

October 12, 2001

LICENSEE: Pacific Gas and Electric Company

FACILITIES: Diablo Canyon Power Plant, Units 1 and 2

SUBJECT: SUMMARY OF PACIFIC GAS & ELECTRIC (PG&E) MEETING TO DISCUSS TECHNICAL SPECIFICATION (TS) AMENDMENT SUBMITTAL OF FEBRUARY 20, 2001, ON ALTERNATE REPAIR CRITERIA FOR AXIAL PRIMARY WATER STRESS CORROSION CRACKING (PWSCC) AT DENTED INTERSECTIONS IN STEAM GENERATOR TUBING

A meeting with PG&E (the licensee) was conducted on June 28, 2001, at the U.S. Nuclear Regulatory Commission (NRC) to discuss their alternate repair criteria TS amendment request. The slides are available in ADAMS under accession number ML012620476. The list of meeting attendees is enclosed.

The initial TS amendment request was submitted on February 20, 2001. Subsequently, the licensee requested this meeting to discuss the TS amendment request as well as changes they were considering to make to the amendment request. The proposed changes are: (1) the way in which mixed mode indications are addressed, when identified, in terms of condition monitoring and operational assessment activities, and (2) the licensee's interest in making the TS amendment request permanent instead of limited to one-cycle.

Following the licensee's presentation, the staff provided the following feedback to the licensee:

Mixed Mode Indications

- The general proposal appears to potentially be viable and is worth submitting for formal review.
- The licensee should identify the most limiting combination of mixed mode indications and document the basis for determining the limiting combination.
- The licensee should document the rationale for the projection of inner diameter (ID) and outer diameter (OD) circumferential cracks over time in terms of both size and number of cracks.
- The licensee's preliminary estimates of the probability for mixed mode burst pressure reduction is quite low, and essentially is not expected to be identified during inspections. Therefore, the licensee needs to consider a regulatory default condition (e.g., do not continue to implement the alternate repair criteria) if interacting mixed mode indications which significantly reduce the tube burst pressure are identified.

- The staff understands that the leakage model the licensee intends to use for mixed mode flaws which will be submitted at a later date will depend on the "return to null" argument contained in the current WCAP. Therefore, the staff will proceed with reviewing the data supporting the eddy current "return to null" argument. The staff will not review any other data that has been submitted in support of the mixed mode indications until it has been revised and resubmitted by the licensee.
- The licensee stated that the leakage model (condition monitoring and operational assessment) would depend, in part, on the measured depth of the circumferential crack being less than 70 percent maximum depth. The staff indicated that the licensee should document the basis for this value as well as the associated eddy current uncertainties considered when developing this value.

Permanent Alternate Repair Criteria

During the meeting, the licensee identified other outstanding issues that could potentially affect the viability of a permanent amendment. The staff provided the following feedback:

- Issue 1: "Revise WCAP 15128, Revision 2 to include clarifications from March 2, 2000 TVA letter." The licensee indicated that these revisions had been made and were included in WCAP-15573, which is part of the current submittal.

The NRC staff stated that they would review WCAP-15573 to confirm.

- Issue 2: "Consider incorporating refinements into the OA [operational assessment] methodology to permit consideration of a more complete amount of growth rate data from the most recent operating cycle." The licensee indicated that they were not proposing any refinements to the OA methodology due to the impacts on the outage due to the critical path nature of this activity.

The staff understands the licensee's basic concerns, however, the staff feels it is necessary to better understand the critical path nature of this activity before reaching any conclusions on this issue. The staff proposed a future meeting or telecon be arranged to further discuss this issue.

- Issue 3: "Assess the operational assessment methodology performance in predicting flaw size distributions. Assess differences between predicted and actual flaw size distributions in terms of impact on limiting tube burst pressure and total SG [steam generator] accident leak rate."
- Issue 4: "Assess the early experience with number and size of indications not previously detected and the need for accounting for the appearance of such new indications in the operational assessment burst evaluation."

The staff's original intent with these issues was to gain additional information on the performance of the alternate repair criteria methodology before approving the amendment with no restrictions. The licensee proposed to document additional analysis on each of these issues

following each refueling outage, however, they were still interested in pursuing a permanent amendment. Following internal discussions on these issues, the staff indicated that there were two paths the licensee could consider: (1) request approval of the alternate repair criteria with a two-cycle limit, or (2) develop a bistable criteria, to be part of their license, which requires NRC approval to continue to implement the alternate repair criteria for more than one cycle following the outage during which the bistable criteria is exceeded/tripped.

- Issue 5: "Consider refinements to the accident leakage model such that the leak test regression calibration of the deterministic model includes a calibration of the model to predict pop-through of crack ligaments. In addition, refinements to the breakthrough model should be incorporated to ensure that all significant ligaments are included in the leakage assessment." The licensee stated that the refinements would result in a less conservative leakage model and did not intend to incorporate any refinements at this time.

The staff stated that they would revisit this issue and provide feedback to the licensee at a later date regarding their position.

/RA/

Girija S. Shukla, Project Manager, Section 2
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Docket Nos. 50-275
and 50-323

Enclosure: Attendance List

cc w/encl: See next page

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following each refueling outage, however, they were still interested in pursuing a permanent amendment. Following internal discussions on these issues, the staff indicated that there were two paths the licensee could consider: (1) request approval of the alternate repair criteria with a two-cycle limit, or (2) develop a bistable criteria, to be part of their license, which requires NRC approval to continue to implement the alternate repair criteria for more than one cycle following the outage during which the bistable criteria is exceeded/tripped.

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MEETING WITH PACIFIC GAS & ELECTRIC COMPANY

STEAM GENERATOR ALTERNATE REPAIR CRITERIA FOR DIABLO CANYON

JUNE 28, 2001

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