

## DOCKETED

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*Comment Received From: Valerie Winn*

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*Docket Number: 15-IEPR-12*

**Pacific Gas and Electric Company\_Supplemental Nuclear Response**

*Additional submitted attachment is included below.*

August 5, 2015

**VIA ELECTRONIC FILING  
SYSTEM**California Energy Commission  
Dockets Office, MS-4  
Docket No. 15-IEPR-  
1516 Ninth Street  
Sacramento, CA 95814-5512Re: Docket 15-IEPR-12: Nuclear – Supplemental Comments of Pacific Gas and Electric Company on Nuclear Issues**I. Introduction**

Pacific Gas and Electric Company (PG&E) providing supplemental information on nuclear issues requested during the California Energy Commission (CEC) April 27, 2015 workshop on nuclear issues. This information includes: 1) information on Diablo Canyon's ramping ability; 2) PG&E's responses to 2013 Integrated Energy Policy Report (IEPR) recommendations not included in Section VI of the May 11, 2015 comments; 3) information on dry cask storage operation; and 4) additional updated information based on the 2013 IEPR data request.

**II. Information on Diablo Canyon's Ramping Ability**

Generally, with the exception of extremely limited provisions in California Independent System Operator tariffs, PG&E is unable to increase or decrease Diablo Canyon's generation to follow load. Operating at 100 percent generation capacity is currently the norm for U.S. nuclear plants, with current safety and operations provisions based on 100 percent power operations. While nuclear plants are used for load following in Europe, additional studies would be required to identify whether any licensing or physical changes would be needed at Diablo Canyon to provide load following services in California.

**III. Update on the 2013 IEPR Recommendations Not Included in Section VI of the May 11, 2015 comments**

During the April 27, 2015 workshop, the CEC Chair asked PG&E to provide updates to the nuclear recommendations included in the 2013 IEPR. PG&E provided updates on numerous recommendations in its May 13, 2015 comments. The two remaining recommendations are addressed below.

**Recommendation:** PG&E should provide updated evacuation time estimates, including the real-time evacuation scenario following a seismic event, and submit it to the Energy Commission as part of the IEPR reporting process.

**Response:** PG&E provided the most recent Evacuation Time Estimate (ETE) report, which did not include an ETE following a seismic event, to the CEC in May 2013. PG&E recently submitted its updated Seismic Hazard Re-Analysis Report to the Nuclear Regulatory Commission (NRC) in March 2015. PG&E is now working to update the ETE report to include a seismic event, using the most up-to-date seismic information. PG&E expects to provide this report to the CEC once it is completed.

**Recommendation:** PG&E should bring Diablo Canyon into compliance with applicable 2004 National Fire Protection Agency fire protection regulations and report to the Energy Commission until full compliance is achieved.

**Response:** PG&E submitted a fire protection License Amendment Request to the NRC on June 26, 2013. Upon approval, the DCPD fire protection program will transition to a new Risk-Informed, Performance-Based alternative in accordance with 10 CFR 50.48(c), which incorporates by reference NFPA 805. PG&E will inform the CEC upon NRC approval of the License Amendment Request.

#### **IV. Information on Dry Cask Storage Operation**

DCPD utilizes a mix of wet and dry storage technology for the interim storage of spent nuclear fuel. Once spent nuclear fuel is discharged from the reactor, it is stored for a minimum of five years in the spent fuel pools prior to becoming a candidate for placement into the dry storage system. PG&E intends to perform cask loading campaigns in 2015 and 2016 to remove sufficient spent fuel from the pools to achieve a minimum complement of used fuel assemblies that meets the NRC spacing requirements and then follow a cycle of performing loading campaigns every other year to maintain that minimum.<sup>1</sup>

The operational cost of maintaining the dry storage facility is approximately \$2.5 million annually. This cost includes security and operational support. PG&E does not have specific numbers for the cost to maintain and operate the systems that support the spent fuel pool operation. Cost/benefit studies have not been developed for the long-term storage of spent nuclear fuel at the DCPD site. It is assumed in budget development that PG&E will store spent nuclear fuel on site until the United States (US) Department of Energy (DOE) is ready to perform the removal of the spent fuel. Estimates of Direct Cost for movement of spent nuclear fuel into dry storage have been developed and planned for the near-term operating budgets. PG&E has developed a dry storage facility that is licensed and permitted to store all of the spent

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<sup>1</sup> Pursuant to NRC Security Order issued in February 2002, Section B.5.B.

nuclear fuel generated during the 40 year licensed life of DCP. It is still PG&E's position that the facility is an interim solution until the DOE assumes their responsibility and collects the fuel for reprocessing or long-term storage. Risk has been addressed during the licensing process. DCP has a site specific license in which the environmental effects and consequences of spent fuel storage have been addressed. Please refer to the 10 CFR Part 50 and Part 72 environmental impact reports for specific information. PG&E has not performed any studies in consideration of returning the spent fuel pools to the storage levels conceived during the original plant licensing.

## **V. Updates to Information Provided in the 2013 IEPR Data Request**

In 2013, the CEC issued an exhaustive data request prior to the conduct of the workshops on nuclear issues. While such a data request has not been issued in 2015, PG&E provides the following updates to ensure the CEC has the most up-to-date information.

### **A. Seismic Hazards Analysis**

The updated seismic hazard is described and graphically shown (hazard curves and ground motion response spectrum) in the Seismic Hazard Re-evaluation Report & Appendices, submitted to the NRC on March 11, 2015 as part of 50.54(f) submittal. This document is publically available at [www.pge.com/dcpp-ltsp](http://www.pge.com/dcpp-ltsp).

Specific sections of interest are Section 4.0, Screening Evaluation (page 46) and Section 5.0, Interim Evaluation (page 48).

### **B. Flooding/Tsunami Hazards Analysis**

An updated flooding and tsunami hazard analysis was performed and submitted to the NRC in PG&E letter DCL-15-034 dated March 11, 2015 as part of the 10 CFR 50.54(f) request.<sup>2</sup>

### **C. SFP Instrumentation**

See response below, under "Recommendation 7.1: SFP Instrumentation."

### **D. FLEX, Station Black-out, etc.**

The following is an update to the individual items presented in the previous response to "Station Blackout" from page 11 of PG&E's May 9, 2013 letter. PG&E's response to recommendations for which no update is provided are unchanged from the May 9, 2013 response.

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<sup>2</sup> See document at [http://www.pge.com/includes/docs/pdfs/safety/systemworks/dcpp/FloodingHazard\\_Re-evaluationReport.pdf](http://www.pge.com/includes/docs/pdfs/safety/systemworks/dcpp/FloodingHazard_Re-evaluationReport.pdf)

*Recommendation 4.2: FLEX* - An updated overall integrated plan has been submitted to the NRC in PG&E letter DCL-15-026 dated February 23, 2015.<sup>3</sup> Strategy implementation activities are in progress, and will complete by October 30, 2015 for Unit 1 and May 31, 2016 for Unit 2.

*Recommendation 7.1: SFP Instrumentation* - An updated integrated plan has been submitted to the NRC in PG&E letter DCL-15-028 dated February 23, 2015.<sup>4</sup> The design and installation activities are in progress, and will be complete by October 19, 2015 for Unit 1, and May 31, 2016 for Unit 2.

*Recommendation 9.3: Staffing* - A DCPP Phase 2 Staffing study was completed and submitted to the NRC in PG&E letter DCL-15-063 dated May 27, 2015. See Appendix A to this letter for the document.

*Recommendation 9.3: Communications* - Implementation of the satellite phone “footballs” and communication trailers was completed by December 31, 2013 as scheduled. The remaining enhancements will be implemented by October 27, 2015.

## **E. Spent Fuel**

As of June 8, 2015, there are a total of 1,924 used fuel assemblies stored in the spent fuel pools. There are 34 casks loaded with a total of 1,088 assemblies.

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<sup>3</sup> See document at <http://pbadupws.nrc.gov/docs/ML1505/ML15054A628.pdf>

<sup>4</sup> See document at <http://pbadupws.nrc.gov/docs/ML1505/ML15054A642.pdf>

Updates to Table 12: Waste Generated at Diablo Canyon (Units 1 and 2) and SONGS (Unit 1, 2 and Unit 3) from the AB 1632 Assessment of California’s Operating Nuclear Plants: Final Report, October 2008 (CEC-100-2008-005-F, page 213). (Diablo Canyon, SONGS)

DIABLO CANYON	Spent Fuel		Low-Level Waste	
	(No. of Assemblies)	(Metric Tons of Uranium)	Class C (ft <sup>3</sup> )	GTCC (ft <sup>3</sup> )
Total Generated through 2013	2,848	1,224.64	1,162	Note 1
2014 through end of initial license	1,532	658.76	1,181 to 2,651	Note 1
License Extension	2,194	943.42	1,760 to 3,720	Note 1
Decommissioning	0	0	1,148	866
Total	6,574	2,826.82	5,251 to 8,681	866

Note 1. GTCC is not generated per-se during reactor operation. Irradiated components will become GTCC upon disassembly of larger components during decommissioning.

Updates to Table 14: On-Site Spent Fuel Capacity (number of assemblies) from the AB 1632 Assessment of California’s Operating Nuclear Plants: Final Report, October 2008 (CEC-100-2008-005-F, page 217).

	Diablo Canyon	
	Assemblies	MTU
ISFSI Capacity	4,416	1,898.88
Planned Expansions	0	0
Total Planned ISFSI Capacity	4,416	1,898.88
Spent Fuel Pool Current Capacity	2,621	1,127.03
Total On-site Storage Capacity	7,037	3,025.91
Assemblies Generated during Current Licensing period	4,380	1,883.4
Spent Fuel Pool Original Design Capacity (Before re-racking)	540	232.2

PG&E’s assessment of disposal costs for low-level waste is unchanged from that provided in its June 18, 2013 Supplemental Data Request response to the CEC.

## F. IPRP Reports

PG&E has previously provided copies of IPRP Report Nos. 1 through 5 and Report Nos. 7 through 9, as well as PG&E’s responses. To ensure the CEC has a complete set of IPRP reports, PG&E provides the following link to IPRP Report No. 6

<http://www.cpuc.ca.gov/NR/rdonlyres/B882E69C-758D-476E-A62D-6FCEC63BD277/0/IPRPReportno6.pdf>. PG&E’s response to this report is provided in

Appendix B. These documents were inadvertently omitted from PG&E’s earlier response.

PG&E Supplemental Response to the CEC on *Nuclear Issues*  
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Please feel free to contact me with any questions you may have on PG&E's responses to this data request.

Sincerely,

/s/

Valerie J. Winn

Enclosures