Pacific Gas and Electric Company

Diablo Canyon Power Plant
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November 26, 2002

PG&E Letter DCL-02-136

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

Docket No. 50-275, OL-DPR-80
Diablo Canyon Unit 1
Licensee Event Report 1-2002-006-00
Technical Specification LCO 3.7.17.2 Not Met During The 1R11 Refueling Outage When Two Fuel Assemblies Were Placed In Adjacent Locations

Dear Commissioners and Staff:

In accordance with 10 CFR 50.73 (a)(2)(i)(B), PG&E is submitting the enclosed licensee event report regarding Technical Specification LCO 3.7.17.2 "Spent Fuel Assembly Storage - Region 2" not being met when two fuel assemblies were placed in adjacent locations.

This event was not considered risk significant and did not adversely affect the health and safety of the public.

Sincerely,

David H. Oatley
Vice President and General Manager – Diablo Canyon

Baf5/2246/A0565695/N0002151
Enclosure
cc: Ellis W. Merschoff
David L. Proulx
Girija S. Shukla
Diablo Distribution
INPO

IE22

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Diablo Canyon Unit 1	0 5 0 0 0 2 7 5	1 OF 5

TITLE (4)

Technical Specification LCO 3.7.17.2 Not Met During The 1R11 Refueling Outage When Two Fuel Assemblies Were Placed In Adjacent Locations

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
05	06	2002	2002	- 0 0 6 -	0 0	11	26	2002		

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (11)		
6	X	10 CFR	50.73(a)(2)(i)(B)
POWER LEVEL (10)		OTHER	
0 0 0	(SPECIFY IN ABSTRACT BELOW AND IN TEXT, NRC FORM 366A)		

LICENSEE CONTACT FOR THIS LER (12)

	TELEPHONE NUMBER	
	AREA CODE	
Larry Parker - Senior Regulatory Services Engineer	805	545-3386

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MON	DAY	YR
[ ] YES (If yes, complete EXPECTED SUBMISSION DATE)	[X] NO				

ABSTRACT (Limit to 1400 spaces i e , approximately 15 single-spaced typewritten lines) (16)

On May 6, 2002, at 1025 PDT, during the Unit 1 eleventh refueling outage, fuel assembly J55 was placed adjacent to fuel assembly DD14 resulting in a violation of Technical Specification (TS) LCO 3.7.17.2, "Spent Fuel Assembly Storage – Region 2."

On May 11, 2002, at 1534 PDT during the core reload, fuel assembly DD14 was removed from the adjacent location exiting the Technical Specification violation.

On September 27, 2002, a utility engineer discovered the nonconforming condition while updating a new fuel-tracking software package.

PG&E believes the cause of the violation was a personnel error on the part of the preparer, reviewer and approver of the core offload sequence.

Corrective actions include using a checklist outlining the key areas for focus when preparing, reviewing and approving the core offload sequence, and using a new fuel-tracking software program to ensure compliance with TS requirements.

TEXT

I. Plant Conditions

Unit 1 was in Mode 6 (Refueling), with the reactor core offloaded to the spent fuel pool, during the described condition.

II. Description of Problem

A. Background

Technical Specification (TS) 3.7.17.2, "Spent Fuel Assembly Storage – Region 2," [DF][RK] requires that the combination of initial enrichment, fuel pellet diameter and burnup of each spent fuel assembly stored in Region 2 shall be within the acceptable area of Figure 3.7.17-2 (combination of initial enrichment and burnup), or the fuel assembly is stored in a checker board pattern with water cells or cells containing non-fissile material.

Surveillance Requirement SR 3.7.17.2.1 requires verification by administrative means that the fuel assembly characteristics and its expected storage location are in accordance with LCO 3.7.17.2 prior to each fuel assembly move, when the assembly will be stored in Region 2.

TS 3.7.16, "Spent Fuel Pool Boron Concentration," requires that the spent fuel pool boron concentration shall be $\geq$2000 ppm, when fuel assemblies are stored in the spent fuel pool.

It should be noted that since this event TS 3.7.16, TS 3.7.17.1 and TS 3.7.17.2 have been revised to remove region designations and analytically credit soluble boron in the spent fuel pool.

B. Event Description

On May 5, 2002, at 0022 PDT during the Unit 1 eleventh refueling outage (1R11) core offload, fuel assembly DD14 was placed in spent fuel pool location K-11.

On May 6, 2002, at 1025 PDT fuel assembly J55 was placed in spent fuel pool location L-11, adjacent to location K-11. Fuel assembly J55 met the TS requirements to be placed in any Region 2 location. Fuel assembly DD14, in location K-11, should have remained in a checkerboard pattern with water cells, however, following the J55 move adjacent to DD14, it did not, resulting in a violation of TS 3.7.17.2.

TEXT

On May 11, 2002, at 1534 PDT fuel assembly DD14 was removed from spent fuel pool location K-11 during the core reload.

On September 27, 2002, a utility engineer discovered the nonconforming condition while updating a new fuel-tracking software package.

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

None.

D. Other Systems or Secondary Functions Affected

None.

E. Method of Discovery

On September 27, 2002, a utility engineer identified the nonconforming condition while updating a new fuel-tracking software package.

F. Operator Actions

None.

G. Safety System Responses

None.

III. Cause of the Problem

A. Immediate Cause

The preparer of the core offload sequence plan failed to recognize the relationship between fuel assemblies DD14 and J55.

B. Root Cause

The root cause of the event was personnel error by utility engineers that prepared, reviewed, and approved the core offload sequence. The cause of this error was skill and/or rule based, in that the preparer, reviewer, and approver had done this preparation multiple times but never with the spent fuel pool density as high as it was at that time.

TEXT

IV. Assessment of Safety Consequences

The Diablo Canyon Power Plant (DCPP) criticality analysis in effect at the time of the event for the Region 2 racks with up to 5% enriched fuel was examined. The analysis calculations demonstrate that a misplaced fuel assembly (fresh assembly of 5.0% enrichment accidentally loaded into a Region 2 cell) results in a K_{EFF} of 0.978 (without uncertainties) with all other cells filled with fuel of the maximum permissible reactivity. To assure a maximum calculated K_{EFF} below 0.95 the spent fuel pool would require an estimated 400 ppm soluble boron. TS 3.7.16 at the time of the event required that the spent fuel pool boron concentration be $\geq$2000 ppm. Therefore at the time of the event the boron concentration exceeded the 400 ppm required to ensure K_{EFF} is below 0.95 and DCPP was within the analysis for spent fuel pool storage.

There were no safety consequences involved in this event because the spent fuel pool storage is demonstrated to have sufficient margin to ensure safety. Therefore the event did not adversely affect the health and safety of the public.

V. Corrective Actions

A. Immediate Corrective Actions

1. On May 11, 2002, at 1534 PDT fuel assembly DD14 was removed from spent fuel pool location K-11 during the core reload.

2. The spent fuel pool storage configuration for the past five years was reviewed. PG&E verified there was no similar event during these previous core offloads.

3. The personnel involved with this event identified the condition and actively participated in the problem investigation.

B. Corrective Actions to Prevent Recurrence

1. PG&E will revise procedures to incorporate a checklist outlining the key areas of focus when preparing, reviewing, and approving the core offload sequence to assure compliance with TS requirements.

2. PG&E will use a new fuel-tracking software program to help plan fuel movements. Use of this program will provide warnings of planned moves that would be in violation of TS requirements.

TEXT

VI. Additional Information

A. Failed Components

None.

B. Previous Similar Events

None.