

April 11, 2013

MEMORANDUM TO: File

FROM: James T. Polickoski, Project Manager /RA/
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF MARCH 8, 2013, CONFERENCE CALL
BETWEEN PACIFIC GAS AND ELECTRIC COMPANY AND THE
NUCLEAR REGULATORY COMMISSION REGARDING VERBAL
AUTHORIZATION OF RELIEF REQUEST REP-1 U2,
REVISION 2 (TAC NO. MF0880)

By letter dated March 5, 2013 (Agencywide Documents and Access Management Systems (ADAMS) Accession Number (No.) ML130780374) and supplemented March 7, 2013 (ADAMS Accession No. ML13067A343), Pacific Gas and Electric Company (PG&E, the licensee) requested relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, IWA-4000, at Diablo Canyon Power Plant, Unit 2 (DCPP U2). The licensee requested U.S. Nuclear Regulatory Commission (NRC) approval to use the alternative in Relief Request REP-1, U2, Revision 2, to disposition laminar indications detected in overlaid Alloy 82/182 dissimilar metal welds (DMWs) and similar metal welds associated with Pressurizer nozzles at DCPP U2. Specifically, the licensee stated that restoration to compliance with the above requirements would result in potential hardship or unusual difficulty without a compensating increase in the level of quality and safety; the indications had been evaluated and found to meet design requirements; and this alternative was requested pursuant to Title 10 of the *Code of Federal Regulations*, Part 50 (10 CFR 50) paragraph 55a(a)(3)(ii).

A conference call was held on March 8, 2013, between NRC and licensee staff to discuss this submittal and the results of the NRC staff's review of this relief request. The NRC staff provided a summary of the licensee's submittal below:

In the DCPP U2 2013 refueling outage numbered 2R17 during scheduled and required Inservice Inspection (ISI) Examinations, the licensee detected laminar indications associated with the overlaid DMWs at Pressurizer Safety Nozzles A, B, and C and Spray Nozzle using qualified phased array ultrasonic testing (UT). The licensee did not detect these indications after weld overlay installation in 2008 using qualified conventional UT nor during the follow-on ISI examinations in October 2009. For the 2013 inspection results, the licensee reported that the indications in the weld overlay installed on Safety Nozzles A and B and Spray Nozzle exceeded the acceptance standards for the acceptance examinations in the original relief request REP-1, U2, Revision 1, which the NRC approved on February 6, 2008 (ADAMS Accession No. ML080110001).

The licensee stated in its submittal that performing the required ASME Code repair of the subject overlaid dissimilar metal butt welds would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The licensee identified hardship in the areas of radiological dose, industrial safety, and in the potential reduction in the overall effectiveness of the original weld overlay mitigation technique in that additional grinding to remove these indications and re-welding could cause a higher likelihood of introducing more flaws.

In lieu of removing the laminar indications, the licensee performed a flaw evaluation and stress analysis demonstrating that the overlaid DMWs are acceptable for continued operation. The licensee performed the flaw evaluation of the laminar indications in Pressurizer Safety Nozzle A, Safety Nozzle B, Safety Nozzle C, and the Spray Nozzle based on the requirements of the ASME Code, Section XI, IWB-3600, assuming planar flaws. The licensee also performed a stress analysis demonstrating that the interface length between the weld overlay and the nozzle/pipe base metal is sufficient in light of laminar indications using the rules of the ASME Code, Section III, NB-3227.2. As documented in its submittal, the licensee committed to perform three successive examinations over the next three ISI periods of Safety Nozzles A, B, and C and the Spray Nozzle to monitor the growth, if any, of the laminar indications in accordance with the ASME Code, Section XI, IWB-2420(b). The three successive examinations would verify the validity of the above crack growth and stress analyses and monitor the laminar indications.

After reviewing the above details within the licensee submittal, the NRC staff summarized the results of its technical review as follows:

The NRC found that the introduction of additional cold work and changing of the weld residual stress profile of the weld overlay mitigation would constitute an unusual difficulty, if the indications were demonstrated to have insignificant challenge to the structural integrity of the subject welds. The NRC staff found that the laminar indications detected at Pressurizer Safety Nozzle A, Safety Nozzle B, Safety Nozzle C, and the Spray Nozzle do satisfy the acceptance standards of Table IWB-3514-3 and IWB-3640 of Section XI of the ASME Code. The NRC staff noted that the laminar flaws are not open to pipe surface and, therefore, will not grow due to environmental effects. The NRC staff found that the weld overlay on each affected nozzle has been verified to have sufficient length to transfer loads back to the base metal without exceeding allowable primary shear stresses of the ASME Code, Section III, NB-3227.2.

In completing its regulatory review of this request, the NRC staff noted that NRC Licensing Procedure LIC-102, Revision 2, "Relief Request Reviews," dated August 24, 2009 (ADAMS Accession No. ML091380595), permits that, on rare occasions, the NRC staff may grant verbal authorization as an alternative under 10 CFR 50.55a(a)(3) due to unforeseen circumstances. The NRC staff determined that the need exists for verbal authorization for this request based on the circumstances and the safety evaluation not yet being formally documented. Based on the above, the NRC staff provided verbal authorization as follows:

The NRC staff determined that the licensee's proposed alternative provides reasonable assurance of quality and safety in regards to the structural integrity and leak tightness of the subject welds for one cycle of operation. The NRC staff concluded that complying with the specified ASME Code requirement and previously granted alternative relief request, REP-1 U2,

Revision 1, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concluded that for one fuel operating cycle, the licensee had adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(ii) and is compliant with the requirements of the ASME Code, Section XI, for which relief was not requested. Therefore, on March 8, 2013, the NRC authorized use of the Relief Request REP-1 U2, Revision 2, at the DCPD Unit 2, for the fuel cycle following the 2013 refueling outage, 2R17. All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remained applicable, including third-party review by the Authorized Nuclear Inservice Inspector. This verbal authorization did not preclude the NRC staff from asking additional clarification questions regarding the subject relief request while preparing the subsequent written safety evaluation.

In anticipation of follow-on licensee submittals requesting relief authorization for additional DCPD U2 operational cycles, the NRC staff discussed needed technical content in these future submittals. First, the NRC staff stated that the licensee will need to demonstrate the effectiveness of the ultrasonic examination techniques used to examine structural weld overlays. Secondly, the NRC staff indicated the licensee would need to perform a finite element analysis, modeling the voids in the weld overlay where the laminar flaws exist, to support the conclusion that the laminar flaws will not challenge the structural integrity of the subject overlaid DMWs for the remaining service life of the subject overlaid welds.

The NRC staff stated it will issue a written safety evaluation within 150 days of this call providing final written authorization for this relief request. A list of the participants of the call is enclosed.

Docket No. 50-323

Enclosure:
List of Participants

Revision 1, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concluded that for one fuel operating cycle, the licensee had adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(ii) and is compliant with the requirements of the ASME Code, Section XI, for which relief was not requested. Therefore, on March 8, 2013, the NRC authorized use of the Relief Request REP-1 U2, Revision 2, at the DCP Unit 2, for the fuel cycle following the 2013 refueling outage, 2R17. All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remained applicable, including third-party review by the Authorized Nuclear Inservice Inspector. This verbal authorization did not preclude the NRC staff from asking additional clarification questions regarding the subject relief request while preparing the subsequent written safety evaluation.

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LIST OF PARTICIPANTS

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AUTHORIZATION OF RELIEF REQUEST REP-1 U2, REVISION 2

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Enclosure