

**Southern California Edison Company**

SAN ONOFRE NUCLEAR GENERATING STATION

P.O. BOX 128

SAN CLEMENTE, CALIFORNIA 92672

**SCE**

**H. B. RAY**

STATION MANAGER

March 30, 1982

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(714) 492-7700

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



Docket No. 50-361  
Licensee Event Report  
Numbers 82-002 and 82-003  
San Onofre Nuclear Generating Station  
Unit 2

Reference: Letter, H. B. Ray (SCE) to R. H. Engelken, dated March 15, 1982

Attention: Mr. R. H. Engelken, Regional Administrator

Dear Mr. Engelken:

The referenced letter provided prompt written notification to your office of a Loss of Shutdown Cooling and a Reactor Coolant System boron dilution event. In accordance with Technical Specification 6.9.1.12.d and e, this letter is submitted as the required 14 day report. In addition, completed copies of Licensee Event Report Numbers 82-002 and 82-003 are enclosed concerning this event.

Our investigation determined the following scenario to be the apparent cause of the loss of Shutdown Cooling.

On March 14, 1982, with the reactor in Mode 6 after initial fuel loading, an operator backflushed a filter in the Shutdown Cooling Purification System (F020). This normally consists of passing nitrogen at 350 psig through the isolated filter and dumping the gas to the filter crud tank. As a result of either a system malfunction or operator error, the nitrogen passed through the purification line back into the suction of the Shutdown Cooling (Low Pressure Safety Injection) pumps. At essentially the same time, Shutdown Cooling flow from the inservice LPSI pump (PO-16) fell from 4000 gpm to zero. Subsequent attempts to establish flow with the alternate pump (PO-15) were unsuccessful. The pumps and piping high points were vented and Shutdown Cooling flow was re-established within 90 minutes.

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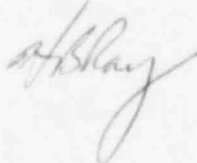
The pathway for injecting nitrogen gas into the Shutdown Cooling System exists only when the purification system is in operation. Therefore, procedures for operating the backflushable filter will be revised to require isolating the purification system prior to any backflushing operation and personnel will be trained as to the potential for loss of flow using this system. Since there was no irradiated fuel in the core, plant safety was not affected by this event.

During the attempt to re-establish Shutdown Cooling flow, the suction of LPSI pump PO-16 was transferred from the Reactor Coolant System (RCS) to the Refueling Water Storage Tank (RWST). Opening of the RWST line occurred concurrently with the closing of the RCS line so that for several minutes a path existed from the RWST into the RCS under the pressure head of the RWST. During this interval about 6,000 gallons of water at an approximate average boron concentration of 1640 ppm was added to the RCS. This resulted in a dilution from 2004 ppm to 1962 ppm, equivalent to a reactivity addition of about 0.64% delta k/k. Since RCS boron concentration remained well above the minimum required for Mode 6 (1720 ppm), plant safety was not affected by this event.

The operating procedure for the Shutdown Cooling System currently specifies that the RCS suction line be closed before the RWST suction line is opened. To prevent recurrence of this situation a caution statement will be added to the procedure emphasizing the need for closing the RCS suction line before opening the RWST suction line.

For several days, the cause of the RCS boron dilution was not fully understood because samples taken of RWST boron concentration were not representative of the tank contents. As the RWST had not yet been recirculated fully, and had been isolated pending correction of valve leakage, the RWST was not considered operable at the time. However, a separate Licensee Event Report concerning this circumstance, and corrective action to ensure tank samples in the future are fully representative of tank contents, will be submitted within 30 days of the event for information.

Sincerely,



Enclosures: Licensee Event Report Numbers 82-002 and 82-003.

cc: U. S. Nuclear Regulatory Commission  
Office of Inspection and Enforcement

U. S. Nuclear Regulatory Commission  
Office of Management Information and Program Control

Institute of Nuclear Power and Operations (INPO)

A. E. Chaffee (USNRC Resident Inspector - San Onofre Unit 2)

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