

## DOCKETED

<b>Docket Number:</b>	80-AFC-01C
<b>Project Title:</b>	Sacramento Municipal Utility District SMUDGE0 #1
<b>TN #:</b>	207198
<b>Document Title:</b>	Geysers Power Sonoma (Unit 3)- Cooling Tower Replacement Project Description and Request for Expedited Processing
<b>Description:</b>	N/A
<b>Filer:</b>	Camile Remy-Obad
<b>Organization:</b>	Geysers Power Company, LLC
<b>Submitter Role:</b>	Applicant
<b>Submission Date:</b>	1/6/2016 2:18:27 PM
<b>Docketed Date:</b>	1/6/2016



# GEYSERS POWER COMPANY, LLC

10350 SOCRATES MINE ROAD  
MIDDLETOWN, CA 95461

 GWQ-16-001

January 5, 2016

Mr. Robert Oglesby  
Executive Director  
California Energy Commission  
1516 Ninth Street, MS-15  
Sacramento, CA 95814

RE: Geysers Power Company Sonoma (Unit 3) Geothermal Project (80-AFC-01C):  
Request for Expedited Processing Pursuant to Executive Order B-36-15

Dear Mr. Oglesby:

Pursuant to Section 5 of Governor Brown's Executive Order B-36-15, issued on November 13, 2015, Geysers Power Company, LLC ("GPC") submits this request for expedited processing and approval by the Executive Director for the Calistoga (Unit 19) power plant ("Project"), which was impacted by the Valley Fire. Specifically, the requested authorization will allow the Project to remediate wildfire damage and restore geothermal power plant operation by authorizing emergency construction activities, including replacement, repair and reconstruction necessary for geothermal power plant operation.

First, GPC requests that the Executive Director authorize GPC to immediately begin reconstruction of the cooling tower #1. GPC has selected a contractor. Sonoma County has agreed to be the Chief Building Official to oversee the construction. GPC is prepared to apply immediately to Sonoma County for a building permit and to begin construction promptly upon issuance of the permit and approval of the Memorandum of Understanding between the County and CEC.

The cooling tower #1 to be constructed consists of 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. The new structure will differ from the structure replaced only to the extent necessary to conform to current building codes and modern building and engineering practices. Therefore, the replacement of the cooling cover is categorically exempt under the California Environmental Quality Act and is presumed to have no possible significant environmental effects.

Second, GPC requests that the Executive Director approve the addition of an administrative Air Quality Condition of Certification.

GPC has already filed an application for an Authority to Construct with the Northern Sonoma County Air Pollution Control District ("District") to add this condition to the Project's air permit.

Upon approval by the District of this condition, GPC requests that the Executive Director promptly approve the addition of the condition to the CEC license.

The new condition will add additional annual limits to hydrogen sulfide, PM<sub>10</sub> and PM<sub>2.5</sub> emissions in the air permit and CEC license. Annual hydrogen sulfide emissions shall be limited to 14.5 tons per year, annual PM<sub>10</sub> emissions will be limited to 20.3 tons per year and annual PM<sub>2.5</sub> emissions will be limited to 15.3 tons per year. This new condition will not increase the actual emissions of the facility.

The replacement of the cooling tower will not result in a significant change in the design, operation or performance of the project. The replacement will not require a change in any condition of certification in the license, except for the aforementioned additional Air Quality condition.

- 1. Section 1769 (a)(l)(A) and (B) requires a description of the proposed modifications, including new language for affected conditions and the necessity for the modifications.**

#### **Cooling Tower Replacement**

A brief description of the cooling tower replacement is attached hereto as Attachment A.

No changes in conditions of certification are required.

#### **Air Quality Condition of Certification**

GPC proposes that Condition of Certification Section 1. Air Quality B.1-2 -13.K. be added to read:

*“Annual emissions from the cooling tower shall not exceed, on a calendar year basis, 14.5 tons per year of hydrogen sulfide (H<sub>2</sub>S), 20.3 tons per year particulate matter less than 10 microns in diameter (PM10) and 15.3 tons per year particulate matter less than 2.5 microns in diameter (PM2.5).”*

The purpose of this addition is to ensure compliance with NSCAPCD regulations and facilitate immediate replacement of the cooling tower.

The application submitted to the District is attached hereto as Attachment B.

- 2. Section 1769(a)(l)(C) requires a discussion of whether the modification is based on information that was known by the petitioner during the certification proceeding, and an explanation of why the issue was not raised at that time.**

The request for cooling tower replacement and addition of a new Air Quality condition is

not based upon information that was known during the certification proceeding for the Project. Authorization of the request is necessary to facilitate the prompt replacement of the cooling tower that was destroyed by the Valley Fire on September 12, 2015.

**3. Section 1769(a)(I)(D) requires a discussion of whether the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, and explanation of why the change should be permitted.**

The request for cooling tower replacement and addition of a new Air Quality condition does not change or undermine the assumptions, rationale, findings, or other bases of the Commission's decision certifying the Project. The cooling tower replacement will not significantly change the design, operation or performance of the Project. The new condition will not increase the actual emissions of the Project.

The Air Quality condition should be added and GPC should be authorized to immediately proceed to construction of the replacement tower, in order to bring the Project - a valuable renewable energy resource - back into operation as soon as possible. If authorization is granted promptly, GPC hopes to be able to complete construction and bring the project back into operation before the summer of 2016.

**4. Section 1769(a)(I)(E) requires an analysis of the impacts the modifications may have on the environment and proposed measures to mitigate any significant adverse impacts.**

There is no possibility that the cooling tower replacement and addition of a new Air Quality condition will result in any significant adverse environmental impacts; thus, no mitigation measures are required. Neither the additional Air Quality condition nor the replacements will not increase the actual emissions of the Project. The Project will continue to meet all existing emissions limits established in the existing permits. 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. Therefore, there will be no material change in the impacts of the Project.

**5. Section 1769(a)(I)(F) requires a discussion of the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards.**

The cooling tower replacement and addition of a new Air Quality condition will not impact the Project's ability to comply with applicable laws, ordinances, regulations, and standards ("LORS").

**6. Section 1769(a)(I)(G) requires a discussion of how the modifications affect the public.**

The cooling tower replacement and addition of a new Air Quality condition will not

adversely affect the public. The cooling tower replacement and addition of a new Air Quality condition will not increase the actual emissions of the Project. Therefore, there are no significant adverse effects on property owners that will result from the cooling tower replacement and addition of a new Air Quality condition.

**7. Section 1769(a)(I)(H) requires a list of property owners potentially affected by the modification is required.**

The cooling tower replacement and addition of a new Air Quality condition will not adversely affect any property owners because the cooling tower replacement and addition of a new Air Quality condition will not increase the actual emissions of the Project or result in adverse environmental effects. Therefore, a list of property owners affected by the cooling tower replacement and addition of a new Air Quality condition is not required.

**8. Section 1769(a)(I)(I) requires a discussion of the potential effect on nearby property owners, the public and the parties in the application proceeding.**

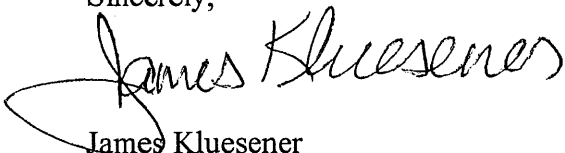
The cooling tower replacement and addition of a new Air Quality condition will not adversely affect any property owners, the public nor any party in the application proceeding. The cooling tower replacement and addition of a new Air Quality condition will not increase the actual emissions of the Project or result in adverse environmental effects. Therefore, a list of property owners affected by the cooling tower replacement and addition of a new Air Quality condition is not required. Therefore, the cooling tower replacement and addition of a new Air Quality condition will have no impact on property owners, the public, or any other parties.

**CONCLUSION**

GPC requests that the Executive Director exercise the authority delegated to him pursuant to Section 5 of Governor Brown's Executive Order B-36-15, issued on November 13, 2105, and approve the requested authorizations for the Project by January 13, 2016.

Please contact Bruce Carlsen at (707) 431-6198 if you have any questions regarding this request.

Sincerely,



James Kluesener  
VP Geothermal Region Operations

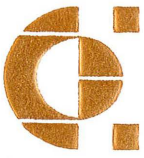
Attachments: 2

CC:  
Camille Remy-Obad, Compliance Project Manager

**Geysers Power Company Sonoma (Unit 3) Geothermal Project (80-AFC-01C)  
Request for Expedited Processing Pursuant to Executive Order B-36-15**

**ATTACHMENT A**

**Cooling Tower Replacement  
Project Description**



# GEYSERS POWER COMPANY, LLC

10350 SOCRATES MINE ROAD  
MIDDLETOWN, CA 95461

NYSE CPN

GWQ-15-181

December 29, 2015

Ms. Camille Remy-Obad  
Compliance Project Manager  
California Energy  
Commission  
1516 Ninth Street, MS-15  
Sacramento, CA 95814

RE: Project Description for Geysers Power Company Sonoma  
(Unit 3) Geothermal Project: 80 - AFC-01C  
Replacement in kind of cooling tower damaged in the 2015 Valley fire.

At your request, we are providing a Project Description for replacement of the cooling tower #1 that was damaged beyond repair during the September 12 Valley fire at the Sonoma (Unit 3) power plant Project ("Project"). Cooling Tower #2 was not damaged and is operational.

Geysers Power Company, LLC ("GPC") plans to replace the fire damaged cooling tower #1 structure above the concrete basin. The replacement tower will be functionally equivalent to the cooling tower that existed prior to the fire. The replacement will be the same approximate dimensions, located in the same footprint as the prior structure.

### Units 3 Cooling Tower #1

	OLD TOWER	NEW TOWER	Comment
Type	Crossflow	Crossflow	Equivalent
Model	6715-5-06	F679A-20-6	Equivalent
Number of Cells	6	6	Equivalent
Structural Material	Redwood	Fire Resistant FRP	More Fire Resistant
Cooling Tower Length (ft-in)	217'	216'-8"	Equivalent
Cooling Tower Width (ft-in)	79'-0"	78'-2"	Equivalent
Discharge Elevation (ft-in)*	65'-4"	61'-7"	Slightly lower
Circulation Rate(gpm)	71,040	71,040	Equivalent

Air mass flow discharge per cell (MMlb/hr)	4.8	5.4	Functionally Equivalent or better
Color	Willow Green & Gray	Color to match Cooling Tower #2	Facility visible only to distant Community
Gear Ratio	12.98	12.98	Equivalent
Number of fan blades	8	8	Equivalent
Shroud Height (ft)	18	13.8	Shorter more rigid; lower noise design

The Unit 3 power plant is a steam limited facility and the replacement tower will not have a significant effect on the operation or megawatt output from the facility. The replacement tower #1 will not result in a significant effect on the environment and will continue to comply with all applicable laws, ordinances, regulations, and standards ("LORS"). The facility will continue to meet all existing emissions limits established in the existing permits.

The proposed 0.001% drift eliminators satisfy the permit requirement of 0.001%. There will be no significant changes to the equipment description or operating conditions of the Permit to Operate for the Project and only one change to the permit will be required.

The replacement tower will differ from the original tower in several minor respects. The original tower was constructed to meet the 1979 California building Code. The replacement tower #1 will meet the 2013 California Building Code. The drift eliminators will be of an equivalent efficiency – at 0.001%. The structural components of the tower will be made of fiber reinforced plastic (rather than redwood). The only changes to the Permit to Operate for the project are the addition of annual synthetic minor limits. These limits are not expected to change how the plant is operated and are covered in the review of technical areas below.

### **Review of Applicable Technical Areas**

#### **Air Quality—**

The proposed 0.001% drift eliminators for Cooling Tower #1 satisfy the permit requirement of 0.001%, and there will be no significant changes to the equipment description or operating conditions of the Permit to Operate for the Project. Tower #2 will continue to have 0.001% drift eliminators. An Authority to Construct will be required from Northern Sonoma County Air Pollution Control District and one condition will be added including annual limits for hydrogen sulfide, PM10 and PM 2.5.

#### **Biology**

There will be no new ground disturbance or trenching; existing drill pads will be used for laydown areas during the tower reconstruction; no new laydowns will need to be created.



Existing access roads (paved or with road base) will be used for construction access. Construction personnel will be restricted to previous developed areas.

### **Cultural Resources**

There will be no new ground disturbance or trenching; existing drill pads will be used for laydown areas during the tower reconstruction; no new laydowns will need to be created. Existing access roads (paved or with road base) will be used for construction access. No cultural resources will be impacted.

### **Noise**

The Unit 3 cooling tower is located on the Sonoma County (western) side of the Mayacama Mountains ridgeline and does not have sensitive receptors nearby. The new tower #1 will not result in a significant change in noise from the Unit 3 facility.

### **Visual**

The Unit 3 cooling tower is located on the Sonoma County (western) side of the Mayacama Mountains ridgeline. The facility can be viewed on the Sonoma County side by distant viewers. The replacement of Cooling Tower #1 will be color matched to the existing Cooling Tower #2. Therefore, the replacement cooling tower will not appear materially different than the former tower. Shielded lighting will also be used on the new tower.

### **Water Quality, Hydrology and Water Resources**

The plant yard is surrounded by an impermeable berm and is asphalted. All cooling tower construction activities will occur within the bermed, asphalted area. Any rain/stormwater generated during the cooling tower construction will be captured and sent to reinjection. The facility is a Zero Discharge facility so no stormwater will be allowed to run off the plant site.

### **Worker Health (construction)/Safety/Misc**

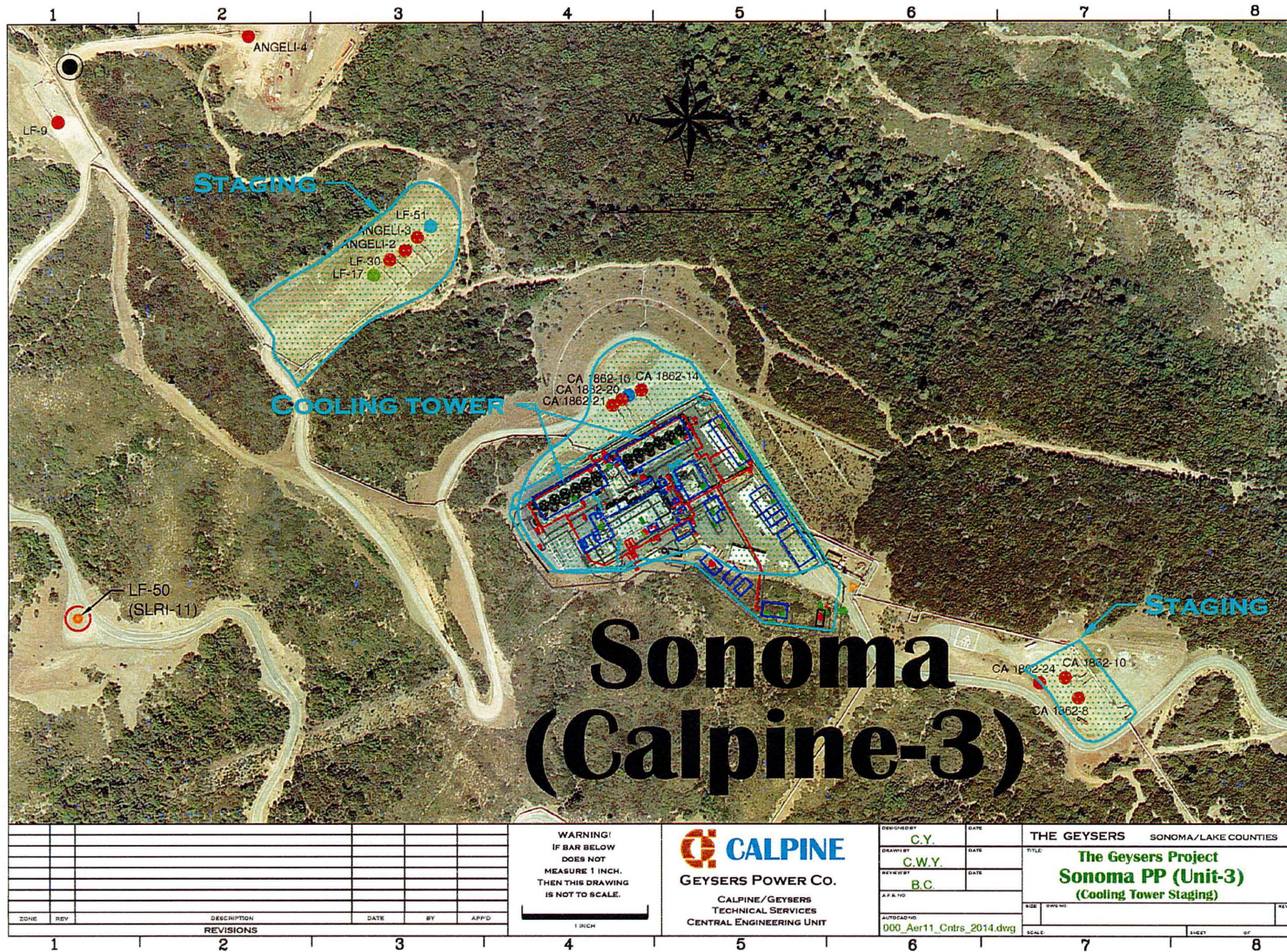
Reconstruction of the towers will take approximately five months and the number of workers will be an average of 30 and a predicted maximum of 55. There will be on-site security during the operation. Potable water, hygiene facilities and refuse containers will be provided to accommodate the number of workers.

Sincerely yours,



Bruce Carlsen  
Director, Environmental Services

# Sonoma Geothermal Power Plant (Unit 3) Cooling Tower Replacement Project



ZONE	REV	DESCRIPTION	DATE	BY	APP'D
REVISIONS					

WARNING!  
IF BAR BELOW  
DOES NOT  
MEASURE 1 INCH.  
THEN THIS DRAWING  
IS NOT TO SCALE.

1 INCH

**CALPINE**  
GEYSERS POWER CO.  
CALPINE/GEYSERS  
TECHNICAL SERVICES  
CENTRAL ENGINEERING UNIT

DESIGNED BY	C.Y.	DATE
DRAWN BY	C.W.Y.	DATE
REVIEWED BY	B.C.	DATE
A.P.P. NO.		
AUTOCAD NO.	000_Aer11_Cntrs_2014.dwg	

THE GEYSERS SONOMA/LAKE COUNTIES	
FILE	
The Geysers Project Sonoma PP (Unit-3) (Cooling Tower Staging)	
NO.	REV.
SCALE	SHEET 87

**Geysers Power Company Sonoma (Unit 3) Geothermal Project (80-AFC-01C)  
Request for Expedited Processing Pursuant to Executive Order B-36-15**

**ATTACHMENT B**

**Application for Authority to Construct Submitted to  
Northern Sonoma County Air Pollution Control District**



NYSE CPN

**GEYSERS POWER COMPANY, LLC**  
10350 Socrates Mine Road  
Middletown, CA 95461

Letter GPP-15-080

January 5, 2016

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

Subject: Permits: Unit 3 (Sonoma) Power Plant Application for Authority to Construct Permit to Replace the Cooling Tower Destroyed by the Valley Fire

Dear Mr. Saschin:

Enclosed please find the Geysers Power Company LLC (GPC) Authority to Construct and Temporary Permit to Operate applications for reconstruction of the Sonoma Power Plant cooling tower that was destroyed by the Valley Fire this September.

The start date for construction is dependent upon receipt of building permits, Authority to Construct Permits and California Energy Commission approval to proceed.

Attached is Calpine Corporation's check (No. 1000080234) as payment of \$6,611 for the required application fees calculated for the Authority to Construct and Temporary permit to operate fees.

GPC is asking Northern Sonoma County Air Pollution Control District (NSCAPCD) to commence review of this application at the earliest opportunity. Representatives of the California Energy Commission and Sonoma County have been coordinating with GPC to assist in GPC's recovery efforts as expeditiously as possible.

Please contact me at 707.431.6266, if you need any additional information in support of these permit applications.

Sincerely,

Brian J. Berndt  
Environmental Services Manager, Geysers Region

Ms. Camille Remy-Obad  
California Energy Commission  
1516 Ninth Street, MS-15  
Sacramento, CA 95814-5512

Mathew Layton  
California Energy Commission  
1516 Ninth Street, MS-15  
Sacramento, CA 95814-5511

Attachment & Enclosure

## **Enclosure**

### **Applications For Authority To Construct and Permits To Operate**

- Application Forms
- Project Description
  - Introduction
  - Regulatory Background
  - Past Baseline Actual Emissions for Unit 3
  - Proposed Replacement of Unit 3 Cooling Tower #1
  - Unit 3 Emissions Review

**NORTHERN SONOMA COUNTY  
AIR POLLUTION CONTROL DISTRICT  
PERMIT APPLICATION FORM**

<b>BUSINESS NAME</b>	<u>Geysers Power Company LLC, Sonoma</u>		<b>FACILITY ID #</b> _____					
<b>TYPE OF PERMIT APPLIED FOR:</b>		<table border="1" style="margin:auto;"> <tr><td style="text-align:center;">X</td></tr> <tr><td style="text-align:center;">X</td></tr> <tr><td style="text-align:center;"> </td></tr> <tr><td style="text-align:center;"> </td></tr> </table>	X	X			<b>EPA ID</b> _____	
X								
X								
AUTHORITY TO CONSTRUCT		<b>SIC CODE</b> <u>4911</u>						
PERMIT TO OPERATE								
TRANSFER OF OWNERSHIP								
PERMIT MODIFICATION								
Permit # <b>PTO 97-30B</b>								
<b>GENERAL INFORMATION</b>								
<b>Other Business Name</b> (if any)	<u>Calpine Operating Service Company Inc.</u>		<b>Parent Company</b> <u>Calpine Corporation</u>					
<b>Mailing Address</b>	<u>10350 Socrates Mine Road</u>	<u>Middletown</u>	<u>CA</u>	<u>95461</u>				
	<small>Street address or P.O. Box</small>	<small>City</small>	<small>State</small>	<small>Zip Code</small>				
Phone Number:	<u>(707) 431-6266</u>	Fax Number:		<u>(707) 431-6246</u>				
<b>Plant Address</b>	<u>Fire Road, Middletown, CA</u>							
	<small>Street address or P.O. Box</small>	<small>City</small>	<small>State</small>	<small>Zip Code</small>				
Phone Number:	<u>(707) 431-6781</u>	Fax Number:		<u>(707) 431-6246</u>				
<b>Principal Product / Operation:</b>	<u>Geothermal Electric Power Generation</u>							
<b>Name of Responsible Official:</b>	<u>Mike Puccioni</u>	<b>Title:</b>		<u>General Manager, Area 2</u>				
Total # of Sources:	<u>1</u>	# of Pmt'd Sources:	<u>2</u>					
# of Exempt Sources:	<u>-</u>	Emission Sources:	<u>2</u>					
Plant Area (Acres)	<u>5 Acres</u>	# of Employees:	<u>11</u>					

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

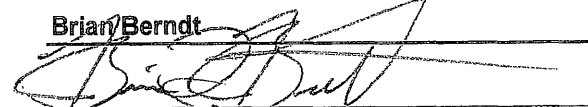
YES \_\_\_\_\_ NO \_\_\_\_\_ X \_\_\_\_\_

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  
(Printed)  
Signature   
Fees \$6,611 Receipt # \_\_\_\_\_

Title Environmental Services Manager  
Date 1/5/2016  
Date Received \_\_\_\_\_

# Project Description

## Unit 3 (Sonoma) Power Plant Replacement of Cooling Tower #1 Destroyed by the Valley Fire

### Project Description

#### INTRODUCTION

The Valley wildfire of September 2015 resulted in significant damage to, cooling towers and associated equipment at four power plants owned and operated by The Geysers Power Company, LLC (GPC). GPC has decided to move forward with replacement of Unit 3's (Sonoma Power Plant) cooling tower #1 and ancillary equipment with similar like kind and functionally equivalent equipment. The Sonoma Power plant Cooling tower #2 was not damaged by the fire and remains operational. GPC is requesting that Northern Sonoma County Air Pollution Control District (NSCAPCD) proceed with review of this application at this time so as to assist GPC in completing replacement of the cooling tower as expeditiously as possible.

#### REGULATORY BACKGROUND

According to NSCAPCD rules, “[a]n Authority to Construct, Modify, *Replace*, Operate or Use shall be obtained from the District prior to starting construction, modification, operation or use of any stationary or indirect source which may cause, potentially cause, reduce, control or eliminate the emission of air contaminants.”<sup>1</sup> Prior to issuing an authority to construct, the Air Pollution Control Officer (APCO) must make several determinations, including “[w]hether the project is subject to the new source review procedures specified in Rule 220(c).”<sup>2</sup> According to Rule 220, in determining whether emissions from a new or modified source will result in an increase in emissions, the APCO shall compare the emissions during the two years preceding the application date (i.e., the two-year baseline) with the source's potential to emit, as established by permit limits.<sup>3</sup>

<sup>1</sup> NSCAPCD Rule 200(a) (emphasis added). While the Title V permit for Unit 3 provides that no permit modification is required for “[r]outine maintenance, repair or replacement with identical or equivalent equipment” (see Title V Operating Permit, at § I.A), GPC does not believe it can rely upon this provision to excuse the requirement to obtain an Authority to Construct or that the replacement can be deemed “routine” in these circumstances.

<sup>2</sup> *Id.* at Rule 200(c)(3).

<sup>3</sup> Both the current version of Rule 220 and the version incorporated into the California State Implementation Plan (SIP) include the same substantive calculation procedure. The SIP-approved District Rule 220(a) provides as follows:

For the purposes of emission considerations:

1. Emissions from a proposed new *or modified stationary source* shall be based on the source's *potential to emit* any air contamination subject to regulation under the Clean Air Act of 1977. (40 CFR 52.21(b)(4))
2. Emissions from a proposed modified stationary source shall be based upon the cumulative net emissions increases or reductions that may occur as a result of the modifications and subsequent operating permit conditions, excluding any emission reductions required to comply with federal, state or district laws, rules or regulations. (40 CFR 52.21(b)(2 & 3))
3. Emissions from an existing stationary or previously permitted source shall ~~generally~~ be based on *the actual rate of air contaminant emissions during the two year period of operation prior to the date of application of specific limiting permit conditions*. A different averaging period may be used if the applicant demonstrates to the satisfaction of the Control Officer that it would be more representative of normal source operation.

# Project Description

## Unit 3 (Sonoma) Power Plant Replacement of Cooling Tower #1 Destroyed by the Valley Fire

### PAST BASELINE ACTUAL EMISSIONS FOR UNIT 3

GPC has calculated the baseline actual emissions for Unit 3 for the 2012 and 2013 calendar years using data obtained through monitoring conducted pursuant to the requirements of the Title V permit. The main reason for using these years as representative is due to Unit 3 utilizing Santa Rosa treated water for cooling tower makeup beginning in 2013. Use of Santa Rosa treated water as makeup water results in a decrease of H<sub>2</sub>S and an increase in the particulate emissions, as compared to using condensate. It is not known if Santa Rosa treated water will be or can be available in the future especially considering the extreme drought California is experiencing. The two years selected represent an average of the two possible operating conditions.

Actual H<sub>2</sub>S emissions were based on estimated actual emissions, calculated on a monthly basis using the required monitoring methods and hours of operation, while emissions of PM are based on total dissolved solids (TDS), circulating water flow rate and hours of operation. For reference, the cooling tower emissions of PM will be deemed to be equivalent to PM<sub>10</sub> and PM<sub>2.5</sub> (i.e., no separate speciation of particulate matter is made and all PM is assumed to be either PM<sub>10</sub> or PM<sub>2.5</sub>). The preceding two calendar years (2012-2013) was used to establish the baseline actual emissions for the facility, as required by Rule 220(a). Table 1 summarizes the 2012 and 2013 actual emissions for H<sub>2</sub>S and PM<sub>10/2.5</sub>.

<b>Table 1 Unit 3 Two-Year Baseline Actual Emissions</b>	<b>Tower H<sub>2</sub>S (Calculated Actual*)</b>	<b>Tower PM<sub>10/2.5</sub> (Calculated Actual)</b>
<b>2013 Emission (lbs/yr)</b>	7,196	17,043
<b>2012 Emission (lbs/yr)</b>	11,838	5,135
<b>2012-2013 Average (lbs/yr)</b>	9,517	11,089
<b>2012 - 2013 Baseline Actual Average tons per year (tpy))</b>	4.8	5.5
* H <sub>2</sub> S emissions are reported as an estimated actual emission on a Monthly basis.		

The baseline actual emissions of PM (labeled as PM<sub>10</sub> and PM<sub>2.5</sub>) and H<sub>2</sub>S from cooling tower are significantly lower than Unit 3's potential to emit, as established by the permitted hourly emissions limits for these pollutants. The significant difference between baseline actual emissions, in tons per year (tpy), and Unit 3's potential to emit, as established by the permitted hourly emissions rates, is due to several factors outside of GPC's control, including the inherent variability in monitored hourly emissions, generation need, reservoir variability, and the availability of Santa Rosa treated water. Although annual emissions are significantly lower than Unit 3's potential to emit, due to the variability in hourly emissions, GPC is seeking to maintain its existing hourly limits of 8 lb/hr H<sub>2</sub>S and 40 lb/hr PM.

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NSCAPCD amended 2/23/82, 2/22/84, SIP-approved Rule 220 (strike-through in original; emphasis added); available at:  
[http://yosemite.epa.gov/r9/r9sips.nsf/AgencyProvision/944759A041C7E9718825698F0051C8A6/\\$file/SN+220A.PDF?OpenElement](http://yosemite.epa.gov/r9/r9sips.nsf/AgencyProvision/944759A041C7E9718825698F0051C8A6/$file/SN+220A.PDF?OpenElement).



# Project Description

## Unit 3 (Sonoma) Power Plant Replacement of Cooling Tower #1 Destroyed by the Valley Fire

### PROPOSED REPLACEMENT OF UNIT 3 COOLING TOWER

The proposed Sonoma Power Plant replacement cooling tower #1 is the same or equivalent to the cooling tower that was destroyed by fire. The replacement of the cooling tower and associated equipment will be with like-kind design. The pre-fire Sonoma power Plant # 1cooling tower design is compared with the proposed replacement cooling tower shown below in Table 2.

<b>Table 2 Sonoma Cooling Tower #1</b>	<b>Pre-fire Design</b>	<b>Replacement Design</b>	<b>Notes</b>
<b>Type</b>	Crossflow	Crossflow	Equivalent
<b>Model</b>	6714-5-06	F679A-20-6	Equivalent
<b>Number of Cells</b>	6	6	Equivalent
<b>Wet Bulb Temperature (WBT °F)</b>	65	65	Equivalent
<b>Water inlet height above basin curb</b>	44'-5 1/2"	44'-5 1/2"	Equivalent
<b>Drift Eliminators</b>	5DV-75	Marley TU12X	Equivalent
<b>Drift Rate (%)</b>	0.001	0.001	Equivalent
<b>Fan Diameter (ft)</b>	28	28	Equivalent
<b>Gear Ratio</b>	12.98:1	12.98:1	Equivalent
<b>Number of Fan Blades</b>	8	8	Equivalent
<b>Motor Size (hp)</b>	150	150	Equivalent
<b>Shroud Discharge Diameter (ft)</b>	31'-6"	31'-5 5/8"	Equivalent
<b>Shroud Exit Area (ft<sup>2</sup>)</b>	778	785	Equivalent
<b>Air volumetric discharge per cell (cfm)</b>	1,315,895	1,405,000	Equivalent or better
<b>Air mass flow discharge per cell (lb/hr)</b>	4,839,072	5,383,398	Equivalent or better
<b>Discharge Velocity (fpm)</b>	1,692	1,788	Equivalent or better
<b>Maximum Circulation Water Flow Rate (gpm)</b>	71,040	71,040	Maximum flow for one of two towers**
<b>Discharge Elevation (ft-in)*</b>	65'-4"	61'-7"	Slightly Lower
<b>Structural Material</b>	Redwood	Fiberglass	More fire resistance
<b>Cooling Tower Length (ft-in)</b>	217'-0"	216'-8"	Equivalent
<b>Cooling Tower Width (ft-in)</b>	79'-0"	78'-2"	Equivalent
<b>Shroud Height (ft)</b>	18	13.8	Shorter, more rigid; lower noise design

\* ref. Top of basin curb to top of shroud.

\*\* Combined maximum flow of both towers is 142,080 gpm

## Project Description

### Unit 3 (Sonoma) Power Plant Replacement of Cooling Tower #1 Destroyed by the Valley Fire

Due to the calculation methodology prescribed by the SIP-approved version of Rule 220 and the fact that GPC has operated Unit 3 with emissions significantly below its annual potential to emit, GPC is proposing that it voluntarily take synthetic minor limits on its annual emissions of both H<sub>2</sub>S and PM and thereby avoid triggering NSR as a result of the cooling tower replacement. Unit 3's potential to emit, baseline actual emissions and the proposed synthetic minor annual limits are shown below in Table 2.

<b>Table 3 Unit 3 Emissions</b>	<b>Cooling Tower H<sub>2</sub>S</b>	<b>Cooling Tower PM10</b>	<b>Cooling Tower PM2.5</b>
<b>Current Potential to Emit (Based on Permit Limits) (tpy)</b>	35.0	175.2*	175.2*
<b>2012-2013 Baseline Actual Emissions (annual average (tpy))</b>	4.8	5.5	5.5
<b>Major Modification Threshold (tpy)</b>	10	15	10
<b>Proposed Annual Limit (tpy)</b>	14.5	20.3	15.3
*PM = PM10 = PM2.5			

As suggested above, in requesting these synthetic limits on the annual emissions, GPC proposes to maintain the existing Title V permit hourly emission limits of 8.0 lb/hr H<sub>2</sub>S and 40 lb/hr PM.

Accordingly, upon issuing the requested Authority to Construct for the new cooling tower at Unit 3, GPC is requesting that NSCAPCD establish three (3) new federally enforceable conditions on Unit 3's operations, as follows:

*“Annual emissions from the facility’s cooling towers shall not exceed, on a calendar year basis, 14.5 tons per year hydrogen sulfide (H<sub>2</sub>S), 20.3 tons per year particular matter less than 10 microns in diameter (PM10) and 15.3 tons per year particulate matter less than 2.5 microns in diameter (PM2.5).”*

These limits will assure that reconstruction and replacement of the cooling tower can be commenced in compliance with the requirements of NSCAPCD's rules and the California SIP.

# Project Description

## Unit 3 (Sonoma) Power Plant Replacement of Cooling Tower #1 Destroyed by the Valley Fire

2008 - Emissions Unit 3				
Hydrogen Sulfide Estimated Actual Emissions (Kg/hr)	2008 Report	hours	Estimated Actual Emissions (Lbs/Q)	
0	GPC-08-039			
0.6	GPC-08-039	2179.0	2401	
0.9	GPC-08-039			
2.4	GPC-08-053			
0.2	GPC-08-053	2145.4	4098	
0	GPC-08-053			
0	GPC-08-086			
0	GPC-08-086	2208.0	0	
0	GPC-08-086			
0.1	GPC-09-10			
0.1	GPC-09-10	2185.9	803	
0.3	GPC-09-10			

2008 - PM Actual Emissions	GPC-09-025			CT PM10/2.5 Emissions (lb/yr)
Circ Water rate (gpm)	drift rate	hours	TS (ppm)	
97000	0.00001	8718.3	1599	6732

2009 - Emissions Unit 3				
Hydrogen Sulfide Estimated Actual Emissions (Kg/hr)	2009 Report	hours	Estimated Actual Emissions (Lbs/Q)	
0	GPC-09-40			
0.2	GPC-09-40	2158.6	2691	
1.5	GPC-09-40			
0	GPC-09-79			
0	GPC-09-79	2079.2	0	
0	GPC-09-79			
0	GPC-09-100			
0	GPC-09-100	2151.8	0	
0	GPC-09-100			
0	GPC-10-002			
0.1	GPC-10-002	1988.7	584	
0.3	GPC-10-002			

2009 - PM Actual Emissions	GPC-10-014			CT PM10/2.5 Emissions (lb/yr)
Circ Water rate (gpm)	drift rate	hours	TS (ppm)	
97000	0.00001	8378.3	1388	5619

2008-2009 Summary (lbs/year)	PM10	PM2.5	H2S (Actual)
Actual emissions 2009	5,619	5,619	3,275
Actual emissions 2008	6,732	6,732	7,302
Baseline Actual Emissions - 2 yr avg (lbs)	6,176	6,176	5,289
Baseline Actual Emissions- 2 yr avg (tpy)	3.1	3.1	2.64

2010 - Emissions Unit 3				
Hydrogen Sulfide Estimated Actual Emissions (Kg/hr)	2010 Report	hours	Estimated Actual Emissions (Lbs/Q)	
0.1	GPC-10-037			
0.1	GPC-10-037	2158.6	1425	
0.7	GPC-10-037			
0.6	GPC-10-054			
1.4	GPC-10-054	2079.2	3202	
0.1	GPC-10-054			
0.1	GPC-10-076			
0.1	GPC-10-076	2151.8	316	
0	GPC-10-076			
0	GPC-11-013			
0.1	GPC-11-013	1988.7	292	
0.1	GPC-11-013			

2010 - PM Actual Emissions	GPC-11-024			CT PM10/2.5 Emissions (lb/yr)
Circ Water rate (gpm)	drift rate	hours	TS (ppm)	
97000	0.00001	8378.3	1560	6315

2009-2010 Summary (lbs/year)	PM10	PM2.5	H2S (Actual)
Actual emissions 2011	4,418	4,418	6,213
Actual emissions 2010	6,315	6,315	5,235
Baseline Actual Emissions - 2 yr avg (lbs)	5,367	5,367	5,724
Baseline Actual Emissions- 2 yr avg (tpy)	2.7	2.7	2.86

2011 - Emissions Unit 3				
Hydrogen Sulfide Estimated Actual Emissions (Kg/hr)	2011 Report	hours	Estimated Actual Emissions (Lbs/Q)	
0.1	GPC-11-037			
0.1	GPC-11-037	2158.4	1425	
0.7	GPC-11-037			
2.4	GPC-11-056			
0	GPC-11-056	2082.7	3818	
0.1	GPC-11-056			
0	GPC-11-079			
0.1	GPC-11-079	2208.0	486	
0.2	GPC-11-079			
0.1	GPC-12-002			
0.1	GPC-12-002	2201.9	484	
0.1	GPC-12-002			

2011 - PM Actual Emissions	GPC-12-015			CT PM10/2.5 Emissions (lb/yr)
Circ Water rate (gpm)	drift rate	hours	TS (ppm)	
97000	0.00001	8651.0	1057.3	4418

# Project Description

## Unit 3 (Sonoma) Power Plant Replacement of Cooling Tower #1 Destroyed by the Valley Fire

2012 - Emissions Unit 3				
Hydrogen Sulfide Estimated Actual Emissions (Kg/hr)	2012 Report	hours	Estimated Actual Emissions (Lbs/Q)	
0.9	GPC-12-032			
1	GPC-12-032	2175.1	4466	
0.9	GPC-12-032			
1.4	GPC-12-048			
1.2	GPC-12-048	2091.5	4141	
0.1	GPC-12-048			
0.1	GPC-12-068			
0.5	GPC-12-068	2206.4	1133	
0.1	GPC-12-068			
0.2	GPC-13-002			
1	GPC-13-002	2200.5	2098	
0.1	GPC-13-002			
2012 - PM Actual Emissions	GPC-12-015			CT PM10/2.5 Emissions
Circ Water rate (gpm)	drift rate	hours	TS (ppm)	(lb/yr)
97000	0.00001	8673.5	1225.7	5135

2013 - Emissions Unit 3				
Hydrogen Sulfide Estimated Actual Emissions (Kg/hr)	2013 Report	hours	Estimated Actual Emissions (Lbs/Q)	
1.9	GPC-13-060			
1.4	GPC-13-060	2148.1	5198	
0	GPC-13-060			
1.1	GPC-13-074			
0.1	GPC-13-074	2085.7	1835	
0	GPC-13-074			
0	GPC-13-086			
0	GPC-13-086	2208.0	162	
0.1	GPC-13-086			
0	GPC-14-002			
0	GPC-14-002	2107.1	0	
0	GPC-14-002			
2013 - PM Actual Emissions	GPC-13-016			CT PM10/2.5 Emissions
Circ Water rate (gpm)	drift rate	hours	TS (ppm)	(lb/yr)
97000	0.00001	8548.8	4127	17043

2012-2013 Summary (lbs/year)	PM10	PM2.5	H2S (Actual)
Actual emissions 2013	17,043	17,043	7,196
Actual emissions 2012	5,135	5,135	11,838
Baseline Actual Emissions - 2 yr avg (lbs)	11,089	11,089	9,517
Baseline Actual Emissions- 2 yr avg (tpy)	5.5	5.5	4.76

2014 - Emissions Unit 3				
Hydrogen Sulfide Estimated Actual Emissions (Kg/hr)	2014 Report	hours	Estimated Actual Emissions (Lbs/Q)	
0	GPC-14-037			
0	GPC-14-037	2148.1	158	
0.1	GPC-14-037			
0	GPC-14-074			
0.1	GPC-14-074	2066.4	455	
0.2	GPC-14-074			
0.3	GPC-14-086			
0	GPC-14-086	2190.4	482	
0	GPC-14-086			
0	GPC-15-002			
0	GPC-15-002	2208.0	0	
0	GPC-15-002			
2014 - PM Actual Emissions	GPC-15-016			CT PM10/2.5 Emissions
Circ Water rate (gpm)	drift rate	hours	TS (ppm)	(lb/yr)
71040	0.00001	8506.48	6047	18198