



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 17, 2011

LICENSEE: Pacific Gas and Electric Company

FACILITY: Diablo Canyon Nuclear Power Plant, Units 1 and 2

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALLS HELD ON FEBRUARY 2 AND 4, 2011, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND PACIFIC GAS AND ELECTRIC COMPANY CONCERNING REQUESTS FOR ADDITIONAL INFORMATION RELATED TO THE DIABLO CANYON NUCLEAR POWER PLANT, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION (TAC NOS. ME2896 AND ME2897)

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Pacific Gas and Electric Company (PG&E or the applicant) held telephone conference calls on February 2 and 4, 2011, to obtain clarification on the applicant's response to requests for additional information (RAIs) regarding the Diablo Canyon Nuclear Power Plant license renewal application.

By letter dated December 20, 2010, the staff issued follow up RAIs regarding the Flux Thimble Tube Program. Due to the timing of the request and the issuance of the safety evaluation report with open items, the staff identified issues related to this aging management program as an open item. The staff requested a telephone conference call to express its concerns regarding the open item. The telephone conference call was useful in clarifying the staff's concerns. Enclosure 1 provides a listing of the participants. Enclosure 2 provides discussions on the RAI and related open item.

The applicant had an opportunity to comment on this summary.

A handwritten signature in black ink, appearing to read "N. Ferrer", with a long horizontal line extending to the right.

Nathaniel B. Ferrer, Project Manager
Projects Branch 2
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

Enclosures:
As stated

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TELEPHONE CONFERENCE CALL
DIABLO CANYON NUCLEAR POWER PLANT, UNITS 1 AND 2
LICENSE RENEWAL APPLICATION
LIST OF PARTICIPANTS

FEBRUARY 2 AND 4, 2011

PARTICIPANTS:

Nate Ferrer
Kim Green
Allen Hiser
Jim Medoff
Yogen Garud
Terry Grebel
Mike Wright
Kyle Duke
Dan Hardesty
Joon Kang

AFFILIATIONS:

U.S. Nuclear Regulatory Commission (NRC)
NRC
NRC
NRC
Argonne National Laboratory (contractor)
Pacific Gas and Electric Company (PG&E)
PG&E
PG&E
PG&E
PG&E

DIABLO CANYON NUCLEAR POWER PLANT, UNITS 1 AND 2
LICENSE RENEWAL APPLICATION
REQUEST FOR ADDITIONAL INFORMATION
FLUX THIMBLE TUBE INSPECTION PROGRAM

By letter dated December 20, 2010, the staff issued a request for additional information (RAI) regarding certain aspects of the Pacific Gas and Electric's (PG&E or the applicant) Flux Thimble Tube Inspection Program. Because the applicant did not have time to respond to the RAI prior to issuance of the safety evaluation report (SER), the staff identified the issues as an open item in the SER. By letter dated January 12, 2011, the applicant responded to the staff's RAIs. The RAIs and response of interest are provided below along with a discussion of the issue.

Response to RAI B2.1.21-1 (follow up)

In its response, the applicant stated that it performed eddy current tests on thimble tubes from the Unit 1, 3rd refueling outage (RO), and sent the results to Westinghouse as part of the WCAP-12866 program. PG&E stated that based on the WCAP, it is not necessary to add any uncertainty to the eddy current indications, and that "[f]or conservatism, a wall loss of 80% should now be used to determine when a thimble action is required (i.e., repositioned, replaced, etc.)." PG&E considers that its acceptance criteria of 68 percent includes 17.5 percent margin compared to the 80 percent limit recommended in WCAP-12866.

Discussion:

During the calls, the staff explained that the applicant's current procedure for projecting wear rates does not currently reflect an uncertainty term for measurement uncertainty. However, the Westinghouse calculation referenced in the procedure suggests that a factor be included for measurement uncertainty. The staff asked that the applicant revise its procedure to clearly identify whether measurement uncertainty is included. The applicant stated that it will revise the procedure as requested.

Response to RAI B2.1.21-2 (follow up)

2. Describe how the trending of thimble tube wear rates accounts for the possibility of a non-linear or accelerating wear rate.

In its response, PG&E stated that the possibility of non-linear or accelerating wear rates was addressed by STP R-22 FTT enhanced acceptance criteria which it listed in the response. PG&E previously committed to limiting repositioning of any tube to one time, and stated that there are currently no tubes in either unit that have been repositioned more than once.

3. Identify all aging effects and mechanisms that contributed to the degradation in Unit 2 flux thimble tube L13 over time (i.e., as detected during the Unit 2, 11th, 12th, and 13th ROs) and discuss the failure analysis activities that were performed at the site or were contracted out to confirm the apparent cause of the degradation that had occurred in the tube and the rapid progression of the degradation mechanism that lead to the relative rapid leak in 2006 (i.e., the leak occurred within four months of returning to power).

In its response, PG&E stated that it sent a portion of the Unit 2 L13 tube to Westinghouse for destructive analysis. It further stated that "[t]he piece had several wear scars on it but none were through wall. The wear scars conformed to the scars Westinghouse had seen during development of the WCAP-12866. Their determination was that the event was caused by flow induced vibration of the thimble tube against the lower internals, core plate, or bottom nozzle. This was similar to other failures they had previously analyzed."

Discussion:

With regard to request 2, the staff's concern is that the applicant's current procedure may not be conservative in predicting accelerated wear rates that may occur non-linearly. The staff asked the applicant to make wear rate data (predicted and actual) available for audit to confirm if the wear rates are occurring in a linear or non-linear fashion. The applicant agreed to make its wear rate data available to the staff for audit.

With regard to request 3, the staff explained that it could not determine the root cause of the flux thimble tube failure based on the information presented in the January 12th response provided by the applicant. During the call, PG&E explained that it sent a portion of the flux thimble tube to Westinghouse for analysis, and PG&E performed eddy current testing on the portion of the flux thimble tube that failed. Based on the information from Westinghouse and the results of the eddy current test, PG&E determined that the root cause of the failure of the tube was wear, and that no cracks were detected. The staff asked the applicant to amend its previous response to explain this. The applicant agreed to amend its response and explain how it arrived at the conclusion that no cracks occurred.

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/RA/
Nathaniel B. Ferrer, Project Manager
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NAME	IKing	NFerrer	DWrona	NFerrer
DATE	02/07/2011	02/08/2011	03/14/2011	03/17/2011

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Letter to Pacific Gas and Electric Company from Nathaniel B. Ferrer dated March 17, 2011

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