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February 12, 2004

PG&E Letter DCL-04-016

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

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
Inservice Inspection Relief Request for ASME Code Case N-579

Dear Commissioners and Staff:

Enclosed for your information is Inservice Inspection (ISI) Relief Request #REP-1 regarding the inclusion into the Diablo Canyon ISI Program Plan the use of ASME Code Case N-579, "Use of Nonstandard Nuts, Class 1, 2, 3, MC, CS Components and Supports Construction Section III, Division 1." Code Case N-579 was approved for use in Regulatory Guide 1.84, "Design, Fabrication, and Materials Code Case Acceptability, ASME Section III," Revision 32, dated June 2003.

Relief Request #REP-1 documents the specific details of use for the Excess Letdown Heat Exchanger application during the Unit 1 twelfth refueling outage currently scheduled to begin in March 2004.

Sincerely,

James R. Becker

ddm/469/A0596944
cc: Diablo Distribution
cc/enc: Bruce S. Mallett, Region IV
David L. Proulx, Senior Resident Inspector
Girija S. Shukla, NRR
State of California, Pressure Vessel Unit

A047

INSERVICE INSPECTION (ISI) RELIEF REQUEST #REP-1

System/Component for Which Relief is Requested

Excess Letdown Heat Exchanger flange replacement bolting (ASME Class 2).

ASME Section III Code Requirements

Code Case N-579, "Use of Nonstandard Nuts, Class 1, 2, 3, MC, CS Components and Supports Construction Section III, Division 1," approval documented in Regulatory Guide 1.84, "Design, Fabrication, and Materials Code Case Acceptability, ASME Section III," Revision 32, dated June 2003.

Code Requirement from Which Relief is Requested

Relief is requested from use of SA-194 material specified in Code Case N-579 for the nonstandard hydraulic nuts, conformance of thread configuration to ASME B1.1, and from involvement of a "Certificate Holder."

Basis for Relief Request

The excess letdown heat exchanger flange is located in a locked high radiation area inside the regenerative heat exchanger compartment. The Unit 1 excess letdown heat exchanger flange has been a slow but chronic source of boric acid leakage inside containment. The current joint design incorporates an unusual tapered geometry and a series of spacer washers that are very difficult to maintain. Prior efforts to stop the leakage with gasket replacement and bolt torque adjustments have not been successful and have caused unnecessary radiation exposure to maintenance personnel. The joint is being redesigned to eliminate the tapered geometry and spacer washer configuration, and hydraulic nuts are specified to assure consistent loading around the joint as well as to reduce personnel exposure by reducing maintenance time in the area. SA-540 Grade B23, which is referenced in Section III paragraph NC-2128(a) as an acceptable material type for Class 2 bolting, has sufficient strength for the application and will be used instead of SA-194 for manufacture of the hydraulic nuts.

Code Case N-579 requires the screw threads of nonstandard nuts be manufactured to meet the requirements for threads in ASME B1.1. While the inside threads of the hydraulic nuts conform to ASME B1.1, the outside threads have a proprietary thread design developed by the vendor, Nova-Technofast, which minimizes thread deflection between the nut and lock ring and thereby minimizes loss of pre-load.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #REP-1

Basis for Relief Request, Continued

Code Case N-579 also assigns responsibilities to a "Certificate Holder" assuming overall responsibility for the components or supports using the nonstandard nuts. In the case of the excess letdown heat exchanger, PG&E is the entity having overall responsibility in lieu of a "Certificate Holder" and registered professional engineers on the utility staff will perform these functions.

Proposed Alternative

SA-540 Grade B23 material meeting the requirements for bolting material in Section III, paragraph NC-2128(a), will be used to fabricate the hydraulic nuts for the excess letdown heat exchanger flange instead of the SA-194 material specified in Code Case N-579. The hydraulic nuts will incorporate a proprietary outside thread design providing minimized thread deflection to maximize retained load and allow lower preload to be used in contrast to standard threads manufactured in accordance with ASME B1.1. PG&E registered professional engineers acting under the licensee quality assurance program will assume the responsibilities assigned to the "Certificate Holder" in Code Case N-579.

Justification for Granting of Relief

Use of SA-540 Grade B23 material as referenced by Section III paragraph NC-2128(a) in lieu of the SA-194 material specified in Code Case N-579 will assure adequate strength in the joint. The special thread design of the outside threads of the hydraulic nut minimizes thread deflection and loss of preload. Use of these nonstandard nuts is expected to eliminate leakage from the joint while reducing radiation exposure to maintenance personnel. These advantages, and performance of "Certificate Holder" responsibilities by PG&E registered professional engineers provides an equivalent level of quality and safety in accordance with 10 CFR 50.55a(a)(3)(i).

Implementation Schedule

This relief request will be implemented during the Unit 1 and Unit 2 second ISI intervals. This is a new request based on approved Code Case N-579.