DOCKETED	
Docket Number:	81-AFC-01C
Project Title:	Compliance - Application for Certification of the Occidential Plant # 1
TN #:	234737
Document Title:	Calisotga Unit 19 PTA Diesel Amendment
Description:	Calistoga Staff Analysis of Petition to Amend Unit 19
Filer:	Susan Fleming
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	9/15/2020 2:56:02 PM
Docketed Date:	9/15/2020

DATE: September 15, 2020

TO: Interested Parties

FROM: Eric Veerkamp, Compliance Project Manager

SUBJECT: **Calistoga Geothermal Power Plant (81-AFC-01C)**
Staff Analysis of Petition to Amend for Recommissioning Activities; Installation of a permanent standby diesel engine driven pump

On June 24, 2020, Geysers Power Company (GPC), LLC, submitted a petition for modification of the Final Decision for the Calistoga Geothermal Power Plant (TN 233639). GPC has requested California Energy Commission (CEC) approval to install a permanent standby diesel engine-powered pump for the cooling tower wet-down system. The equipment upgrade would change the operational characteristics of the power plant, and it would also require changes to the air quality conditions of certification for the facility. CEC staff is additionally proposing to revise the facility's air quality conditions of certification for consistency with the Lake County Air Quality Management District's (LCAQMD) Authority to Construct (ATC) Permit, issued on May 11, 2020.

Calistoga is a dry steam, 97-megawatt geothermal power plant, originally licensed by the CEC in February 1982, with commercial operations commencing in March 1984. The facility is located at 10350 Socrates Mine Road, Sonoma County, California.

CEC staff reviewed the present petition and assessed the impacts of this proposal on environmental quality and on public health and safety. Based on staff's analysis, contained below, staff recommends modifications to air quality conditions of certification for Calistoga. The current conditions do not provide an adequate, traceable nexus between the air quality standards and the reporting requirements. Staff proposes that the existing slate of air quality conditions of certification be repealed and replaced with new conditions of certification to update the reporting standards and incorporate revised LCAQMD permit language that has changed as a result of new Title V requirements.

Staff concludes that, with adoption of the recommendations in the analysis below, the project would remain in compliance with applicable laws, ordinances, regulations, and standards (LORS), and the proposed changes to the project would not result in any significant adverse direct, indirect, or cumulative impacts to the environment (Cal. Code of Regs., tit. 20, § 1769).

The petition to amend and staff analysis have been posted on the CEC's Calistoga webpage at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=81-AFC-01C.

CEC staff intends to recommend approval of the petition and the new conditions of certification proposed in staff's analysis at the October 14, 2020, CEC Business Meeting. After the meeting, the CEC's Order regarding this petition will also be posted on the Commission's Calistoga webpage.

This notice and staff analysis are being provided to property owners adjacent to the Calistoga site. This notice and staff analysis are also being mailed to other interested parties and the Calistoga (Unit 19) mail list and being sent electronically to the Calistoga (Unit 19) list serve.

Any person may comment on the staff analysis or petition to amend. Those who wish to comment on the analysis or petition to amend are asked to submit their comments by 5:00 PM on Monday, October 12, 2020. To use the CEC's electronic commenting feature, go to the CEC's webpage for this facility, cited above, click on either the "Comment on this Proceeding" or "Submit e-Comment" links, and follow the instructions in the online form. Be sure to include the facility name in your comments.

Written comments may also be mailed to:

California Energy Commission
Dockets Unit, MS-4
Docket No. 81-AFC-01C
1516 Ninth Street
Sacramento, CA 95814-5512

All comments and materials filed with the Dockets Unit will be added to the Calistoga Docket Log and become publicly accessible on the CEC's webpage for the facility.

If you have questions about this notice, please contact Eric Veerkamp, Compliance Project Manager, at (916) 654-4295 or via e-mail at: eric.veerkamp@energy.ca.gov.

For information on participating in the CEC's review of the proposed modification to the Calistoga facility, please contact the CEC Public Adviser's Office at (800) 822-6228 (toll-free in California). The Public Adviser's Office can also be contacted via e-mail at: publicadviser@energy.ca.gov. News media inquiries should be directed to the Energy Commission Media Office at (916) 654-4989, or by e-mail at: mediaoffice@energy.ca.gov.

Mail List 771
Calistoga List Serve

GEYSERS CALISTOGA, UNIT 19 (81-AFC-01C)
Petition to Amend Commission Decision
EXECUTIVE SUMMARY
Eric Veerkamp

INTRODUCTION

On June 24, 2020, Geysers Power Company, LLC, filed a post certification petition (TN 233639) with the California Energy Commission (CEC) requesting a change to Calistoga (Unit 19) geothermal power plant (81-AFC-01C) fire system as part of the fire system recommissioning activities. Calistoga (Unit 19) is currently undergoing recommissioning activities to assess the plant's current fire protection needs and implement modifications and repairs to satisfy fire code and CEC condition of certification requirements. The petition requests approval of a permanent stand-by diesel engine-driven pump for the cooling tower wet-down system.

The diesel engine, pump, and associated equipment would be contained on a single skid and placed on a foundation located in the existing developed yard. The engine would be able to be manually started locally, or remotely started from the control room at the Geysers Administrative Center in the event of a wildfire if plant personnel needs to evacuate the site. The pump would provide water to the cooling tower wet-down system.

The purpose of the CEC's review process is to assess whether the proposed changes to the facility would have a significant impact on the environment or cause the facility to not comply with applicable laws, ordinances, regulations, and standards (LORS). (Cal. Code Regs., tit. 20, § 1769.)

CEC staff has completed its review of all materials received. The staff analysis below is staff's independent assessment of the project owner's proposed changes to the facility. The proposed conditions of certification include staff-recommended conditions of certification and the applicable Lake County Air Quality Management District (LCAQMD) operating permit conditions. Staff conditions are additional conditions of certification recommended for the project change. With the adoption of staff's recommended new air quality conditions of certification, the changes to Calistoga (Unit 19) would comply with applicable federal, state, and LCAQMD LORS, and would not result in significant air quality impacts.

PROJECT LOCATION AND DESCRIPTION

Calistoga (Unit 19) is a dry steam 97-megawatt geothermal power plant, located in Lake County. Calistoga (Unit 19), formerly known as Occidental Geothermal Plant No. 1 (Oxy) was renamed when it was purchased by Geysers Power Company, a wholly-owned subsidiary of Calpine Corporation, in 1999. Calistoga, one of six plants in the Geysers Geothermal Area under the jurisdiction of the California Energy Commission, was licensed by the CEC in February 1982. Commercial operation commenced in March of 1984.

DESCRIPTION OF PROPOSED CHANGES

The changes proposed in this petition include the installation of a permanent standby diesel engine-powered pump and ancillary equipment for the cooling tower wet-down system.

NECESSITY FOR THE PROPOSED CHANGES

The primary purpose and need for this petition is to upgrade the wet-down system to provide a heightened level of protection against approaching wildfire, and to install and operate it consistently with applicable LORS. The proposed petition changes the operational characteristics of the plant and triggers the need to maintain consistency with the (LCAQMD) Authority to Construct permit, issued on May 11, 2020.

STAFF'S ASSESSMENT OF THE PROPOSED CHANGES

CEC technical staff reviewed the petition for potential environmental effects and consistency with applicable LORS. Staff's conclusions reached in each technical area are summarized in **Executive Summary Table 1**.
Staff has determined that the technical or environmental areas of Efficiency, Geological and Paleontological Resources, Land Use, Reliability, Socioeconomics, Traffic and Transportation, Transmission Line Safety and Nuisance, Transmission System Engineering, Visual Resources, Waste Management, and Water Quality and Soils, are not affected by the proposed project changes.

Staff determined that the technical area of air quality would be affected by the proposed project changes and has proposed new and revised conditions of certification in order to ensure compliance with LORS and to reduce potential environmental impacts to a less than significant level. The details of the

proposed changes to conditions of certification can be found under the **Air Quality** section in this staff analysis.

For the technical areas of Biological Resources, Cultural Resources, Facility Design, Hazardous Materials Management, Noise, Public Health, and Worker Safety and Fire Protection, staff has concluded that the proposed changes would not result in a significant impact on the environment or cause the project to not comply with applicable LORS. Staff notes the following for these areas:

BIOLOGICAL RESOURCES

The diesel engine pump and associated equipment proposed for installation would all be contained on a single skid, and located in a previously disturbed and paved area. There is no native habitat remaining on the site, and therefore there would be no impacts associated with loss of habitat, as the site is fenced and the likelihood of wildlife entering the site is extremely low. Similarly, no impacts are expected to avian species, as there are no nearby trees. No conditions of certification in the Final Commission Decision (Decision) are applicable to this change, and the project would remain in compliance with all LORS.

CULTURAL RESOURCES

There is one known cultural resource on the leasehold, however, this site would not be impacted by activities on the project site. Excavation for foundations would occur in previously disturbed soil. However, in the unlikely event that cultural resources are encountered during construction, the conditions of certification in the Decision would be adequate to mitigate impacts to cultural resources. While state and local LORS have been updated since the Decision in 1982, the project would remain in compliance with LORS as they pertain to cultural resources. No changes to conditions of certification are required for this project change.

FACILITY DESIGN

The installation of standby pump for the cooling tower wet-down system within the existing Calistoga (Unit 19) site must be in accordance with the 2019 edition of the California Building Code. Implementations of the existing Facility Design conditions of certification adopted in the Decision and construction compliance oversight by the CEC's delegate chief building official would ensure this compliance.

HAZARDOUS MATERIALS MANAGEMENT

During the installation of the new diesel pump, several hazardous materials will be used onsite. These materials would include solvents, gasoline, lubricants, and welding gases which are already included in the annual hazardous materials business plan. No extremely hazardous or regulated hazardous materials would be used on site specifically for the installation of the new diesel pump. Therefore, with the project owner's continued compliance with existing conditions of certification, the proposed changes would not have a significant impact on the offsite public or the environment, and would continue to comply with all applicable LORS.

NOISE

Construction associated with this petition would be temporary and would occur during daytime hours that are consistent with the local ordinance. Any noise generated during these activities would result in a less-than-significant impact with implementation of the existing Noise conditions of the certification in the Decision.

The changes would not impact the existing operational noise levels. The standby pump would be used in the event of an emergency that would result from the loss of all or part of the normal electrical power service. The pump would also operate for periodic testing and maintenance. The rate of its use would thus be very low. The changes in this petition would create a less-than-significant noise impact. Furthermore, the project would continue to meet the operational noise requirements established in the Decision.

PUBLIC HEALTH

Staff has analyzed potential public health risks associated with the construction and operation of the standby pump for the cooling tower wet-down system. Staff does not expect any significant adverse cancer, short-term, or long-term health effects on any members of the public, including low income and minority populations, from the project's toxic emissions. Staff also concludes that there is no need to add any Public Health condition of certification and that Calistoga would remain in compliance with all applicable LORS.

WORKER SAFETY AND FIRE PROTECTION

Activities to be performed for the installation of the diesel-powered standby pump, would comply with worker safety and fire requirements already contained in health and safety plans utilized during construction of the main facility. By continuing to comply with existing conditions of certification, the project owner's

proposed installation of a new diesel-powered pump would not have a significant impact on worker health and safety and would comply with all applicable LORS.

Executive Summary Table 1
Summary of Impacts to Each Technical Area

Technical Areas Reviewed	Technical Area Not Affected	CEQA			Conforms with applicable LORS	Revised or New Conditions of Certification requested or recommended
		Potentially significant impact	Less than significant impact with mitigation	Less than significant impact		
Air Quality			X			X
Biological Resources	X					
Cultural Resources	X			X		
Facility Design				X	X	
Geological and Paleontological Resources	X					
Hazardous Materials Management				X		
Land Use	X					
Noise				X		
Public Health				X		
Socioeconomics	X					
Soil and Water Resources	X					
Traffic and Transportation	X					
Transmission Line Safety & Nuisance	X					
Transmission System Engineering	X					
Visual Resources	X					
Waste Management	X					
Worker Safety and Fire Protection				X		

ENVIRONMENTAL JUSTICE

Environmental Justice – Figure 1 shows 2010 census blocks in the six-mile radius of the Calistoga Geothermal Power Plant with a minority population greater than or equal to 50 percent. The population in these census blocks represents an environmental justice (EJ) population based on race and ethnicity as defined in the United States Environmental Protection Agency's *Guidance on Considering Environmental Justice During the Development of Regulatory Actions*. Staff conservatively obtains demographic data within a six-mile radius around a project site based on the parameters for dispersion modeling used in staff's air quality analysis. Air quality impacts are generally the type of project impacts that extend the furthest from a project site. Beyond a six-mile radius, air emissions have either settled out of the air column or mixed with surrounding air to the extent the potential impacts are less than significant. The area of potential impacts would not extend this far from the project site for most other technical areas included in staff's EJ analysis.

Based on California Department of Education data in the **Environmental Justice – Table 1**, staff concluded that the percentage of those living in the Geyserville Unified and Cloverdale Unified school districts (in a six-mile radius of the project site) and enrolled in the free or reduced price meal program is larger than those in the reference geography, and thus are considered an EJ population based on low income as defined in *Guidance on Considering Environmental Justice During the Development of Regulatory Actions*. **Environmental Justice – Figure 2** shows where the boundaries of the school district are in relation to the six-mile radius around the Calistoga Unit (19) site.

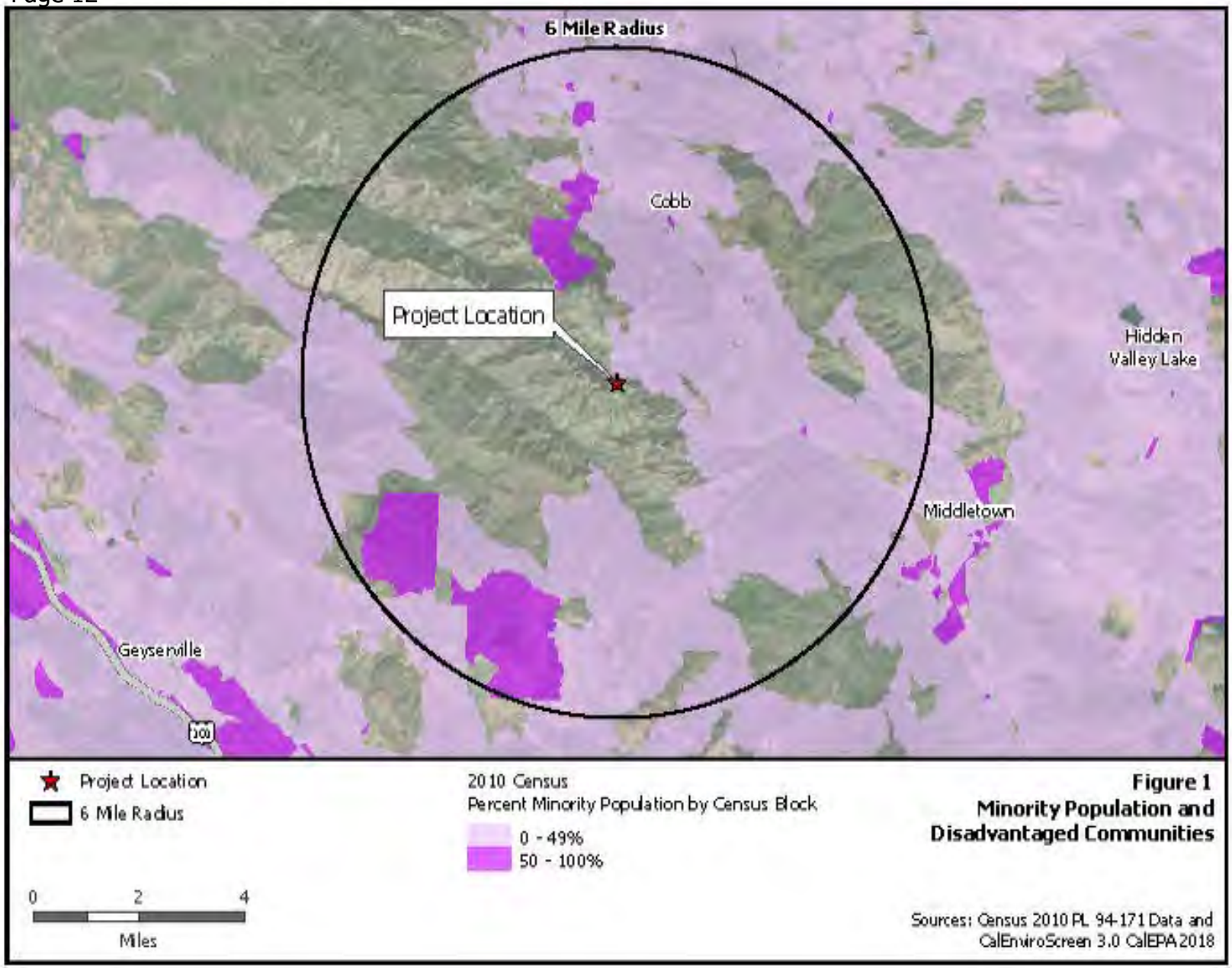
Environmental Justice – Table 1
Low Income Data within the Project Area

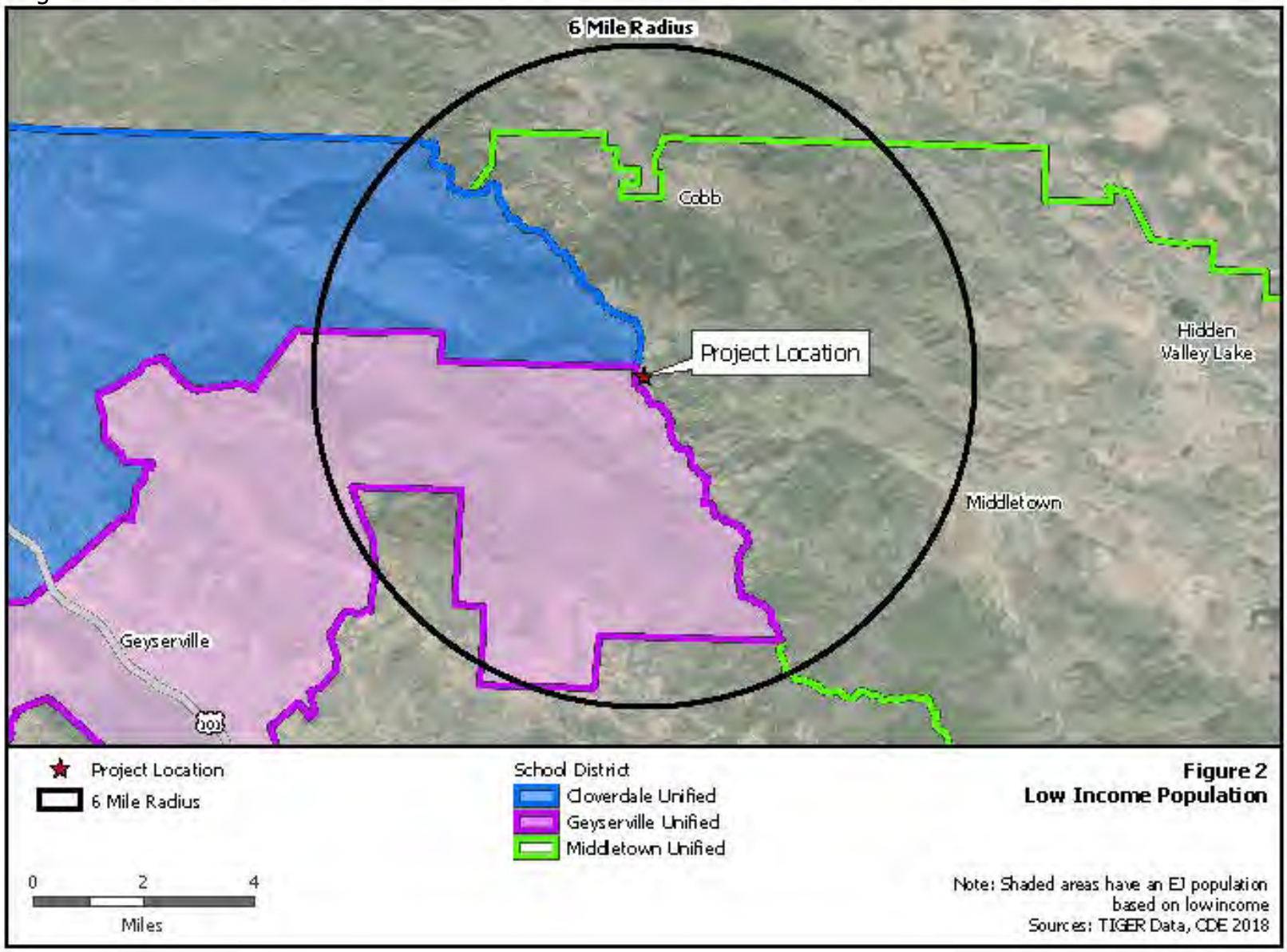
LAKE COUNTY SCHOOL DISTRICT IN SIX-MILE RADIUS	Enrollment Used for Meals	Free or Reduced-Price Meals	
Middletown Unified	1,712	1,061	62.0%
REFERENCE GEOGRAPHY			
Lake County	9,549	7,324	76.7%
SONOMA COUNTY SCHOOL DISTRICTS IN SIX-MILE RADIUS	Enrollment Used for Meals	Free or Reduced-Price Meals	
Geyserville Unified	237	138	58.2%
Cloverdale Unified	1,440	866	60.1%
REFERENCE GEOGRAPHY			
Sonoma County	70,455	33,570	47.6%
Source: CDE 2018. California Department of Education, DataQuest, Free or Reduced-Price Meals, District level data for the year 2017-2018, <http://dq.cde.ca.gov/dataquest/>.			

The following technical areas (if affected by a project change) consider impacts to EJ populations: Air Quality, Cultural Resources (indigenous people), Hazardous Materials Management, Land Use, Noise and Vibration, Public Health, Socioeconomics, Soil and Water resources, Traffic and Transportation, Transmission Line Safety and Nuisance, Visual Resources, Waste Management, and Worker Safety and Fire Protection.

ENVIRONMENTAL JUSTICE CONCLUSIONS

For the technical areas that address EJ populations and affected by the project changes – Air Quality, Cultural Resources, Hazardous Materials Management, Noise and Vibration, Public Health, and Worker Safety and Fire Protection – staff concludes that impacts would be less than significant, or less than significant by adopting the proposed changes to the existing Air Quality conditions of certification, and thus would be less than significant on the EJ population represented in **Environmental Justice Figure 1**, **Figure 2**, and **Table 1**.


6 Mile Radius
Cobb
Project Location
Hidden
Valley Lake
Middletown
Geyserville
Project Location
6 Mile Radius
2010 Census
Percent Minority Population by Census Block
0 - 49%
50 - 100%
0
2
4
Miles
Figure 1
Minority Population and
Disadvantaged Communities
Sources: Census 2010 PL 94-171 Data and
CalEnviroScreen 3.0 CalEPA 2018


6 Mile Radius
Cobb
Project Location
Hidden Valley Lake
Middletown
Geyserville
101
Project Location
6 Mile Radius
School District
Cloverdale Unified
Geyserville Unified
Middletown Unified
0
2
4
Miles
Figure 2
Low Income Population
Note: Shaded areas have an EJ population based on low income
Sources: TIGER Data, CDE 2018

STAFF RECOMMENDATIONS AND CONCLUSIONS

After reviewing the changes proposed in the petition staff concludes that the following findings can be made and will recommend approval of the petition by the Energy Commission:

A. The petition meets all the filing criteria of Title 20, California Code of Regulations, section 1769(a), concerning post-certification project modifications;

B. The findings required by Title 20, California Code of Regulations, section 1748(b) are not applicable to the project change;

C. The project will continue to comply with applicable laws, ordinances, regulations or standards;

D. With the implementation of staff's proposed changes to the Air Quality conditions of certification, there would be no new or additional unmitigated significant environmental impacts associated with the project change; and

E. The updated Air Quality conditions of certification reflect changes made by the relevant Air District and would harmonize the CEC's license with the Air District's permit.

REFERENCES

CEC 2020 – Calistoga, Unit 19 Geothermal Project Petition for Modification - Fire System Recommissioning Activities, Docket No. 81-AFC-01C Calistoga (Unit 19) Geothermal Project (TN 233639) docketed June 24, 2020

CEC 1981 – California Energy Commission – Calistoga (Unit 19) 1979 Final Decision (TN 206769) docketed November 24, 2015

CEC 1981 – California Energy Commission – Calistoga (Unit 19) 1981 Compliance Plan (TN 206768) docketed November 24, 2015

CALISTOGA GEOTHERMAL POWER PLANT (81-AFC-01C)

Request to Amend Final Commission Decision
Air Quality Analysis of Modification for the Installation of a Standby Pump for the Cooling Tower Wet-Down System

Nancy Fletcher

INTRODUCTION AND SUMMARY

On June 24, 2020, the Geysers Power Company, LLC (petitioner or GPC) filed a post certification petition for modification (TN 233639) with the California Energy Commission (CEC) requesting a change to the CEC license for the addition of a permanent emergency standby diesel engine-driven pump for the cooling tower wet-down system at the Calistoga Geothermal Power Plant (Calistoga). Calistoga was formerly Oxy Geothermal Plant No. 1 (Oxy). The CEC certified Oxy on February 1, 1982 and commercial operation began in December 1983.

Calistoga consists of dual generating units rated at a total of 80-megawatts (MW) nominally, a multiple-cell mechanically induced crossflow cooling tower, turbine bypass, a hydrogen sulfide (H_2S) abatement system, mercury removal system, and ancillary equipment. The project is located in Western Lake County near the Sonoma County border, within the Lake County Air Quality Management District (LCAQMD).

GPC is proposing a Tier-3 diesel-fueled emergency engine rated at 204 horsepower (HP) to power the wet-down pump. The wet-down system provides increased protection from wildland fire embers by reducing the probability of the ignition by putting water on the cooling tower. The operation of the diesel-fueled engine would be limited to testing, maintenance, and emergencies. Wet-down pump systems have been previously approved by the CEC at the Lake View, Socrates, Quicksilver, and Grant geothermal facilities.

On March 9, 2020, GPC submitted an application to the LCAQMD to evaluate the addition of the emergency diesel-fueled engine. The LCAQMD issued an Authority to Construct (ATC) on May 11, 2020, and the final Permit to Operate (PTO) is still pending. The LCAQMD will issue the final PTO after the installation and verification of the equipment.

CEC staff recommends additional conditions of certification to ensure compliance with applicable laws, ordinances, regulations, and standards (LORS) and ensure potential air quality impacts from the proposed operation of the emergency diesel-fueled engine are mitigated to a less than significant level. Staff is also

proposing additional changes to update the air quality conditions of certification with current requirements. With the proposed conditions of certification, the project would comply with applicable LORS, there would be no significant air quality impacts related to Calistoga, and no population, including any environmental justice population, would be significantly impacted.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS COMPLIANCE

The LCAQMD reviewed the requested addition of the emergency diesel-fueled engine and determined the proposed changes would comply with their regulations. CEC staff reviewed the LCAQMD permit evaluations for consistency with all federal, state, and LCAQMD LORS.

Air Quality Table 1 includes a summary of the LORS currently applicable to Calistoga. The conditions of certification in the Energy Commission Final Decision (February 1982) and any and all amendments thereafter ensure that the facility would remain in compliance with all applicable LORS.

Air Quality Table 1
Laws, Ordinances, Regulations, and Standards

Applicable Law	Description
Federal	**U.S. Environmental Protection Agency (EPA)**
Title 40, Code of Federal Regulations, Part 50 (National Primary and Secondary Ambient Air Quality Standards)	National Ambient Air Quality Standards (NAAQS) are set in this part. NAAQS defines levels of air quality necessary to protect public health. Compliance is expected.
Title 40, Code of Federal Regulations, Part 51 (Requirements for Preparation Adoption and Submittal of Implementation Plans)	Requires emission reporting and control strategies for the attainment and maintenance of national standards. Compliance is expected.
Title 40, Code of Federal Regulations, Part 52 (Approval and Promulgation of Implementation Plans)	Establishes requirements for attainment emissions. Prevention of Significant Deterioration (PSD) requires review and facility permitting for construction of new or modified major stationary sources of pollutants at locations where ambient concentrations attain the NAAQS. The LCAQMD does not require PSD provisions for the addition of the emergency wet-down diesel-fueled engine as emissions would not exceed levels of significance.

Applicable Law	Description
Title 40, Code of Federal Regulations, Part 60, Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines)	Outlines requirements for stationary diesel-fueled engines. The proposed stationary emergency diesel-fueled engine is a certified Tier-3 engine. Compliance is expected.
Title 40, Code of Federal Regulations, Part 63, Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines)	Establishes National Emission Standards for Hazardous Air Pollutants (NESHAPS) for both major and area sources of Hazardous Air Pollutants (HAPs) emissions. Establishes emission and operating limitations for applicable internal combustion engines. Compliance with Part 60, Subpart IIII satisfies Part 63 Subpart ZZZZ requirements.
State	**California Air Resources Board and Energy Commission**
Health & Safety Code, sections 40910-40930 (District Plans to Attain State Ambient Air Quality Standards)	State Ambient Air Quality Standards should be achieved and maintained. The permitting of the source needs to be consistent with the approved clean air plan. The LCAQMD New Source Review (NSR) program needs to be consistent with regional air quality management plans. The emergency engine was evaluated for compliance with LCAQMD NSR requirements.
Health & Safety Code, sections 41700-41701 (General Limitations)	Establishes nuisance and visible emission requirements. Prohibits discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance. Compliance is expected.
Health & Safety Code, section 42301.6 (Permits)	Establishes requirements for facilities located near schools. Calistoga is over 1,000 feet away from any school and is therefore not subject to the requirements.
Title 17, California Code of Regulations, section 93115 (Airborne Toxic Control Measure for Stationary Compression Ignition Engines)	The Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines limits fuels, establishes maximum emission rates, and establishes recordkeeping requirements for stationary compression ignition engines. Diesel-fueled emergency engines are subject to the regulations. Compliance is expected.
Local	**Lake County Air Quality Management District**
Chapter II Prohibitions and Standards Article I Section 400	Visible Emissions— Prohibits the discharge of visible emissions to no greater than a Ringelmann 2 for a period or periods aggregating more than 3 minutes in any one hour. Conditions are proposed for compliance purposes.
Chapter II Prohibitions and Standards Article II Section 410	Particulate Matter Emissions— Specifies standards for particulate matter emission rates for general combustion sources. The requirements specify 0.10 grains per standard cubic foot of exhaust gas calculated to 12 percent carbon dioxide for equipment beginning operation after December 20, 1971. The equipment is not expected to exceed the grain loading standard.

Applicable Law	Description
Chapter II Prohibitions and Standards Article II Section 411	Particulate Matter Emissions: Other Sources— Specifies standards for particulate matter emission rates for sources other than combustion. The requirements specify 0.20 grains per standard cubic foot of exhaust gas calculated to 12 percent carbon dioxide or emissions rates dependent on process rates. Continued compliance with the emission standards is expected.
Chapter II Prohibitions and Standards Article III Section 421.2	Geothermal Operations: Geothermal Power Plant Operations— Establishes hydrogen sulfide emission standards for geothermal power plant operations. Continued compliance is expected.
Chapter II Prohibitions and Standards Article IV Section 430	Other emissions or Contaminants: General— Establishes public nuisance prohibitions. The discharge of air contaminants or other material which could detrimentally impact the public are not permitted. Nuisance problems are not expected.
Chapter II Prohibitions and Standards Article IV Section 431	Other emissions or Contaminants: Non-agricultural Burning— Establishes prohibitions for non-agricultural burning. Continued compliance is expected.
Chapter II Prohibitions and Standards Article IV Section 439	Other emissions or Contaminants: Gasoline Storage— Establishes requirements for gasoline storage. This is a general rule applicable to all facilities whether there is onsite storage or not. Compliance is expected.
Chapter II Prohibitions and Standards Article IV Section 440	Other emissions or Contaminants: New Source Performance Standards (NSPS)— General provisions from reviewing new and modified stationary sources. Compliance with NSPS requirements is expected.
Chapter II Prohibitions and Standards Article IV Section 450	Other emissions or Contaminants: National Emissions Standards for Hazardous Air Pollutants (NESHAPS)— General provisions for reviewing new and modified stationary sources. The equipment was evaluated for compliance with NSPS requirements.
Chapter II Prohibitions and Standards Article IV Section 461	Other emissions or Contaminants: Cooling Tower Requirement— Establishes requirements for cooling towers including permitting and testing provisions. Continued compliance is expected.
Chapter II Prohibitions and Standards Article IV Section 467	Other emissions or Contaminants: Asbestos Emissions Control Measure— Establishes requirements to control asbestos emissions and provides waste handling and disposal procedures. No demolition or renovation is required for the installation of the proposed engine. Continued compliance is expected.
Chapter III Maintenance, Malfunction Evasion and Inspection Article I Section 500	Maintenance— Establishes requirements for maintenance and outages. Continued compliance is expected.

Applicable Law	Description
Chapter III Maintenance, Malfunction Evasion and Inspection Article II Section 510	Malfunction— General requirements for malfunctions. Establishes criteria for LCAQMD to use in determining if enforcement action will be pursued. Continued compliance is expected.
Chapter III Maintenance, Malfunction Evasion and Inspection Article III Section 520	Evasion— Prohibits the installation of devices that conceal or dilute emissions that would otherwise violate an air pollution control regulation. Continued compliance is expected.
Chapter III Maintenance, Malfunction Evasion and Inspection Article IV Section 530	Inspection: Emission Data and Sampling Access— General provisions for access to emission data, sampling access, and maintenance of sampling and monitoring apparatus if required. Continued compliance is expected.
Chapter III Maintenance, Malfunction Evasion and Inspection Article IV Section 530	Inspection: Trade Secrets— Establishes provisions for information considered trade secrets. The proposed reporting requirements would not include information considered trade secrets. Compliance is expected.
Chapter IV Permits Article I Section 600	Authority to Construct— Establishes requirements for obtaining permits for stationary sources that could potentially be the source of air contaminants. The LCAQMD issued an ATC for the proposed engine.
Chapter IV Permits Article I Section 601	Authority to Construct— Establishes permitting requirements and timeline. The LCAQMD issued ATC for the proposed engine is valid for one year, unless extended, or until a PTO is issued. Compliance is expected.
Chapter IV Permits Article I Section 602	Authority to Construct— Establishes parameters for granting and denying ATCs. The LCAQMD issued an ATC for the proposed engine. Continued compliance is expected.
Chapter IV Permits Article I Section 606	Authority to Construct— Requires the project owner to comply with all applicable local, state or national air pollution rules or regulations. Compliance is expected.
Chapter IV Permits Article I Section 607	Authority to Construct— Requires ARB review and concurrence of the ATC within thirty days. Concurrence is assumed in the absence of a written notice of nonconcurrence. The ATC for the proposed engine was submitted to the ARB. Concurrence is assumed.
Chapter IV Permits Article I Section 609	Authority to Construct: Geothermal Stacking Emissions— Requires a plan to limit geothermal stacking at the time of permitting. Continued compliance is expected.

Applicable Law	Description
Chapter IV Permits Article II Sections 610-617	Permit to Operate— Establishes requirements for PTOs. A PTO will be obtained from the LCAQMD once the engine is installed and ready to operate. Compliance is expected.
Chapter IV Permits Article III Section 620	Permits, Posting and Transfers: Posting of Permits— Requires permits be posted on or close to the permitted equipment. Compliance is expected.
Chapter IV Permits Article V Section 650	Source Emission Testing— Establishes source testing and monitoring requirements. Continued facility compliance is expected. Ongoing source testing of the emergency engine is not required unless requested by the Energy Commission or LCAQMD.
Chapter IV Permits Article V Section 655	Performance Plan— Establishes requirements allowing compliance with emission limitations to be determined through a protocol or performance plan. Continued compliance is expected.
Chapter IV Permits Article VI Sections 660-662	Permit Fees— Establishes fee schedule. Compliance is expected.
Chapter IV Permits Article VII Section 671	Plans, Specifications, Permit Revocation— The LCAQMD can suspend a permit if the project owner refuses to furnish information, analyses, plans, or specifications.
Chapter V Permits Section 700	Emergency Conditions— In emergency conditions the LCAQMD can request the reduction or discontinuation of air contaminant emissions. Cooperation and compliance is expected.
Chapter II Prohibitions and Standards Table 5	National Emissions Standards for Hazardous Air Pollutants (NESHAPS)— Establishes standards for NESHAP categories. Compliance is expected.

SETTING

Ambient Air Quality Standards

The United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB) have both established allowable maximum ambient concentrations of criteria air pollutants. Ambient air quality standards (AAQS) are designed to protect people who are most susceptible to respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. The ambient air quality standards are also set to protect public welfare, including

protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The California Ambient Air Quality Standards are typically lower (more stringent) than the federally established National Ambient Air Quality Standards. See **Air Quality Table 2.** The averaging time for the various AAQS (the duration of time the measurements are taken and averaged) ranges from one hour to one year. The standards are read as a concentration, in parts per million (ppm), parts per billion (ppb), or as a weighted mass of material per unit volume of air, in milligrams (mg) or micrograms (µg) of pollutant in a cubic meter (m^3) of ambient air, drawn over the applicable averaging period.

Air Quality Table 2
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	8 Hour	0.070 ppm (137 µg/m^3)[a]	0.070 ppm (137 µg/m^3)
	1 Hour	—	0.09 ppm (180 µg/m^3)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual	53 ppb (100 µg/m^3)	30 ppb (57 µg/m^3)
	1 Hour	100 ppb (188 µg/m^3)[b]	180 ppb (339 µg/m^3)
Sulfur Dioxide (SO_2)	24 Hour	—	0.04 ppm (105 µg/m^3)
	3 Hour	0.5 ppm (1300 µg/m^3)	—
	1 Hour	75 ppb (196 µg/m^3)[c]	0.25 ppm (655 µg/m^3)
Respirable Particulate Matter (PM10)	Annual	—	20 µg/m^3
	24 Hour	150 µg/m^3	50 µg/m^3
Fine Particulate Matter (PM2.5)	Annual	12 µg/m^3	12 µg/m^3
	24 Hour	35 µg/m^3 [b]	—
Sulfates (SO_4)	24 Hour	—	25 µg/m^3
Lead	30 Day Average	—	1.5 µg/m^3
	Rolling 3-Month Average	0.15 µg/m^3	—
Hydrogen Sulfide (H_2S)	1 Hour	—	0.03 ppm (42 µg/m^3)
Vinyl Chloride (chloroethene)	24 Hour	—	0.01 ppm (26 µg/m^3)
Visibility Reducing Particulates	8 Hour	—	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

Source: ARB 2020b, U.S. EPA 2020b
Notes: [a] Fourth- highest maximum 8 – hour concentration, averaged over 3 years.
[b] 98th percentile of daily maximum value, averaged over 3 years
[c] 99th percentile of daily maximum value, averaged over 3 years

Ambient Air Quality Attainment Status

Federal and state ambient air quality attainment status designations have been revised since the Energy Commission Decision. Calistoga is located within the Lake County Air Basin (LCAB). The LCAB is a federally and state recognized geographical area equivalent to the county boundary.

Calistoga is located close to the border of Sonoma County and Lake County in the Mayacamas Mountains in the Geysers Known Geothermal Resource Area (KGRA). The KGRA includes portions of the LCAB and Northern Sonoma Air Pollution Control District. A special air monitoring program referred to as the Geyser Air Monitoring Program (GAMP), monitors air quality in the residential communities adjacent to large scale geothermal operations. The program monitors hydrogen sulfide and other air contaminants to document long-term air quality trends in the KGRA. There are currently five operating air monitors in the GAMP program. The various monitors measure H_2S, PM10, and radon and provide meteorological data. The KGRA is considered in attainment or unclassified with all state and federal AAQS.

For convenience, staff includes **Air Quality Table 3**, which summarizes the area's current attainment status for AAQS for the LCAQMD.

Air Quality Table 3
LCAQMD Attainment Status

Pollutants	Attainment Status	
	Federal Classification	**State Classification**
Ozone	Unclassified/Attainment	Attainment
CO	Unclassified/Attainment	Attainment
NO_2	Unclassified/Attainment	Attainment
SO_2	Unclassified	Attainment
PM10	Unclassified	Attainment
PM2.5	Unclassified/Attainment	Attainment
Lead	Unclassified/Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Attainment
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particulates	No Federal Standard	Attainment

Source: ARB 2020a, U.S. EPA 2020a

ANALYSIS

Construction

The proposed permanent stationary standby wet-down pump would be driven by a diesel-fueled engine contained on a single skid. Fuel lines would not extend off the skid. Above ground piping would be utilized to connect the unit to the cooling tower wetting system header. Excavation for the skid and piping foundations would be on existing asphalt-covered, previously disturbed ground. Potential construction emissions from this scope of work are expected to be minimal and short term. Therefore, no significant construction emissions are expected form the installation of the proposed equipment.

Operation Summary and Emissions Analysis

The emergency standby diesel engine driven wet-down pump would provide emergency suppression water pumping for the Calistoga cooling tower in the event of a wildfire. The emergency diesel-fueled engine would be manually started to wet the cooling tower if a wildfire approaches the facility, and could be operated remotely. The wet-down pump would be expected to provide 24 hours or longer of wet-down capability in the case of an emergency, limited by diesel tank size. The emergency diesel-fueled engine would also be operated for maintenance and readiness testing.

During emergencies, the cooling tower wet-down system would keep surfaces of the cooling tower structure that are normally wetted when the cooling tower is in operation, also wetted when it is not in operation. Wet-down systems are different from fire suppression systems. The wet-down system prevents the ignition of vulnerable surfaces while fire suppression systems are designed to suppress internal fires.

GPC is proposing to operate this diesel-fueled engine for emergency purposes not classified as fire protection services. Fire pump engines classified for fire protection services are subject to additional National Fire Protection Association and California Building and Fire Code requirements. The ATCM for stationary diesel-fueled engines applies to emergency standby diesel-fueled engines. Applicable ATCM requirements were incorporated in the ATC issued by the LCAQMD. Maintenance and readiness testing is limited to 50 hours per year for emergency diesel-fueled engines.

Air Quality Table 4 includes the emission rates and the estimated potential emissions for the proposed emergency diesel-fueled engine. The emissions rates for NOx, CO, VOC, and PM10 used to calculate the potential emissions are from

the manufacturer's specification sheet for the proposed engine. The PM2.5 emission rate is conservatively assumed to be equivalent to the PM10 emission rate. The SOx emission rate is based on the use of ultra-low sulfur diesel. Staff calculated CO_2 and carbon dioxide equivalent (CO_2e) emissions using emission factors from the U.S. EPA greenhouse gas inventory and global warming potentials from the Intergovernmental Panel on Climate Change.

Staff evaluated emissions from the diesel-fueled engine at a limited 50 hours per year for testing and maintenance purposes. Staff also evaluated 200 hours of total annual engine operation to demonstrate that emissions would comply with LCAQMD rules and regulations. Staff expects the engines to operate well below the 200-hour scenario.

Air Quality Table 4
Estimated Emissions from the Proposed Diesel Engine

	NOx	**CO**	**VOC**	**SOx** [c]	**PM10/2.5**	**CO_2e** [a]
Emission Rate (g/bhp-hr)	2.475	1.193	0.062	0.006	0.111	NA
Potential Hourly [b] (pounds/hour)	1.113	0.537	0.028	0.002	0.050	239
Annual 50-hours (pounds/year)	55.65	26.83	1.39	0.12	2.50	11,967
Annual 50-hours (tons/year)	0.0278	0.0134	0.0007	0.0001	0.0012	5.983
Annual 200-hours (pounds/year)	222.62	107.31	5.58	0.49	9.98	47,867
Annual 200-hours (tons/year)	0.1113	0.0537	0.0028	0.0002	0.0050	23.933

Source: GPC 2020, staff analysis
Notes: NA=Not Applicable, NS=Not Significant

[a.] Based on CO_2e emissions rates from the U.S. EPA emission factors for greenhouse gas inventories and global warming potentials from Table A-1 of 40 CFR Part 98, Subpart A: CO_2 = 73.96 kilograms per million British thermal units (kg/MmmBtu) and 1, CH_4 = 3.0 grams per million British thermal units (g/mmBtu) and 25, N_2O = 0.60 g/mmBtu and 298.

[b.] Potential maximum hour operation.

[c.] Significant emissions of hydrogen sulfide associated with the proposed emission units are not expected. Essentially all sulfur in the fuel is oxidized to SO_2.

Based on the proposed engine and the estimated emissions included in **Air Quality Table 4**, staff concludes no additional impact analysis is required

The ATC for the emergency standby diesel engine driven wet-down pump issued by the LCAQMD includes six categories of requirements: Emissions, Administrative, Records and Reporting, Modification, Monitoring, and Identification and Access. The conditions are standard conditions for emergency engines and limit operations to maintenance and testing and emergency use.

These conditions ensure the emissions from the emergency engine would not cause a significant increase in criteria pollutants.

Considering the LCAQMD permit conditions are standard conditions for emergency diesel engines, staff does not expect significant changes to these conditions in the final Permit to Operate issued by the LCAQMD. The LCAQMD indicated they would issue the final Permit to Operate for the emergency diesel engine after the engine is installed and operation of the equipment is verified.

Staff is proposing to update the conditions of certification for consistency with changes incorporated into the LCAQMD permits since the CEC originally licensed Calistoga. The changes clarify reporting requirements and provide consistency with the reporting requirements already included in the LCAQMD permits. The LCAQMD-issued permits require the submittal of quarterly compliance reports. Staff reviewed the updated LCAQMD permit operating limits and reporting requirements. Staff is proposing to streamline the Energy Commission requirements where possible.

Staff-proposed changes would clarify the existing requirements for the project owner to summarize any interactions with the LCAQMD and annually obtain a letter of compliance from the LCAQMD. The Additional Proposed Condition Changes section includes additional detail on the proposed reporting requirements.

Compliance Determination

As documented in **Air Quality Table 3**, the LCAQMD is in attainment or unclassified with the state and federal AAQS. CEC staff evaluated the proposed changes taking into consideration the attainment status and potential populations surrounding the facility. The proposed conditions of certification would ensure potential direct and cumulative air quality impacts from the proposed facility modifications would be less than significant, including impacts to the environmental justice population. There are no air quality environmental justice issues related to the proposed facility modifications and no minority or low-income population would be significantly or adversely impacted.

Additional Conditions of Certification for the Engine

CEC staff is proposing the addition of several conditions of certification pertaining to the emergency standby wet-down pump diesel-fueled engine. Staff is proposing to denote these conditions of certification with an "E" following the section subset letter (see additional discussion of numbering in the Additional Proposed Condition Changes section below). The proposed emergency engine

conditions of certification with emission limitations are included in **AQ-E1A** and **AQ-E1C**. The proposed emergency engine conditions of certification with administrative or operational requirements are included in **AQ-E2A** through **AQ-E2E**. The proposed emergency engine conditions of certification containing record and reporting requirements are included in **AQ-E3A** through **AQ-E3E**. The proposed emergency engine condition of certification with modification provisions is **AQ-E4A**. The proposed emergency engine condition of certification containing monitoring requirements is **AQ-E5A**. The proposed emergency engine condition of certification identification and access provisions is **AQ-E6A**.

The LCAQMD issued ATC for the proposed emergency engine also includes a facility wide emission limitation for the facility. CEC staff is proposing to include this facility wide emission requirement in Condition of Certification **AQ-F1B**. This facility emission requirement would ensure operations at the facility do not trigger any additional requirements.

CEC staff is proposing to include details on the reporting requirements to the CEC for the proposed emergency engine in the proposed conditions. Proposed Condition of Certification **AQ-E3E** requires the project owner to submit the fuel use and engine use on to the CPM on an annual basis.

Additional Proposed Condition Changes

CEC staff is proposing additional changes to update the air quality conditions of certification with current requirements to ensure the facility operates in compliance with all LORS. These changes include incorporating additional changes made to the LCAQMD-issued operating permits since the final decision.

Staff is proposing to include an equipment list at the beginning of the condition section. Including the list at the beginning of the permit clarifies the equipment subject to air quality requirements. The equipment list includes the steam turbine/generator unit, abatement system, cooling tower, mercury removal system, and the proposed emergency diesel engine. The equipment listed is included in the LCAQMD-issued permits.

Staff is proposing to delete the Applicable Laws, Ordinances, Standards and Practices section. Specific rules and regulations are not included in the LCAQMD permits and Condition of Certification **AQ-12** requires the facility to comply with all applicable federal, state and local LORS. The LCAQMD rules and regulations have been updated since the facility was licensed. Staff reviewed the proposed changes for consistency with the current regulations. This review is included in the LORS Section.

Staff proposes to separate CEC staff-imposed requirements in a separate section identified as Staff Conditions consistent with current CEC practices. The Staff Condition section would include Conditions of Certification **AQ-SC1**, **AQ-SC2**, **AQ-SC3**, and **AQ-SC4**. These conditions along with the addition of a reporting requirement section would clarify ongoing CEC reporting and submittal requirements.

Proposed Condition of Certification **AQ-SC1** includes language requiring the project owner to provide the CEC with copies of all project permits issued and proposals for new project permits or existing project permit amendments. Condition of Certification **AQ-SC2** includes clarifications on submittals required to demonstrate compliance with the conditions of certification. Condition of Certification **AQ-SC2** specifies the project owner is required to submit specified reports to the CPM within the timeframes outlined in the conditions of certification.

Proposed Condition of Certification **AQ-SC3** clarifies the project owner is required to submit annual compliance reports as stated in the general provisions for the facility's compliance plan. The project owner would need to demonstrate compliance with all air quality conditions of certification, including staff conditions, to satisfy the requirements of the Energy Commission annual compliance report. The submittals required by the LCAQMD include reporting requirements to demonstrate compliance with the majority of the permit conditions. The proposed conditions of certification outline additional information needed to demonstrate compliance.

Staff is proposing the addition of **AQ-SC4** requiring that the project owner maintain a current list of all air quality equipment included in the LCAQMD-issued permits.

Staff is proposing to delete Condition of Certification **1-1** - a general condition clarifying the LCAQMD perform duties they usually perform for facilities holding permits outside of CEC jurisdiction. The existing language in the verification is vague and does not adequately define project owner responsibilities. In addition, the Condition of Certification **1-2** verification requires the annual submittal of a letter of compliance from the LCAQMD. The addition of the Staff Condition section and updated conditions will clarify the current CEC reporting requirements.

CEC staff is proposing to update Condition of Certification **1-2** with the current condition language consistent with the LCAQMD issued operating permit. The current LCAQMD permit conditions still follow the same general outline as the requirements incorporated into Condition of Certification **1-2**. The current

LCAQMD includes updated terminology, process requirements, monitoring, and reporting requirements. The proposed update includes the addition of verification language to each separate condition.

Staff is proposing to delete Conditions of Certification **1-3** through **1-6**. The requirements in these conditions are either no longer needed or covered in the proposed updates to Condition of Certification **1-2** and/or the addition of the staff conditions.

Staff notes the testing requirements in Condition of Certification **AQ-7** have been completed. This condition remains on the LCAQMD-issued permits to document early year requirements. Staff is proposing to keep the requirements for consistency. The Condition of Certification **AQ-7** verification language specifies any ongoing testing shall be submitted to the CPM. There is currently no ongoing testing required.

CONCLUSIONS AND RECOMMENDATIONS

CEC staff recommends approving the addition of the proposed emergency diesel-fueled engine. Staff recommends the addition of fifteen conditions specific to the emergency diesel-fueled engine, and one facility wide emission limitation:

1. Two conditions establishing emission limits, Conditions of Certification **AQ-E1A** and **AQ-E1C**;

2. One condition establishing a facility wide emission limitation, Condition of Certification **AQ-F1B**;

3. Five conditions establishing administrative/operational requirements, Conditions of Certification **AQ-E2A**, **AQ-E2B**, **AQ-E2C**, **AQ-E2D**, and **AQ-E2E**;

4. Five conditions establishing records and reporting requirements, Conditions of Certification **AQ-E3A**, **AQ-E3B**, **AQ-E3C**, **AQ-E3D**, and **AQ-E3E**;

5. One condition with modification provisions, Condition of Certification **AQ-E4A**;

6. One condition with monitoring provisions, Condition of Certification **AQ-E5A**; and

7. One condition with identification and access provisions, Condition of Certification **AQ-E6A**.

In addition, staff recommends updating the existing air quality conditions of certification to meet current LORS. Staff proposes to include an equipment list and update the language to include the requirements already included in the LCAQMD-issued operating permits.

Staff also recommends replacing vague existing reporting language with more specific updated requirements. Staff is proposing to streamline periodic reporting requirements already required by the LCAQMD with a few additional requirements. Staff is also proposing to clarify the existing language requiring the project owner to summarize any interaction with the LCAQMD concerning Calistoga and requiring the project owner to obtain an annual letter of compliance from the LCAQMD. The proposed requirements include:

1. Submitting the required quarterly and annual reports to the CPM;

2. Submitting the proposed emergency diesel-fueled engine fuel use and operating hours noting the reason for operation in the annual reports to the CPM;

3. Submitting summaries of any notices of violation and associated report(s), and notice of complaints to the CPM;

4. A demonstration of compliance with the conditions of certification in the annual compliance report;

5. Submitting proposals for project modifications and permits issued; and

6. Maintaining a current equipment list.

The proposed updated air quality conditions of certification would include:

- Four staff conditions of certification;
- Seventeen conditions of certification associated with the LCAQMD issued permit for Calistoga; and
- Sixteen new conditions with requirements for the proposed engine and facility.

With the additional conditions requested by staff, the proposed changes will conform with the applicable LORS related to air quality and will not result in significant air quality impacts.

PROPOSED AND AMENDED CONDITIONS OF CERTIFICATION

The proposed conditions of certification include staff-recommended conditions of certification and the applicable LCAQMD operating permit conditions. Staff conditions are additional conditions of certification recommended to ensure the project complies with all LORS. Staff recommended conditions of certification make up the '**AQ-SCx**' series of conditions. Staff recommends identifying conditions of certification pertaining to the emergency diesel-fueled engine as the '**AQ-E**' series. **Bold underline** is used to indicate new language. ~~Strikethrough~~ is used to indicate deleted language.

CONDITIONS OF CERTIFICATION

~~Section 1. Air Quality~~

EQUIPMENT LIST:

One (1) 80 Megawatt (MW) Geothermal Power Plant including:

- **One (1) 80 MW Geothermal Power Plant with twin generating units, primary and secondary abatement, and additional ancillary equipment installed and operated as described in conditions attached to the Modified Determination of Compliance dated February 3, 1986.**
- **Non-Condensable Gas Removal System including: two (2) 250 horsepower (HP) Liquid ring rotary vacuum pumps, motor, gearbox, seal water controls and piping; two (2) 1st Stage Ejector Sets 24.9, 33.0, or 45.6 thousand pound (Klb) of steam capacity modifications; two (2) Inter- and After-Condenser Drain modifications; and one (1) Reinjection sump piping for submerged seal water discharge.**
- **Condensate line re-route modification per the A/C application dated 10/24/97 including: alternate 12" line w/8" line to east and west ends of cooling tower basin w/subsurface spargers; 8" line to direct injection system; and secondary abatement system (hydrogen peroxide (H2O2), iron chelate, pumps, valves, meters and controls).**
- **Mercury Removal System including: Liquid Separator w/valves, piping, level indicator Mercury Adsorption Vessel, 8' outside diameter (OD) x 13' height (H). (300 cubic feet), 21,000 pounds (lbs) sulfur pellets (or other filter media as approved by the Air Pollution Control Officer), valves, piping, DP indicator.**

- **Over pressure rupture disk with alarms, rupture disk stack, vacuum breaker valve. Associated piping, valves, and controls.**
- **Equipment as described in the Lake County Air Quality Management District Authority to Construct Application dated April 6, 1998 and Calistoga Geothermal letter dated April 21, 1998, and Stretford Liquid Caustic (25 percent sodium hydroxide (NaOH)) injection system with associated 1,200 gallon tank, control/pumps, valves, pipes, and flow measurement capacity (A/C 2007-01).**
- **E1: One (1) 2020 Cummins Model: CFP7E-F40 QSB6.7, 204 HP, Tier III Diesel Engine, , Engine Family: LCEXL0409AAB.**

LOCATION:

8950 Socrates Mine Road, Middletown, CA

~~Permit Conditions:~~

~~A. Applicable Laws, Ordinances, S tandards, and Practices~~

- ~~Lake County Air Pollution Control District Rules and Regulations, including but not limited to 411, 412, 421.2-A, 410(a), 430, 510, and specifically 608 and associated emission limitation rules.~~
- ~~Clean Air Act and implementing federal regulations, and~~
- ~~California Health and Safety Code, Sections 40002 and 40701.~~

~~B. Requirements~~

~~**1-1** The LCAPCD shall perform all duties and function normally conducted by the APCD and shall have authority to issue a Permit to Operate, collect the permit fees, levy fines, order correction of operational or mechanical procedures or functions, and perform compliance tests. The established LCAPCD appeal procedures shall apply for all contested LCAPCD actions.~~

~~**Verification**: Occidental shall summarize in a periodic compliance report any interactions with the LCAPCD. Occidental shall immediately inform the CEC and ARB in writing of any formal appeals filed with the LCAPCD.~~

AQ-SC1 **The project owner shall provide the compliance project manager (CPM) copies of any Lake County Air Quality Management District- (LCAQMD or District) issued project air permit for the facility. The project owner shall submit**

any request or application for a new project air permit or project air permit modification to the CPM.

Verification: The project owner shall submit any request or application for a new project air permit or project air permit modification to the CPM at the time of its submittal to the permitting agency. The project owner shall provide the CPM a copy of all issued air permits, including all modified air permits, to the CPM within 30 days of finalization.

AQ-SC2 **The project owner shall provide the CPM with copies or summaries of the quarterly and annual reports submitted to the District or ARB. The project owner shall submit to the CPM in the required quarterly reports a summary of any notices of violation and reports, and complaints relating to the project.**

Verification: The project owner shall provide the reports to the CPM within the timeframes required in the conditions of certification.

AQ-SC3 **The project owner shall provide the CPM with an Annual Compliance Report demonstrating compliance with all the conditions of certification as required in the General Provisions of the Compliance Plan for the facility.**

Verification: The project owner shall provide the Annual Compliance Report to the CPM within 45 calendar days after the end of the reporting period or a later date as approved by the CPM.

AQ-SC4 **The project owner shall maintain a current equipment list for the facility**.

Verification: The project owner shall provide the CPM with the equipment list upon request.

GENERAL FACILITY

Power Plant and Abatement

~~**1-2** Occidental shall comply with the requirements specified in the Lake County Air Pollution Control District document entitled, "Determination of Compliance," dated July 28, 1981.~~

~~**LCAPCD DOC Conditions, Dated July 28, 1981**~~

~~**Condition 1**~~

~~Occidental shall install and operate the power plant and air emissions control system described in **80-AFC-1** in the manner necessary to limit H_2S emissions on a continuous basis from Oxy Geothermal Power Plant No. 1 to eight (8) pounds of H_2S per hour. This same emissions limitation shall apply during power plant outages, unless LCAPCD Rule 510 is complied with.~~

AQ-1 **The project owner shall operate the power plant and air emissions control system described in 81-AFC-1 and subsequent permit modification reviews, to include A/C 97-20, in a manner necessary to limit hydrogen sulfide (H_2S) emissions on a continuous basis from Calistoga Geothermal Power Plant to eight (8) pounds or five (5) pounds of H_2S per million pounds of steam flow. This same emissions limitation shall apply during power plant outages, unless Lake County Air Quality Management District (LCAQMD) Rule 510 is complied with as the result of a breakdown.**

Verification: **The project owner shall verify compliance by adhering to all testing and monitoring requirements. The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request.**

~~**Condition 2**~~

~~The hydrogen peroxide/catalyst, Stretford/surface condenser, drift eliminators, turbine bypass, dual generating units with shunt and multiple power source constituting the air emissions control system as proposed in **81-AFC-1** and amendments shall be the equipment used to satisfy the requirements of **Condition 1**. In the event that Occidental seeks to change the above equipment necessary to control H_2S emissions as proposed prior to operation, they shall request that the LCAPCD Hearing Board hold a public hearing to determine whether the alternate technology is capable of satisfying the requirements of **Condition 1**. The alternate technology may be used only if the LCAPCD Hearing Board and CEC determine that it is capable of complying with **Condition 1**. All abatement systems shall be properly winterized and maintained to ensure proper and reliable functioning. Prior to construction, Occidental shall submit approved for construction drawings of the noncondensable gas and condensate H_2S abatement systems quantifying process flows and design capacities. If additional resource discoveries necessitate increased H_2S abatement capacity~~

~~because of higher H2S levels in the steam, such capacity shall be incorporated in the air emissions control system.~~

AQ-2 **The use of the hydrogen peroxide/catalyst condensate abatement, Stretford type non-condensable H_2S gas treatment system and surface condenser, drift eliminators, turbine bypass, dual generating units with shunt and multiple power source constitute the air emissions control system as proposed in 81-AFC-1 and is further amended to include the use of long contact time (per A/C 97-20) for dissolved H_2S oxidation within the cooling tower basin, addition of oxidation enhancing catalyst to the secondary abatement system and non-condensable mercury removal system; and shall be the equipment used to satisfy the requirements of Condition AQ-1. In the event the project owner seeks to modify the above equipment necessary to control H_2S emissions, they shall first apply for and receive an Authority to Construct from the LCAQMD. The non-condensable gas treatment systems and the long retention time condensate re-route shall be fully utilized to maximize emissions control during all operations. All abatement systems shall be properly winterized and maintained to ensure proper and reliable functioning and availability. Non-condensable H_2S shall be treated to a level below 10 ppmv at the discharge of the Stretford type gas treatment unit prior to introduction to the cooling tower. Abatement capacity shall be incorporated in the air emissions control system as is necessary to meet the emission requirement in Condition 1. The existing condensate line and modification including the air emissions control system shall be constructed and operated in a manner so as to preclude stacking of steam during scheduled and unscheduled power generation or transmission outages and during power plant startups and shutdowns.**

Verification: **The project owner shall verify compliance by adhering to all testing and monitoring requirements. The project owner shall provide the CPM with any applications and permits issued according to AQ-SC1. The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request.**

~~**Condition 3**~~

~~Occidental shall install, when practicable, continuous monitoring devices indicating total volume flow rates and H_2S concentrations at the following locations: (a) outlet of Stretford unit; and (b) in the treated condensate or in the circulating water upstream of the cooling tower. A log of such monitoring shall be maintained and made available to the LCAPCD staff upon request. The H_2S monitoring devices must have an accuracy of plus or minus 1 ppm, provide measurements at least every 15 minutes, and be readily accessible to LCAPCD staff. Flow rate measuring devices shall have accuracies of plus or minus 5 percent at 40 percent to 100 percent of the total flow rate, and calibrations must be performed at least quarterly. A Houston-Atlas or equivalent type instrument shall be acceptable for use in monitoring Stretford tail gas for H_2S. Calibration records shall be made available to LCAPCD staff upon request.~~

~~Alternatively a performance plan as specified in LCAPCD Rule 655 shall be developed to ensure operation in compliance with specified emissions limitations.~~

AQ-3 **The project owner shall install, when practicable, continuous monitoring devices indicating total volume flow rates and H_2S concentrations at the following locations:**

a) the Stretford unit; and
b) in the treated condensate and in the circulating water upstream of the cooling tower.

A log of such monitoring shall be maintained and made available to the LCAQMD staff upon request. The H_2S monitoring devices must have an accuracy of plus or minus 1 ppm, provide measurements at least every 15 minutes, and be readily accessible to LCAQMD staff. Flow rate measuring devices shall have accuracies of plus or minus 5 percent at 40 percent to 100 percent of the total flow rate, and calibrations must be performed at least quarterly. A Houston-Atlas or equivalent type instrument, or equipment as approved on writing by the LCAQMD, shall be used in monitoring Stretford treated non-condensable gas for H_2S. A continuous strip chart record and appropriate sampling line shall be maintained to ensure compliance with LCAQMD Rule 412. Said system shall be calibrated no less than monthly with a three-point calibration and such calibration indicated in a log. A one (1) point check shall be performed no less than weekly. Estimates

of total Stretford tailgas, using a LCAQMD approved method, shall be logged no less than weekly. A log of the above maintenance, calibration, and associated monitoring (condensate and Stretford tailgas) shall be maintained on site and copies furnished to the LCAQMD upon request. No less than weekly, a composite or separate condensate sample(s) of steam from the hot wells (prior to mixing with the circulating water) shall be analyzed for dissolved sulfide content. Should such condensate level exceed seven (7) ppmw H_2S, (assume 30% reduction by natural oxidation), the LCAQMD and CPM shall be promptly notified. Source tests and corrective actions shall be taken to ensure net emissions of the plant do not exceed eight (8) pounds per hour or five (5) pounds of H_2S per million pounds of steam flow per Rule 608. Alternatively, a performance plan as specified in LCAQMD Rule 655 shall be developed and approved in writing by the Air Pollution Control Officer (APCO) to ensure operation in compliance with specified emissions limitations. The approach accepted therein by the LCAQMD may be substituted for this condition.

Verification: **The project owner shall submit source test results and any description of corrective action to the CPM in the following periodic report. If a performance plan is needed or modified the plan shall be submitted to the CPM. The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request.**

~~**Condition 4**~~

~~The power plant cooling towers shall utilize drift eliminators with a guaranteed drift rate of 0.001 percent or less and the Stretford cooling tower shall have a guaranteed drift rate of 0.002 percent or less.~~

AQ-4 **The power plant cooling towers shall utilize drift eliminators with a guaranteed drift rate of 0.001 percent or less and the Stretford cooling tower shall have a guaranteed drift rate of 0.002 percent or less, maintained in good working order. Source tests or process estimates acceptable to the LCAQMD shall be made annually.**

Verification: **Source tests results and/or process estimates shall be submitted to the CPM in the following periodic report. The project owner shall make the site and records available for inspection by**

representatives of the District, ARB and Energy Commission upon request.

~~**Condition 5**~~

~~Occidental shall provide safe access to sampling ports that enable representatives of the LCAPCD or ARB to collect samples from the treated condensate or the circulating water upstream of the cooling tower, cooling tower stacks, the noncondensable exit gas from the Stretford unit, and the direct off-gas vent.~~

AQ-5 **The project owner shall provide safe access to sampling ports that enable representatives of the LCAQMD or California Air Resources Board to collect samples from the treated and untreated condensate and/or the circulating water upstream of the cooling tower, cooling tower stacks, the non-condensable exit gas from the Stretford unit, and the direct off-gas vent from any other port deemed necessary by the LCAQMD for sampling.**

Verification: **The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request.**

~~**Condition 6**~~

~~At least 60 days prior to scheduled commercial operation of the second generating unit, Occidental shall submit to the LCAPCD for approval a detailed plan for testing the performance of the OXY Geothermal Plant No. 1's abatement system at normal full load operation. A copy of the plan shall also be sent to the ARB for comment. Normal full load for this purpose is defined as operating at a minimum of 90 percent of the 1.6×10^6 lbs/hr steam flow capacity. This one time test shall incorporate tests for emissions from the cooling tower of components of potential concern in geothermal steam, including H_2S. The LCAPCD shall approve, disapprove, or modify the plan within 30 days of receipt from Occidental. Occidental shall complete the performance test approved by the LCAPCD within 90 days or as soon as possible following the date of commercial operation.~~

~~**Condition 7**~~

~~If a generic monitoring program for H_2S and/or other constituents of concern is initiated in The Geysers KGRA by responsible agencies (NSCAPCD, ARB, CEC, and LCAPCD), Occidental shall participate to the~~

~~extent equitable with other parties in funding or causing to be performed such a program.~~

AQ-6 **If a generic monitoring program (such as GAMP) for H_2S and/or other constituents of concern is continued in the Geysers KGRA by responsible agencies (NSCAPCD, ARB, CEC, and LCAQMD), the project owner shall participate to the extent equitable with other parties in funding or causing such a program to be performed. If such program does not exist and the Calistoga Geothermal Power Plant is determined to be out of compliance with any rule, regulation, or permit condition, such monitoring shall immediately be initiated and funded by the project owner until compliance is established.**

Verification: If the project owner does not participate in GAMP, the project owner shall submit to the LCAQMD and CPM, for their review and approval, a detailed ambient monitoring plan prior to exiting the program.

~~**Condition 8**~~

~~Occidental shall install and operate for one year in the Gunning Creek drainage a wet/dry deposition sampler and analyze a monthly composite of both wet and dry samples for soluble solids, boron, fluoride, arsenic, silica, and mercury. The sampler utilized shall comply with or exceed the guidelines of the National Atmospheric Deposition Program.~~

AQ-7 **The project owner shall (starting 1/15/1985) install continue to operate for a continuous period of one year in the Gunning Creek Drainage Basin a wet/dry deposition sampler, and analyze monthly composite of both wet and dry samples for soluble solids, boron, fluoride, arsenic, silica, and mercury. The sampler utilized shall comply with or exceed the guidelines of the National Atmospheric Deposition Program. Results shall be forwarded on a monthly basis to the LCAQMD. A review of such data and the need for a continued effort shall be jointly conducted by the LCAQMD and project owner.**

Verification: **The project owner shall submit any ongoing sampling results to the CPM in the following periodic report. Any change to sampling requirements shall be noted in the following periodic compliance report. The project owner shall make the site and records**

available for inspection by representatives of the District, ARB and Energy Commission upon request.

~~**Condition 9**~~

~~Occidental shall perform biannual tests to determine the content of steam components as listed below upon written request of the LCAPCO and as required in the geothermal fluid transmission line permit. The continued need for such tests shall be reviewed after two years of operation. Copies of all tests shall be forwarded to the ARB and CEC. Such monitoring is not intended to be redundant.~~

~~**STEAM CONDENSATE OR TOTAL STEAM**~~	~~**GAS PHASE**~~
~~Ammonium (total)~~	~~Particulate mass in micrograms per kilogram of steam~~
~~Arsenic (total)~~	
~~Asbestos (total)~~	~~Arsenic from particulates above~~
~~Benzene~~	~~Lead from particulates above~~
~~Boron (total)~~	~~Cadmium from particulates above~~
~~Hydrogen Sulfide (total)~~	~~Sulfur from particulates above~~
~~Fluorides (total)~~	~~Mercury vapor~~
~~Mercury (total)~~	~~Total methane and nonmethane hydrocarbons~~
~~Carbon dioxide (total)~~	~~Other nongases as indicated by condensate~~
~~Total dissolved solids~~	~~NESHAP pollutants as requested~~
~~Total suspended solids~~	

AQ-8 **The project owner shall perform biannual tests to determine the content of steam components as listed below upon written request of the LCAQMD and as required in the LCAQMD's geothermal fluid transmission line permit (P/O 85-002D). The continued need for such tests shall be reviewed after two years of operation. Copies of all tests shall be forwarded to the ARB and CEC. Such monitoring is not intended to be redundant with the steam line requirements and the APCO may relieve requirements as appropriate to avoid redundancy as required in this condition.**

STEAM CONDENSATE/TOTAL STEAM:

Ammonium (total); Arsenic (total); Asbestos (total); Benzene; Boron (total); Carbon Dioxide (total); Hydrogen Sulfide

(total); Fluorides (total); Mercury; Nickel (total); pH; Total Dissolved Solids; and Total Suspended Solids.

GAS PHASE:

Benzene; Particulate mass in micrograms per kilogram of steam; Arsenic from particulates above; Lead from particulates above; Cadmium from particulates above; Sulfur from particulates above; Radon 222 and Daughters; Mercury Vapor; Total Methane and Non-Methane Hydrocarbons; Other non-gases as indicated by condensate analysis; and NESHAP pollutants as requested.

Verification: **The project owner shall submit any test results or report to the CPM in the following quarterly report. Any change to sampling requirements shall be noted in the following periodic compliance report. The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request.**

~~**Condition 10**~~

~~Occidental shall file an application for a Permit to Operate with the LCAPCD within 90 days after the commercial operation date or as soon as possible thereafter and submit appropriate permit fees. The application shall include the results of the performance test referenced in **Condition 6**.~~

~~**Condition 11**~~

~~Occidental shall issue quarterly reports to the LCAPCD detailing a) hours of operation; (b) any periods of significant abatement equipment malfunction, reasons for malfunctions, and the corrective action; (c) types and amounts of chemicals used for condensate treatment; (d) periods of scheduled and unscheduled outages and the cause of the outages if known; (e) a summary of any irregularities that occurred with the continuous emission monitors, if used; and (f) if any, the dates and hours in which Oxy Geo #1 H_2S emission rate was in excess of the emissions limitations specified in Condition 1.~~

AQ-9 **The project owner shall issue quarterly reports to the LCAQMD detailing:**

a) hours of operation;

b) any periods of significant abatement equipment malfunction, reasons for malfunctions, and the corrective action;

c) types and amounts of chemicals used for condensate treatment;

d) periods of scheduled and unscheduled outages and the cause of the outages if known;

e) a summary of any irregularities that occurred with the continuous emission monitors, if used; and

f) if any, the dates and hours in which Calistoga Geothermal Power Plant H_2S emission rate was in excess of the emissions limitations specified in Condition AQ-1.

Verification: The project owner shall submit the quarterly reports to the CPM within 45 calendar days of the end of each quarter. The project owner shall make the site and records available for inspection by representatives of the District, ARB, U.S. EPA, and Energy Commission upon request.

AQ-10 Dust of three (3) minutes duration or longer in any one hour will be kept below Ringlemann 2 by use of water, oil, or surfacing of roads, pads and parking areas during operation and maintenance of the power plant, or by such other means deemed appropriate. Roads used regularly shall be maintained to avoid the generation of dust by paving or oiling as necessary.

Verification: The project owner shall perform a Visible Emissions Evaluation or source test to determine compliance as requested by the LCAQMD or CPM. The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.

~~**Condition 12**~~

~~Occidental shall allow authorized representatives of the LCAPCD and ARB to enter the premises where the source is located, within one hour of notification, to inspect the plant for compliance with the conditions of this Determination of Compliance.~~

AQ-11 The project owner shall allow authorized representatives of the LCAPCD and ARB to enter the premises where the source

is located, within one hour of notification, to inspect the plant for compliance with the conditions of this license. Source test shall be performed in a fashion to allow Senior Plant or project owner staff reasonable opportunity for co-sampling if desired.

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request.

~~**Condition 13**~~

~~Occidental shall comply with all applicable federal, state, and local laws, standards, and ordinances in the operation of Oxy Geo #l.~~

AQ-12 The project owner shall comply with all applicable federal, state, and local laws, standards, and ordinances in the operation of Calistoga Geothermal Power Plant.

Verification: The project owner shall make a statement of compliance to verify compliance by adhering to all testing, monitoring, and reporting requirements. The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request.

AQ-13 The project owner shall fund or supply any required special protective clothing or safety equipment for the LCAQMD's utilization should such be deemed necessary by the project owner during the life of this project.

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request

AQ-14 Significant deviation from license conditions cannot be granted by the APCO and can only be granted by the LCAQMD Hearing Board.

This requirement does not replace the CEC amendment process.

Verification: The project owner shall follow the LCAQMD procedures for significant deviation from the license conditions. The project owner shall provide the CPM with any applications and permits issued according to AQ-SC1. The project owner shall make the site and

records available for inspection by representatives of the District, ARB and Energy Commission upon request.

Mercury Filter Equipment

AQ-15 **GPC shall test each Stretford sulfur load for mercury total threshold limit concentration (TTLC). Test records shall be maintained on site for a period of three years or longer as otherwise required by law, and provided to the LCAQMD upon request.**

Verification: **The project owner shall verify compliance by adhering to all testing and monitoring requirements. The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request.**

AQ-16 **The mercury concentration of the non-condensable gas stream prior to and after passing through the mercury removal equipment shall be annually sampled and analyzed to establish the removal efficiency of the equipment. An alternate method of calculating the mercury efficiency may be utilized upon approval of the APCO. The annual test results shall be provided to the LCAQMD and CPM within 60 days of testing.**

Verification: **The project owner shall submit any test results to the CPM within 60 days of testing. The project owner shall notify the CPM of any request and subsequent approval of an alternate calculation method. The project owner shall make the site and records available for inspection by representatives of the District, ARB and Energy Commission upon request.**

AQ-17 **Activated carbon media shall be used as replacement media during the next major shut down of the facility, or not later than June 1, 2002, or prior to that date, or if the abatement efficiency drops below 65% and is not correctable by normal maintenance. A modification, other than the carbon media change out and flow/contact enhancements to the existing equipment shall require an application for a modification and approval by the LCAQMD.**

Verification: **The project owner shall provide the CPM with any applications and approvals/permits issued according to AQ-SC1. The project owner shall make the site and records available for inspection**

by representatives of the District, ARB and Energy Commission upon request

~~**Verification**: Occidental shall annually request a letter from the Lake County Air Pollution Control District verifying the status of Occidental's compliance with the conditions of the Determination of Compliance. Occidental shall provide the CEC with a copy of this letter in the annual compliance report.~~

~~**1-3** Occidental shall obtain written approval from both LCAPCD and CEC before using any abatement systems other than the hydrogen peroxide/catalyst, Stretford/surface condenser and dual turbine/turbine bypass system, as approved in the AFC to control H_2S emissions.~~

~~**Verification**: Occidental shall file a copy of the written approval from the LCAPCD with the CEC prior to beginning construction of any alternative H_2S emissions abatement system.~~

~~**1-4** Occidental shall submit approved-for-construction drawings of the power plant secondary H_2S control system to the CEC only if requested by the CEC.~~

~~**Verification**: If requested, such drawings shall be submitted by Occidental to the CEC at least 30 days prior to commencing construction of the system.~~

~~**1-5** DOC Conditions 3 and 6 require submittal of a detailed test plan for testing the performance of the Oxy Geothermal Plant #1 H_2S emissions abatement systems at normal full load operations. If continuous H_2S monitors are available, Occidental shall ensure that the detailed plan includes the following test parameters: (1) the test data shall reflect a minimum of 30 days (not necessarily consecutive days) operation at a minimum of 80 percent of the gross electricity generating capacity; and (2) in the event that at least 30 days of qualifying data could not be obtained during the 90-day test period specified in the Determination of Compliance, Occidental shall continue to collect test date until the required information has been obtained. (The application for a Permit to Operate shall be filed as specified in DOC Condition 10 and need only include the results of the performance test conducted during the initial 90 days of commercial operation.)~~

~~**Verification**: Occidental shall provide the CEC with a copy of the detailed plan submitted to the LCAPCD for review and approval and a copy of the plan as approved. In addition, if the test period extends beyond the initial 90 days after~~

~~commercial operation, Occidental shall file a supplementary report with the CEC and the LCAPCD which reflects all the results of the performance test.~~

~~**1-6** Occidental shall, if requested by the Lake County Air Pollution Control District, operate and maintain an on-site meteorological station capable of determining wind direction, wind speed, and temperature.~~

~~**Verification**: Occidental shall furnish such data in a form acceptable to the LCAPCD. The submittals shall be noted in periodic compliance reports filed with the CEC.~~

1: EMISSIONS

Emergency Engine

AQ-E1A **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.**

Verification: **The project owner shall notify the CPM of breakdowns in the quarterly compliance reports. The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.**

AQ-E1C **Visible emissions from E1 shall not exceed Ringelmann 0.5 (10% opacity) from the engine exhaust stack for more than three (3) minutes in any one (1) hour.**

Verification: **The project owner shall perform a Visible Emissions Evaluation to determine compliance as requested by the LCAQMD or CPM. The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.**

Facility Wide

AQ-F1B **The total ROG, PM10, SOx, or NOx emission rate for this facility shall not exceed 25 tons per 12-month period. The emission rate(s) determination shall be consistent with the methodology and assumptions used to evaluate the application(s) under which the LCAQMD permit(s) was/were issued.**

Verification: **The project owner shall perform a source test to verify compliance with the emission rate(s) upon request of the District. The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.**

2: ADMINISTRATIVE

Emergency Engine

AQ-E2A **E1 shall only operate to power emergency standby cooling tower wet-down pump for use when commercial line power is not available because of an emergency or line maintenance outage. The project owner shall develop or utilize an engine maintenance plan with prescribed oil change frequency per manufacturer's specifications and/or the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines (RICE) and New Source Performance Standards (NSPS).**

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.

AQ-E2B **Testing and maintenance operations for E1 is allowed for up to 50 hours per 12-month period.**

Verification: The project owner shall maintain logs as required in Records and Reporting. The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.

AQ-E2C **Diesel fuel utilized shall be California Low Sulfur Diesel containing less than 15 ppmw sulfur.**

Verification: **The project owner shall maintain logs as required in Records and Reporting. The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.**

AQ-E2D **The project owner 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 Air Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines.**

Verification: **The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.**

AQ-E2E **Within 180 days of initial operation, the project owner shall apply for a Permit to Operate, and prove compliance with these conditions.**

Verification: **The project owner shall submit the Permit to Operate to the CPM according to AQ-SC1. The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.**

3: RECORDS AND REPORTING

Emergency Engine

AQ-E3A **The project owner shall maintain a log for E1 (logs can be hard copy or digital) meeting the requirements of the NESHAP for RICE and NSPS which contains at a minimum, the facility name, location, engine information, fuel used, emission control equipment, maintenance conducted on the engine, and documentation that the engine meets the emission standards.**

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.

AQ-E3B **The project owner shall maintain a log for E1 of usage that shall document hours of operation, and initial startup hours. The project owner shall maintain a log of engine maintenance to show compliance with maintenance plan and NSPS requirements.**

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.

AQ-E3C **The project owner shall document fuel usage by retention of fuel purchase records or by other methods that adequately show fuel use for E1. Log entries shall be retained for a minimum of 36 months, with 24 months of the most recent entries retained / accessible on-site. The log shall meet all**

requirements of the ATCM for Stationary Compression Ignition Engines.

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.

AQ-E3D The project owner shall maintain a non-resettable hour meter for E1 capable of displaying 9,999 hours.

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.

AQ-E3E The project owner shall furnish an annual record of fuel use (gallons) and engine use (hours), breaking down hours of testing, maintenance, and emergency use, or in a format acceptable to the LCAQMD, within 15 days of request, and by October 31st of each year.

Verification: The content and format of the annual record submitted by the project owner to the LCAQMD shall be approved by the LCAQMD. The project owner shall provide the CPM a summary of the type of fuel used and engine use (hours) breaking down hours of testing, maintenance, and emergency use, to the CPM in the annual compliance report. The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.

4: MODIFICATION

Emergency Engine

AQ-E4A The project owner shall apply for and receive an Authority to Construct permit prior to the addition of new equipment or modification of permitted equipment.

Verification: The project owner shall provide the CPM with applications and permits issued according to AQ-SC1. The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.

5: MONITORING

Emergency Engine

AQ-E5A **The herein permitted facility shall not cause a public nuisance nor make a measurable contribution to any Ambient Air Quality Standard exceedance. Should this facility result in odor or health complaints, the LCAQMD may require under Sections 430 and 670, monitoring, testing, and mitigation by the project owner to abate said condition.**

Verification: The project owner shall perform monitoring and testing as requested by the LCAQMD or CPM. The project owner shall make the site and records available for inspection by representatives of the District, ARB, U.S. EPA, and Energy Commission upon request.

6: IDENTIFICATION AND ACCESS

Emergency Engine

AQ-E6A **The permit for the E1 shall be posted at the equipment site and be available for the project owner'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 emergency engine use.**

Verification: The project owner shall make the site and records available for inspection by representatives of the District, ARB, and Energy Commission upon request.

REFERENCES

ARB 2020a - California Air Resources Board. Air Designation Maps available on ARB website. http://www.arb.ca.gov/desig/adm/adm.htm Accessed July 2020

ARB 2020b - California Air Resources Board. California Ambient Air Quality Data Standards available on ARB website. http://www.arb.ca.gov/research/aaqs/aaqs.htm Accessed July 2020

GPC 2020 – Geyser Power Company – Calistoga (Unit 19) Petition for Modification for the Installation of a Standby Pump for the Cooling Tower Wet-Down System. (TN 233639) June 24, 2020

GPC 2020a – Geyser Power Company – Calistoga (Unit 19) Petition for Modification for the Installation of a Standby Pump -Air District Health Risk Analysis. (TN 233983) July 21, 2020

CEC 1982 – California Energy Commission – Calistoga (Unit 19) 1982 Final Decision (TN 206769) docketed November 24, 2015

CEC 1981b – California Energy Commission – Calistoga (Unit 19) Compliance Plan (TN 206768) docketed November 24, 2015

LCAQMD 2019 – Lake County Air Quality Management District – Calistoga Geothermal Power Plant Permit to Operate –issued October 31, 2019

U.S. EPA 2020a – United States Environmental Protection Agency. The Green Book Nonattainment Areas for Criteria Pollutants website. https://www.epa.gov/green-book Accessed October 2019.

U.S. EPA 2020b - United States Environmental Protection Agency. National Ambient Air Quality Data Standards available on U.S. EPA website. https://www.epa.gov/criteria-air-pollutants/naaqs-table Accessed October 2019.