LCAQMD Rules and Regulations.
- E. BRP shall utilize the same particulate abatement system described in the permitting review(s) and includes the following configuration: 1) A non-constricting venturi in the smallest diameter portion of the blooie line (non-constricting venturi 12"-15") for use when flow of at least 20,000 lbs/hr air/steam and a converging venturi scrubber when

(Conditions 2 through 6 are continued on the back of this card)

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drilling in less than 20,000 lbs/hr of steam, or when the pressure drop exceeds 4 PSI across the converging to diverging section, or for problematic operations when concurred with by the LCAQMD, such as well plug drill out or flow testing. Both venturis shall utilize a multi-port 60 GPM or greater adjustable low pressure water injection system as described in the permit review. 2) Particulate control equipment incorporating: a smooth expansion baffle line with low pressure constricting and non-constricting interchangeable spool injection treatment; an approximate eight foot (or greater length) section of rectangular ducting sized and smoothed to the cyclone inlet to allow expansion and laminar flow into the cyclone inlet; a cyclone inlet with a trajectory that avoids the outlet barrel; a smooth internal surface with all protrusions and pockets removed; an outlet barrel approximately 1.25 times the inlet height; an open drop arrangement at the terminus of a full 'cone,' sized 18", or alternatively with written APCO approval a drop hopper that separates liquid and gas then dropping into a water jet venturi or other re-circulating pump system for cuttings removal; and acceptable measurement devices to ensure flows and pressure are properly monitored. 3) If during drilling the subject well, significant liquid, gas or particulate carry through occurs from the cyclone separator stack as a result of unusual circumstances or equipment failure, including but not limited to unexpected large steam or gas entries or water flashing down hole, BRP shall notify the LCAQMD immediately and in no case longer than one (1) hour, per Rule Section 510. Such occurrences shall be logged in the bound abatement logbook and the emission and or resulting evidence documented, to the extent possible, by photographs or video recording. BRP shall provide information on such events and forward such to the LCAQMD. 4) The APCO may modify the cyclone drop out requirements based upon presentation of new information and selection of alternatives proven to be effective. F. BRP shall comply with the requirements of the Air Toxics "Hot Spots" Information and Assessment Act (AB2588) as specified in Sections 44300 - 44394 of the California Health and Safety Code.

Condition 3: Notification

A. BRP shall notify the LCAQMD pursuant to Rule 510, upon breakdown and/or loss of emissions control from this drilling project.

B. In the event that emissions exceed the allowable limits contained in Condition 1, BRP shall notify the LCAQMD within one (1) hour and shall report: a) The cause of the exceed; b) The actions taken or proposed to minimize emissions and achieve compliance; and c) The estimate of emissions and duration of noncompliance.

C. BRP shall notify the LCAQMD at least twenty-four (24) hours prior to initiating the scheduled venting of any well or group of wells in the LCAQMD. This notice shall also apply to schedule installation of a liner while the well continues to produce steam. Unscheduled venting, necessary to prevent well damage, shall be reported as a breakdown pursuant to Rule 510. A written report shall be submitted to the LCAQMD, within three (3) days (72 hours) documenting: a) The need for venting; b) The duration of venting; c) Estimated steam flow and emissions; d) Cyclone or other equipment utilized; e) Abatement systems utilized; and f) The likelihood or need for future occurrences.

D. BRP shall promptly notify the LCAQMD in writing should any incident of occupational concern take place where toxic air emissions occur and are allowed to disperse into the ambient air as mitigation.

E. BRP shall provide a written report of any changes of the estimated amount of serpentine and crystalline silica material expected to be drilled during the air phase as early as practical. Upon completion of drilling, BRP shall provide a final report within sixty (60) days detailing any significant quantity of serpentine (or crystalline silica) material actually encountered during drilling.

Condition 4: Modification/Additions

A. BRP shall apply for and receive an Authority to Construct (A/C) a modification permit prior to the addition of different or new equipment not identified in the application, this permit or covered in the permitting review. The LCAQMD Hearing Board, at a properly noticed public hearing, may grant a variance from these conditions.

Condition 5: Monitoring and Testing

A. BRP shall perform and forward to the LCAQMD the following characterization of hot water, steam particulates and/or gases emanating from the subject well within sixty (60) days after the completion of drilling. If the well is to be abandoned, no analyses will be necessary. a) STEAM CONDENSATE/TOTAL STEAM - Ammonium, Arsenic, Asbestos, Benzene, Bicarbonate and Carbonate, Boron, Bromides, Cadmium, Chlorides, Chromium, Fluorides, Hydrogen Sulfide, Lead, Mercury, Nickel, Nitrates, pH, Silica, Selenium, Sulfates, Zinc, Total Dissolved Solids, Total Suspended Solids, Percent Non-Condensables, Steam Flow and Temperature. b) GAS PHASE - Ammonia, Benzene, Carbon Dioxide, Hydrogen Sulfide, Methane, Non Methane Hydrocarbons, Mercury Vapor, and Radon 222 and Daughters. c) STEAM PARTICULATE*: Arsenic, Boron, Cadmium, Chromium, Lead, Nickel, Total Sulfur (mass all in $\mu\text{g/Kg}$ of steam); Asbestos (fibers/Kg of steam); NESHAP and AB 2588 air pollutants as requested. Tests can be performed utilizing the bleed of the subject well. A test protocol shall be submitted to the LCAQMD at least three (3) weeks before such sample collection and analytical testing is scheduled to occur and shall be approved by the APCO prior to actual source testing. If the well is promptly closed in to a no-vent state, these tests may be delayed upon request of BRP by concurrence of the APCO until such time as the well is produced to the steamline, or placed on vent for 30 or more days, or upon written request of the APCO. *Testing of this type shall consist at a minimum of an XRF analysis of suspended and/or dissolved solids.

B. In the event source testing is deemed necessary by the APCO, BRP shall be available within ten days after written notice, to open the well for 4 to 8 hour duration.

C. If analyses performed as part of Condition 5-A suggests the need for further study, including air dispersion analysis, BRP will assist, perform, or finance such studies if deemed reasonable and necessary by the APCO.

D. BRP shall install and utilize an in-line continuous H₂S monitor or other appropriate equipment to ascertain the levels of this pollutant as a function of depth of drilling. Logging data and test results shall be immediately available to LCAQMD staff upon request at the drill site.

E. Upon request of the APCO, BRP shall perform any additional analytical work necessary to characterize potential emissions from this well prior to applying for a Permit to Operate.

F. If a hot water resource is discovered during the drilling of this well, BRP shall, prior to testing to determine the extent of the resource, submit a test plan to the LCAQMD detailing expected air pollutants and mitigating measures. The LCAQMD will either approve the submitted plan or recommend additional mitigating measures necessary, in writing, prior to actual testing. Total emissions from testing shall be limited to the amount specified in Condition 1.

G. The treatment and use of mud waters for reuse in air drilling is acceptable provided: a) Oils or other hydrocarbons contaminating any reclaimed mud waters are separated prior to use in baffle line treatment during air drilling; and b) The water is analyzed for and shown free of asbestos, and the analysis results are provided to the APCO within three (3) working days of finishing mud water treatment(s).

H. If the well is placed on extended standby bleed, BRP shall test the well to determine the H₂S emissions within three (3) days, and retest the well no sooner than one (1) week, and no later than two (2) weeks after the first test, and thereafter upon a 10% or greater change of flow rate. If emissions are within 90% of the allowable H₂S limit, a program of additional testing may be required by the APCO. A written monthly report shall be forwarded to the LCAQMD updating the well status and the estimated emissions, upon request of the APCO.

I. BRP shall participate in or proportionately fund an air monitoring program to assist the LCAQMD in a continued determination of compliance. In the event of considerable public complaints, the LCAQMD may require additional monitoring, testing and studies to characterize said condition and possible mitigation (Section 430 and 670). Participation in a cooperative monitoring effort, such as GAMP, approved by the APCO shall fulfill this requirement.

Condition 6: Identification and Access

A. This permit shall be posted at the project site during the time the drilling equipment is on site, and be available for BRP and LCAQMD staff upon request. If locks or unmanned gates are used to secure the project area, LCAQMD staff or representatives will be given free access of entry for the purposes of monitoring or inspecting.

B. BRP shall provide the LCAQMD, ARB, and Environmental Protection Agency staff entry and safe access to the project site/equipment for the purpose of inspection, source testing, and/or air monitoring activities.

This permit is based on the equipment and process submitted by BRP and considered in the A/C assessment. The permit issuance is based on the assumption that the operation of this source, as conditioned, will not result in a violation of LCAQMD Rules and Regulations nor contribute to an exceed of any state or federal Ambient Air Quality Standard.



PERMIT TO OPERATE

Lake County Air Quality Management District

2617 S. Main Street, Lakeport, CA 95453 (707) 263-7000, Fax (707) 263-0421

Permit # P/O 85-030A

By: *Douglas G. Gearhart*
Douglas G. Gearhart, APCO

Type of Issuance: Renewal Issuance Date: 10/31/2024 Valid through: 10/31/2025 Category: IV

Operations under this permit must be conducted in compliance with all specifications and data included with the application under which this permit was issued. Equipment must be properly maintained and kept in good condition at all times. Post this permit or a facsimile (with conditions) in a conspicuous location on or near the equipment.

Contact: Ms. Susan Petty
Owner: Bottle Rock Power, LLC
Mailing: c/o AltaRock Energy, Inc.
Address: P.O. Box 31205
Seattle, WA 98103-8099

Facility: Francisco Padsite
Location: 400m S of N, 310m E of W, Sections 5, T11N,
R8W, MDB&M, Lake County
Francisco Pad, Francisco / Bottle Rock
Leasehold, Cobb Valley, CA

Name and Equipment Description: Francisco 3-5

One (1) geothermal production well, associated valving, condensate and rock removal (catcher) and bleed muffler servicing the Bottle Rock Geothermal Power Plant.

Permit Conditions

Condition 1 The herein permitted well shall be operated in compliance and consistent with the steam transmission and power plant Authority to Construct (A/C) and Permit to Operate (P/O) conditions where applicable. The herein permitted well shall be operated in compliance with all Lake County Air Quality Management District (LCAQMD), State, and Federal laws and regulations.

Condition 2 Bottle Rock Power, LLC (BRP) shall notify the LCAQMD at least twenty-four (24) hours prior to initiating the planned venting of any well or group of wells in the LCAQMD owned or operated by BRP in an amount in excess of either 3,000 lbs of steam per hour per well or 20,000 lbs of steam per hour total. Testing to characterize emissions may be required by the Air Pollution Control Officer (APCO) for significant well bleeds or vents. In the event source testing of any geothermal well is deemed necessary by the APCO, BRP will provide safe access and sampling ports.

Condition 3 BRP shall submit to the LCAQMD an application for, and receive, an A/C or modify permit prior to constructing, erecting, altering or replacing any equipment which may cause, potentially cause, reduce, control or eliminate the issuance of air contaminants. This does not include normal and routine maintenance nor well clean out and repairs. It does include deepening, altering or increasing the well bore size in a manner to constitute a modification of the source. BRP shall notify the LCAQMD in advance of, and receive approval for, any planned reworking/maintenance of any of the herein permitted production wells. Conditions for approval of such maintenance work will consider the level and duration of emissions, and the conditions incorporated in current BRP A/C permits and performance plans. BRP shall within thirty (30) days after the completion of re-drilling, re-working or flow testing submit to the LCAQMD the results of any routine or required chemical analysis and/or testing accomplished for the herein listed geothermal development wells that indicate emissions or potential emissions into the air.

(Conditions 4 through 12 are continued on the back of this card)

THIS PERMIT BECOMES VOID UPON CHANGE OF OWNERSHIP OR LOCATION

This permit does not authorize the emission of air contaminants in excess of those allowed by the California Health and Safety Code or the Regulations of the Lake County Air Quality Management District. This permit cannot be considered permission to violate existing laws, ordinances, regulations, or statutes of other government agencies. The provisions of this Permit are severable. If any provision of this Permit is held invalid, the remainder of this Permit shall not be affected thereby.

Condition 4 BRP shall promptly notify the LCAQMD in writing should they learn of, or encounter conditions where toxic air emissions of concern from an occupational standpoint occur and which are allowed to disperse into the ambient air.

Condition 5 If locks or unmanned gates are used to secure the project area, the LCAQMD will be given keys or combinations and allowed free access of entry for purposes of monitoring, collection of samples and inspecting. If locks or access codes are changed periodically, BRP shall promptly forward new keys or access codes.

Condition 6 BRP will install and utilize when determined practicable, and when requested by the APCO, an in-line continuous hydrogen sulfide (H₂S) monitor or other appropriate equipment to ascertain the levels of this pollutant released at the main steam transmission line prior to the turbine main steam stop valve as a result of operating the herein permitted wells. The results of such monitoring will be immediately available to LCAQMD personnel upon request.

Condition 7 Road and pad dust for three (3) minutes or more duration will be kept below Ringlemann 2 at all times by making use of watering, oiling or surfacing of roads or by such other means deemed appropriate.

Condition 8 The herein permitted well shall not create a nuisance nor make a measurable contribution to Ambient Air Quality Standard exceeds. BRP shall limit emissions during maintenance bleed operation to no more than twenty-four (24) pounds per day. Certain temporary exceptions may be granted for clearing the well, breakdowns or testing operations if they are short term and performed during periods of good dispersion as determined by the LCAQMD. BRP shall log steam flow rates and venting duration, and report to the LCAQMD on a monthly basis the amounts vented to atmosphere covered by this condition. Upon request the H₂S levels of such venting shall be measured and reported to the LCAQMD.

Condition 9 This permit is for a single geothermal production well. BRP agrees that this permit does not establish a precedent for issuing future permits to BRP.

Condition 10 If it is determined that emissions limitations, as required by Rule 421.B of LCAQMD Rules and Regulations cannot be maintained, then BRP shall, with approval of the LCAQMD, install and utilize additional equipment or technology as necessary to bring emissions into compliance. This may include, but is not limited to, cycling of or the gas capping of any well in violation of rules and regulations or otherwise vented through a collection system and abated as required by that source permit. An exception may be granted by the APCO on a case by case basis for clearing gas capped wells or dealing with unanticipated breakdowns provided data is gathered to convince the APCO that coincident air dispersion is good and emissions are unlikely to effect any member of the public.

Condition 11 BRP agrees to promptly fund reasonable studies or tests as required by the LCAQMD, to ascertain the impact of steam production activities specifically at the residence located approximately 1900 ft. east of the Francisco pad should the resident in good faith file complaints with the LCAQMD indicating a nuisance or unhealthful air quality exists as a result of development activity on the Francisco leasehold. These studies shall include, but not be limited to monitoring at the residence to determine H₂S levels and particulate, or other components which are believed or known to be in geothermal steam, tracer tests or source tests of emission sources on the leasehold. Such studies shall be approved by the LCAQMD prior to the initiation. Reasonable mitigation steps shall be applied upon request of the LCAQMD to attempt to remedy any unlawful impacts of the development project upon the residence.

Condition 12 At the request of the LCAQMD, BRP shall fund or install and maintain an air quality monitoring site (H₂S, wind direction, wind speed, temperature) to assist the LCAQMD in determining compliance and the validity of emission limitations set forth in these conditions for the BRP Power Plant and Francisco Steamfield Project. It is agreed that this Condition is not intended nor does it require a monitoring station on a well by well basis. If chemical or particulate analysis performed as part of source testing suggests the need for further study including air dispersion analysis, BRP will assist, perform or assist in financing such studies if deemed reasonable and necessary by the APCO.



AUTHORITY TO CONSTRUCT

Lake County Air Quality Management District

2617 S. Main Street, Lakeport, CA 95453 (707) 263-7000, Fax (707) 263-0421

Permit # A/C 2014-09

By: Douglas G. Gearhart
Douglas G. Gearhart, APCO

Type of Issuance: Renewal Issuance Date: 10/31/2024 Valid through: 10/31/2025 Category: IV

Operations under this permit must be conducted in compliance with all specifications and data included with the application under which this permit was issued. Equipment must be properly maintained and kept in good condition at all times. Post this permit or a facsimile (with conditions) in a conspicuous location on or near the equipment.

Contact: Ms. Susan Petty
Owner: Bottle Rock Power, LLC
Mailing: c/o AltaRock Energy, Inc.
Address: P.O. Box 31205
Seattle, WA 98103-8099

Facility: Francisco Padsite
Location: 400m S of N, 310m E of W, Sections 5, T11N,
R8W, MDB&M, Lake County
Francisco Pad, Francisco / Bottle Rock
Leasehold, Cobb Valley, CA

Name and Equipment Description: Francisco 4-5

One (1) geothermal production/injection well, associated valving, condensate and rock removal (catcher), and bleed muffler servicing the Bottle Rock Geothermal Power Plant.

Permit Conditions

Condition 1: Emissions

- A. Bottle Rock Power, LLC (BRP) shall limit Hydrogen Sulfide (H₂S) emissions during drilling, clean out, and testing to no more than five (5) pounds of H₂S per hour and no more than twenty-four (24) pounds per day during all other phases of this project. During verified breakdown and for hot-liner installations, Lake County Air Quality Management District (LCAQMD) Rule 510 and procedures shall apply. In the event of atmospheric conditions (e.g., drainage, limited mixing, fumigation, downwash, etc.) that result in complaints and concern in receptor areas from high levels of H₂S, BRP agrees to reduce the H₂S emission limit to two (2) pounds or less of H₂S per hour, consistent with the BRP H₂S Abatement Plan, at the request of the Air Pollution Control Officer (APCO). Certain exceptions to the H₂S emission limitations may be allowed by the APCO, in writing, for resource testing if such tests are 12 hours or less in duration and coincide with acceptable meteorological conditions verified by the APCO to ensure good dispersion.
- B. If excessively high H₂S levels are encountered during drilling, BRP will either: a) Place into operation additional H₂S abatement capacity, or b) Cease operation and close in the well according to appropriate standards of operation. For the purposes of this permit, excessively high levels of H₂S means abated emissions greater than five (5) pounds of H₂S per hour or abated emission levels in excess of 500 ppm volume.
- C. Visible emissions shall not exceed the values listed below for more than three (3) minutes in any one (1) hour: • Ringelmann 0.5 (10% opacity) for detached plume at the cyclone; • Ringelmann 0.5 (10% opacity) for combustion emissions engine exhaust; and • Ringelmann 1 (20% opacity) for road and pad dust emissions.
- D. On commencement of air drilling in significant serpentine or upon experiencing red/pink plume exiting the cyclone, the well logger shall immediately obtain bulk samples of the drilled material and log the event in the abatement logbook, and shall be analyzed for asbestos content using TEM, SEM or PLM (California Air Resources Board [ARB] Method 435 Procedures). "Experiencing a pink/red plume" shall mean a plume of greater than 5% opacity lasting for 30 or more seconds. For the purpose of defining a significant serpentine deposit during geothermal air drilling: "Significant Serpentine" shall mean; drill cutting samples from two consecutive ten-foot interval-drilling sections identified as having 10% or greater serpentine content. The LCAQMD shall be promptly notified by phone at 263-7000, provided a portion of the divided bulk samples of the drilled material, and unless otherwise agreed upon in writing, notified of the bulk asbestos analysis results within ten (10) working days of sampling. Bulk Samples collected upon experiencing a pink/red plume shall be promptly analyzed by XRF, or other acceptable means, to include at a minimum arsenic, chrome, nickel and cadmium. BRP shall, to the extent practical attempt to collect a sample of the particulate from the pink/red plume, and/or assist the LCAQMD in such an attempt, for analysis as described.
- E. During drilling in significant serpentine, or while experiencing a pink/red plume, visible emissions shall not exceed Ringelmann 0.25 (5% opacity) for detached plume at the cyclone. BRP shall: 1) Increase down hole misting; 2) Increase water loading at the venturi; 3) Reducing the drilling rate; 4) Use wetting agents; and/or 5) Implement additional solids filtration of working water. Such additional effort shall continue until drilling is clear of significant serpentine or drilling conditions contributing to the formation of pink/red plume.

Condition 2: Administrative

- A. This permit has been issued for the geothermal well to function in either injection or production mode. The well is constructed at a total depth of 9,901 feet and includes a well bore, well head, valving, piping, flanges, geothermal fluid transmission line header connections, side leg kick-out, two part slotted liner, and associated corrosion mitigation injection equipment. This permit does not establish a precedent for the issuance of additional permits.
- B. The submitted BRP H₂S abatement plan approved by the APCO or subsequent approved revision, shall be implemented and followed, and is incorporated herein by reference. Logbook entries shall be made a minimum of four (4) times daily.
- C. Diesel fuel utilized shall be California Low Sulfur Diesel containing less than 15 ppmw sulfur.
- D. If a vapor dominated resource is encountered and it is determined that emissions cannot be maintained pursuant to Parts A & B of LCAQMD Rule 421; or the APCO determines that the well on stand-by (bleed) status will violate the intent of LCAQMD Rule 602, then BRP shall with approval of the APCO, install and utilize additional abatement equipment as necessary to bring emissions into compliance. This may include, but is not limited to, immediate conversion to an injector, gas capping, down-hole plugging, and/or the complete closing in of any well in violation of LCAQMD Rules and Regulations.

(Conditions 2 through 6 are continued on the back of this card)

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E. BRP shall utilize the same particulate scrubbing system (or an equivalent system approved by the APCO) as that utilized in recent drilling projects as described in the permitting reviews and includes the following configuration: a) A multi-port 60 GPM or greater adjustable low pressure water injection system in the 13" inside diameter portion of the blooie line (non-constricting venturi) combined with at least 20,000 lbs/hr steam. The constricting venturi scrubber shall not be required when drilling in greater than 20,000 lbs/hr of steam, or when the pressure drop exceeds four (4) PSI across the venturi. Both constricting and non-constricting venturis shall be as submitted and reviewed by the LCAQMD; b) Particulate control equipment incorporating: a smooth expansion blooie line with low pressure injection treatment; an approximate eight foot (or greater length) section of rectangular ducting sized and smoothed to the cyclone inlet to allow expansion and laminar flow into the cyclone inlet; a cyclone inlet with a trajectory that avoids the outlet barrel; a smooth internal surface with all protrusions and pockets removed; a shortened outlet barrel to approximately 1.25 times the inlet height; and acceptable measurement devices to ensure flows and pressures are properly monitored; c) If during drilling the subject well, significant liquid, gas or particulate carry through occurs from the cyclone separator stack as a result of unusual circumstances or equipment failure, including but not limited to unexpected large steam or gas entries or water flashing down hole, BRP shall notify the LCAQMD immediately and in no case longer than one (1) hour, per Rule Section 510. Such occurrences shall be logged in the bound logbook and the emission and/or resulting evidence documented, to the extent possible, by photographs or video recording. BRP shall provide information on such events and forward such to the LCAQMD within 15 days of occurrence; and d) The APCO may modify these requirements based upon presentation of new information and selection of alternatives proven to be more effective.

F. BRP shall comply with the requirements of the Air Toxics "Hot Spots" Information and Assessment Act (AB2588) as specified in Sections 44300 - 44394 of the California Health and Safety Code.

G. BRP shall apply for a Permit to Operate and prove compliance with these conditions within 180 days of commercial operation.

Condition 3: Notification

A. BRP shall notify the LCAQMD pursuant to Rule 510, upon breakdown and/or loss of emissions control from this drilling project.

B. In the event that emissions exceed the allowable limits contained in Condition 1, BRP shall notify the LCAQMD within one (1) hour and shall report: a) The cause of the exceed; b) The actions taken or proposed to minimize emissions and achieve compliance; and c) The estimate of emissions and duration of noncompliance.

C. BRP shall notify the LCAQMD at least twenty-four (24) hours prior to initiating the scheduled venting of any well or group of wells in the LCAQMD owned or operated by BRP. This notice shall also apply to scheduled installation of a liner while the well continues to produce steam. Unscheduled venting, necessary to prevent well damage, shall be reported as a breakdown pursuant to Rule 510. A written report shall be submitted to the LCAQMD, within three (3) days (72 hours) documenting: a) The need for venting; b) The duration of venting; c) Estimated steam flow and emissions; d) Muffler utilization; e) Abatement utilization; and f) The likelihood or need for future occurrences.

D. Upon APCO request, BRP shall notify the LCAQMD at least twenty-four (24) hours in advance of planned switch from production to injection or injection to production mode of the well.

E. In the event that any emissions or the steam plume obscure visibility or create a hazard, BRP shall ensure that posting, warning or other necessary steps are made to ensure safe passage for the public.

F. BRP shall promptly notify the LCAQMD in writing should any incident of occupational concern take place where toxic air emissions occur and are allowed to disperse into the ambient air as a mitigation.

G. BRP shall provide a written report of any changes of the estimated amount of serpentine and crystalline silica material expected to be drilled during the air phase as early as practical. Upon completion of drilling, BRP shall provide a final report within sixty (60) days detailing any significant quantity of serpentine or crystalline silica material actually encountered during drilling.

Condition 4: Modification

A. BRP shall apply for and receive an Authority to Construct permit prior to the addition of different or new equipment not identified in this permit or covered in the permitting review.

Condition 5: Monitoring and Testing

A. BRP shall perform and forward to the LCAQMD the following characterization of hot water, steam particulates and/or gases emanating from the subject well within sixty (60) days after the completion of drilling. If the well is to be abandoned, no analyses will be necessary. a) STEAM CONDENSATE/TOTAL STEAM - Ammonium, Arsenic, Asbestos, Benzene, Bicarbonate and Carbonate, Boron, Bromides, Cadmium, Chlorides, Chromium, Fluorides, H₂S, Lead, Mercury, Nickel, Nitrates, pH, Silica, Selenium, Sulfates, Zinc, Total Dissolved Solids, Total Suspended Solids, Percent Non-Condensables, Steam Flow and Temperature. b) GAS PHASE - Ammonia, Benzene, Carbon Dioxide, H₂S, Methane, Non Methane Hydrocarbons, Mercury Vapor, and Radon 222 and daughters. c) STEAM PARTICULATE*: Arsenic, Boron, Cadmium, Chromium, Lead, Nickel, Total Sulfur (mass all in µg/Kg of steam); Asbestos (fibers/Kg of steam); NESHAP and AB 2588 air pollutants as requested. Tests can be performed utilizing the bleed of the subject well. A test protocol shall be submitted to the LCAQMD at least three (3) weeks before such sample collection and analytical testing is scheduled to occur and shall be approved by the APCO prior to actual source testing. If the well is promptly put into a no-vent state, these tests may be delayed upon request of BRP by concurrence of the APCO until such time as the well is placed on vent for 30 or more days. *Testing of this type shall consist at a minimum of an XRF analysis of suspended and/or dissolved solids.

B. In the event source testing is deemed necessary by the APCO, BRP shall be available within ten (10) days after written notice, to open the well for a 4 to 8 hour duration.

C. If analyses performed as part of Condition 5A suggests the need for further study, including air dispersion analysis, BRP will assist, perform, or finance such studies if deemed reasonable and necessary by the APCO.

D. BRP shall install and utilize an in-line continuous H₂S monitor or other appropriate equipment to ascertain the levels of this pollutant as a function of depth of drilling. Logging data and test results shall be immediately available to LCAQMD staff upon request at the drill site.

E. Upon request of the APCO, BRP shall perform any additional analytical work necessary to characterize potential emissions from this well prior to applying for a Permit to Operate.

F. If a hot water resource is discovered during the drilling of this well, BRP shall, prior to testing to determine the extent of the resource, submit a test plan to the LCAQMD detailing expected air pollutants and mitigating measures. The LCAQMD will either approve the submitted plan or recommend additional mitigating measures necessary, in writing, prior to actual testing. Total emissions from testing shall be limited to the amount specified in Condition 1.

G. The treatment and use of mud waters for reuse in air drilling is acceptable provided: a) Oils or other hydrocarbons contaminating any reclaimed mud waters are separated prior to use in blooie line treatment during air drilling; and b) The water is analyzed for and shown free of asbestos, and the analysis results are provided to the APCO within three (3) working days of finishing mud water treatment(s).

H. If the well is placed on long-term standby bleed, BRP shall test the well to determine the H₂S emissions within three (3) days, and retest the well no sooner than one (1) week, and no later than two (2) weeks after the first test, and thereafter upon a 10% or greater change of flow rate. If emissions are within 90% of the allowable H₂S limit, a program of additional testing may be required by the APCO. A written monthly report shall be forwarded to the LCAQMD updating the well status and the estimated emissions, upon request of the APCO.

I. Upon request of the APCO, BRP shall fund, install and maintain an air quality monitoring site (H₂S, wind direction, wind speed and temperature) to assist the District in determining compliance with the H₂S Ambient Air Quality Standard (AAQS). Continued participation in the Geysers Air Monitoring Program or a similar monitoring program will continue to be required during and beyond the scope of this project.

J. If significant dust complaints are received BRP shall fund, install, and maintain a continuous Federal Equivalent Method Particulate Matter (PM) or LCAQMD approved alternate sampler within fifteen (15) days of request by the APCO.

K. Upon request of the APCO, BRP shall fund, install, and maintain an LCAQMD approved H₂S air quality monitoring station, and/or provide access, siting, and power for an LCAQMD monitoring station, during the new drilling, located between the rig and the property line nearest the closest downwind residence in order to monitor H₂S emissions associated with construction.

Condition 6: Identification and Access

A. This permit shall be posted at the project site during the time the drill is on site, and be available for BRP and LCAQMD staff upon request.

B. BRP shall provide the LCAQMD, ARB, and Environmental Protection Agency staff entry and safe access to the project site/equipment for the purpose of inspection, source testing, and/or air monitoring activities.



PERMIT TO OPERATE

Lake County Air Quality Management District
2617 S. Main Street, Lakeport, CA 95453 (707) 263-7000, Fax (707) 263-0421

Permit # **P/O 86-074A**

By: *Douglas G. Gearhart*
Douglas G. Gearhart, APCO

Type of Issuance: **Renewal** Issuance Date: 10/31/2024 Valid through: 10/31/2025 Category: IV

Operations under this permit must be conducted in compliance with all specifications and data included with the application under which this permit was issued. Equipment must be properly maintained and kept in good condition at all times. Post this permit or a facsimile (with conditions) in a conspicuous location on or near the equipment.

Contact: Ms. Susan Petty
Owner: Bottle Rock Power, LLC
Mailing: c/o AltaRock Energy, Inc.
Address: P.O. Box 31205
Seattle, WA 98103-8099

Facility: Francisco Padsite
Location: 400m S of N, 310m E of W, Sections 5, T11N,
R8W, MDB&M, Lake County
Francisco Pad, Francisco / Bottle Rock
Leasehold, Cobb Valley, CA

Name and Equipment Description: Francisco 5-5

One (1) geothermal production well, associated valving, condensate and rock removal (catcher) and bleed muffler servicing the Bottle Rock Geothermal Power Plant.

Permit Conditions

Condition 1 The herein permitted well shall be operated in compliance and consistent with the steam transmission and power plant Authority to Construct (A/C) and Permit to Operate (P/O) conditions where applicable. The herein permitted well shall be operated in compliance with all Lake County Air Quality Management District (LCAQMD), State, and Federal laws and regulations.

Condition 2 Bottle Rock Power, LLC (BRP) shall notify the LCAQMD at least twenty-four (24) hours prior to initiating the planned venting of any well or group of wells in the LCAQMD owned or operated by BRP in an amount in excess of either 3,000 lbs of steam per hour per well or 20,000 lbs of steam per hour total. Testing to characterize emissions may be required by the Air Pollution Control Officer (APCO) for significant well bleeds or vents. In the event source testing of any geothermal well is deemed necessary by the APCO, BRP will provide safe access and sampling ports.

Condition 3 BRP shall submit to the LCAQMD an application for, and receive, an A/C or modify permit prior to constructing, erecting, altering or replacing any equipment which may cause, potentially cause, reduce, control or eliminate the issuance of air contaminants. This does not include normal and routine maintenance nor well clean out and repairs. It does include deepening, altering or increasing the well bore size in a manner to constitute a modification of the source. BRP shall notify the LCAQMD in advance of, and receive approval for, any planned reworking/maintenance of any of the herein permitted production wells. Conditions for approval of such maintenance work will consider the level and duration of emissions, and the conditions incorporated in current BRP A/C permits and performance plans. BRP shall within thirty (30) days after the completion of re-drilling, re-working or flow testing submit to the LCAQMD the results of any routine or required chemical analysis and/or testing accomplished for the herein listed geothermal development wells that indicate emissions or potential emissions into the air.

(Conditions 4 through 12 are continued on the back of this card)

THIS PERMIT BECOMES VOID UPON CHANGE OF OWNERSHIP OR LOCATION

This permit does not authorize the emission of air contaminants in excess of those allowed by the California Health and Safety Code or the Regulations of the Lake County Air Quality Management District. This permit cannot be considered permission to violate existing laws, ordinances, regulations, or statutes of other government agencies. The provisions of this Permit are severable. If any provision of this Permit is held invalid, the remainder of this Permit shall not be affected thereby.

Condition 4 BRP shall promptly notify the LCAQMD in writing should they learn of, or encounter conditions where toxic air emissions of concern from an occupational standpoint occur and which are allowed to disperse into the ambient air.

Condition 5 If locks or unmanned gates are used to secure the project area, the LCAQMD will be given keys or combinations and allowed free access of entry for purposes of monitoring, collection of samples and inspecting. If locks or access codes are changed periodically, BRP shall promptly forward new keys or access codes.

Condition 6 BRP will install and utilize when determined practicable, and when requested by the APCO, an in-line continuous hydrogen sulfide (H₂S) monitor or other appropriate equipment to ascertain the levels of this pollutant released at the main steam transmission line prior to the turbine main steam stop valve as a result of operating the herein permitted wells. The results of such monitoring will be immediately available to LCAQMD personnel upon request.

Condition 7 Road and pad dust for three (3) minutes or more duration will be kept below Ringlemann 2 at all times by making use of watering, oiling or surfacing of roads or by such other means deemed appropriate.

Condition 8 The herein permitted well shall not create a nuisance nor make a measurable contribution to Ambient Air Quality Standard exceeds. BRP shall limit emissions during maintenance bleed operation to no more than twenty-four (24) pounds per day. Certain temporary exceptions may be granted for clearing the well, breakdowns or testing operations if they are short term and performed during periods of good dispersion as determined by the LCAQMD. BRP shall log steam flow rates and venting duration, and report to the LCAQMD on a monthly basis the amounts vented to atmosphere covered by this condition. Upon request the H₂S levels of such venting shall be measured and reported to the LCAQMD.

Condition 9 This permit is for a single geothermal production well. BRP agrees that this permit does not establish a precedent for issuing future permits to BRP.

Condition 10 If it is determined that emissions limitations, as required by Rule 421.B of LCAQMD Rules and Regulations cannot be maintained, then BRP shall, with approval of the LCAQMD, install and utilize additional equipment or technology as necessary to bring emissions into compliance. This may include, but is not limited to, cycling of or the gas capping of any well in violation of rules and regulations or otherwise vented through a collection system and abated as required by that source permit. An exception may be granted by the APCO on a case by case basis for clearing gas capped wells or dealing with unanticipated breakdowns provided data is gathered to convince the APCO that coincident air dispersion is good and emissions are unlikely to effect any member of the public.

Condition 11 BRP agrees to promptly fund reasonable studies or tests as required by the LCAQMD, to ascertain the impact of steam production activities specifically at the residence located approximately 1900 ft. east of the Francisco pad should the resident in good faith file complaints with the LCAQMD indicating a nuisance or unhealthful air quality exists as a result of development activity on the Francisco leasehold. These studies shall include, but not be limited to monitoring at the residence to determine H₂S levels and particulate, or other components which are believed or known to be in geothermal steam, tracer tests or source tests of emission sources on the leasehold. Such studies shall be approved by the LCAQMD prior to the initiation. Reasonable mitigation steps shall be applied upon request of the LCAQMD to attempt to remedy any unlawful impacts of the development project upon the residence.

Condition 12 At the request of the LCAQMD, BRP shall fund or install and maintain an air quality monitoring site (H₂S, wind direction, wind speed, temperature) to assist the LCAQMD in determining compliance and the validity of emission limitations set forth in these conditions for the BRP Power Plant and Francisco Steamfield Project. It is agreed that this Condition is not intended nor does it require a monitoring station on a well by well basis. If chemical or particulate analysis performed as part of source testing suggests the need for further study including air dispersion analysis, BRP will assist, perform or assist in financing such studies if deemed reasonable and necessary by the APCO.



AUTHORITY TO CONSTRUCT

Lake County Air Quality Management District

2617 S. Main Street, Lakeport, CA 95453 (707) 263-7000, Fax (707) 263-0421

Permit # A/C 86-041A

By: Douglas G. Gearhart
Douglas G. Gearhart, APCO

Type of Issuance: Renewal Issuance Date: 10/31/2024 Valid through: 10/31/2025 Category: IV

Operations under this permit must be conducted in compliance with all specifications and data included with the application under which this permit was issued. Equipment must be properly maintained and kept in good condition at all times. Post this permit or a facsimile (with conditions) in a conspicuous location on or near the equipment.

Contact: Ms. Susan Petty
Owner: Bottle Rock Power, LLC
Mailing: c/o AltaRock Energy, Inc.
Address: P.O. Box 31205
Seattle, WA 98103-8099

Facility: Francisco Padsite
Location: 400m S of N, 310m E of W, Sections 5, T11N,
R8W, MDB&M, Lake County
Francisco Pad, Francisco / Bottle Rock
Leasehold, Cobb Valley, CA

Name and Equipment Description: Francisco 6-5

One (1) geothermal production well, associated valving, condensate and rock removal (catcher) and bleed muffler servicing the Bottle Rock Geothermal Power Plant.

Permit Conditions

Condition 1 Bottle Rock Power, LLC (BRP) shall perform and forward to the Lake County Air Quality Management District (LCAQMD), the following characterization of hot water, steam, particulates and/or gases emanating from the subject well(s) within sixty (60) days after completion of the initial geothermal drilling and testing. If the well is abandoned, no analyses will be necessary.

STEAM CONDENSATE/TOTAL STEAM: Benzene, Ammonium (total)*, Arsenic*, Bicarbonate and Carbonate, Sulfates, Chlorides, Nitrates, Boron (total)*, Hydrogen Sulfide (H₂S) (total)*, Fluorides (total), Mercury (total), pH, Total Dissolved Solids, Total Suspended Solids, Percent Non-Condensables, and Steam Flow and Temperature*.

GAS PHASE: Benzene, Particulate in Steam (ug particulate/g of Steam, Arsenic, Lead, Cadmium, Total Sulfur, Boron), Ammonia, Mercury Vapor, Radon 222 and Daughters, Methane, Non-Methane Hydrocarbons, Carbon Dioxide, and NESHAPS pollutants as requested. Tests can be performed utilizing the bleed of the subject well(s) or during flow testing. Gas phase (non-condensables or steam diluted with air as appropriate to maintain gas phase and integrity of sample) tests are to be performed if wells are placed on long term standby bleed. The test protocol shall be submitted to the LCAQMD at least three (3) weeks before such sample collection and analytical testing is planned and shall be approved by the LCAQMD prior to actual source testing. If the well is produced immediately, the LCAQMD may delay required testing (specifically those items without an asterisk) until circumstances require a sustained bleed status of the well, this shall be at the LCAQMD's option and BRP's request.

Condition 2 BRP shall notify the LCAQMD at least twenty-four (24) hours prior to initiating the planned venting of the herein permitted well or any associated group of well(s) in the LCAQMD owned or operated by BRP.

Condition 3 In the event source testing of the herein permitted geothermal well is deemed necessary by the Air Pollution Control Officer (APCO), BRP will be available within ten (10) days after written notice to open said well for a 4-8 hour duration.

Condition 4 If chemical or particulate analysis performed as part of Condition 1 suggests the need for further study, including air dispersion analysis, BRP will assist, perform or finance such studies if deemed reasonable and necessary by the APCO.

Condition 5 If locks or unmanned gates are used to secure the project area, the LCAQMD or its representative, will be given keys or combinations and

(Conditions 5 through 19 are continued on the back of this card)

THIS PERMIT BECOMES VOID UPON CHANGE OF OWNERSHIP OR LOCATION

This permit does not authorize the emission of air contaminants in excess of those allowed by the California Health and Safety Code or the Regulations of the Lake County Air Quality Management District. This permit cannot be considered permission to violate existing laws, ordinances, regulations, or statutes of other government agencies. The provisions of this Permit are severable. If any provision of this Permit is held invalid, the remainder of this Permit shall not be affected thereby.

have free access of entry for purposes of monitoring, inspecting or collecting samples. If locks or combinations are periodically changed, BRP shall promptly forward new key(s) or combinations to the LCAQMD.

Condition 6 BRP shall limit emissions during drilling, initial clean out, and testing to a rate of no more than five (5.0) pounds of H₂S per hour. Certain exceptions for resource testing may be allowed in writing by the APCO if such tests are 12 hours or less in duration and coincident meteorological conditions are verified as acceptable to the APCO. Detached plume opacity shall be controlled to a 10% opacity by the injection of no less than 60 GPM of water, and excessive splashover or carry through drift shall be prevented by properly sizing of the cyclone scrubber or other acceptable methods.

Condition 7 The DWR H₂S Abatement Plan (Ex log) on file with the LCAQMD is accepted contingent upon changes incorporated in this condition, shall be followed and implemented and is incorporated herein by reference. Entries made into an onsite log book shall occur a minimum of four (4) times daily once abatement is initiated, and entries shall be made in ink and signed in a format acceptable to the LCAQMD. The abatement equipment, an abatement performance plan, and log book, shall be onsite prior to air drilling. The LCAQMD shall be promptly informed as to the responsible onsite person and location of the log book. The official log book shall be maintained at one location, and copies and/or any information contained therein shall be provided to the LCAQMD upon request. The wet cyclone particulate scrubber used as part of the emissions control system shall be maintained in good working order and supplied with a minimum of 60 GPM water. A device acceptable to the LCAQMD to ensure this flow shall be installed upon request of the LCAQMD. Any failures of this abatement system(s) while air drilling shall be logged in the referenced log book. Initial chemical storage shall be a minimum of 500 gallons of both peroxide and caustic to allow for the abatement of unexpected upset conditions and subsequently shall be maintained at a quantity necessary for a 24 hour minimum supply based upon the current chemical use rate.

Condition 8 Road, pad and yard dust for three (3) minutes or more duration in any one (1) hour shall be kept below Ringelmann 2 at all times by making use of oiling or surfacing of roads used regularly and using a dust palliative and water during construction.

Condition 9 If during air drilling excessively high H₂S levels are encountered, BRP shall either a) Put into operation additional H₂S abatement capacity, or b) Cease operation and close in the well according to appropriate standards of operation. For the purposes of this permit, excessively high pockets of H₂S will mean pockets resulting in abated emissions greater than five (5.0) pounds of H₂S per hour or abated emissions levels in excess of 500 ppm volume.

Condition 10 Once a well is placed on standby bleed status it shall be tested to determine H₂S emissions within three (3) days, and retested no sooner than one (1) week, and no less than two (2) weeks after the first test, and thereafter upon a 10 percent or greater change of flowrate. If approaching the allowable emissions limit, a program of testing may be required by the LCAQMD. A written brief monthly report shall be forwarded to the LCAQMD updating and clearly stating well status and estimated emissions of each well for the steamfield upon request of the LCAQMD.

Condition 11 BRP shall connect said development well to the Power Plant Steamfield Transmission Line within ninety (90) days of completion of the subject well(s). Under proven extenuating circumstances, exceptions to this condition can be allowed by the APCO.

Condition 12 The herein permitted well shall not create a nuisance or make a measurable contribution to Ambient Air Quality Standard exceeds. In the event that repeated and documented complaints are received, the LCAQMD reserves the rights to require under Section 430 of the Rules and Regulations additional monitoring, testing and mitigation to abate said nuisance(s) to acceptable levels.

Condition 13 BRP shall promptly notify the LCAQMD per Rule 510 and in writing should they learn of or encounter conditions where toxic air emissions of concern from an occupational standpoint occur and which are allowed to disperse into the ambient air as a mitigation.

Condition 14 BRP shall participate in the Geysers Air Monitoring Program or a similar air monitoring program, approved by the LCAQMD, in an equitable fashion with other developers to assist the LCAQMD in determining the compliance and validity of conditions set forth herein.

Condition 15 These conditions are for the herein listed geothermal development well. BRP agrees that this permit does not establish a precedent for issuing of future permits to BRP.

Condition 16 Within ninety (90) days, or sooner if practicable, after initial commercial operation, BRP will submit to the LCAQMD an application for a Permit to Operate for the herein listed geothermal well.

Condition 17 BRP agrees, consistent with conditions of initial permits issued for this project to promptly fund reasonable studies or tests as required by the LCAQMD, to ascertain the impact of steam production activities specifically at the residence located approximately 1900 feet east of the Francisco pad site. Reasonable mitigation steps shall be applied upon request to attempt to remedy any unlawful impacts of the development project upon the residence.

Condition 18 Should the phenomena described as a "pink or red plume" be encountered and sustained emissions occur during the construction or testing of the herein permitted geothermal well, BRP shall act to promptly enter such information into the abatement log book and shall promptly call the LCAQMD at 263-7000, and/or referenced staff members there at to ensure prompt notice. At the earliest possible time, BRP shall promptly provide for increased blowie line water injection capacity, higher efficiency separator and contactor or other system intended for the efficient abatement of high loading of small sized particulate (e.g., 0.5 to 5.0 micron) to control such abnormal emissions. Alternate technological approaches proposed by BRP and approved by the APCO shall be allowed and are encouraged.

Condition 19 In the event of generalized atmospheric conditions or localized dangerous contamination of such a nature as to constitute an emergency creating a danger to the health and welfare of the citizens of Lake County, the APCO will take immediate action by requiring the applicant to reduce H₂S or other emissions, or to discontinue emissions entirely. In the event emissions are discontinued entirely, a hearing shall be held by the LCAQMD Hearing Board as soon as practical after such action has been taken to determine whether such discontinuance shall continue and if so, under what conditions.



AUTHORITY TO CONSTRUCT

Lake County Air Quality Management District

2617 S. Main Street, Lakeport, CA 95453 (707) 263-7000, Fax (707) 263-0421

Permit # A/C 86-042A

By: Douglas G. Gearhart
Douglas G. Gearhart, APCO

Type of Issuance: Renewal

Issuance Date: 10/31/2024 Valid through: 10/31/2025 Category: IV

Operations under this permit must be conducted in compliance with all specifications and data included with the application under which this permit was issued. Equipment must be properly maintained and kept in good condition at all times. Post this permit or a facsimile (with conditions) in a conspicuous location on or near the equipment.

Contact: Ms. Susan Petty
Owner: Bottle Rock Power, LLC
Mailing: c/o AltaRock Energy, Inc.
Address: P.O. Box 31205
Seattle, WA 98103-8099

Facility: Francisco Padsite
Location: 400m S of N, 310m E of W, Sections 5, T11N,
R8W, MDB&M, Lake County
Francisco Pad, Francisco / Bottle Rock
Leasehold, Cobb Valley, CA

Name and Equipment Description: Francisco 7-5

One (1) geothermal production well, associated valving, condensate and rock removal (catcher) and bleed muffler servicing the Bottle Rock Geothermal Power Plant.

Permit Conditions

Condition 1 Bottle Rock Power, LLC (BRP) shall perform and forward to the Lake County Air Quality Management District (LCAQMD), the following characterization of hot water, steam, particulates and/or gases emanating from the subject well(s) within sixty (60) days after completion of the initial geothermal drilling and testing. If the well is abandoned, no analyses will be necessary.

STEAM CONDENSATE/TOTAL STEAM: Benzene, Ammonium (total)*, Arsenic*, Bicarbonate and Carbonate, Sulfates, Chlorides, Nitrates, Boron (total)*, Hydrogen Sulfide (H₂S) (total)*, Fluorides (total), Mercury (total), pH, Total Dissolved Solids, Total Suspended Solids, Percent Non-Condensables, and Steam Flow and Temperature*.

GAS PHASE: Benzene, Particulate in Steam (ug particulate/g of Steam, Arsenic, Lead, Cadmium, Total Sulfur, Boron), Ammonia, Mercury Vapor, Radon 222 and Daughters, Methane, Non-Methane Hydrocarbons, Carbon Dioxide, and NESHAPS pollutants as requested. Tests can be performed utilizing the bleed of the subject well(s) or during flow testing. Gas phase (non-condensables or steam diluted with air as appropriate to maintain gas phase and integrity of sample) tests are to be performed if wells are placed on long term standby bleed. The test protocol shall be submitted to the LCAQMD at least three (3) weeks before such sample collection and analytical testing is planned and shall be approved by the LCAQMD prior to actual source testing. If the well is produced immediately, the LCAQMD may delay required testing (specifically those items without an asterisk) until circumstances require a sustained bleed status of the well, this shall be at the LCAQMD's option and BRP's request.

Condition 2 BRP shall notify the LCAQMD at least twenty-four (24) hours prior to initiating the planned venting of the herein permitted well or any associated group of well(s) in the LCAQMD owned or operated by BRP.

Condition 3 In the event source testing of the herein permitted geothermal well is deemed necessary by the Air Pollution Control Officer (APCO), BRP will be available within ten (10) days after written notice to open said well for a 4-8 hour duration.

Condition 4 If chemical or particulate analysis performed as part of Condition 1 suggests the need for further study, including air dispersion analysis, BRP will assist, perform or finance such studies if deemed reasonable and necessary by the APCO.

Condition 5 If locks or unmanned gates are used to secure the project area, the LCAQMD or its representative, will be given keys or combinations and

(Conditions 5 through 19 are continued on the back of this card)

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have free access of entry for purposes of monitoring, inspecting or collecting samples. If locks or combinations are periodically changed, BRP shall promptly forward new key(s) or combinations to the LCAQMD.

Condition 6 BRP shall limit emissions during drilling, initial clean out, and testing to a rate of no more than five (5.0) pounds of H₂S per hour. Certain exceptions for resource testing may be allowed in writing by the APCO if such tests are 12 hours or less in duration and coincident meteorological conditions are verified as acceptable to the APCO. Detached plume opacity shall be controlled to a 10% opacity by the injection of no less than 60 GPM of water, and excessive splashover or carry through drift shall be prevented by properly sizing of the cyclone scrubber or other acceptable methods.

Condition 7 The DWR H₂S Abatement Plan (Ex log) on file with the LCAQMD is accepted contingent upon changes incorporated in this condition, shall be followed and implemented and is incorporated herein by reference. Entries made into an onsite log book shall occur a minimum of four (4) times daily once abatement is initiated, and entries shall be made in ink and signed in a format acceptable to the LCAQMD. The abatement equipment, an abatement performance plan, and log book, shall be onsite prior to air drilling. The LCAQMD shall be promptly informed as to the responsible onsite person and location of the log book. The official log book shall be maintained at one location, and copies and/or any information contained therein shall be provided to the LCAQMD upon request. The wet cyclone particulate scrubber used as part of the emissions control system shall be maintained in good working order and supplied with a minimum of 60 GPM water. A device acceptable to the LCAQMD to ensure this flow shall be installed upon request of the LCAQMD. Any failures of this abatement system(s) while air drilling shall be logged in the referenced log book. Initial chemical storage shall be a minimum of 500 gallons of both peroxide and caustic to allow for the abatement of unexpected upset conditions and subsequently shall be maintained at a quantity necessary for a 24 hour minimum supply based upon the current chemical use rate.

Condition 8 Road, pad and yard dust for three (3) minutes or more duration in any one (1) hour shall be kept below Ringelmann 2 at all times by making use of oiling or surfacing of roads used regularly and using a dust palliative and water during construction.

Condition 9 If during air drilling excessively high H₂S levels are encountered, BRP shall either a) Put into operation additional H₂S abatement capacity, or b) Cease operation and close in the well according to appropriate standards of operation. For the purposes of this permit, excessively high pockets of H₂S will mean pockets resulting in abated emissions greater than five (5.0) pounds of H₂S per hour or abated emissions levels in excess of 500 ppm volume.

Condition 10 Once a well is placed on standby bleed status it shall be tested to determine H₂S emissions within three (3) days, and retested no sooner than one (1) week, and no less than two (2) weeks after the first test, and thereafter upon a 10 percent or greater change of flowrate. If approaching the allowable emissions limit, a program of testing may be required by the LCAQMD. A written brief monthly report shall be forwarded to the LCAQMD updating and clearly stating well status and estimated emissions of each well for the steamfield upon request of the LCAQMD.

Condition 11 BRP shall connect said development well to the Power Plant Steamfield Transmission Line within ninety (90) days of completion of the subject well(s). Under proven extenuating circumstances, exceptions to this condition can be allowed by the APCO.

Condition 12 The herein permitted well shall not create a nuisance or make a measurable contribution to Ambient Air Quality Standard exceeds. In the event that repeated and documented complaints are received, the LCAQMD reserves the rights to require under Section 430 of the Rules and Regulations additional monitoring, testing and mitigation to abate said nuisance(s) to acceptable levels.

Condition 13 BRP shall promptly notify the LCAQMD per Rule 510 and in writing should they learn of or encounter conditions where toxic air emissions of concern from an occupational standpoint occur and which are allowed to disperse into the ambient air as a mitigation.

Condition 14 BRP shall participate in the Geysers Air Monitoring Program or a similar air monitoring program, approved by the LCAQMD, in an equitable fashion with other developers to assist the LCAQMD in determining the compliance and validity of conditions set forth herein.

Condition 15 These conditions are for the herein listed geothermal development well. BRP agrees that this permit does not establish a precedent for issuing of future permits to BRP.

Condition 16 Within ninety (90) days, or sooner if practicable, after initial commercial operation, BRP will submit to the LCAQMD an application for a Permit to Operate for the herein listed geothermal well.

Condition 17 BRP agrees, consistent with conditions of initial permits issued for this project to promptly fund reasonable studies or tests as required by the LCAQMD, to ascertain the impact of steam production activities specifically at the residence located approximately 1900 feet east of the Francisco pad site. Reasonable mitigation steps shall be applied upon request to attempt to remedy any unlawful impacts of the development project upon the residence.

Condition 18 Should the phenomena described as a "pink or red plume" be encountered and sustained emissions occur during the construction or testing of the herein permitted geothermal well, BRP shall act to promptly enter such information into the abatement log book and shall promptly call the LCAQMD at 263-7000, and/or referenced staff members there at to ensure prompt notice. At the earliest possible time, BRP shall promptly provide for increased blowie line water injection capacity, higher efficiency separator and contactor or other system intended for the efficient abatement of high loading of small sized particulate (e.g., 0.5 to 5.0 micron) to control such abnormal emissions. Alternate technological approaches proposed by BRP and approved by the APCO shall be allowed and are encouraged.

Condition 19 In the event of generalized atmospheric conditions or localized dangerous contamination of such a nature as to constitute an emergency creating a danger to the health and welfare of the citizens of Lake County, the APCO will take immediate action by requiring the applicant to reduce H₂S or other emissions, or to discontinue emissions entirely. In the event emissions are discontinued entirely, a hearing shall be held by the LCAQMD Hearing Board as soon as practical after such action has been taken to determine whether such discontinuance shall continue and if so, under what conditions.



AUTHORITY TO CONSTRUCT

Lake County Air Quality Management District

2617 S. Main Street, Lakeport, CA 95453 (707) 263-7000, Fax (707) 263-0421

Permit # A/C 2008-28

By: Douglas G. Gearhart
Douglas G. Gearhart, APCO

Type of Issuance: Renewal Issuance Date: 10/31/2024 Valid through: 10/31/2025 Category: IV

Operations under this permit must be conducted in compliance with all specifications and data included with the application under which this permit was issued. Equipment must be properly maintained and kept in good condition at all times. Post this permit or a facsimile (with conditions) in a conspicuous location on or near the equipment.

Contact: Ms. Susan Petty
Owner: Bottle Rock Power, LLC
Mailing: c/o AltaRock Energy, Inc.
Address: P.O. Box 31205
Seattle, WA 98103-8099

Facility: Francisco Padsite
Location: 400m S of N, 310m E of W, Sections 5, T11N,
R8W, MDB&M, Lake County
Francisco Pad, Francisco / Bottle Rock
Leasehold, Cobb Valley, CA

Name and Equipment Description: Francisco 9-5

Geothermal drilling rig and accessories (ThermaSource Rig # 108 or equivalent), three (3) electrical generators (1101 Hp CAT 3512 turbocharged PERP registered diesel engines), one (1) top drive engine (1205Hp Detroit diesel model R1638K40 turbocharged and after-cooled, PERP registered diesel engine), three (3) air compressors (717 Hp CAT 900 series turbocharged and after-cooled, diesel PERP registered engines), one (1) air compressor (700 Hp CAT C-18 turbocharged and after-cooled, PERP registered diesel engine), one (1) down hole misting pump (110 Hp Cummins QSB4.5 turbocharged PERP registered diesel engine); H2S abatement system utilizing high pressure injection of NaOH and H2O2; drawdown chemical flow metering devices; particulate control equipment consisting of misting down hole, constricting and non constricting venturi contactors, low pressure water spray, expanding blooie line, properly sized, smoothed, tangential wet cyclone, water treatment and management systems, and metering and measuring devices and associated equipment.

Permit Conditions

Condition 1: Emissions

A. Bottle Rock Power, LLC (BRP) shall limit Hydrogen Sulfide (H2S) emissions during drilling, clean out, and testing to no more than five (5) pounds of H2S per hour and no more than twenty-four (24) pounds per day during all other phases of this project. During verified breakdown and for hot-liner installations, Lake County Air Quality Management District (LCAQMD) Rule 510 and procedures shall apply. In the event of atmospheric conditions (e.g., drainage, limited mixing, fumigation, downwash, etc.) that result in complaints and concern in receptor areas from high levels of H2S, BRP agrees to reduce the H2S emission limit to two (2) pounds or less of H2S per hour consistent with the BRP H2S Abatement Plan, at the request of the Air Pollution Control Officer (APCO). Certain exceptions to the H2S emission limitations may be allowed by the APCO, in writing, for resource testing if such tests are 12 hours or less in duration and coincide with acceptable meteorological conditions verified by the APCO to ensure good dispersion.

B. If excessively high H2S levels are encountered during drilling, BRP will either: a) Place into operation additional H2S abatement capacity, or b) Cease operation and close in the well according to appropriate standards of operation. For the purposes of this permit, excessively high levels of H2S means abated emissions greater than five (5) pounds of H2S per hour or abated emission levels in excess of 500 ppm volume.

C. Visible emissions shall not exceed the values listed below for more than three (3) minutes in any one (1) hour: • Ringelmann 0.5 (10% opacity) for detached plume at the cyclone; • Ringelmann 0.5 (10% opacity) for combustion emissions engine exhaust; and • Ringelmann 1 (20% opacity) for road and pad dust emissions.

D. On commencement of air drilling in significant serpentine or upon experiencing red/pink plume exiting the cyclone, the well logger shall immediately obtain bulk samples of the drilled material and log the event in the abatement logbook, and shall be analyzed for asbestos content using TEM, SEM or PLM (California Air Resources Board [ARB] Method 435 Procedures). "Experiencing a pink/red plume" shall mean a plume of greater than 5% opacity lasting for 30 or more seconds. For the purpose of defining a significant serpentine deposit during geothermal air drilling: "Significant Serpentine" shall mean; drill cutting samples from two consecutive ten-foot interval-drilling sections identified as having 10% or greater serpentine content. The LCAQMD shall be promptly notified by phone at 263-7000, provided a portion of the divided bulk samples of the drilled material, and unless otherwise agreed upon in writing, notified of the bulk asbestos analysis results within ten working days of sampling. Bulk Samples collected upon experiencing a pink/red plume shall be promptly analyzed by XRF, or other acceptable means, to include at a minimum arsenic, chrome, nickel and cadmium. BRP shall, to the extent practical attempt to collect a sample of the particulate from the pink/red plume, and/or assist the LCAQMD in such an attempt, for analysis as described.

E. During drilling in significant serpentine, or while experiencing a pink/red plume, visible emissions shall not exceed Ringelmann 0.25 (5% opacity) for detached plume at the cyclone. BRP shall: 1) Increase down hole misting; 2) Increase water loading at the venturi; 3) Reducing the drilling rate; 4) Use wetting agents; and/or 5) Implement additional solids filtration of working water. Such additional effort shall continue until drilling is clear of significant serpentine or drilling conditions contributing to the formation of pink/red plume.

Condition 2: Administrative

A. This permit has been issued for the construction of a geothermal production well to a total depth of 11,000 feet and includes a well bore, well head, valving, piping, flanges, geothermal fluid transmission line header connections, side leg kick-out, two part slotted liner, and associated corrosion mitigation injection equipment. This permit does not establish a precedent for the issuance of additional permits.

B. The submitted BRP H2S abatement plan approved by the APCO or subsequent approved revision, shall be implemented and followed, and is incorporated herein by reference. Logbook entries shall be made a minimum of four (4) times daily.

(Conditions 2 through 6 are continued on the back of this card)

THIS PERMIT BECOMES VOID UPON CHANGE OF OWNERSHIP OR LOCATION

This permit does not authorize the emission of air contaminants in excess of those allowed by the California Health and Safety Code or the Regulations of the Lake County Air Quality Management District. This permit cannot be considered permission to violate existing laws, ordinances, regulations, or statutes of other government agencies. The provisions of this Permit are severable. If any provision of this Permit is held invalid, the remainder of this Permit shall not be affected thereby.