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November 4, 1992

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

Gentlemen:

Subject: Docket No. 50-206  
Reply to a Notice of Violation  
San Onofre Nuclear Generating Station, Unit 1

Reference: Letter from Mr. S. A. Richards (USNRC) to  
Harold B. Ray (SCE), dated September 30, 1992

The referenced letter forwarded a Notice of Violation resulting from the NRC inspection conducted from July 17, 1992 through August 26, 1992, at the San Onofre Nuclear Generating Station, Units 1, 2, and 3. This inspection was documented in NRC Inspection Report Nos. 50-206/92-23, 50-361/92-23, and 50-362/92-23.

In accordance with 10 CFR 2.201, the enclosure to this letter provides the Southern California Edison (SCE) reply to the Notice of Violation.

If you have any questions regarding SCE's response to the Notice of Violation or require additional information, please call me.

Sincerely,

*H E Morgan*

Enclosure

cc: J. B. Martin, Regional Administrator, NRC Region V  
J. O. Bradfute, NRC Project Manager, San Onofre Units 1  
C. W. Caldwell, NRC Senior Resident Inspector, San Onofre  
Units 1, 2, & 3  
R. F. Dudley, Section Chief, Non-Power, Decommissioning &  
Environmental Project, Directorate of Reactor Project-  
3, 4 & 5

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ENCLOSURE

Reply to a Notice of Violation

The enclosure to Mr. Richards' letter dated September 30, 1992, states in part:

"10 CFR Part 50, Appendix B, Criterion XVI, requires, in part, that measures shall be established to assure that conditions adverse to quality such as deficiencies, deviations, and nonconformances are promptly identified and corrected.

"Contrary to the above, as of May 19, 1992, the licensee had not taken adequate actions over a three month period to correct nitrogen leakage from Unit 1 safety injection valve HV852B, a condition adverse to quality. The failure to take adequate corrective actions eventually resulted in the valve degrading to an inoperable condition.

"This is a Severity Level IV violation (Supplement I)."

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**RESPONSE****1. REASON FOR VIOLATION**

Our assessment has concluded that the reasons for the violation were: 1) inadequate acceptance criteria for accumulator charging, 2) errors in Edison's assessment of the problem, and 3) the design of the HV852B actuator.

**Inadequate Acceptance Criteria for Accumulator Charging**

Edison performed the charging of the HV852B accumulators without having appropriate acceptance criteria to ensure the accumulator pistons were properly aligned. Edison incorrectly adapted charging criteria from the vendor manual which was intended to provide procedures for charging the accumulators after maintenance when the accumulators are initially depressurized. This information was not intended to provide direction for on-line recharging of the accumulators when they had already been charged.

**Errors in Assessment of Valve Operability**

Edison did not sufficiently understand the design of the HV852B dual accumulator actuators to recognize the vulnerability of the valve's operability due to accumulator piston mis-positioning. While Edison recognized that the pistons may have been mis-positioned, we erred in our assessment of the impact this would have on valve operability.

**Inadequate Valve Design**

The design of the dual piston accumulators does not have nitrogen supply interconnections or other design features to equalize the nitrogen pressure over each piston. Unequal leakage of nitrogen from either side of the accumulator could cause actuator accumulator piston mis-positioning.

Information on the valve design did not highlight this vulnerability, and the design did not include any means of verifying the accumulator piston positions.

**2. CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND RESULTS ACHIEVED**

Corrective actions taken to date include: 1) developing a method for determining accumulator piston position, repairing HV852B, and confirming its operability; 2) revising the accumulator charging procedure to include guidance for verifying accumulator piston position; and 3) verifying the operability of all Unit 1 valves with pneumatic/hydraulic actuators similar to HV852B.

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Separately, Edison has also recently implemented organization changes that will provide increased attention to emergent issues.

#### Repair of the Accumulators

On May 19, 1992, following identification of the mis-positioned pistons, HV852B was repaired and a leak check of the valve actuator was successfully completed. Edison developed an Ultrasonic Testing (UT) examination method to verify piston position on May 19, 1992, when the positions of the pistons in the HV852B accumulators were measured directly. Edison correlated the direct measurement of piston positions with UT examination results obtained prior to opening the accumulators. UT examination of the accumulator pistons after they were repositioned verified that the valve was operable.

#### Procedure Enhancements

The accumulator charging procedure was revised to add controls to compensate for dual accumulator design vulnerabilities. These controls include use of the newly developed UT process to verify the post charging position of accumulator pistons to ensure that the operability of the valves is adequately assessed and does not degrade due to on-line charging or due to uneven leakage. These controls were initially implemented by management direction beginning on May 19, 1992, and were incorporated into the procedure on October 27, 1992.

#### Engineering Evaluation of Similar Unit 1 Valve Actuators

An engineering evaluation of all Unit 1 safety related valves with pneumatic/hydraulic actuators similar to HV852B has been completed. The positions of pistons on valves with similar actuators were also verified using the method discussed above to ensure operability.

#### Organization Changes

We have recently implemented changes in the Station Technical Department which will have an impact on evaluations of future emergent issues. These changes include the addition of an additional level of management personnel. While these changes were not implemented as a direct result of this event, they will assure that additional management attention is given to emergent issues in the future.

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**3. CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS**

An engineering evaluation of on-line charging requirements for all Units 2 and 3 plant safety related valves with actuators similar to HV852B will be performed. This evaluation will determine which valve actuators require post charging piston position verification to ensure operability. This evaluation will be completed by November 15, 1992, and corrective action will be taken as appropriate.

**4. DATE WHEN FULL COMPLIANCE WAS ACHIEVED**

Full compliance was achieved on May 19, 1992, when the following was completed: 1) HV852B was repaired and successfully leak checked; 2) the accumulator pistons were verified to be returned to their balanced positions; and 3) the valve was declared operable.