

U.S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-275/84-14

Docket No. 50-275

License No. DPR-76

Licensee: Pacific Gas and Electric Company
77 Beale Street, Room 1435
San Francisco, California 94106

Facility Name: Diablo Canyon Nuclear Plant - Unit 1

Enforcement Conference held at: Region V office, Walnut Creek, California

Conference conducted on: May 1, 1984

Prepared by:

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G. H. Hernandez, Project Inspector

5/22/84
Date Signed

Approved by:

T. W. Bishop
T. W. Bishop, Director
Division of Reactor Safety and Projects

5/22/84
Date Signed

Summary:

An Enforcement Conference was held on May 1, 1984. The enforcement conference discussed the results of a special inspection regarding a Unit 1 operational event involving the valving-out of a flow path for both centrifugal charging pumps.

DETAILS

1. Enforcement Conference Participants

a. Pacific Gas and Electric Company

G. A. Maneatis, Executive Vice President
J. O. Schuyler, Vice-President, Nuclear Power Generation
J. D. Shiffer, Manager, Nuclear Plant Operations
R. Patterson, Plant Superintendent

b. U. S. Nuclear Regulatory Commission

J. B. Martin, Regional Administrator
T. W. Bishop, Division Director
L. W. Shollenberger, Regional Counsel
H. L. Canter, Engineering Section Chief
M. M. Mendonca, Senior Resident Inspector
G. H. Hernandez, Project Inspector
T. M. Novak, Assistant Director for Licensing (NRR)

2. Enforcement Conference

On May 1, 1984, an Enforcement Conference was held at the NRC Region V office in Walnut Creek, California with the individuals identified in paragraph 1. The conference was held because of concern regarding the apparent failure of the licensee's staff to exhibit an acceptable degree of awareness of the facility's Technical Specifications. On April 6, 1984, the plant staff failed to recognize that a open flow path for the Emergency Core Cooling System (ECCS) to the reactor primary cooling system did not exist. This failure allowed the Unit 1 reactor to be in Mode 3 for about 15 hours without high head ECCS injection capability.

3. Description of the Event

On April 6, 1984 Diablo Canyon Unit One was conducting tests of the blowdown settings of steam generator safety valves. In order to accomplish this testing the plant was in Mode 3 (Hot Standby).

The possibility of a steam generator safety not reseating or blowing down past the 100 psi steam generator differential pressure Emergency Safeguards Action setpoint and initiating an inadvertant Safety Injection (SI) had been recognized by the plant staff and procedural steps to recover from the potential SI were in place for the testing.

At 1203 on April 6, 1984 while testing, Safety Valve SV-11 relieved at 1090 psig and blowdown to 990 psig prior to reseating. This produced the 100 psi S/G delta pressure on S/G 1-3 resulting in a safety injection.

All equipment started as required and the charging system injected the Boron Injection Tank (BIT) into the Reactor Coolant System.

The SI was terminated in accordance with procedure TP T0-8403. The plant was returned to stable conditions at 2220 psig and 549 degrees F (Mode 3).

The plant staff recognized that due to the injection of the BIT, the Technical Specification 3.5.4.1 was not met in that the BIT did not contain the required 20,000 to 22,500 ppm boron. The Action Statement of the Technical Specification was entered which required Hot Standby with a shutdown margin equivalent to $1\frac{1}{2}$ delta K/K at 200 degrees F and restoration of the BIT to operable status within the next 7 days.

As the BIT had been injected the required shutdown margin was met and the plant staff decided to not restore the BIT to the required boron concentration until the completion of the steam generator safety valve testing (within the 7 day period).

On April 6, 1984 at 7:10 p.m. PST, with the completion of the steam generator safety valve testing, the operation shift foreman approved clearance number 9-2954-84 to remove the BIT from service and restore BIT boron concentration to the Technical Specification Limits. This restoration of the BIT was accomplished in accordance with operating procedure (OP) B-1C.

In order to restore the BIT to operational status procedure B-1C:II, part D, "Fill and Recirculate the Boron Injection Tank" was followed. The procedure requires draining the BIT while filling from a Boric Acid Tank thereby precluding the reduction in boron concentration in the Boric Acid Tank to below Technical Specification limits.

The procedure had been modified of November 30, 1983 to reflect experience at other similar facilities where while draining the BIT and inadvertant SI had caused the charging pumps to discharge through the open drain. To preclude this possibility the revised procedure directed the draining to be accomplished in accordance with (OP) B-1C:III, Part C. This procedure shuts BIT inlet valves 52-1F-17 and 52-1F-27 and BIT outlet valves 52-1F-16 and 52-1F-13 and their breakers to be opened. The closure of the BIT inlet and outlet valves blocked the flow path for both trains of high pressure injection from the charging pumps to the reactor coolant system.

The revised procedure did not reference the Technical Specification requirements of 3.5.2 or 3.5.3 which require two operable ECCS systems in mode 3 and one operable ECCS system in mode 4.

Between instituting the clearance at 7:10 p.m. on April 6, 1984 and completing the installation and verification of clearance points at 8:10 p.m. on the same day, the charging pumps were made inoperable for high pressure safety injection by closure and power removal from the BIT inlet and outlet valves.

At approximately 8:30 p.m. on April 6, 1984, a licensed operator commenced filling the BIT from the Boric Acid Storage Tank 1-1 in accordance with the previously discussed procedure.

The Shift Foreman and the Shift Advisor were occupied during this period with troubleshooting problems with control rod drive and digital rod position indication (DRPI). The Shift Advisor stated that he was primarily concerned with the control rod tests that were in progress and that he did observe that the reactor operator was following the approved plant operating procedure during the restoration of the BIT.

The BIT indicated full at 9:30 p.m. At 11:35 p.m. on the 6th of April, the bit was full and on recirculation to the BAT for sampling to confirm boron concentration. This was turned over to the night shift. At shift turnover it was pointed out that the BIT was in an action statement (7 day) due to out of specification boron concentration. The other Technical Specifications regarding ECCS flow paths were not discussed or recognized as being applicable.

The night shift left the BIT in the same lineup to allow confirmation of the boron concentration. This chemical analysis was not completed during the night shift.

The BIT remained isolated from the charging system until after shift turnover to the day shift on April 7, 1984. At 9:30 a.m., while walking down the control boards, the dayshift Shift Foreman noted the clearance on the BIT inlet and outlet Valves. This Shift Foreman recognized that the clearance rendered the ECCS incapable of high pressure injection in violation to the Technical Specification requirements.

At 10:10 a.m. on April 7, 1984, the breakers to the BIT inlet and outlet valves were closed reinstating the ECCS to fully operational status.

Thus, both trains of high pressure safety injection were inoperable for approximately 15 hours on April 6/7, 1984.

The principle causes were:

1. Improper procedure review and approval. The procedure for restoring the BIT was such that Technical Specification violation was a direct result of procedure compliance unless the plant was in Mode 5. No precautions or references to the Technical Specification requirements for operability of the ECCS were included in the procedure.
2. Operating personnel relied on the procedure without questioning. As the BIT was known to be out of service, no further review of the safety functions of the BIT or its interface with other systems was made. This was taken at face value by relieving shift crews.
3. Operating Personnel were involved in other plant operations and viewed the restoration of the BIT as a "minor" event with no real rush for completion.

4. Discussion

Mr. Mendonca summarized the event as described in paragraph 3 and as detailed in NRC Inspection Report No. 50-275/84-06.

Mr. Bishop stated that while NRC Inspection Report No. 50-275/84-06 outlines the three generic concerns, the basic underlining concern appears to be plant staff awareness of the meaning and requirements of the Plant Technical Specifications and supervisory and management monitoring of staff performance. A previous example of this type of problem was discussed.

Mr. Martin questioned whether the Plant Safety Review Committee's (PSRC) approval of the operating procedures amounted to something more than a "rubber stamp" approval. Mr. Martin further requested that the license detail what was involved in the creation, writing, reviewing and final approval of a typical operating procedure. Additionally, the licensee was asked whether the members of the PSRC were aware of their responsibility when they approved a procedure.

Mr. Patterson responded by detailing the evolution of a typical operating procedure and stating that discussions with PSRC members indicated that their inclinations were that at times they were asked to review and approve too many procedures. As a result of this incident with procedure No. B-1C, more knowledgeable persons are being charged with reviewing operating procedures, with more care and more time taken to review all steps in the procedures.

Mr. Martin emphasized that personnel developing and reviewing procedures must recognize their responsibility and that licensee management must monitor not only the procedures, but also the reviewers performance. Further, Mr. Martin observed that if the PSRC finds problems while reviewing procedures, then the PSRC should focus attention on the inadequacies in the procedure preparation process as well as correcting the specific procedure.

Mr. Shiffer stated that in the past the company has emphasized design activities which resulted in less attention being focused on procedures.

Mr. Martin pointed out that ten days after the event of April 6, 1984 a NRC inspector detected a licensed operator who failed to have a thorough understanding of a critical system valve alignments.

Mr. Shiffer responded by stating that actions had immediately being taken to assure operator understanding of critical system line-ups. This action included extensive pre-shift meeting with operators.

Mr. Martin reiterated that it should have been the licensee's supervisors and managers who detected the operators lack of understanding, not the NRC staff. Licensee supervisors should continually probe and question not only the procedures but the also operating personnel to detect weaknesses before they become problems.

Mr. Novak stated that other plants with similar problems had elected to move top management to the plant site. When top management was moved to the site, a significant improvement was noted in plant operating staff attitude.

Mr. Maneatis stated that PG&E was moving in the direction suggested by the staff. Mr. Maneatis further stated that, because of the public sensitivity of Diablo Canyon, he was quite aware that PG&E could ill afford to have major problems with Diablo Canyon.

5. Conclusion

Mr. Bishop concluded the meeting by stating the licensee would receive further information in writing on the NRC's position regarding the violation of regulatory requirements (as identified in paragraph 3).