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March 10, 1986

U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region V
1450 Maria Lane, Suite 210
Walnut Creek, California 94596-5368

Attention: Mr. J. B. Martin, Regional Administrator

Dear Sir:

Subject: Docket No. 50-206
IE Inspection Report 50-206/85-37
Response to Notice of Violation
San Onofre Nuclear Generating Station, Unit 1

Mr. A. E. Chaffee's letter of January 27, 1986, forwarded a Notice of Violation resulting from the inspection conducted during the period of November 12-15 and December 9-18, 1985, by Mr. P. P. Narbut. Enclosure 1 to this letter provides the Southern California Edison Company response to the Notice of Violation. As discussed with Mr. P. P. Narbut of your staff on February 19, 1986, this response was delayed in order to provide a complete response.

Mr. Chaffee's letter of January 27, 1986, also directed our attention to two important general areas discussed in the report: procedural compliance at the implementation level and maintenance personnel awareness of design issues. Although no additional response to these issues was requested, we have included as Enclosure 2 our review and assessment of these issues.

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Mr. J. B. Martin

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March 10, 1986

I trust the enclosures respond adequately to all aspects of the violation.

If you have any questions or if we can provide additional information, please let me know.

Sincerely,

Kenneth P. Bushin

Enclosures (As stated)

cc: F. R. Huey (USNRC Senior Resident Inspector, Units 1, 2&3)

ENCLOSURE 1

Response to the Notice of Violation contained in the Enclosure to Mr. A. E. Chaffee's letter of January 27, 1986.

The enclosure to Mr. A. E. Chaffee's letter of January 27, 1986, states:

"San Onofre Unit 1 Technical Specifications Paragraph 6.8.1 states in part:

'Written procedures and administrative policies shall be established, implemented and maintained that meet or exceed the requirements and recommendations of Sections 5.1 and 5.3 of ANSI N18.7-1976, Administrative Controls for Nuclear Power Plants; Appendix 'A' of USNRC Regulatory Guide 1.33, Rev. 1, Quality Assurance Program Requirements (Operation).'

"ANSI N18.7-1976 Section 5.3 states in part:

'The administrative control and quality assurance program shall be carried out throughout plant life in accordance with written procedures.'

"San Onofre Maintenance Procedure S01-I-2.4 Revision 4, 'Valve, Main Steam Safety, Pressure Setpoint Check and Adjustment' dated October 26, 1984, requires in paragraph 6.2.2.5 that the as-found valve setpoint be determined and documented.

"Contrary to the above, on November 14, 1985 (sic), during setpoint testing of the ten Unit 1 Main Steam Safety Valves, the as-found setpoint pressure was not documented for six of the ten valves.

"This is a Severity Level V Violation (Supplement I) applicable to Unit 1."

RESPONSE

1. Corrective Steps Which Have Been Taken and the Results Achieved

The subject main steam safety relief valves were tested in November 1984, in accordance with Procedure S01-I-2.4, "Main Steam Safety Valve Setpoint Check." As stated in the Notice of Violation, personnel performing S01-I-2.4, step 6.2.2.5, did not document the "As-Found" condition. The procedure was apparently misunderstood as a result of ambiguities in the procedure with regard to whether all safety valve lifts should be recorded or only the final lift after any adjustments were performed. The procedure was intended to be explicit and result in the "As-Found" condition being documented. SCE investigated this matter and concluded that since craft, QC, and Codes personnel consistently misunderstood the intention to record the "As-Found" condition, the procedure should be enhanced.

1. Corrective Steps Which Have Been Taken and the Results Achieved (Continued)

Although Procedure S01-I-2.4 Revision 5, issued on December 14, 1985, (prior to the exit conference addressing this violation) includes the following instructions:

"6.3 'Verification of Main Steam Safety Valve Setpoints'

6.3.1 Record the starting date and time on the M.O.

NOTE: Record lift data on Attachment 5 of all lifts attempted,"

further clarification was provided in TCN 5-2, issued on February 7, 1986, where this same step was expanded to read:

- "NOTES: 1. The initial lift attempt is defined as the 'As-Found Data.' This data shall be recorded in the As-Found Data Block of Attachment 5.
2. Record all additional lifts in the additional lifts block of Attachment 5."

Attachment 5, the "Hydroset Data Sheet" (discussed above), was also refined in this TCN. The form is now distinctly separated into two parts: "As Found Data - Initial Lift;" and "Additional Lifts."

With regard to the personnel aspects of this violation, as discussed in Enclosure 2, SCE has recognized that procedures and training must be coupled with a concept of the "physical context" within which work is performed. In the "physical context" of safety valves, key personnel would have an overall picture of: the safety system function/purpose; the importance each surveillance has in ensuring the operation of the safety valves; the purpose of each surveillance in achieving code and regulatory compliance; the significance and importance of the steps in a procedure; and, an appreciation for the test results or material conditions observed.

In January 1986, SCE initiated programs to establish a "physical context" for plant systems. A description of this concept was presented in the letter, Mr. Harold B. Ray (SCE) to Mr. J. B. Martin (NRC), dated November 6, 1985.

SCE has assessed the data obtained from the November 14, 1985 test. Utilizing appropriate factors obtained from the valve vendor, the "As-Found" condition of the valves can be estimated. Using these factors, the energy removal capability of the ten (10) relief valves is estimated to be within the capability assumed in the safety analysis.

2. Corrective Steps Which Will Be Taken to Avoid Further Items of Noncompliance

Valve testing associated with S01-I-2.4 can be performed only in Mode 3, "Hot Standby", when appropriate operating temperatures and pressures are available. Therefore, during the next power ascension, the Main Steam Safety Valves will be tested and the "As-Found" and "Additional lifts" results will be properly recorded for the subject main steam safety relief valves, in accordance with step 6.3.1.

To ensure a generic resolution of this issue, a review of all San Onofre safety relief valve testing procedures has been conducted. Seven additional procedures, three (3) for Unit 1 and four (4) for Units 2 and 3, have been identified as requiring revisions similar to those for S01-I-2.4. Currently, these procedure revisions are scheduled to be completed by April 30, 1986.

On another item associated with inspection report, 50-206/85-37, during performance of the valve testing associated with S01-I-2.4, other data relating to the test gauges used, was not being recorded. During our investigation into the procedure discussed above, we have concluded that a condition existed in Procedure S01-I-2.4 which resulted in the test gauge calibration not having been verified (correction tested) before and after the valve setpoints were checked or adjusted in accordance with ASME Code requirements. Therefore, appropriate changes will be made to the Unit 1, 2 and 3 procedures noted above to ensure pre and post setpoint test gauge calibration reverification. A Corrective Action Request (CAR) has been issued to track the evaluation of maintenance procedures for Units 1, 2 and 3 that address the setpoint check and adjustment of safety relief valves to assure that they generically contain the requirements for pre-test and post-test calibration verification of test gauges.

The procedural enhancements identified above will be incorporated into the training of maintenance personnel who perform these tests to emphasize the importance of recording "As-Found" and "Additional lifts" results. As discussed in Section 1 above, the physical context of systems important to safety is being developed in response to IE Report 50-206/85-33.

3. Date When Full Compliance Will Be Achieved

Full compliance for recording the "As-Found" condition of the Unit 1 main steam safety relief valves will be achieved prior to entry into Mode 2.

ENCLOSURE 2

Mr. A. E. Chaffee's letter of January 27, 1986, states in part:

"Your attention is also directed to two important general areas discussed in this report: (1) the necessity to ensure procedure compliance at the implementation level as discussed in paragraph 3.a using an example of main steam safety valve test documentation and (2) the necessity to ensure maintenance personnel awareness of design issues as discussed in paragraph 5.b using the example of pipe clamp bolting torque values. No additional response to these issues are required since your expected response to the Unit 1 auxiliary feedwater pump violation of report 50-206/85-33 should address these issues."

This enclosure provides Southern California Edison's review and assessment of these issues, as discussed in IE Report 50-206/85-37.

1. PROCEDURAL COMPLIANCE

IE Report 50-206/85-37, Section 3.a, states in part:

"The inspector examined the applicable test procedure which had been revised to ensure as-found settings would be recorded. The procedure, S01-I-2.4, Valve Main Steam Safety, Pressure Setpoint Check and Adjustment, Revision 4, dated October 26, 1984 was revised to clearly require a sequence of determining the setpoint, recording the data, comparing the data with acceptance criteria, adjusting valve (if required) and then repeating the cycle until three acceptable tests had been performed.

"The inspector reviewed the main steam safety valve test data taken using the procedure during the return to service in 1984 to determine whether the as-found relief point pressures were taken.

"Contrary to the procedure requirements, the as-found relief point pressures were not recorded for 6 of the 10 main steam safety valves, RV-2, 3, 4, 6, 8 and 10. The data did show that adjustments of up to 3 flats of the adjustment screw were necessary to bring some of the valves into the proper set pressure tolerances. Licensee personnel were not able to provide an estimate of how much out of tolerance the valve relief pressures were in the as-found condition.

"The failure to follow procedural requirements to record as-found main steam safety relief valve set pressure is considered an apparent violation of NRC requirements (Violation 50-206/85-37-01).

"At the exit interview on December 18, 1985, the inspector discussed the apparent violation with licensee management. It was noted that although proper management policies and adequate procedures were in place in the circumstances of this violation, it appeared that involved personnel failed to adequately implement those policies and procedures. This is considered similar to the circumstances surrounding the auxiliary feedwater pump violation described in report 50-206/85-33.

1. PROCEDURAL COMPLIANCE (Continued)

"In this case the procedure was performed by and the resultant improperly recorded data was witnessed and signed for by a maintenance mechanic, a quality control inspector, and a codes engineer. Additionally, the improperly recorded data were subsequently reviewed and approved by a maintenance supervisor, a quality assurance engineer, and a senior reactor operator. The fact that multiple reviews failed to note the lack of procedure compliance strongly indicated a need for additional emphasis focused at the implementation level of all involved organizations."

RESPONSE

As discussed in Enclosure 1, SCE conducted a review of the failure to record the "As-Found" condition of the main steam safety valves. Interviews with craft, quality control and Codes personnel established that the procedure was consistently misunderstood by personnel responsible for the performance and review of this surveillance activity. Personnel performing/reviewing the tests believed that procedures required that the valves be "lifted," and adjusted, as necessary, until three (3) acceptable "lifts" were obtained, and to document these three (3) final lifts. Therefore, personnel recorded on the data forms the three (3) acceptable "lifts" and the adjustments. As discussed in Enclosure 1, enhancements to S01-I-2.4 have been made to ensure the "As-Found" condition is recorded. Further, similar procedures at Units 1, 2 and 3 will be revised with corresponding enhancements.

However, personnel error also contributed to this event and SCE concurs with the NRC that proper management policies and adequate procedures might still result in personnel failing to adequately implement those policies/procedures and that additional emphasis is needed at the implementation level. As discussed in the letter, Mr. Harold B. Ray (SCE) to Mr. J. B. Martin (NRC), dated November 6, 1985, SCE believes a "physical context" must be maintained for work on plant systems, such that key personnel (e.g., maintenance supervisors, maintenance planners) fully appreciate the significance of factors, such as material condition and expected/observed surveillance results, in establishing code and regulatory compliance and design/operational readiness.

This program will supplement existing management and supervisory surveillance and provide for more systematic oversight of the plants day-to-day operation.

2. AWARENESS OF DESIGN ISSUES

IE Report 50-206/85-37, Section 5.b, states in part:

"This item involved pipe clamps manufactured by NAVCO and supplied with snubber assemblies made by Pacific Scientific. The problem dealt with pipe clamps which did not clamp the pipe with sufficient force and could slip in service. The NRC was notified by Pacific Scientific of the

Part 21 condition in a letter dated August 23, 1985. The licensee had been notified in a letter dated July 19, 1985. The corrective action recommended replacing the clamp bolting material with a higher strength material and increasing the installation torque values.

"Several problems were identified as a result of the inspector's examination of licensee actions for this item:

The ISEG group performed an evaluation of the Part 21 report and reached an improper conclusion. Specifically, the conclusion reached did not recognize the fact that new bolting material was required. This was in part due to the fact that the Pacific Scientific letter to the licensee was somewhat obscure in stating that new bolting material was required.

The maintenance procedure group did not recognize the need or intend to obtain design engineering concurrence when changing the procedure torque values for the pipe clamp bolting material. Increasing bolt torque values could exceed design code allowable stresses and such a decision should be made by the design organization.

"These areas were discussed with licensee management at the exit interview on December 18, 1985. The inspector was informed that the maintenance procedure would be revised to require new bolting material and the procedure would be reviewed by a responsible design organization. The inspector noted that there may be a broader problem in maintenance personnel awareness of when they are broaching design issues as evidenced by this occurrence and by the modification of the auxiliary feedpump oil sight glass in Unit 1 discussed in report 50-206/85-33."

RESPONSE

SCE has reviewed the subject evaluation performed by the Independent Safety Engineering Group (ISEG) on the NAVCO pipe clamps. We have concluded the review performed by ISEG was extensive and adequate, and included repeated consultations with the vendor.

ISEG's evaluation was initiated on September 3, 1985, upon receiving the initial July 19, 1985 notification. In the initial July 19, 1985 notification, and in subsequent communication with the vendor, no requirements for immediate bolt replacement were presented. On the contrary, the vendor stated in both the initial notification and subsequent communication with ISEG, that if a problem was observed with clamp slippage, i.e., relaxation due to stretching, then replacement with upgraded bolts may be required. Upon confirming the vendor's "action plan," which specified case-by-case replacement of problem bolts, ISEG went beyond this requirement and requested that upon removal of the subject clamps during normal maintenance, the equipment be replaced with the upgraded bolts and nuts.

RESPONSE (Continued)

Therefore, Edison believes that ISEG performed a valid evaluation and conservatively set forth bolt replacement criteria in subsequent discussions with the pipe clamp vendor.

With respect to torque values, and based on ISEG's recommendations, Procedure S0123-I-6.11 was revised. The torque values were not increased in this revision from those previously in use, nor were they recommended to be changed by ISEG. In this instance, the 20 ft-lb value utilized in the revised procedure resulted in a lower torque and less bolt stress than the imprecise "turn of the nut" method previously in use in the procedure. The 20 ft-lb value, therefore, was well within stress levels of the original design and installation and does not constitute a change in design. This was verified by the vendor in October 1985. The revision to the procedure only clarified the existing procedure, to ensure proper clamp installation and adequate understanding of the requirement to upgrade the bolts and nuts during normal maintenance. In the event the torquing values had been changed and the vendor had not verified the new values, or if the torque values were not changed and the vendor had not verified the existing values, then a station engineering/design review would have been requested by ISEG as required by Procedure E&C 40-9-19.

Based on the above, SCE feels that an adequate review was performed on this subject by the ISEG group and that proper station action was taken to ensure all vendor's recommendations were met.

We believe this event is not indicative of a broader problem in maintenance personnel awareness of design issues. On the contrary, the evaluation and subsequent corrective actions were both proper and complete. This resulted in a procedure that not only addresses the vendor's requirements, but goes beyond them to ensure the design function of the pipe clamps.