

DOCKETED

Docket Number:	82-AFC-01C
Project Title:	Compliance - Application for Certification for PG&E Geysers Unit 20
TN #:	207102
Document Title:	Geysers Power â€™ Grant (Unit 20) Cooling Tower Replacement Project Description and Request for Expedited Processing
Description:	N/A
Filer:	Camile Remy-Obad
Organization:	Geysers Power Company, LLC
Submitter Role:	Public
Submission Date:	12/22/2015 3:00:21 PM
Docketed Date:	12/22/2015



GEYSERS POWER COMPANY, LLC

10350 SOCRATES MINE ROAD
MIDDLETOWN, CA 95461

GWQ-15-182



December 22, 2015

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

RE: Geysers Power Company Grant (Unit 20) Geothermal Project (82-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 Grant (Unit 20) 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. 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 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, PM₁₀ and PM_{2.5} emissions in the air permit and CEC license. Annual hydrogen sulfide emissions shall be limited to 20.6 tons per year, annual PM₁₀ emissions will be limited to 17.0 tons per year and annual PM_{2.5} emissions will be limited to 12.0 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)(I)(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.1-2.16. be added to read:

“Annual emissions from the cooling tower shall not exceed, on a calendar year basis, 20.6 tons per year of hydrogen sulfide (H₂S), 17.0 tons per year particulate matter less than 10 microns in diameter (PM10) and 12.0 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)(I)(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)(1)(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)(1)(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)(1)(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)(1)(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)(l)(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)(l)(I) requires a discussion of the potential effect on nearby property owners, the public and the parties in the application proceeding.

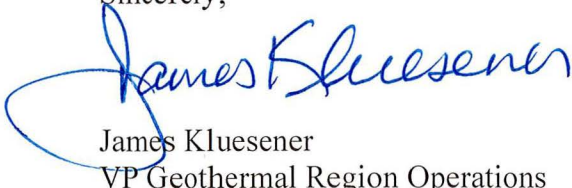
The cooling tower replacement and addition of a new Air Quality condition will not adversely affect any property owners, the public nor any party in the application proceeding. The cooling tower replacement and addition of a new Air Quality condition will not increase the actual emissions of the Project 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 November 30, 2015.

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 Grant (Unit 20) Geothermal Project (82-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-15-182

December 22, 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
Grant(Unit 20) Geothermal Project: 82-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 that was damaged beyond repair during the September 12 Valley fire at the Grant (Unit 20) power plant Project (“Project”).

Geysers Power Company, LLC (“GPC”) plans to replace the fire damaged cooling tower 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 20

	OLD TOWER	NEW TOWER	Comment
Type	Crossflow	Crossflow	Equivalent
Model	674-5-11	F678A-20-11	Equivalent
Number of Cells	11	11	Equivalent
Structural Material	Treated fir	Fire Resistant FRP	More Fire Resistant
Cooling Tower Length (ft-in)	352’-8”	352’-8”	Equivalent
Cooling Tower Width (ft-in)	79’	78’-2”	Equivalent
Discharge Elevation (ft-in)*	64’-4”	61’-7”	Slightly lower
Circulation Rate(gpm)	165,000	165,000	Equivalent

Drift Rate (%)	0.002	0.001	Equivalent and better than the 0.002 permit requirement
Air mass flow discharge per cell (MMlb/hr)	5.1	5.9	Functionally Equivalent or better
Color	Willow Green, Semi-gloss	Gray	Facility not visible to Community
Gear Ratio	12.98	12.98	Equivalent
Number of fan blades	12	8	Functionally Equivalent
Shroud Height (ft)	18	13.8	Shorter more rigid; lower noise design

The Unit 20 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 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 0.002%. 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 1982 California building Code. The replacement tower will meet the 2013 California Building Code. The drift eliminators will be more efficient – at 0.001% - which will more than satisfy the permit requirement of 0.002%. The structural components of the tower will be made of fiber reinforced plastic (rather than wood) and the drift eliminators will be more efficient. 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 satisfy the permit requirement of 0.002%, and there will be no significant changes to the equipment description or operating conditions of the Permit to Operate for the Project. 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 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 20 cooling tower is located in a valley near Big Sulphur Creek and does not have a community exposure.

Visual

The Unit 20 cooling tower is located in a valley near Big Sulphur Creek and does not have a community exposure.

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

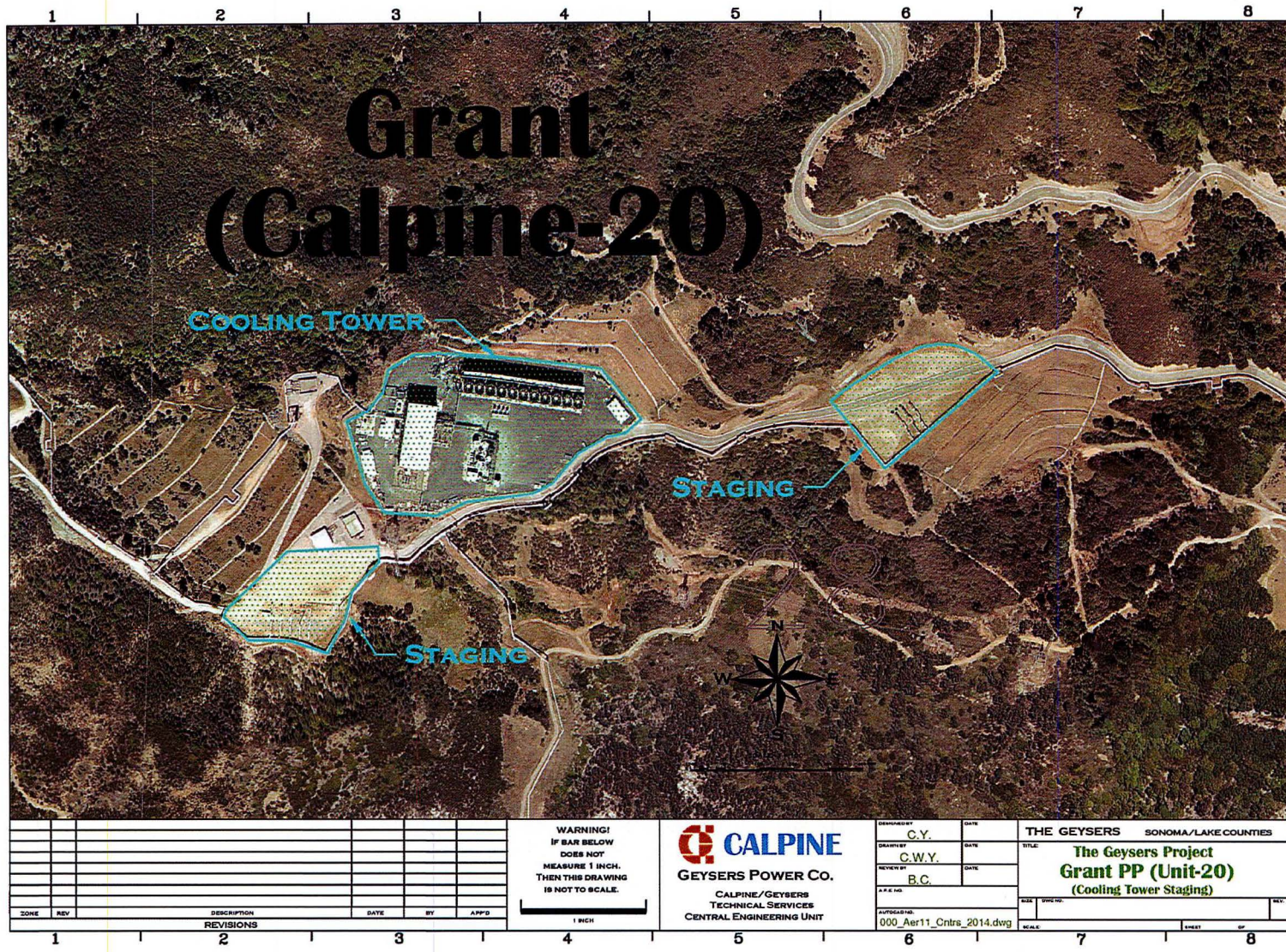
Reconstruction of the towers will take approximately five months and the number of workers will be an average of 30 and a predicted maximum of 55. There will be on-site security during the operation. Potable water, hygiene facilities and refuse containers will be provided to accommodate the number of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

Sincerely yours,



Bruce Carlsen
Director, Environmental Services

Grant Geothermal Power Plant (Unit 20) 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	
REVIEW BY	B.C.	DATE	
APP'D BY		DATE	
APP'D DATE	000_Aer11_Cntra_2014.dwg		

THE GEYSERS		SONOMA/LAKE COUNTIES	
TITLE:			
The Geysers Project			
Grant PP (Unit-20)			
(Cooling Tower Staging)			
SCALE	SHEET NO.	SHEET	OF

**Geysers Power Company Grant (Unit 20) Geothermal Project (82-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**



CALPINE

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

10350 SOCRATES MINE ROAD
MIDDLETOWN, CALIFORNIA 95461
707.431.6000

Letter GPP-15-079

December 21, 2015

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

Subject: Permits: Unit 20 (Grant) Power Plant Application for Authority to Construct and Replacement of 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 Grant 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.1000078452) 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 these applications 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

cc:

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 95814-551

Attachment & Enclosure

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

Letter GPP-15-079
December 21, 2015
Page 2

BJBerndt(431-6266):iti

	CALPINE OPER SERVICES CO, INC. 7111 Texas Avenue Houston, TX 77002-2712	90-4150/1222 9080015043	Check Number 1000078452
		DATE <u>Oct/28/2015</u>	
PAY	****SIX THOUSAND SIX HUNDRED AND ELEVEN AND XX / 100 DOLLAR****		\$6,611.00***
TO THE ORDER OF	NORTHERN SONOMA COUNTY 150 MATTHEWSON AVENUE AIR POLLUTION CONTROL DIST. HEALDSBURG, CA 95448		
			
MFG UNION BANK, N.A. San Francisco, CA		Authorized Signature	

⑈ 1000078452⑈ ⑆ 12224150⑆ 9080015043⑈

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

Letter GPP-15-079
December 21, 2015
Page 2

BJBerndt(431-6266):iti

bcc: Bruce Carlsen
Kurt Seel
AQChron 2015

Enclosure

Applications For Authority To Construct and Permits To Operate

- Application Forms
- Project Description
 - Introduction
 - Regulatory Background
 - Past Baseline Actual Emissions for Unit 20
 - Proposed Replacement of Unit 20 Cooling Tower
 - Unit 20 Emissions Review

Project Description

Unit 20 (Grant) Power Plant Replacement of the Cooling Tower Destroyed by the Valley Fire

NORTHERN SONOMA COUNTY AIR POLLUTION CONTROL DISTRICT PERMIT APPLICATION FORM

Geysers Power Company LLC, Grant Power							
BUSINESS NAME <u>Plant Unit 20</u>	FACILITY ID # _____						
TYPE OF PERMIT APPLIED FOR: AUTHORITY TO CONSTRUCT <input checked="" type="checkbox"/> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">X</td></tr></table> PERMIT TO OPERATE <input checked="" type="checkbox"/> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">X</td></tr></table> TRANSFER OF OWNERSHIP <input type="checkbox"/> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;"> </td></tr></table> PERMIT MODIFICATION <input checked="" type="checkbox"/> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">X</td></tr></table> Permit # PTO 82-45A		X	X		X	EPA ID _____ SIC CODE <u>4911</u>	
X							
X							
X							
GENERAL INFORMATION							
Other Business Name (if any) <u>Calpine Operating Service Company</u>	Parent Company <u>Calpine Corporation</u>						
Mailing Address <u>10350 Socrates Mine Road</u>	<u>Middletown</u>	<u>CA</u>	<u>95461</u>				
Street address or P.O. Box	City	State	Zip Code				
Phone Number <u>(707) 431-6266</u>	Fax Number: <u>(707) 431-6246</u>						
Plant Address <u>J.D. Kingcade Road, Middletown, CA</u>							
Street address or P.O. Box	City	State	Zip Code				
Phone Number <u>(707) 431-6781</u>	Fax Number: <u>(707) 431-6246</u>						
Principal Product / Operation:	<u>Geothermal Electric Power Generation</u>						
Name of Responsible Official: <u>Mike Puccioni</u>	Title: <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>1</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 12/21/2015
 Date Received _____

Project Description

Unit 20 (Grant) Power Plant Replacement of the Cooling Tower Destroyed by the Valley Fire

INTRODUCTION

The Valley wildfire of September 2015 resulted in the destruction of cooling towers and associated equipment at five power plants owned by The Geysers Power Company, LLC (GPC). GPC has decided to move forward with replacement of Unit 20's (Grant Power Plant) cooling tower and ancillary equipment with similar like kind and functionally equivalent equipment. 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.”¹ 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).”² 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.³

¹ NSCAPCD Rule 200(a) (emphasis added). While the Title V permit for Unit 20 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.

² *Id.* at Rule 200(c)(3).

³ 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.

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 20 (Grant) Power Plant Replacement of the Cooling Tower Destroyed by the Valley Fire

PAST BASELINE ACTUAL EMISSIONS FOR UNIT 20

GPC has calculated the baseline actual emissions for Unit 20 for the 2006 and 2007 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 20 utilizing Santa Rosa treated water for cooling tower makeup. Use of Santa Rosa treated water as makeup results in a decrease of H₂S and 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 other reason is that electrical generation demand for 2006 and 2007 is more representative of expected future electrical generation demand.

Actual H₂S emissions were based on estimated actual emissions, calculated on a monthly basis using the accepted 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 PM₁₀ and PM_{2.5} (i.e., no separate speciation of particulate matter is made and all PM is assumed to be either PM₁₀ or PM_{2.5}). The preceding two calendar years (2006-2007) were used to establish the baseline actual emissions for the facility, as required by Rule 220(a). Table 1 summarizes the 2006 and 2007 actual emissions for H₂S and PM_{10/2.5}.

Table 1 Unit 20 Two-Year Baseline Actual Emissions	Tower H₂S (Calculated Actual*)	Tower PM_{10/2.5} (Calculated Actual)
2006 Emission (lbs/yr)	23,696	4,000
2007 Emission (lbs/yr)	19,670	4,976
2006-2007 Average (lbs/yr)	21,683	4,488
2006 - 2007 Baseline Actual Average tons per year (tpy))	10.84	2.24

* H₂S emissions are reported as an estimated actual emission on a Monthly basis.

The baseline actual emissions of PM (labeled as PM₁₀ and PM_{2.5}) and H₂S from cooling tower are significantly lower than Unit 20'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 20'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 20's potential to emit, due to the variability in hourly emissions, GPC is seeking to maintain its existing hourly limits of 10.4 lb/hr H₂S and 40 lb/hr PM.

PROPOSED REPLACEMENT OF UNIT 20 COOLING TOWER

The proposed replacement cooling tower for Unit 20 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 Unit 20 cooling tower design is compared with the proposed replacement cooling tower shown below in Table 2.

Project Description
Unit 20 (Grant) Power Plant Replacement of the Cooling Tower
Destroyed by the Valley Fire

Table 2 Unit 20 Cooling Tower	Pre-fire Design	Replacement Design	Notes
Type	Crossflow	Crossflow	Equivalent
Model	674-5-11	F678A-20-11	Equivalent
Number of Cells	11	11	Equivalent
Wet Bulb Temperature (WBT °F)	65	65	Equivalent
Water inlet height above basin curb	45'-2 1/2"	45'-2 13/16"	Equivalent
Drift Eliminators	Marley TU-10X-4	Marley TU12X	Equivalent or better
Drift Rate (%)	0.002	0.001	Equivalent or better
Fan Diameter (ft)	28	28	Equivalent
Gear Ratio	12.98:1	12.98:1	Equivalent
Number of Fan Blades	12	8	Equivalent
Motor Size (hp)	200	200	Equivalent
Shroud Discharge Diameter (ft)	31.5	31'-5 5/8"	Equivalent
Shroud Exit Area (ft²)	779	785	Equivalent
Air volumetric discharge per cell (cfm)	1,357,325	1,488,000	Equivalent or better
Air mass flow discharge per cell (lb/hr)	5,130,689	5,904,979	Equivalent or better
Discharge Velocity (fpm)	1,742	1,894	Equivalent or better
Maximum Circulation Water Flow Rate (gpm)	165,000	165,000	Equivalent
Discharge Elevation (ft-in)*	64-4	61'-7"	2' 9" Lower
Structural Material	Treated Fir	Fiberglass	More fire resistance
Cooling Tower Length (ft-in)	352-8	352'-8"	Equivalent
Cooling Tower Width (ft-in)	79-0	78'-2"	Equivalent
Shroud Height (ft)	18	13.8	Shorter
* ref. Top of basin curb to top of shroud.			

The replacement of the cooling tower will incorporate a higher level of control of particulate matter. Specifically, the cooling tower drift rate will be reduced from 0.002% to 0.001%. Due to the calculation methodology prescribed by the SIP-approved version of Rule 220 and the fact that GPC has operated Unit 20 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 H₂S and PM and thereby avoid triggering NSR as a result of the cooling tower replacement. Unit 20's potential to emit, baseline actual emissions and the proposed synthetic minor annual limits are shown below in Table 3.

Project Description
Unit 20 (Grant) Power Plant Replacement of the Cooling Tower
Destroyed by the Valley Fire

Table 3 Unit 20 Emissions	Cooling Tower H₂S	Cooling Tower PM10	Cooling Tower PM2.5
Current Potential to Emit (Based on Permit Limits) (tpy)	45.6	175.2*	175.2*
2006-2007 Baseline Actual Emissions (annual average (tpy))	10.84	2.2	2.2
Major Modification Threshold (tpy)	10	15	10
Proposed Annual Limit (tpy)	20.6	17.0	12.0
*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 10.4 lb/hr H₂S and 40 lb/hr PM.

Accordingly, upon issuing the requested Authority to Construct for the new cooling tower at Unit 20, GPC is requesting that NSCAPCD establish three (3) new federally enforceable conditions on Unit 20's operations, as follows:

“Annual emissions from the cooling tower shall not exceed, on a calendar year basis, 20.6 tons per year hydrogen sulfide (H₂S), 17.0 tons per year particular matter less than 10 microns in diameter (PM10) or 12.0 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 20 (Grant) Power Plant Replacement of the Cooling Tower Destroyed by the Valley Fire

2006 - Emissions Unit 20				
Hydrogen Sulfide Estimated Actual Emissions (Kg/hr)	2006 Report	hours	Estimated Actual Emissions (Lbs/Q)	
2.5	GPC-06-046			
2.1	GPC-06-046	2154.5	9322	
1.3	GPC-06-046			
1.4	GPC-06-071			
0.1	GPC-06-071	2096.9	3229	
0.6	GPC-06-071			
2.2	GPC-06-083			
1.4	GPC-06-083	2208.0	6963	
0.7	GPC-06-083			
0.2	GPC-07-017			
1.3	GPC-07-017	2193.6	4182	
1.1	GPC-07-017			
2006 - PM Actual Emissions	GPC-07-021			CT PM10/2.5 Emissions
Circ Water rate (gpm)	drift rate	hours	TSD (ppm)	(lb/yr)
105000	0.00002	8653.0	442	4000

2007 - Emissions Unit 20				
Hydrogen Sulfide Estimated Actual Emissions (Kg/hr)	2007 Report	hours	Estimated Actual Emissions (Lbs/Q)	
2.3	GPC-07-037			
1.3	GPC-07-037	1349.3	5343	
Overhaul	GPC-07-037			
1.8	GPC-07-071			
0.4	GPC-07-071	2165.0	4128	
0.4	GPC-07-071			
1.9	GPC-07-099			
0.1	GPC-07-099	2206.9	4532	
0.8	GPC-07-099			
0.7	GPC-08-003			
1.3	GPC-08-003	2208.0	5667	
1.5	GPC-08-003			
2007 - PM Actual Emissions	GPC-08-014			CT PM10/2.5 Emissions
Circ Water rate (gpm)	drift rate	hours	TSD (ppm)	(lb/yr)
105000	0.00002	7929.4	600	4976

2006 - 2007 Summary (lbs/year)	PM10	PM2.5	H2S (Actual)
Actual emissions 2007	4,976	4,976	19,670
Actual emissions 2006	4,000	4,000	23,696
Baseline Actual Emissions - 2 yr avg (lbs)	4,488	4,488	21,683
Baseline Actual Emissions- 2 yr avg (tpy)	2.2	2.2	10.84
Major Modification Threshold (MMT) (tpy)	15	10	10
Synthetic Minor Increment: [MMT-500] (lb)	29,500	19,500	19,500
Proposed Limit (lb)	33,988	23,988	41,183
Proposed Limit (tpy)	17.0	12.0	20.6
Potential To Emit (based on Permit limit)	PM10	PM2.5	H2S
Potential To Emit (lbs/hr)	40	40	10.4
Potential To Emit (tpy)	175.2	175.2	45.6

2013 - Emissions Unit 20				
Hydrogen Sulfide Estimated Actual Emissions (Kg/hr)	2013 Report	hours	Estimated Actual Emissions (Lbs/Q)	
0.0	GPC-13-060			
0.0	GPC-13-060	2074.2	152	
0.1	GPC-13-060			
0.0	GPC-13-074			
0.1	GPC-13-074	2160.7	158	
0.0	GPC-13-074			
0.2	GPC-13-086			
0.1	GPC-13-086	2208.0	1133	
0.4	GPC-13-086			
0.0	GPC-14-002			
0.0	GPC-14-002	2178.4	0	
0.0	GPC-14-002			
2013 - PM Actual Emissions	GPC-14-016a			CT PM10/2.5 Emissions
Circ Water rate (gpm)	drift rate	hours	TSD (ppm)	(lb/yr)
105000	0.00002	8594.3	375	3370

2014 - Emissions Unit 20				
Hydrogen Sulfide Estimated Actual Emissions (Kg/hr)	2014 Report	hours	Estimated Actual Emissions (Lbs/Q)	
0.0	GPC-14-037			
0.2	GPC-14-037	2144.5	315	
0.0	GPC-14-037			
0.1	GPC-14-074			
0.0	GPC-14-074	2164.2	317	
0.1	GPC-14-074			
0.1	GPC-14-086			
0.4	GPC-14-086	2191.38	964	
0.1	GPC-14-086			
Overhaul	GPC-15-002			
0.1	GPC-15-002	1402.6	309	
0.1	GPC-15-002			
2014 - PM Actual Emissions	GPC-15-016			CT PM10/2.5 Emissions
Circ Water rate (gpm)	drift rate	hours	TSD (ppm)	(lb/yr)
84000	0.00002	8678.5	446	3238

2013 - 2014 Summary (lbs/year)	PM10	PM2.5	H2S (Actual)
Actual emissions 2014	3,238	3,238	1,905
Actual emissions 2013	3,370	3,370	1,444
Baseline Actual Emissions - 2 yr avg (lbs)	3,304	3,304	1,674
Baseline Actual Emissions- 2 yr avg (tpy)	1.7	1.7	0.84