

DOCKETED

Docket Number:	79-AFC-01C
Project Title:	Compliance - Application for Certification for PG&E Geysers Unit 17 (78-NOI-3)
TN #:	229127
Document Title:	Lake View Geothermal Project Petition for Modification Regarding Fire System Recommissioning Activities
Description:	N/A
Filer:	Deric Wittenborn
Organization:	Ellison Schneider Harris & Donlan LLP
Submitter Role:	Applicant Representative
Submission Date:	7/29/2019 3:52:00 PM
Docketed Date:	7/29/2019



July 29, 2019

Mr. Eric Veerkamp
Compliance Project Manager
Siting, Transmission and
Environmental Protection (STEP) Division
California Energy Commission
1516 Ninth Street, MS-2000
Sacramento, CA 95814
E-mail: Eric.Veerkamp@energy.ca.gov

RE: Lake View Geothermal Project (Unit 17) (79-AFC-01C): Petition for Modification—Fire System Recommissioning Activities

Dear Mr. Veerkamp:

In accordance with Section 1769 of the California Energy Commission's regulations, enclosed is a Petition for Modification ("Petition") for the Lake View Geothermal Power Plant ("Lake View") submitted on behalf of the Geysers Power Company, LLC ("Project Owner") for fire system recommissioning activities.

If you have any questions, please contact Bruce Carlsen at (707) 431-6198.

Sincerely,

/s/

Samantha G. Neumyer
Jeffery D. Harris
Ellison Schneider Harris & Donlan LLP
2600 Capitol Avenue, Suite 400
Sacramento, CA 95816
Tel: (916) 447-2166
Email: sgn@eslawfirm.com
jdh@eslawfirm.com

**Lake View Geothermal Power Plant
(79-AFC-01C)**

**Petition for Modification
Fire System Recommissioning Activities**

Submitted by
Geysers Power Company, LLC.



July 29, 2019

LAKE VIEW GEOTHERMAL POWER PLANT (“UNIT 17”)

79-AFC-01C

PETITION FOR MODIFICATION

Pursuant to Section 1769 of the California Energy Commission’s (“CEC’s”) Siting Regulations, Geysers Power Company, LLC (“Project Owner”) hereby submits this *Petition for Modification for Fire System Recommissioning Activities* (the “Petition”) for the Lake View Geothermal Power Plant (“Lake View” or “Project”).

There are two types of modifications proposed in this Petition: (1) modifications proposed for approval by CEC Staff and (2) modifications designated as proposed for approval by the Commission.¹ *The Project Owner is separate, expedited review and consideration of the modifications proposed for approval by CEC Staff pursuant to 20 C.C.R. § 1769(A)(3) of the Commission’s Regulations, so that the Project Owner can immediately commence with the proposed work.*

As set forth below, both the modifications proposed for Staff approval and those that may require Commission approval will not have a significant effect on the environment, and will not affect the Project’s ability to continue to comply with applicable laws, ordinances, regulations, or standards (“LORS”).

I. Section 1769(a)(1)(A): Description of the proposed change, including new language for affected conditions of certification.

The Project Owner is in the process of recommissioning the fire system at the Project, which includes repair and like-kind replacement of certain components of the existing system, and, in some cases, will require modifications to the existing fire system.

Modifications Proposed for Staff Approval

The Project Owner proposes the following modifications for CEC Staff approval:

- Installation of an electric submersible pump, and associated piping, to operate the cooling tower’s wet down system.
- Connection of a National Fire Protection Association (“NFPA”) cooling tower fan motor automatic sprinkler system to the fire protection monitoring/ alarm system and installation of heat detectors to activate the sprinkler valve through the fire panel.
- Removal of the cooling tower’s 2-cell internal deluge system, which was decommissioned by the previous project owner prior to 1999.

¹ While we have designated certain modifications as requiring approval of the “Commission” based on our understanding of views expressed on more generalized descriptions of the modifications now detailed herein, we believe that the Staff has the discretion to find that the Air Quality modifications are also eligible for Staff Approval. The changes may qualify for Staff approval under 20 CCR 1769(a)(3)(B) and/or may implicate the federal Clean Air Act, not state law issues.

Detailed specifications for the electric submersible pump are provided in Attachment A. There are no conditions of certification affected by these proposed modifications because (1) there are no conditions of certification associated with the wet down system and (2) the cooling tower fan drive motor automatic sprinkler system satisfies both NFPA 214 and Condition of Certification 12-3, which requires an automatic sprinkler system for the cooling tower.

Modification Designated as Proposed for Commission Approval

The Project Owner proposes the following modification for Commission approval:

- Installation of a permanent emergency standby pump for the cooling tower wet down system.

The permanent stationary emergency standby wet down pump proposed for installation is a skid-mounted diesel engine driven pump that includes auxiliaries, including the pump control system. The diesel engine, pump, dual-walled diesel fuel tank, pump controller, and batteries are all contained on a single skid. Fuel lines will not extend off of the skid. Piping and flanges will be provided by the pump supplier to the edge of the skid to allow for connections to off-skid piping that will be routed above ground to the cooling tower wetting system header. The foundations for the skids are being installed within the power plant yards, and will be approximately three feet deep. Excavation for the foundations will be in existing asphalt-covered, previously disturbed ground. Other than the skid foundation and pipe support foundations that are being installed in similar ground conditions as the pump foundations, no other trenching is anticipated for this project.

The water supply will be from the cooling tower basin and the pump outlet is through the wetting system header. It will be mounted and wired/connected to the engine at the factory. The engine will be manually started by the plant operator in the event of a cooling tower submersible pump outage or an impending wildfire.

The Project Owner is proposing to limit annual testing and maintenance hours to no more than 50 hours, which will be logged as a result of routine inspections and at the start and completion of test and maintenance operations. The standby pump will have a Tier 4 diesel drive engine, and will require amendments to both the Commission's and Northern Sonoma County Air Pollution Control District's ("NSCAPCD") conditions for the facility. The application submitted to the NSCAPCD is provided as Attachment A, and includes the specifications and drawings for the proposed diesel pump. The Commission's Air Quality Conditions of Certification should be revised as necessary to ensure conformity with the Authority to Construct ("ATC") issued by the NSCAPCD, which is provided as Attachment B.

II. Section 1769(a)(1)(B): Discussion of the necessity for the change and explanation of why the change should be permitted.

Modifications Proposed for Staff Approval

- Installation of an electric submersible pump, and associated piping, to operate the cooling tower's wet down system.

Wet down systems are designed to prevent the ignition of cooling tower surfaces, and are demonstrated to be successful in preventing the ignition of cooling towers in geothermal facilities during outages. In the case of Lake View, the wet down system provides increased protection from wildland fire embers. The electric submersible pump will allow improvements to wetting coverage by the wet down system.

- Connection of a NFPA cooling tower fan motor automatic sprinkler system to the fire protection monitoring/ alarm system and installation of heat detectors to activate the sprinkler valve through the fire panel.

These modifications are part of the recommissioning of the Lake View fire system, and will enhance the fire protection abilities of the existing automatic sprinkler system for the cooling tower. The Project Owner commissioned a fire risk analysis conducted pursuant to NFPA 214 to determine the appropriate fire protection system for the cooling tower. This fire risk analysis concluded that a sprinkler system providing protection for the cooling tower's fan drive motor, in combination with the wet-down system, maintenance of vegetation clearing and fire breaks, and following safety procedures and facility maintenance is consistent with NFPA 214. Further, the sprinkler system for the cooling tower fan drive motor is consistent with existing Condition of Certification 12-3, which requires a sprinkler system for the cooling tower. The sprinkler system for the cooling tower's fan drive motor provides protection against fire initiation in the electrical fan-drive motor, which is the main fire risk from within the cooling tower.

- Removal of the cooling tower's decommissioned 2-cell internal deluge system.

The Project's 2-cell internal deluge system was taken out of service by Pacific Gas and Electric, the former owner of the facility, prior to 1999. As described above, Condition of Certification 12-3 is satisfied by the cooling tower fan drive motor automatic deluge system, and in combination with the wet down system and other measures satisfies NFPA 214. Removal and repurposing of the decommissioned system will enable the Project Owner to remove piping and other components removed from service by the previous owner (PG&E).

Modification Designated as Proposed for Commission Approval

- Installation of a permanent emergency standby pump for the cooling tower wet down system.

As stated above, wet down systems prevent the ignition of cooling tower surfaces. The permanent emergency standby pump will be used as needed in emergency situations, for

example, if facility evacuation is needed due to a threat from a wildland fire. In such a case, the emergency standby wet-down pump will be manually started prior to evacuation of the facility, and will provide continued wet down of the cooling tower for approximately 24 hours or longer.

III. Section 1769(a)(1)(C): A description of any new information or change in circumstances that necessitated the change.

The Project was designed and constructed in the early 1980s. The Project Owner has undertaken a review and recommissioning of the Project's fire protection and prevention systems for the betterment of the Project.

IV. Section 1769(a)(1)(D): An analysis of the effects that the proposed change to the project may have on the environment and proposed measures to mitigate any significant environmental effects.

Modifications Proposed for Staff Approval

There is no possibility that the modifications described above will result in adverse environmental impacts. These are minor modifications to an existing facility, and will not require any new ground disturbance outside of the existing Project site, changes to the Project footprint, or significantly alter the appearance of the facility. The modifications will not create new sources of emissions or impact existing levels of operational noise.

Modification Designated as Proposed for Commission Approval

- Installation of a permanent emergency standby pump for the cooling tower wet down system.

There is no possibility that the modifications described above will result in adverse environmental impacts. These are minor modifications to an existing facility, and will not require any new ground disturbance outside of the existing Project site, changes to the Project footprint, or significantly alter the appearance of the facility. The modifications will not impact existing levels of operational noise.

The Project Owner submitted an application to the NSCAPCD for the proposed modification. The ATC has been issued and is provided as Attachment B. Potential construction emissions from the proposed modification are will be minimal and short term, as described in the NSCAPCD application. Therefore, no significant construction emissions are expected from the proposed modification.

Potential operational impacts were evaluated by the NSCAPCD and were based on estimated emissions from the diesel fire pump, using manufacturer's data for the Perkins 1206F-E70TTA and anticipated operations of approximately 50 hours per year. The emission estimates were included in the application and evaluated as part of the NSCAPD's application review and issuance of the ATC.

V. Section 1769(a)(1)(E): An analysis of how the proposed change would affect the project's compliance with applicable laws, ordinances, regulations, and standards.

The proposed modifications will not impact the Project's ability to comply with all applicable LORS.

VI. Section 1769(a)(1)(F): A discussion of how the proposed change would affect the public.

The proposed modifications will not adversely affect the public. There will be no significant effects and the project will comply with applicable LORS. The facilities affected are all within the site.

VII. Section 1769(a)(1)(G): A list of current assessor's parcel numbers and owners' names and addresses for all parcels within 500 feet of any affected project linears and 1000 feet of the project site.

Consistent with privacy considerations, a list of current assessor's parcel numbers and owners' names and addresses for all parcels within 500 feet of the project site will be provided directly to the Compliance Project Manager.

VIII. Section 1769(a)(1)(H): A discussion of the potential effect of the proposed change on nearby property owners, residents, and the public.

The proposed modifications will have no potentially significant environmental effects and will be in compliance with all applicable LORS. Therefore, the proposed modifications will have no adverse impacts on property owners, the public, or any parties in the application proceeding.

IX. Section 1769(a)(1)(I): A discussion of any exemptions from the California Environmental Quality Act, commencing with section 21000 of the Public Resources Code, that the project owner believes may apply to approval of the proposed change.

Modifications Proposed for Staff Approval

The modifications proposed for Staff approval are considered ministerial activities for which discretionary approvals would not be required for non-CEC jurisdictional activities. (14 C.C.R. § 15268.)

Further, the modifications proposed for Staff approval are categorically exempt from the California Environmental Quality Act ("CEQA") pursuant to Title 14 of the California Code of Regulations as activities that constitute a minor alteration of the existing Project that involves no expansion of an existing use. (14 C.C.R. § 15301.)

The modifications proposed for Staff approval are also categorically exempt from CEQA as a “replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced...” (14 C.C.R. § 15302.)

Finally, the modifications proposed for Staff approval are categorically exempt from CEQA “construction and location of limited numbers of new, small facilities or structures” and the “installation of small new equipment and facilities in small structures.” (14 C.C.R. § 15303.)

ATTACHMENT A



CALPINE

GEYSERS POWER COMPANY, LLC

10350 SOCRATES MINE ROAD
MIDDLETOWN, CALIFORNIA 95461
707.431.6000

Letter GPC-19-050

June 27, 2019

Alex Saschin
Air Quality Engineer
Northern Sonoma County
Air Pollution Control District
150 Matheson Street
Healdsburg, CA 95448

Dear Mr. Saschin:

Subject: Permits: Authority To Construct And Temporary Permit To Operate Application For A Diesel Powered Emergency Fire Pump at the Lake View Power Plant

Enclosed is Geysers Power Company's application for an Authority to Construct and Temporary Permit to Operate a Stationary Emergency Diesel Powered Fire Pump to be located at Lake View Power Plant. Also attached is payment in the amount of \$967.00 (Check No.1000110642) for the application filing and permit processing fees.

This proposed Emergency Diesel Powered Fire Pump will support operation of the Lake View (Unit 17) Power Plant Cooling Tower wetting / fire prevention system during loss of normal site power.

Please contact me at (707) 431-6266, if you need any additional information in support of this permit application.

Sincerely,

Brian J. Berndt
EHS Manager | Geysers

Enclosure & Attachments

Letter GPC-19-050

June 27, 2019

Page 2

BJBerndt(431-6266):tbm

bcc: Shaun Robinson
Brad Backlin
Bruce Carlsen
Karl Urbank
AQChron 2019

Enclosure

Geysers Power Company LLC Application for an Authority to Construct and Temporary Permit to Operate: Emergency Standby Wet-Down Pump Diesel Drive Engine at the Lake View (Unit 17) Power Plant

- **Application Form**
- **Google Earth View Showing Location of the Lake View Power Plant**
- **Project Description: Emergency Standby Wet-Down Pump Diesel Drive Engine**
- **Diesel Engine Permit Application Form**
- **Exhaust Stack And Building Dimensions Form**
- **Attachment 1 – Lake View Plot Plan Showing the Emergency Standby Wet-Down Pump Diesel Drive Engine Location**
- **Attachment 2 – Manufacturer’s Specification Sheets for the Emergency Diesel Engine**
- **Attachment 3 – CARB Executive Order UR-022-0220**

NORTHERN SONOMA COUNTY
AIR POLLUTION CONTROL DISTRICT
PERMIT APPLICATION FORM

BUSINESS NAME: Geysers Power Company LLC FACILITY ID # _____

Lake View (Unit 17) Power Plant: Location of The Emergency Diesel Engine is shown on **Attachment 1**

TYPE OF PERMIT APPLIED FOR:

AUTHORITY TO CONSTRUCT	<input checked="" type="checkbox"/>	EPA ID	<u>CAT080011521</u>
PERMIT TO OPERATE	<input checked="" type="checkbox"/>	SIC CODE	<u>4911</u>
TRANSFER OF OWNERSHIP	<input type="checkbox"/>		
PERMIT MODIFICATION	<input type="checkbox"/>		

GENERAL INFORMATION

Other Business Name Geysers Power Company LLC Parent Company Calpine Corporation
(if any)

Mailing Address: 10330 Socrates Mine Road, Middletown, CA 95461
Street address or P.O. Box City State Zip Code

Phone Number: (707) 431-6266 Fax Number: (707) 431-6246

Plant Address: 10330 Socrates Mine Road, Middletown, CA 95461
Street address or P.O. Box City State Zip Code

Phone Number: (707) 431-6266 Fax Number: (707) 431-6246

Principal Product / Operation: Geothermal Electric Power Generation

Name of Responsible Official: James Kluesener Title: VP Geothermal Region

Total # of Sources: 2 # of Permitted 2

of Exempt Sources _____ Emission Sources: 2

Plant Area (Acres) 5.7 # of Employees: ~300

Is the business/facility/operation located within 1,000 feet of the outer boundary of a school or school site?

YES _____ NO X

Are all major sources (emissions >25 tons per year) owned or operated by application in California in compliance with all air pollution rules and regulations?

YES X NO _____ N/A _____

If not in compliance above, is(are) the source(s) on a schedule for compliance with all applicable emission limitations and standards?

YES _____ NO _____ N/A X

Name: Brian Berndt Title: EHS Manager
(Printed)

Signature  Date: 6/27/2019

Fees \$967.00 Receipt # _____ Date Received _____

Figure 1. Google Earth View Showing Location of the Lake View Power Plant



Project Description, For the Emergency Standby Wet Down Pump Diesel Drive Engine at the Lake View Power Plant

BACKGROUND:

Cooling tower wet down systems are common on wood cooling towers and are used to keep the normally wetted surfaces of the cooling tower structure wet when the cooling tower is not in operation to preserve the wood. Typically when a plant shuts down for an overhaul and the cooling tower is not circulating water, auxiliary or fire pumps are turned on to sprinkle areas of the cooling tower that can dry out, become damaged and more vulnerable to fire. These systems are not subject to NFPA or other codes. Impact spray nozzles (Rainbird™-style) are often used because they provide large coverage areas.

The desire for wetting is particularly true of cooling towers that use geothermal steam condensate for cooling. This is because, as hydrogen sulfide contained in the geothermal steam condensate is oxidized to soluble sulfur compounds, it becomes elemental sulfur for a period of time and can coat the wetted surfaces of the tower. Sulfur is a flammable solid that has a relatively low ignition temperature. Utilizing a wet down system has been very successful in preventing the ignition of cooling towers in the geothermal industry during outages.

Wet down systems are not to be confused with fire suppression systems. A wet down system prevents the ignition of vulnerable surfaces while fire suppression systems are designed to douse fires after ignition occurs. Typically the water pumping capacity of a fire suppression system is very large and the coverage area is very small and focused (able to cover a couple of cells). Deluge systems that typically do not cover the fan or hot water decks and have limited coverage are judged not a good defense against wild land fires. In addition, plant personnel may be required to evacuate the power plant when there is an approaching wild land fire.

During the 2015 Valley Fire, four and one half cooling towers were fire damaged at several Geysers power plants. Some of these cooling towers ignited while there was full cooling circulation water flow. Analysis of the burned cooling towers indicates that the center of the cooling towers burned in the non-wetted areas such as the fan deck and the area below the fans (plenum area). Field observations on cooling towers that did not burn showed indications that burning embers were deposited on the fan deck by the wild land fire as it passed the power plant.

COOLING TOWER AT THE LAKE VIEW POWER PLANT

The cooling tower is proposed to be constructed with a wet down system installed to wet areas where sulfur may be found, including spray coverage in the non-wetted areas such as the fan deck, hot water basin, and plenum areas for increased protection from wild land fire embers. Figure 1 shows a Google Earth view of the location of the power plant and Figure 2 illustrates the proposed flow diagram.

Project Description, For the Emergency Standby Wet Down Pump Diesel Drive Engine at the Lake View Power Plant

PROJECT DESCRIPTION

A permanent emergency standby wet down pump diesel drive engine is proposed to be added for use in the event of a plant evacuation due to the threat of an approaching wild land fire. The location of the emergency standby wet down pump diesel drive engine is shown adjacent to the cooling tower circulating water pit on the Lake View Power Plant Plot Plan (**Figure 3**).

The emergency standby wet-down pump diesel drive engine will be manually started prior to evacuation of the power plant due to an approaching wild land fire to provide continued wet down of the cooling tower for approximately 24 hours or longer depending on fuel consumed. Particulate and other exhaust emissions resulting from the operation of the diesel engine would be consistent with manufacturer's specifications for this Tier 4 engine. The exhaust emissions from the engine during emergency use would be virtually undetectable amidst the combustion emissions resulting from an uncontrolled wild land fire.

TESTING AND MAINTENANCE:

Annual testing and maintenance operation hours are limited to no more than 50 hours. Test operation routines will vary through the year with more frequent test operations occurring during the dry season and less frequent test operation occurring during wet seasons. The hour meter indications will be logged as a result of routine inspections and at the start and completion of test and maintenance operations to ensure that annual hours of emergency use, and annual hours of test and maintenance operation are recorded.

APPLICABLE REGULATIONS

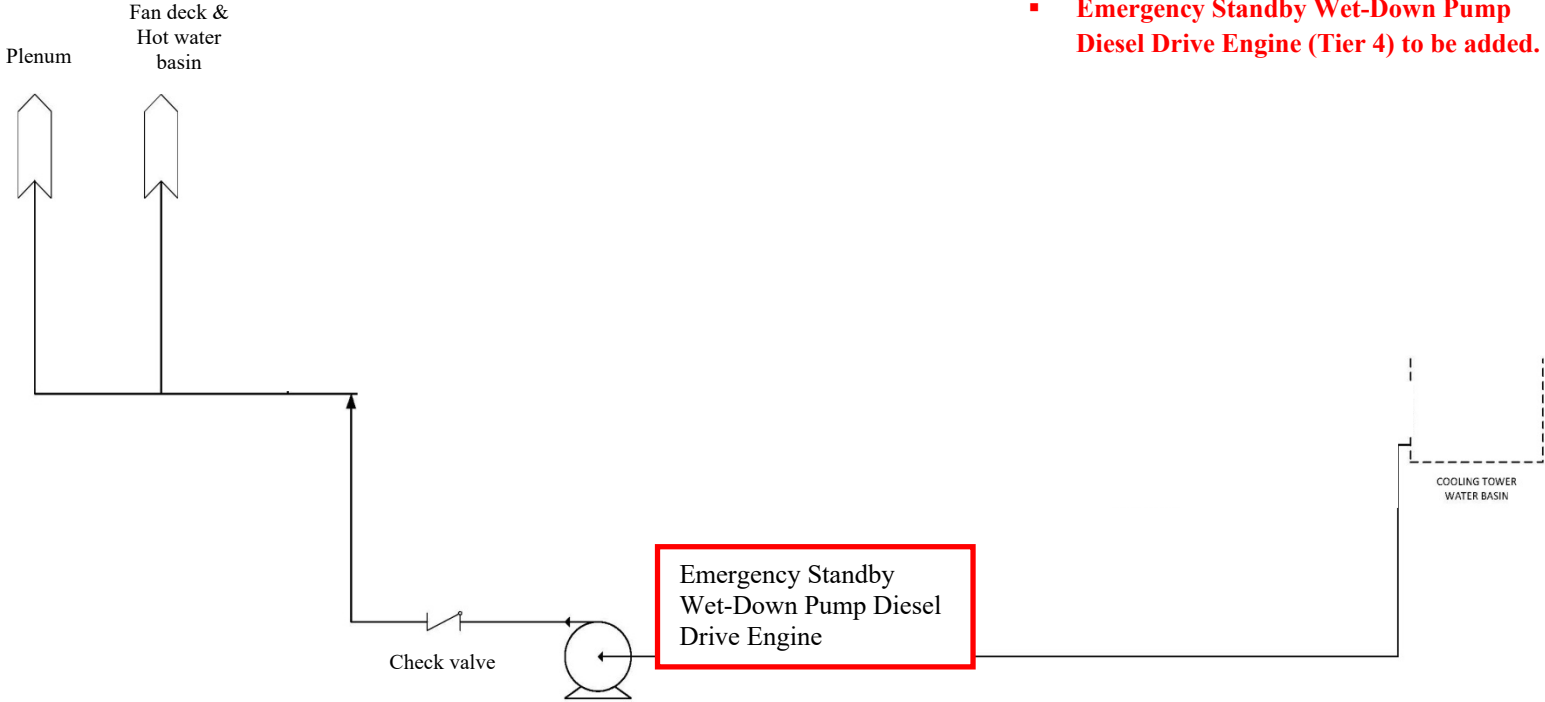
Title 17, California Code of Regulations section 93115 Airborne Toxic Control Measure for Stationary Compression Ignition (CI) Engines.

The Emergency Standby Wet-Down Pump Diesel Drive Engine meets the required criteria of § 93115.4 (29) for definition as an "Emergency Standby Engine" pursuant to (29) (A), (B), (C), (D), and (E).

Operation of the Emergency Standby Wet-Down Pump Diesel Drive Engine meets multiple criteria of § 93115.4 (30) for definition as "Emergency Use" pursuant to (30) (A), (B), (D), and (F).

The Emergency Standby Wet Down Diesel Drive Engine meets the requirement of 93115.6(a)(3)(A)(1) Table 1: Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines.

Figure 2
Flow Diagram Showing Emergency Standby Wet Down Pump Diesel Drive Engine
Perkins Model 1206F-E70TTA



Note:
▪ **Emergency Standby Wet-Down Pump Diesel Drive Engine (Tier 4) to be added.**

**NORTHERN SONOMA COUNTY
AIR POLLUTION CONTROL DISTRICT
150 MATHESON STREET
HEALDSBURG, CA 95448
(707) 433-5911**

**DIESEL ENGINE
PERMIT APPLICATION FORM**

1. Business Name Geysers Power Company LLC (Lake View Power Plant)
2. Engine Manufacturer Perkins
Engine Family KPKXL07.0BN1 Model 1206F-E70TTA 3924-2200
Serial Number To be Provided Upon Delivery Year of Manufacture 2019
Rated Brake Horsepower Rating 275
3. Engine Emission Factors (g/bhp-hr)
NOx 0.27 PM 0.002 NMHC 0.01 NMHC + NOx 0.28 CO 1.3
Control Equipment: Turbocharger Aftercooler Injection Timing Retard Catalyst
Diesel Particulate Filter DDI, TAA, ECM, DOC, CTOX, EGR, SCR AMOX & EPR
4. Fuel Used: CARB Diesel Diesel Other _____
5. Operation Information:
Engine Operating Time for Testing and Maintenance: 50 hrs/yr
Typical load 100 % of maximum bhp rating
Total annual hours of operation >50 hrs/yr
Fuel usage rate ~14.7 gallons/hr
6. Does the engine participate in an Interruptible Service Contract (ISC) No
7. Person completing this form Brian Berndt Date 6/27/2019

Manufacturers Information Sheet for the diesel engine provided (**Attachment 2**).

CARB Executive Order U-R-022-0220 (**Attachment 3**).

**NORTHERN SONOMA COUNTY
AIR POLLUTION CONTROL DISTRICT
150 MATHESON STREET
HEALDSBURG, CA 95448
(707) 433-5911**

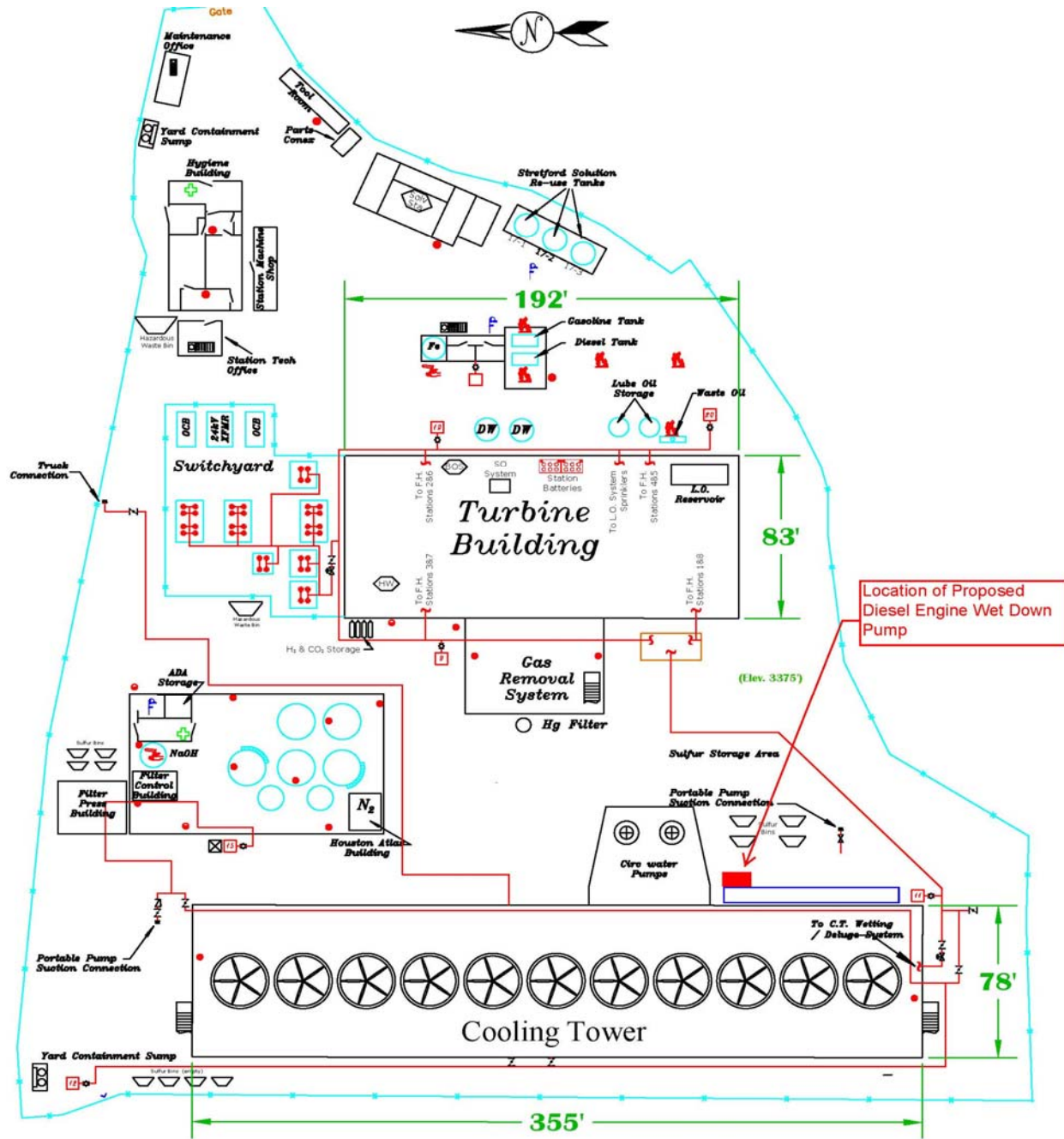
**EXHAUST STACK AND BUILDING DIMENSIONS
FORM**

1. Business Name Geysers Power Company LLC, (Lake View Power Plant)
2. Exhaust Stack Height Above Ground ~8.75 ft
3. Exhaust Stack Height Above Top of Building -39.2 ft (Exhaust stack will be below the top of the adjacent cooling tower.)
4. Exhaust Stack Diameter 0.333 ft
5. Exhaust Stack Flowrate ~1,689 CFM
6. Exhaust Stack Direction [] Up [] Down [] Side Raincap [] Yes [] No
7. Exhaust Stack Gas Temperature ~853 °F
8. Nearest Building Dimensions L 355' W 78' H 48'
9. Distance from stack to nearest property line 2.2 mi *
10. Distance to nearest school grounds 3.25 mi**
11. Person completing this form Brian Berndt Date 6/27/2019

* Distance given is from the engine stack to the property gate at the Healdsburg Geysers Road Gate Post 1.

** Distance given is from the engine stack to the Cobb Mountain Elementary School.

Figure 3
Lake View Power Plant Plot Plan Showing the Emergency Standby Wet-Down Pump Diesel Drive Engine Location



- Station North
- Telephone
- Work Hose Station
- First Aid
- Emergency Shower and Eyewash Station



- Fire Hose Station
- Fire Extinguishers:
Dry Chemical
Halon 1211
- Combustible
- Corrosive



- Hazardous Waste Accumulation Area
- Bulk Oil Storage
- Solvent Station
- Gas Cylinder



Attachment 1

Perkin's Information Sheets for the Emergency Diesel Engine

1200 Series 1206F-E70TTA Industrial Open Power Unit

EU Stage IV, EPA Tier 4 Final
151-225 kW / 202-301 hp

The addition of the 1206F IOPU to our 1200 Series ensures our customers have a complete power solution ready and available when they need to change over to the next stage of emissions legislation – EU Stage IV, Tier 4 Final in 2014. They offer not only specific power outputs but also a choice of engine configurations and options. Their robust technology allows our OEMs the ability to integrate these engines into their equipment with the minimum of re-engineering.

The 1206F IOPU is a series turbocharged, air-to-air charge cooled, 7 litre, 6 cylinder units capable of producing 225 kW (301 hp). Their high power density, combined with excellent torque, enables the machine manufacturers to select this engine where previously they may have used an engine of a higher cubic capacity. This downsizing represents a cost saving and creates more space to package the new aftertreatment units.

The Perkins® 1200 Series engines have the innovative design to meet the latest, stringent emissions legislation; the flexibility to integrate into more than 800 different types of equipment.

Perkins have developed a reputation for designing and building reliable and durable engines suitable for the most demanding applications.



Emissions

Designed to meet 2014 EU Stage IV (Europe), EPA Tier 4 Final (US) and MLIT 2014 Regulations (Japan).

Specification		
Number of cylinders	6 vertical in-line	
Bore and stroke	105 x 135 mm	4.13 x 5.3 in
Displacement	7.01 litres	427.7 in ³
Aspiration	Series turbocharged aftercooled	
Cycle	4 stroke	
Combustion system	Direct injection	
Compression ratio	16.5:1	
Rotation	Anti-clockwise, viewed on flywheel	
Total lubricating capacity	13-16 litres	3.4-4.2 US gal
Cooling system	Liquid	
Total coolant capacity	15.2 litres	4 US gal

www.perkins.com

Photographs are for illustrative purposes only and may not reflect final specification.
All information in this document is substantially correct at time of printing and may be altered subsequently.
Final weight and dimensions will depend on completed specification.

Publication No. PN3057/12/14 Produced in England ©2014 Perkins Engines Company Limited

 **Perkins®**

THE HEART OF EVERY GREAT MACHINE

1200 Series 1206F-E70TTA Industrial Open Power Unit

EU Stage IV, EPA Tier 4 Final
151-225 kW / 202-301 hp

Features and benefits

Dependable power

- World-class manufacturing capability and processes coupled with proven core engine designs assure reliability, quiet operation, and many hours of productive life

Designed to be productive

- Turbocharging with smart wastegate available on all ratings for fast response, high power, and increased torque

Lifetime of low cost

- Fuel consumption optimised to match operating cycles of a wide range of equipment and applications
- Hydraulic tappets, multi-vee belts, service-free aftertreatment and 500 hour oil change intervals enable low-cost maintenance. Many service items have a choice of location on either side of the engine to enable choice of service access
- Extended Service Contracts – protect and plan the cost of ownership
Discover more: www.perkins.com/esc

Industry leading flexibility

- Exceptional power density enables standardisation across numerous applications. Multiple installation options minimise total package size. Ideal for equipment with narrow engine compartments

Local support, global coverage

- Perkins recognise that the customer relationship is important to machine manufacturers and we can offer a range of flexible solutions to help provide appropriate support, either to the OEM's network or directly to the machine customer
- Perkins information systems enable our distributors to quickly diagnose engine faults and identify the right parts. The Perkins logistics operation is able to dispatch more than 45,000 different parts from stock, reaching the customer within 24 hours
- To find your local distributor: www.perkins.com/distributor

www.perkins.com

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Final weight and dimensions will depend on completed specification.

Publication No. PN3057/12/14 Produced in England ©2014 Perkins Engines Company Limited



THE HEART OF EVERY GREAT MACHINE

1200 Series 1206F-E70TTA Industrial Open Power Unit

EU Stage IV, EPA Tier 4 Final
151-225 kW / 202-301 hp

Technical information

Air inlet

- Standard air cleaners

Control system

- Full electronic control system
- All connectors and wiring looms waterproof and designed to withstand harsh off-highway environments
- Flexible and configurable software features and well supported SAE J1939 CAN bus enables highly integrated machines

Cooling system

- Top tank temperature 108°C as standard to minimise cooling pack size
- 50:50 water glycol mix
- Detailed guidance on cooling system design and validation available to ensure machine reliability

Standard emissions control equipment

- NRS – NOx Reduction System

Flywheels and flywheel housing

- Wide choice of drivetrain interfaces, SAE1, SAE2 and SAE3 configurations

Fuel and fuel system

- Industrial technology requires Ultra Low Sulphur Diesel Fuel (ULSD, 15 ppm sulphur), in addition to ultra low sulphur diesel oils, for use in Tier 4 Interim/Stage IIIB engines. These cleaner fuels and oils will help reduce ash and maintain service intervals. In addition, B20 biodiesel capability adds even greater sustainability where desired or required
- Electronic high pressure common rail
- Innovative filter design – ensures maximum protection of the engine

Oil system

- Choice of sumps for different applications

Power take-off

- SAE A or SAE B flanges on left-hand side. Right hand side twin PTO also available. Engine power can also be taken from the front of the engine on some applications
- Factory fitted compressors are also available

www.perkins.com

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All information in this document is substantially correct at time of printing and may be altered subsequently.
Final weight and dimensions will depend on completed specification.

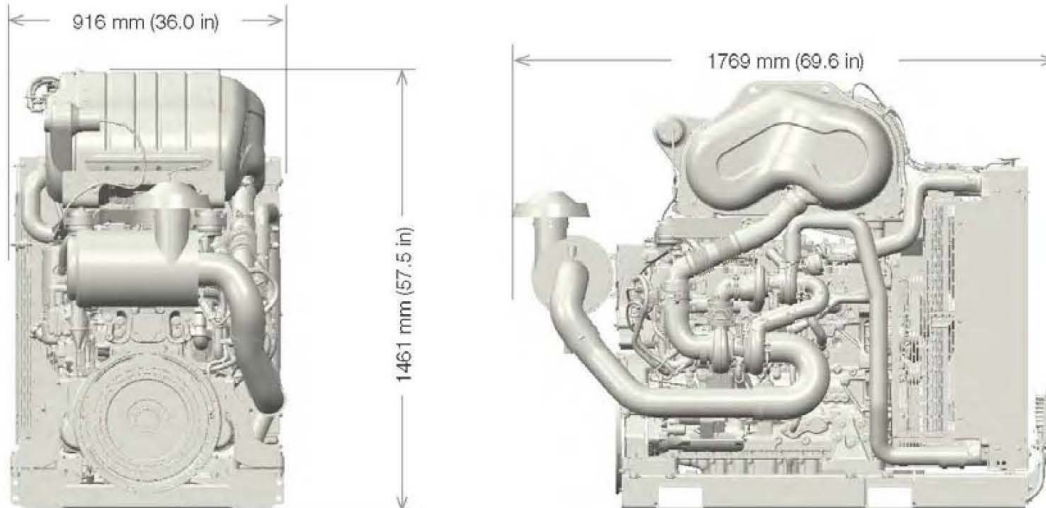
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 **Perkins®**

THE HEART OF EVERY GREAT MACHINE

1200 Series 1206F-E70TTA Industrial Open Power Unit

EU Stage IV, EPA Tier 4 Final
151-225 kW / 202-301 hp



Engine package weights and dimensions (including electrics and backend)		
Length	1769 mm	69.6 in
Width	916 mm	36.0 in
Height	1461 mm	57.5 in
Weight (dry)	1087 kg	2396 lb

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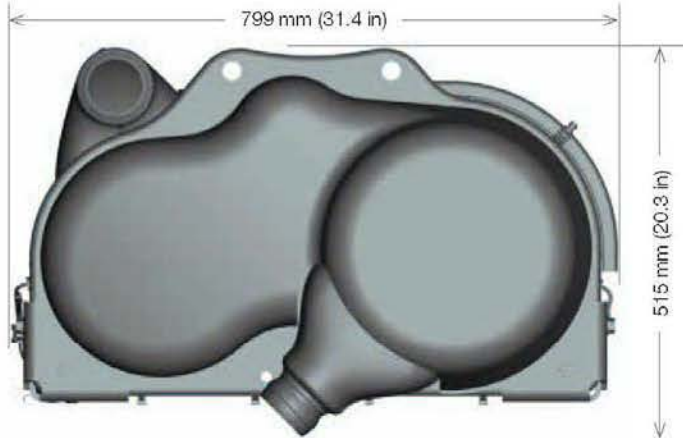
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Front view



Top view



Aftertreatment weights and dimensions		
Length	799 mm	31.4 in
Width	770 mm	30.3 in
Height	515 mm	20.3 in

Aftertreatment

- CEM – Clean Emissions Module
- Basic aftertreatment package includes DOC / DPF / SCR
- DOC – Diesel Oxidation Catalyst
- DPF – Diesel Particulate Filter
- SCR – Selective Catalytic Reduction
- 3 inch flex pipe connection kit with rotatable elbow for 60° and 90° RS inlet flexibility

Technology

The DPF technology chosen is a wall flow filter configuration. This enables the engine to be optimised for superior performance and low fuel consumption.

Power

Using our advanced research and development techniques, we have perfectly matched the aftertreatment to the engine. The engine performance has then been optimised to give the maximum power and in normal operation, the regeneration is invisible to the operator.

Regeneration

Passive Regenerations System maximises fuel efficiency during regeneration.

Mounting

Remote and engine-mounted installation options provide OEM flexibility for many applications.

Service

Aftertreatment designed to be service-free.

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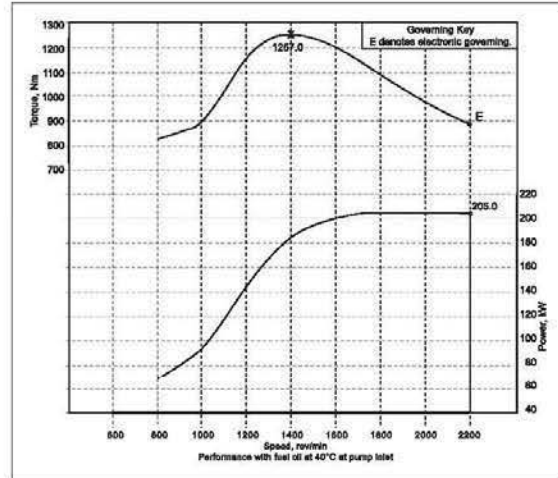
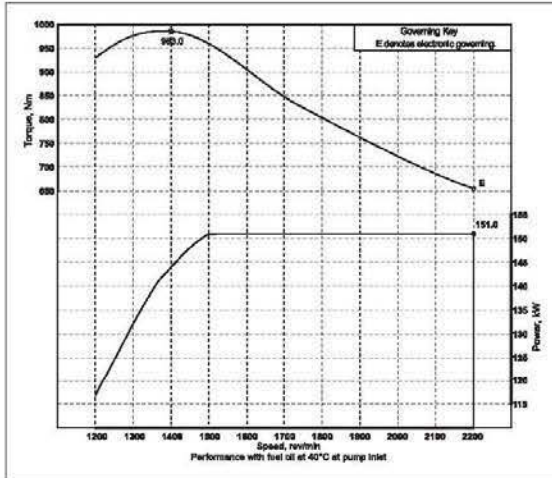
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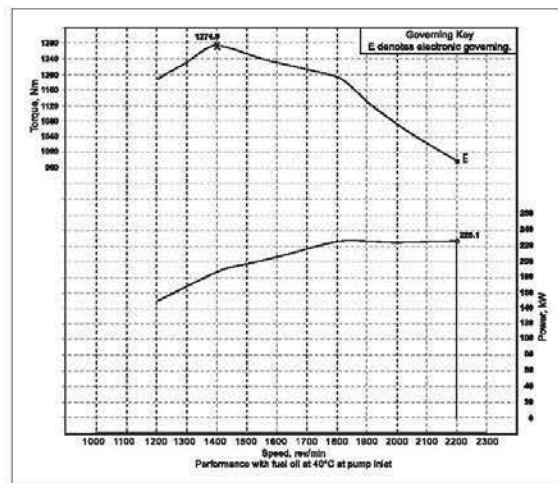
Rating definitions and conditions

IND-B for service where power and/or speed are cyclic (time at full load not to exceed 80%).

IND-C (Intermittent) is the horsepower and speed capability of the engine where maximum power and/or speed are cyclic (time at full load not to exceed 50%).

Additional ratings are available for specific customer requirements. Consult your Perkins distributor.

Rating Conditions for Diesel Engines – up to 7.1 litres are based on ISO/TR14396, inlet air standard conditions with a total barometric pressure of 100 kPa (29.5 in. Hg), with a vapour pressure of 1 kPa (0.295 in Hg) and 25°C (77°F). Performance is measured using fuel to specification EPA 2D 89.330-96 with a density of 0.845-0.850 kg/L @ 15°C (59°F) and fuel inlet temperature 40°C (104°F).



Speed rpm	Power kW	Power hp	Speed rpm	Torque Nm	Torque lb-ft	Rating type
2200	*151	202	1400	922	680	B
2200	168	225	1400	1028	758	B
2200	186	249	1400	1142	842	C
2200	*205	275	1400	1257	927	C
2200	*225	301	1400	1274	939	C

*Curve shown

Rating Standard ISO 14396:2002

Unless otherwise specified, all stated data is for maximum rated speed and 100% load

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THE HEART OF EVERY GREAT MACHINE

Attachment 2 CARB Executive Order U-R-022-0220

 CALIFORNIA AIR RESOURCES BOARD	PERKINS ENGINES COMPANY LTD.	EXECUTIVE ORDER U-R-022-0220 New Off-Road Compression-Ignition Engines Page 1 of 2
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Pursuant to the authority vested in California Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2019	KPKXL07.0BN1	7.01	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Engine Control Module, Diesel Oxidation Catalyst, Periodic Trap Oxidizer, Exhaust Gas Recirculation, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst			Crane, Loaders, Tractor, Dozer, Pump, Compressor, Generator Set	

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for non-methane hydrocarbon (NMHC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY	OPTIONAL STD	EXHAUST (g/kw-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
75 ≤ kW ≤ 560	Tier 4 Final	OPTIONAL STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		FEL	N/A	N/A	N/A	N/A	0.01	N/A	N/A	N/A
		CERT	0.01	0.27	--	1.3	0.002	--	--	--

BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

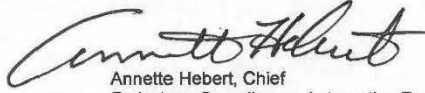
BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has complied with the more stringent set of standards from the various power categories in conformance with Section 1039.230 (e) of the "California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-D" adopted October 20, 2005 and last amended October 25, 2012.

BE IT FURTHER RESOLVED: That the manufacturer has elected to include engine models in this engine family which are identified for "emergency equipment use only". These "emergency equipment use only" engines are exempt from requirements imposed pursuant to California law and the regulations adopted pursuant thereto for motor vehicle pollution control devices per California Vehicle Code Section 27156.2. The manufacturer must clearly label these engines for "emergency equipment use only" on the engines' emission control label.

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 26 day of December 2018.



Annette Hebert, Chief
Emissions Compliance, Automotive Regulations and Science Division

U-R-022-0220

Attachment Pg 1 of 8

Engine Model Summary Template

12/14/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
KPKXL07.0BN1	Cert Test 1	3924/2200	275@2200	144	104	927@1400	186	86	DDI TAA ECM DOC CTOX PTOX EGR SCR AMOX EPR
KPKXL07.0BN1	2	3960/2200	269@2200	140	101	918@1400	184	85	DDI TAA ECM DOC CTOX PTOX EGR SCR AMOX EPR
KPKXL07.0BN1	3	3926/2200	250@2200	128	93	895@1400	179	82	DDI TAA ECM DOC CTOX PTOX EGR SCR AMOX EPR
KPKXL07.0BN1	4	4038/2200	250@2200	128	93	895@1400	179	82	DDI TAA ECM DOC CTOX PTOX EGR SCR AMOX EPR
KPKXL07.0BN1	5	3962/2200	248@2200	127	92	908@1300	182	78	DDI TAA ECM DOC CTOX PTOX EGR SCR AMOX EPR

ATTACHMENT B



**NORTHERN
SONOMA COUNTY**
AIR POLLUTION CONTROL DISTRICT

150 Matheson Street, Healdsburg, CA 95448 • PH: (707) 433-5911 • FX: (707) 433-4823

Geysers Power Company
c/o Calpine Corporation
10350 Socrates Mine Road
Middletown, CA 95461

July 3, 2019

Attention: Brian Berndt

Subject: Application # 19-18, Emergency Standby Fire Pump

Dear Mr. Berndt:

Attached is your Authority to Construct/Temporary Permit to Operate, 19-18 for the Emergency Standby Fire Pump to be located at the Lake View Power Plant (Unit 17). Please review the Authority to Construct/Temporary Permit to Operate for any omissions or errors. Per Rule 250, the applicant may appeal the decision of the Air Pollution Control Officer within ten (10) days of issuance of the Authority to Construct/Temporary Permit to Operate.

A copy of the Authority to Construct/Temporary Permit to Operate must be displayed near the source. In the event that the Authority to Construct cannot be so placed, the Authority to Construct shall be maintained readily available at all times on the operating premises.

Please notify the District by letter at least three (3) days before initial operation of the equipment is to take place so that we may observe the equipment in operation and verify compliance with the Authority to Construct.

If you have any questions regarding this matter please call the District at (707) 433-5911.

Sincerely,

Alex Saschin
Air Quality Engineer

NORTHERN SONOMA COUNTY AIR POLLUTION CONTROL DISTRICT

150 Matheson Street Healdsburg CA 95448

Telephone (707) 433-5911

Authority to Construct/Temporary Permit to Operate 19-18

COMPANY: Geysers Power Company
10330 Socrates Mine Road
Middleton, CA, 95461

EQUIPMENT DESCRIPTION:

S-1 275 HP Emergency Standby Wet-Down Pump Diesel Drive Engine,
Perkins Model 1206F-E70TTA-3924-2200 (Tier 4, Manufactured 2019)

LOCATED AT: Lake View Power Plant (Unit 17)
9500 Geysers Road
Cloverdale, CA

Whereas application for an Authority to Construct/Temporary Permit to Operate has been made by the Geysers Power Company (hereinafter called the Operator) pursuant to Regulation 1 of the Rules and Regulations of the Northern Sonoma County Air Pollution Control District (hereinafter called the District), and said application has been reviewed and considered by the Air Pollution Control Officer of said District (hereinafter referred to as the Control Officer or NSCAPCD).

This is your Authority to Construct/Temporary Permit to Operate (hereinafter called PERMIT) subject to the following terms and conditions:

PERMIT CONDITIONS

A. Production Limit

1. Total operating hours used for testing and maintenance of S-1, emergency standby wet-down pump diesel drive engine, shall not exceed 50 hours in any consecutive 12-month period. The total hours of operation do not include use during emergencies.

B. Emission Limits

1. Visible particulate emissions shall not exceed an opacity as to obscure an observer's view to a degree equal to or greater than Ringelmann 2.0 or 40 per cent opacity for a period or periods exceeding 3 minutes in any one hour.

2. Particulate emissions shall not exceed an emission rate of 0.002 g/bhp-hr.
3. Combined non-methane hydrocarbons and nitrogen oxide emissions shall not exceed an emission rate of 0.28 g/bhp-hr.
4. Carbon monoxide emissions shall not exceed and emission rate of 1.3 g/bhp-hr.

C. Operational Limits and Requirements

1. S-1, emergency standby wet-down pump diesel drive engine, shall only be used because of a failure or loss of all or part of normal electrical power service, except for testing and maintenance as defined in CA HSC 93115.4 (30).
2. S-1, emergency standby wet-down pump diesel drive engine, shall be equipped with a non-resettable hour counting meter to indicate the number of hours the engine is operated.
3. S-1, emergency standby wet-down pump diesel drive engine, shall be operated exclusively on California Air Resources Board (CARB) Diesel Fuel.
4. S-1, emergency standby wet-down pump diesel drive engine, shall be operated according to manufacturer specifications.

D. Monitoring and Testing:

1. At any time as specified by the Control Officer, the operator of this source shall conduct a District approved source test to determine NO_x and particulate emissions from the diesel powered generator. The test results shall be provided to the District within 30 days of the test.

E. Recordkeeping

1. In order to demonstrate compliance with the above permit conditions, records shall be maintained in a District approved log, shall be kept on site, and made available for District inspection for a period of 5 years from the date on which a record is made. The records shall include the following information summarized on a monthly basis:
 - a. total engine operating hours.
 - b. emergency use hours of operation.
 - c. maintenance and testing hours of operation.

F. Administrative Requirements

1. Facilities Operation

- a. Operation under this permit must be conducted in compliance with all data and specifications included in the application which attest to the operator's ability to comply with District Rules and Regulations. This permit must be posted in a conspicuous place nearby or, as per rule 240.
- b. All equipment of this PERMIT shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions. [NSCAPCD Rule 240.d]

2. Permit Expiration

This Authority to Construct is valid for one year and may be extended by an additional year with the payment of the annual renewal fee. After construction of the listed equipment, the permit to operate shall remain valid provided the annual renewal fees are paid in accordance with District Rule 300 and all Permit conditions are met. [NSCAPCD Rule 300.5.1]

3. Severability

The provisions of this PERMIT are severable, and, if any provision of this PERMIT is held invalid, the remainder of this PERMIT shall not be affected.

4. Notification Requirements

- a. Applicant shall notify the District at least 3 days prior to the start-up of this source
- b. Upsets and Breakdowns - In the event of any failure of process or abatement equipment to operate in a normal manner which results in an increase in emissions above any allowable emissions limit stated in District Rules or in conditions to this PERMIT the Operator shall notify the District as provided by Rule 540 regarding upset breakdown conditions to petition for shelter from enforcement actions. In order to qualify for such shelter an initial notification of the equipment failure must be given within one hour of the failures discovery. [NSCAPCD Rule 540]:
- c. Transfer of Ownership - In the event of any changes in control or ownership of facilities to be constructed or modified, this PERMIT together with its terms and conditions shall be binding on all subsequent owners and operators. The Applicant shall notify the succeeding owner and operator of the existence of this PERMIT and its conditions by letter, a copy of which shall be forwarded to the Control Officer. [NSCAPCD Rule 240.j.]

5. Right to Entry

The Control Officer, The Chairman of the California Air Resources Board, The Regional Administrator of USEPA, and/or their authorized representatives, upon the presentation of credentials, shall be permitted:

- a. To enter upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of this PERMIT; and
- b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this PERMIT; and
- c. To inspect any equipment, operation, or method required in this PERMIT; and
- d. To sample emissions from the source.
[NSCAPCD Rule 240.e]

THIS PERMIT BECOMES VOID UPON ANY ALTERATION OF EQUIPMENT

This permit does not authorize the emission of air contaminants in excess of those allowed by the Health and Safety Code of the State of California or the Rules and Regulations of the Northern Sonoma County Air Pollution Control District. This permit cannot be considered as permission to violate existing laws, ordinances, regulation or statutes of other governmental agencies.

DATE: 7/3/19

Permit Number 19-18

BY:  _____

Rob Bamford
Air Pollution Control Officer

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