

DOCKETED

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TN #:	227761
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April 18, 2019

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

RE: Calistoga Geothermal Project (Unit 19) (81-AFC-01C): Petition for Modification: Responses to Staff's Informal Data Request and Technical Appendix

Dear Mr. Veerkamp:

In support of the Petition for Modification ("Petition") for the Calistoga Geothermal Power Plant ("Calistoga") submitted on April 11, 2019, attached is the Project Owner's Technical Appendix, providing additional information to facilitate Staff's review.

The Technical Appendix has two primary components: (1) the Project Owner's Responses to Staff's Informal Data Requests and (2) the Project Owner's *Proposed Project Change Questionnaire* filed in advance of the Petition.

If you have any questions, please contact either Barbara McBride at (925) 570-0849 or me at the telephone number below.

Sincerely,

/s/

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Attachments

TECHNICAL APPENDIX

Calistoga Geothermal Power Plant, “Unit 19” (81-AFC-01C)
Petition for Modification to Replace 21 kV Standby Circuit

INTRODUCTION

To expedite consideration of the Petition for Modification to replace 21 kV standby circuit (TN #: 227620, the “Petition”), Geysers Power Company, LLC (the “Project Owner”) had previously submitted a “*Proposed Project Change Questionnaire*” to the California Energy Commission Staff. The *Proposed Project Change Questionnaire*, attached to this Technical Appendix as Attachment 1, included the following photos, diagrams, and other technical information:

- Calistoga Unit 19 (81-AFC-01C), *Proposed Project Change Questionnaire*, dated February 15, 2019;
- Diagram with existing route of the 21 kV standby circuit;
- Diagram with the proposed route of the replacement circuit;
- Site photos; and
- Pole schedule.

On April 11, 2019, at Staff’s request, the Project Owner filed a Petition for Modification for approval of replacement of the 21 kV standby circuit.

To facilitate the processing of the Petition for Modification, the Project Owner is providing the previously submitted responses to Staff’s informal data requests as well as a copy of the *Proposed Project Change Questionnaire* (Attachment 1).

RESPONSES TO STAFF’S INFORMAL DATA REQUESTS

1. *Staff Informal Data Request #1: Several pictures (probably at least three) would be very helpful in conveying the scope and scale of the proposed work.*

See Attachment 1.

2. *Staff Informal Data Request #2: The project is described as replacing existing underground line with above-ground line, but there is some undergrounding work called out. Please add more specificity about the undergrounding portion of this work. The first sentence of the first paragraph under item 1 [of the Proposed Project Change Questionnaire] says that a new portion of line will be undergrounded. Is this completely new line, or also replacement of existing undergrounded line?*

There is an existing 21 kV underground feed that runs perpendicular to the subsidence direction for approximately 400 feet. There have been historic trips on the underground portion of the circuit. The trip events could be due to MV cable failure (from age) and/or the

subsidence, but either way the underground cable needs to be replaced. However, given the current subsidence conditions, it does not make sense to try to pull through the existing conduit. Based on knowledge of the subsidence, it is predicted that the conduit could be sheared or have other limitations that would prohibit reuse. Therefore, the intention is to move forward with a new route to the existing transformer. The portion of the underground that runs perpendicular to the subsidence will be transitioned to overhead (strung on poles). However, since there are some existing overhead 230 kV transmission lines, to maintain clearance between the 21 kV and 230 kV, the 21 kV will be routed in a new underground conduit just to pass under the t-lines, for approximately 100 feet roughly parallel to the direction and further south of the primary subsidence. Where the new conductors are routed on new poles, the clearance from the 21 kV to the 230 kV will be adequate (~40' & they will be running parallel).

- 3. Staff Informal Data Request #3: Please indicated the distance of the run of all portions of this project, both underground and aboveground line. Please include more detail about the various portions of work, any excavation, crane work, work necessary to “tie off” the line to be abandoned, etc.*

The excavation for the poles will include augured holes for poles and guy anchors. The excavation for the new underground conduit/cable will be approximately 12 inches wide and 42 inches deep, for approximately 100 feet. The poles will be set with a crane. Existing u/g conductors will be pulled if feasible. If not feasible, the conductors will be abandoned in place (cut) with conduits grouted/sealed (i.e. no excavation for existing circuit).

- 4. Staff Informal Data Request #4: Please confirm that there is only one new pole proposed.*

Six new poles are proposed, as shown in Attachment 1, Figure “New Scope of Work”. New poles as “PP”—for example, “PP1” refers “Power Pole 1”.

- 5. Staff Informal Data Request #5: Item 2.b. requests information about routine maintenance. The way I read this is that the line has not failed and is not being done as maintenance, but that given the circumstances surrounding the subsidence, the line is likely to fail. Please include information about the useful life of the existing line, any previous issues surrounding the subsidence, and the fact that the work is a projected maintenance item. The item 3 response states the line is being compromised, please indicate how this is occurring.*

This is a “like kind” replacement for a system that may be affected by subsidence. Moreover, as stated above, the line is due for replacement as a result of both age and subsidence concerns. The existing underground circuit is original to the plant, circa early 1980s. The MV cable is due for replacement based on age, problematic performance, and the subsidence concerns, which prohibits reuse of the existing (original) route.

Attachment 1

Proposed Project Change Questionnaire

For The Replacement Of The Underground 21 Kilovolt (“kV”) Standby Circuit



PROPOSED PROJECT CHANGE QUESTIONNAIRE

Project: Geysers Calistoga Unit 19

AFC#: 81-AFC-01C

Contact Information: Barbara McBride, Barbara.mcbride@calpine.com

Date: 2/20/2019

1. Please describe the proposed project change.

Due to subsidence issues at the Calistoga Power Plant (Unit 19) at the Geysers at the facility, Geysers Power Company, LLC (Project Owner) is proposing to replace the existing standby underground 21 kV standby circuit with an aboveground line. This standby circuit is used only when the plant is down and provides stand by power to the plant.

The proposed plan is to install a replacement line that would be routed underground (new conduit, cable, route) from Pole 00403 outside the plant yard to a new pole (PP2). (See the attached drawing, "Pole Schedule".) The replacement line would then transition to an aerial primary attached to poles for four spans and directly feed the existing transformer from overhead at the North end of the switchyard, also shown in attached drawing. The existing line would be abandoned in place.

2. Would the proposed project change cause a direct physical change or reasonably foreseeable indirect physical change to the site or equipment on site? If yes, please explain.

All work would occur in areas that have been previously disturbed, and would constitute a minor alteration to equipment on site.

a. Is the proposed project change to software, procedures and/or policies?

No.

b. Is the project change routine maintenance?

Because of the subsidence issues at the facility, the replacement is intended to facilitate continued maintenance and standby capabilities by re-routing the existing line from underground to aboveground.

3. Please describe why the project change is needed (e.g., due to changes in regulation or operation and maintenance specifications, equipment or component failure)?

The line replacement is needed since the subsidence at the facility is compromising the safety of the existing line.

4. Would the proposed project change require a change to existing conditions of certification? If yes, please list the conditions of certification affected and, if applicable, include new proposed language for those conditions.

No. There will be no changes to existing COCs.

5. Would the proposed project change result in a temporary or permanent non-conformance with existing LORS? If yes, please list the applicable LORS and describe the non-conformance.

No.

6. Would the proposed project change affect the project's design, operation, or performance requirements as described in the Final Commission Decision? Would it affect any other aspect of the Final Commission Decision not previously described?

No changes to the Commission decision are required.

7. Is there a change to the project description as listed in the Final Commission Decision?

No. The original standby line was installed as part of the post-Certification "detailed design", and is not one of the major components of the project description listed in the Final Commission Decision.

8. Would the proposed project change have any significant adverse environmental or public health and safety impacts? If so, how were the impacts determined and what mitigation measures are proposed?

No. All work will occur in areas that have been already disturbed and used for current facility operations.

9. Does the proposed project change affect the public, including nearby property owners and residents? If so, how?

No. There will be no impact to nearby property owners.

10. Are there any additional permits from other agencies required and proposed timing?

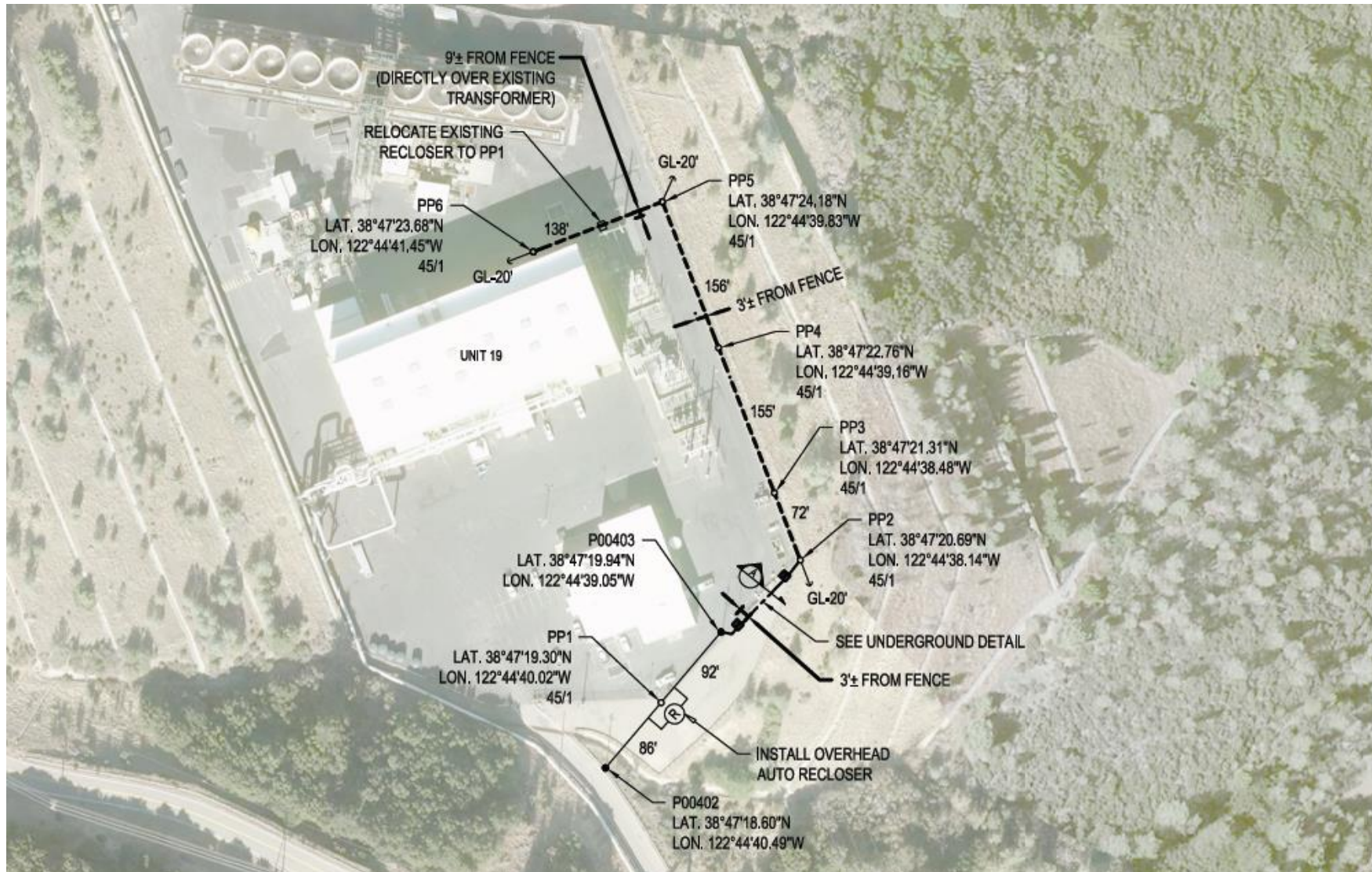
No.

11. What is the proposed timing/schedule for securing any needed permit(s), demolition, construction, and commissioning?

The Project Owner proposes to commence construction as soon as possible.



Existing Route shown in red



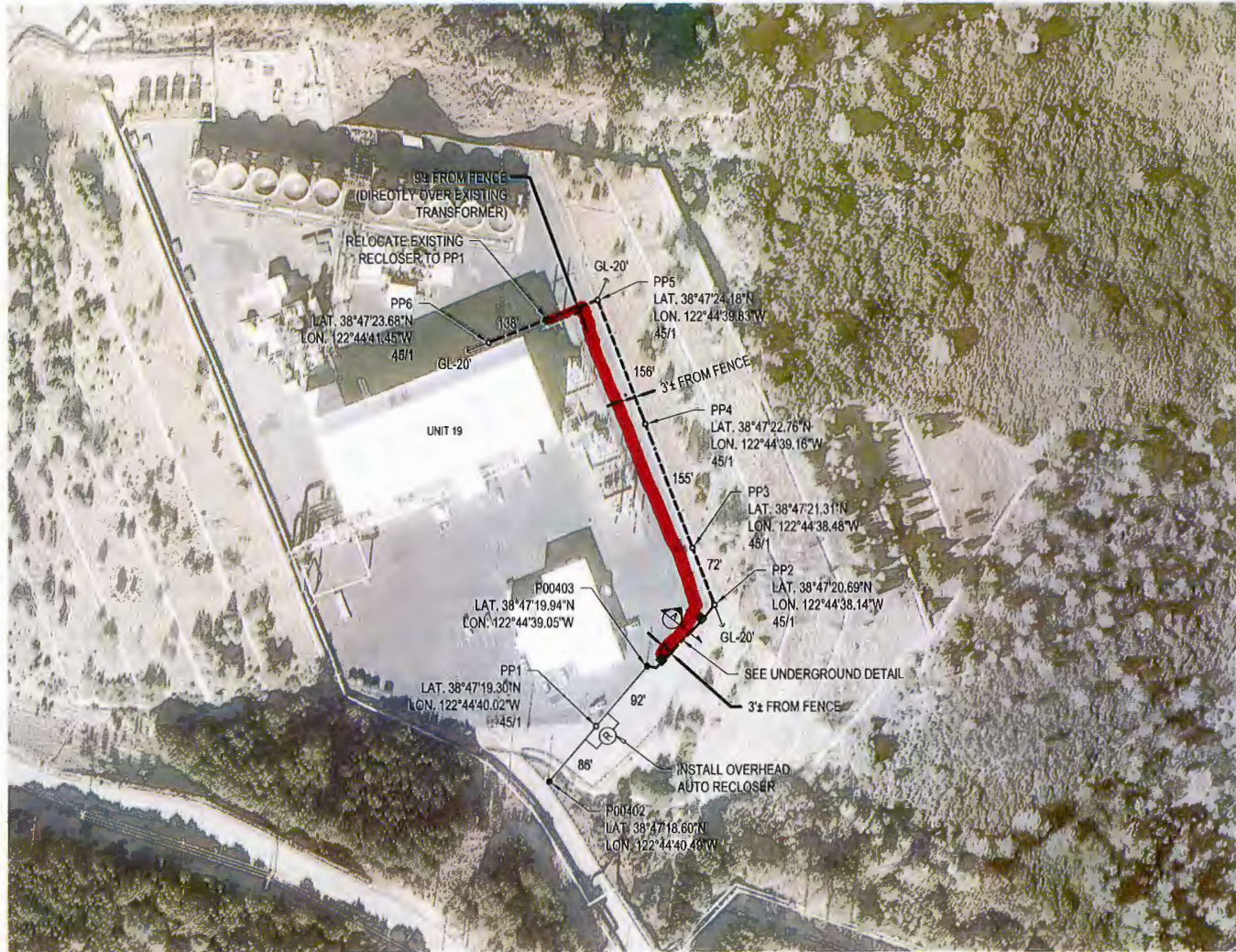
New scope of work



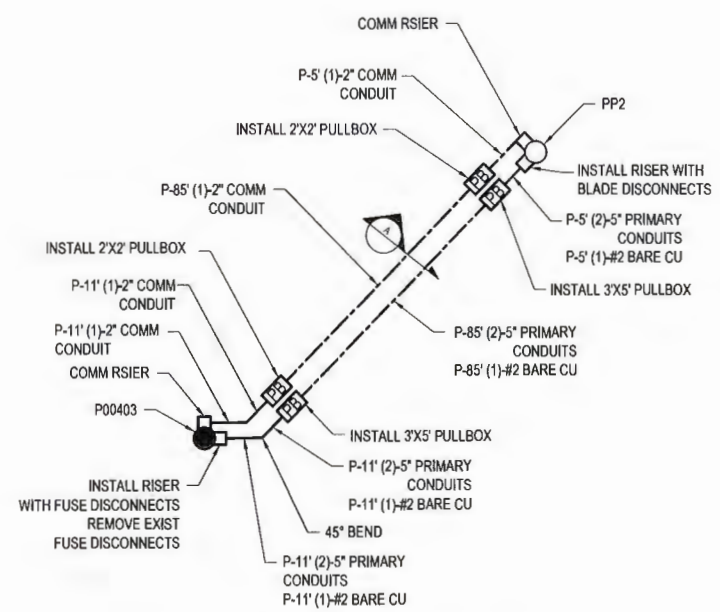




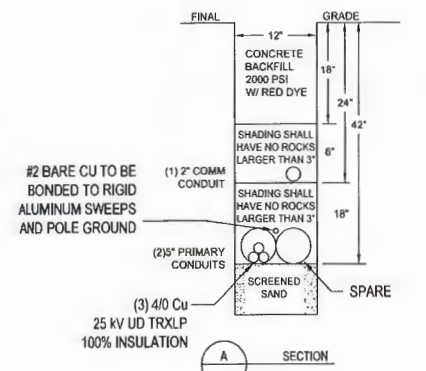
- NOTES**
1. THE UTILITIES SHOWN HERE ON ARE NOT VERIFIED. OTHER FACILITIES MAY EXIST THAT WERE NOT DISCOVERED THROUGH THE RECORD CHECK. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION, BOTH HORIZONTAL AND VERTICAL, OF ALL UTILITIES THROUGH THE APPROPRIATE UTILITY COMPANIES. CALL BEFORE YOU DIG - 811 (and/or the local 1-800 number).
 2. ALL GUY WIRES ARE 3/8" EHS STEEL UNLESS OTHERWISE NOTED. ALL GUY LEADS ARE A MINIMUM LENGTH. IF A SHORTER LENGTH IS REQUIRED CHECK WITH ENGINEER BEFORE INSTALLING.



PLAN VIEW
SCALE: 1" = 100'-0"

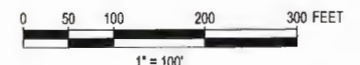


UNDERGROUND DETAIL
SCALE: NTS



TRENCH DETAIL
SCALE: NTS

- LEGEND**
- - PROPOSED POLE
 - - EXISTING POLE
 - PROPOSED 3 - #2 ACSR
 - EXISTING 3 - 2/0 ACSR
 - PROPOSED UNDERGROUND CONDUIT
 - (R) RECLOSER
 - (PB) PROPOSED PULLBOX (3' x 5' x 4')
 - (PB) PROPOSED PULLBOX (2' x 2' x 2')



POLE SCHEDULE					
POLE #	SIZE	CLASS	ANGLE	FRAMING	MODIFIED-RUS
PP1	45	1	0°	DOUBLE DEAD-END	VC6.21-M1
PP2	45	1	0°	DEAD-END	VC5.21-M1
PP3	45	1	0°	TANGENT	VC1-M1
PP4	44	1	0°	TANGENT	VC1-M1
PP5	45	1	90°	DOUBLE DEAD-END	VC6.91G-M1
PP6	45	1	0°	DEAD-END	VC5.21-M1



UG TO OH CONVERSION AT CALISTOGA.DWG

THIS DRAWING WAS PREPARED BY POWER ENGINEERS, INC. FOR A SPECIFIC PROJECT. TAKING INTO CONSIDERATION THE SPECIFIC AND UNIQUE REQUIREMENTS OF THE PROJECT, REUSE OF THIS DRAWING OR ANY INFORMATION CONTAINED IN THIS DRAWING FOR ANY PURPOSE IS PROHIBITED UNLESS WRITTEN PERMISSION FROM BOTH POWER AND POWER'S CLIENT IS GRANTED.

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD	REFERENCE DRAWINGS
0	ISSUED FOR CONSTRUCTION	12/19/18	SAT	OM	RR		
B	ISSUED FOR REVIEW	12/4/18	SAT	OM	RR		
A	ISSUED FOR REVIEW	9/5/18	SAT	OM	OM		

DSGN	OM	11/20/18
DRN	SAT	12/18/18
CKD	RR	12/18/18
SCALE: 1" = 100'		
FOR 22x34 DWG ONLY		



CALPINE GEYSERS		JOB NUMBER	REV
UNDERGROUND TO OVERHEAD CONVERSION		153941	0
PLAN VIEW		DRAWING NUMBER	P2-1