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SUBJECT: Confirms 961002 telecon re Mode 3 testing of MSSVs. PG&E clarified definition of sticking valves & believes it was caused by galling of disc & nozzle seats & subsequent microbonding of galled matl. Addl Mode 3 testing unwarranted.

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Operations and Plant Manager

October 29, 1996

PG&E Letter DCL-96-203



U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
Main Steam Safety Valve Testing Commitments

References:

Licensee Event Report (LER) 1-96-003-00 (PG&E letter DCL-96-095), dated April 25, 1996, "Technical Specification 3.7.1.1 Not Met During Testing of MSSVs Due to Setpoint Drift; Unit 1 MSSVs Outside Design Basis Due to Setpoint Drift"

PG&E letter DCL-96-167, dated August 9, 1996, "Reply to Notices of Violation and Notice of Deviation in NRC Inspection Report Nos. 50-275/96-12 and 50-323/96-12"

Dear Commissioners and Staff:

This is to confirm the October 2, 1996, telephone conversation between PG&E and the NRC staff regarding Mode 3 (Hot Standby) testing of the main steam safety valves (MSSVs). The above referenced letters state that PG&E would test the MSSVs in Mode 3 after heat-up from Mode 5 (Cold Shutdown) as part of its Augmented MSSV Testing Program. The purpose of the Augmented MSSV Testing Program was to provide data to determine plant conditions and operating time that may influence a sticking phenomenon that occurs between the valve disc and the disc seating surface that results in high initial lifts.

During the conversation with the NRC, PG&E clarified the definition of sticking valves for the purpose of the Mode 3 testing data review. PG&E conservatively considered that a valve with an initial lift 2 percent greater than the second lift constituted a sticking valve. PG&E believes the cause of the sticking phenomenon resulted from galling of the disc and nozzle seats and subsequent microbonding of the galled material.

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The intent of the testing in Mode 3 was to determine if sticking was occurring during the heat-up to Mode 3, to break any bonds that might have occurred, and to thereby allow the MSSVs to operate as designed. Recent testing of the MSSVs has shown there are three factors involved in formation of the bonding: galling during thermal contraction, elevated temperature while under high seating forces, and time. PG&E believes that operating time at power is a key factor in the formation of the bonding.

During the Unit 2 seventh refueling outage which commenced on April 6, 1996, the MSSVs were removed and sent to the Westinghouse Western Service Center where they were disassembled, refurbished, re-assembled, tested, and reset as necessary on live steam. The valves were returned to the site and re-installed in preparation for plant heat-up.

On May 18 and 19, 1996, with the plant in Mode 3 after heat-up from Mode 5, all 20 valves were tested in accordance with the MSSV Augmented Testing Program. PG&E observed no evidence of sticking during the testing.

Approximately twenty days later, on June 7, 1996, during Mode 1 (Power Operation), PG&E tested the 10 valves on Steam Leads 2-3 and 2-4 and again observed no evidence of sticking.

On August 7 and 8, 1996, PG&E again tested all 20 Unit 2 valves. This time, 6 valves were found to be sticking on Steam Leads 2-1 and 2-2. The 10 valves on Steam Leads 2-1 and 2-2 had not been exercised since the Mode 3 testing on May 18 and 19, 1996, a period of approximately 81 days. In comparison, the 10 valves on Steam Leads 2-3 and 2-4 which were exercised in Mode 1 on June 7, 1996, twenty days after heat-up, showed no evidence of sticking.

PG&E's evaluation based on current test data:

1. Sticking appears to occur between 20 and 81 days after return to operating temperatures.
2. Testing the valves in Mode 1, approximately 20 days after return to operating temperatures appears, to inhibit the formation of bonding for at least 81 days after return to operating temperatures.
3. Valves tested in Mode 3 after return from Mode 5 provided no indication of sticking nor did the testing inhibit the formation of the bond.



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October 29, 1996

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Considering the foregoing conclusions and the increased risks of valve leakage and the associated degradation of liftpoint stability, PG&E has determined that additional Mode 3 testing is not warranted. PG&E will test all 20 valves on the applicable unit within 20 to 30 days upon the unit entering Mode 1 from a Mode 4 condition. PG&E will continue the MSSV Augmented Test Program until the analysis of the root cause of the bonding phenomenon is completed and corrective actions are implemented.

Sincerely,



Robert P. Powers

cc: Steven D. Bloom
L. J. Callan
Matthew G. Coward
Christopher R. Groff
Stanley C. Ketelsen
Kenneth E. Perkins
Michael D. Tschiltz
Diablo Distribution
INPO

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Commitment Tracking Information
(Ref. XI1.ID1, section 5.2.2.c)

Document Title: Main Steam Safety Valve Testing Commitments (DCL-96-203)

Document Date: September 30, 1996

XI1.1D1 Item	Response
Clear identification of commitment	PG&E will test all 20 valves on the applicable unit within 20 to 30 days upon the unit entering Mode 1 from a Mode 4 condition. PG&E will continue the MSSV Augmented Test Program until the analysis of the root cause of the bonding phenomenon is completed and corrective actions are implemented.
Individual and department assigned responsibility	Matt Coward (Secondary Engineering)
Tracking AR or NCR, and action number(s)	NCR N0001327, Action No. 20
ECD and type (firm or target commitment date)	12/31/97 (Target)
Cost assessment: 1) Estimated cost to implement commitment: 2) Nature of cost:	<input checked="" type="checkbox"/> Less than \$50K <input type="checkbox"/> Between \$50K and \$250K <input type="checkbox"/> Greater than \$250K <input type="checkbox"/> Capital <u>or</u> <input checked="" type="checkbox"/> O and M <input type="checkbox"/> One time <u>or</u> <input checked="" type="checkbox"/> Recurring

