



**Pacific Gas and
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January 30, 2019

PG&E Letter DCL-19-007

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

10 CFR 50.73

Docket No. 50-323, OL-DPR-82
Diablo Canyon Power Plant, Unit 2
Licensee Event Report 2-2018-001-00, Automatic Reactor Trip of Unit 2 Following a
Load Rejection

Dear Commissioners and Staff,

Pacific Gas and Electric Company (PG&E) hereby submits the enclosed Licensee Event Report (LER) regarding an automatic reactor trip of Unit 2, which occurred on December 1, 2018. PG&E is submitting this LER in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B).

PG&E makes no new or revised regulatory commitments (as defined by NEI 99-04) in this report. All corrective actions identified in this letter will be implemented in accordance with the Diablo Canyon Power Plant Corrective Action Program.

This event did not adversely affect the health and safety of the public.

Sincerely,



James M. Welsch

dqmg/6192/51006788

Enclosure

cc/enc: Scott A. Morris, NRC Region IV Administrator
Christopher W. Newport, NRC Senior Resident Inspector
Balwant K. Singal, NRR Senior Project Manager
L. John Klos, NRR Project Manager
INPO
Diablo Distribution

**LICENSEE EVENT REPORT (LER)**

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. Facility Name Diablo Canyon Power Plant, Unit 2	2. Docket Number 05000 323	3. Page 1 OF 3
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4. Title Automatic Reactor Trip of Unit 2 Following a Load Rejection
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5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Rev No.	Month	Day	Year	Facility Name	Docket Number
12	01	2018	2018	001	00	01	30	2019	Facility Name	Docket Number 05000

9. Operating Mode	11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)			
1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
10. Power Level	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
100	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> Other (Specify in Abstract below or in NRC Form 366A)		

12. Licensee Contact for this LER	
Licensee Contact David Madsen	Telephone Number (Include Area Code) 805-545-6192

13. Complete One Line for each Component Failure Described in this Report										
Cause	System	Component	Manufacturer	Reportable to ICES	Cause	System	Component	Manufacturer	Reportable to ICES	
C	FK			No						
14. Supplemental Report Expected					15. Expected Submission Date			Month	Day	Year
<input checked="" type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date) <input type="checkbox"/> No								04	30	2019

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On December 1, 2018, at 1006 PST, with Unit 2 at 100 percent power, the reactor automatically tripped following a load rejection from the 500 kV off site electrical system. The trip was not complex; all safety systems responded as designed. Due to the Unit 2 reactor trip and the expected actuation of the Auxiliary Feedwater System, this event is being reported per 10 CFR 50.73(a)(2)(iv)(A).

This event was a result of an automatic operation of the Diablo Canyon Special Protection Scheme (DC-SPS) which occurred when DC-SPS sensed two out of three 500 kV lines out of service when, in fact, all three lines were in service.

There was no impact on the health and safety of the public or plant personnel.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form
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1. FACILITY NAME		2. DOCKET NUMBER		3. LER NUMBER		
Diablo Canyon Power Plant, Unit 2		05000-323		YEAR	SEQUENTIAL NUMBER	REV NO.
				2018	001	00

NARRATIVE**I. Reportable Event Classification**

This event is reportable pursuant to 10 CFR 50.73(a)(2)(iv)(A) as an event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B).

II. Plant Conditions

At the time of the event, Diablo Canyon Power Plant (DCPP) Unit 2 was in Mode 1 (Power Operation), operating at 100 percent power. Following the event, DCPP Unit 2 was in Mode 3 (Hot Standby). DCPP Unit 1 was in Mode 1, operating at approximately 69 percent power at the time of the event.

III. Problem Description**A. Background**

DCPP is interconnected to the Pacific Gas & Electric Company (PG&E) electric grid system via two 230 kV [FK] and three 500 kV [FK] transmission lines emanating from their respective switchyards. The preferred power supply consists of the two independent circuits (230 kV and 500 kV) from the PG&E transmission networks. The 500 kV transmission lines out from the 500 kV switchyard provide for transmission of the plant's electric power output to the PG&E grid.

The three 500 kV transmission lines, one from the Gates Substation and two other from the Midway Substation, feed the DCPP 500 kV switchyard.

Each 500 kV line between the 500 kV switchyard and a generator step-up transformer bank is provided with redundant current differential protection channels. Directional over-current relays are available as backup. A Diablo Canyon Special Protection Scheme (DC-SPS) supplements the existing DCPP 500 kV switchyard/line protection.

The DC-SPS was added in 2006 to supplement the existing DCPP 500 kV switchyard/line protection. This DC-SPS was designed and installed by PG&E's transmission organization. The DC-SPS is designed to detect abnormal grid conditions and take preplanned, corrective action to provide acceptable grid performance.

The switchyard DC-SPS was installed to mitigate the potential loss of two units in response to the occurrence of certain 500 kV grid events. These events, if left unmitigated, would result in the loss of both DCPP units. The DC-SPS system will selectively open 500 kV switchyard breakers associated with one generating unit (i.e., load rejection) when predefined conditions occur on the 500 kV offsite electrical distribution system.

B. Event Description

On December 1, 2018, at 1006 PST, DCPP Unit 2 tripped [AB][RCT] from 100 percent power following a load rejection from the 500 kV offsite electrical system. This event was a result of operation of the DC-SPS. The DC-SPS sensed two out of three 500 kV lines out of service when, in fact, all three lines were in service. This event occurred while Unit 1 was decreasing power to 50 percent power, which reduced the Diablo-Midway #2 and #3 500 kV line amperage flows below the DC-SPS Remote Outage Detection (ROD) logic trigger level, concurrent with the output of DCPP above the arming level setpoint of DC-SPS. The DC-SPS trip occurred without any preliminary indications to DCPP, and the DC-SPS has been in service since 2006 without any prior actuations.



LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
Diablo Canyon Power Plant, Unit 2	05000-	YEAR	SEQUENTIAL NUMBER	REV NO.
	323	2018	001	00

NARRATIVE

C. Status of Inoperable Structures, Systems or Components that Contributed to the Event

There were no inoperable structures, systems or components that contributed to the event.

D. Other Systems or Secondary Systems Affected

None.

E. Method of Discovery

The event was immediately apparent to plant operators due to alarms and indications associated with the load rejection received in the control room.

F. Operator Actions

Control room personnel responded in accordance with established procedures, confirmed the reactor trip, verified proper engineered safety feature actuations, and stabilized the unit in Mode 3.

G. Safety System Responses

The trip was not complex; all safety systems responded as designed.

IV. Cause of the Problem

The DCP Unit 2 trip was caused by the actuation of the DC-SPS logic. PG&E is conducting a root cause evaluation (RCE) and will submit a supplemental Licensee Event Report (LER) following completion of the RCE.

V. Assessment of Safety Consequences

There were no safety consequences as a result of this event. The Operations crew responded to the event in accordance with plant operating procedures. Equipment necessary for Unit 2 decay heat removal was available and operated as required by plant design. Unit 1 was not affected by this event. There was no impact on the health and safety of the public or plant personnel.

VI. Corrective Actions

The ROD logic portion of the DC-SPS circuitry has been disabled and mitigation measures have been implemented, including enhanced communications with the Grid Control Center.

As stated in Section IV, PG&E will submit a supplemental LER following the completion of this RCE.