



*Pacific Gas and
Electric Company*

February 28, 2003

PG&E Letter DCL-03-023

U.S. Nuclear Regulatory Commission
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Docket No. 50-323, OL-DPR-82
Diablo Canyon Unit 2

Request to Use an Alternate Method of Determining Probability of Detection for the
Diablo Canyon Unit 2 Steam Generator 4 Tube R44C45 Indication

Dear Commissioners and Staff:

During Diablo Canyon Power Plant (DCPP) Unit 2 refueling outage 11, a 21.5 volts bobbin indication was found in Steam Generator (SG) 4, row 44, column 45 at the second tube support plate (TSP) on the hot leg side (R44C45-2H). The indication was left in service following DCPP Unit 2 refueling outage 10, under the alternate repair criteria (ARC) for outside diameter stress corrosion cracking (ODSCC) indications at SG TSP intersections. During DCPP Unit 2 cycle 11, the indication grew from 2.0 to 21.5 volts. As a result of this indication, the probability of burst performance criterion limit of 1×10^{-2} was exceeded at end of DCPP Unit 2 cycle 11. Projections using the currently approved probability of detection (POD) of 0.6, as required by Generic Letter 95-05, "Voltage-Based Repair Criteria for Westinghouse Steam Generator Tubes Affected by Outside Diameter Stress Corrosion Cracking," dated August 3, 1995, will not permit startup for DCPP Unit 2 cycle 12. The projected probability of burst performance criterion is exceeded for Unit 2 cycle 12 when the remaining fractional proportion of the 21.5 volts indication is included in the DCPP Unit 2 beginning of cycle (BOC) cycle 12 voltage distribution resulting from the application of a constant POD of 0.6 regardless of detected bobbin amplitude.

The indication in tube R44C45 is considered to be not representative of the type of indications that the ARC method anticipates. PG&E believes that an indication of this size can be detected with 100 percent certainty, in fact an indication between three and four volts can be detected with near 100 percent certainty, and therefore this indication should not be included in the DCPP Unit 2 BOC cycle 12 voltage distribution for the purpose of operational assessment. Based on data in an industry database contained in EPRI Topical Report NP 7480-L, Addendum 5, "Steam Generator Tubing Outside Diameter Stress Corrosion Cracking at Tube Support Plates Database for Alternate Repair Limits, Update 2002," dated January 2003, for thirty-seven inspections in plants with 7/8" and 3/4" tubing, including four

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DCPP inspections, no new indications throughout the industry were found by reanalysis to have a prior inspection voltage greater than 3.2 volts, well below the structural limit of about 9.6 volts. For DCPP, no new indications were found by reanalysis to have a prior inspection voltage greater than 1.6 volts. All large voltage indications, i.e., those challenging structural or leakage integrity, found in ARC inspections including DCPP Unit 2 refueling outage 11 can be traced to large voltage growth rates and not to missed indications.

Therefore, PG&E requests NRC approval to apply a POD of 1.0 to the R44C45-2H indication for the BOC voltage distribution for the DCPP Unit 2 BOC cycle 12 operational assessment. For the preliminary 120 day operational assessment, a constant POD of 0.6 will be applied to all other indications identified in the Unit 2 refueling outage 11 eddy current inspections.

Applying a POD of 1.0 to the R44C45-2H indication for the DCPP Unit 2 BOC voltage distribution is equivalent to applying a revised POD method with a POD curve which is 0.6 (very conservative for larger indications) for indications less than approximately 20 volts and 1.0 for indications greater than approximately 20 volts. PG&E previously requested the use of a revised POD method as part of the license amendment request for voltage-based ARC for ODSCC indications at SG TSP intersections in PG&E letter DCL-97-034, "License Amendment Request 97-03, Voltage-Based Alternate Steam Generator Tube Repair Limit for Outside Diameter Stress Corrosion Cracking at Tube Support Plate Intersections," dated February 26, 1997. In a letter to PG&E dated March 12, 1998, the NRC issued Amendment Nos. 124 and 122 for DCPP Units 1 and 2 respectively approving the use of a voltage-based ARC for ODSCC indications at SG TSP intersections. Section 3.1.3 of the NRC safety evaluation for Amendment Nos. 124 and 122 for DCPP Units 1 and 2 respectively addressed the structural and leakage integrity assessments related to the ARC and stated that "PG&E will be permitted to use a revised POD, in lieu of a constant value of 0.6, if and when a revised POD is approved by the NRC. Until that occurs, PG&E will have to use a constant value of 0.6."

No Technical Specification changes are required to apply a POD of 1.0 to the R44C45-2H indication for the Unit 2 operational assessment.

This request is an alternate method to the Probability of Prior Cycle Detection (POPCD) method. PG&E requested approval of the POPCD method in PG&E letter DCL-03-017, dated February 24, 2003. Approval of either method is requested by March 4, 2003 to support the current schedule for draining of the RCS to mid loop to prepare for SG nozzle dam removal.

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The application of a POD of 1.0 to the R44C45-2H indication while not permitting full cycle operation for DCP Unit 2, will ensure that the performance criteria for probability of burst and leak rate are maintained within the required acceptance limits for a period of about 120 days.

Sincerely,



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Vice President - Nuclear Services

kjs/4328

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COMMITMENT TRACKING MEMO
(Remove prior to NRC submittal)

Document: PG&E Letter DCL-03-023

Subject: Request to Use an Alternate Method of Determining Probability of Detection for the Diablo Canyon Unit 2 Steam Generator 4 Tube R44C45 Indication

File Location: s:\rs\tas\grp_work\lars\2003-ar\03-xx (POPCD)\dcl03023.doc

FSAR Update Review	
Utilizing the guidance in XI3.ID2, does the FSAR Update need to be revised?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If "Yes", submit an FSAR Update Change Request in accordance with XI3.ID2 (or if this is an LAR, process in accordance with WG-9)	

Commitment #1

Statement of Commitment: For the preliminary 120 day operational assessment, a constant POD of 0.6 will be applied to all other indications identified in the Unit 2 refueling outage 11 eddy current inspections.

Clarification: This statement applies to the Unit 2 cycle 12 operational assessment. A POD of 1.0 will be applied to the R44C45-2H indication for the BOC voltage distribution for the DCPD Unit 2 BOC cycle 12 operational assessment.

Tracking Document:	AR or NCR A0575823	AE or ACT Create new AE
Assigned To:	NAME jha1	ORGANIZATION CODE PTEL
Commitment Code:	FIRM OR TARGET T	DUE DATE 03/5/03
Outage Commitment?	YES OR NO No	IF YES, WHICH? (E G , 2R9, 1R10, ETC)
PCD Commitment?	YES OR NO No	IF YES, LIST THE IMPLEMENTING DOCUMENTS (IF KNOWN) No
Duplicate of New NCR Commitment in PCD?	YES OR NO No	IF YES, LIST PCD NUMBER (e g , T35905, etc)
Old PCD Commitment being changed?	YES OR NO No	1 IF YES, LIST PCD NUMBER, AND 2 CLARIFY TO CLERICAL HOW COMMITMENT TO BE REVISED