

REGULATORY DOCKET FILE COPY

Southern California Edison Company

P. O. BOX 800
2244 WALNUT GROVE AVENUE
ROSEMEAD, CALIFORNIA 91770

J. H. DRAKE
VICE PRESIDENT

May 15, 1978

TELEPHONE
213-572-2258
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MAY 15 1978

Mr. R. H. Engelken, Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Region V
Suite 202, Walnut Creek Plaza
1990 North California Boulevard
Walnut Creek, California 94596

Dear Mr. Engelken:

Subject: Docket No. 50-362
San Onofre Nuclear Generating Station, Units 2 & 3

By letter dated April 26, 1978, we confirmed notification concerning a reportable condition in construction of the San Onofre Unit 3 spent fuel pool liner wherein a portion of the liner was damaged by inadvertent overpressurization of associated leak chase channels with compressed air.

Enclosed, in accordance with 10CFR50.55(e), are twenty-five (25) copies of a report concerning this matter entitled, "Unit 3 Spent Fuel Pool Overpressurization Damage, San Onofre Nuclear Generating Station, Units 2 and 3."

If you have any questions regarding this report, we would be pleased to discuss this matter with you at your convenience.

Very truly yours,

Enclosure

cc: Dr. Ernst Volgenau (NRC, Director I&E)

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UNIT 3 SPENT FUEL POOL
OVERPRESSURIZATION DAMAGE

San Onofre Nuclear Generating Station
Units 2 and 3

INTRODUCTION

This report is submitted pursuant to 10CFR50.55(e)(3). It describes construction deficiencies in the Unit 3 spent fuel pool liner and measures to correct these deficiencies.

BACKGROUND

By letter dated April 26, 1978, Southern California Edison Company (SCE) confirmed notification to the NRC concerning damage to the Unit 3 spent fuel pool liner resulting from construction activities which caused overpressurization of associated leak chase channels with compressed air.

DISCUSSION

The following discussion is responsive to 10CFR50.55(e)(3).

Description of Deficiency

The stainless steel liner is provided as an easily decontaminated surface that also provides the watertight boundary for the spent fuel pool. The liner system includes a network of leak chase channels for detection and segregation of leakage. The channels are independent paths that extend behind field seam welds of the liner wall and floor plates, and are piped individually to a leak detection sump.

During construction activities, the wall leak chase channels accumulated debris which was removed by pressurized air injected through the drainage pipe. This drainage pipe was vented at the open end at the top of the liner wall chase channel to prevent buildup of pressure in the channel. The liner floor leak chase channels did not include similar venting areas for release of any pressurized air buildup. By mistake, resulting from the failure to obtain and follow appropriate procedures, the pressurized air was applied to some of the floor chase channels and the pressure buildup due to lack of venting bulged the floor plates and ruptured a limited number of plug welds to concrete anchors.

UNIT 3 SPENT FUEL POOL OVERPRESSURIZATION DAMAGE
San Onofre Nuclear Generating Station, Units 2 and 3

The plate bulging developed over most of the floor of the spent fuel pool and to a limited extent on the floor of the transfer canal and the cask handling area liners. The bulging ranges from a minimum measurable dimension of 1/16 inch to an isolated maximum of 3/4 inch. The bulging is predominantly less than 1/4 inch in all affected areas.

The floor plates were installed as precut panels with edges seam welded over steel embedments and interior points plug welded to other embedments. The bulging did not cause any rupture of the seam welds. The only welds damaged were plug welds concentrated in the area with the 3/4 inch bulge.

Cause of the Deficiency

The cause of the deficiency described above has been attributed to the lack of a procedure for controlling cleaning operations for the liner leak chase channels and lack of inspection of these cleaning activities.

Analysis of Safety Implications

The uncontrolled pressurization stretched some of the plates beyond the elastic limit creating a permanent set in the plates and residual stresses in the plates and welds. Plates exhibiting deformations exceeding 1/8 inch are considered to fall into the above category. The action of design loads on the plates and welds if left in the present condition of deformation is considered uncertain.

The leakage of borated water through the floor liner would not cause personnel radiation dosages in excess of 10CFR100 allowables or exceed the capability of the spent fuel pool make-up water system. The resultant leakage would be collected by the leak chase system and drained into the leak detection sump. From the sump the leakage would be delivered to the radwaste system for processing. The normal spent fuel pool make-up pump and the backup containment spray pump would be capable of providing sufficient makeup water for the spent fuel pool to maintain the required coverage of the spent fuel rods.

Remedial Action

Liner plate with deformations exceeding 1/8 inch will be removed and replaced with new stainless steel plate. The new liner plate will be welded to the existing embedments and will be seam welded in place to adjacent liner plates.

UNIT 3 SPENT FUEL POOL OVERPRESSURIZATION DAMAGE
San Onofre Nuclear Generating Station, Units 2 and 3

Corrective Action

A procedure will be prepared which delineates the requirements for performance and inspection of cleaning operations using pressurized air in similar systems. Appropriate training, inspection and audits will be provided to assure conformance with established requirements.

CONCLUSION

The spent fuel pool liner will be repaired to assure conformance with the design criteria and bases stated in the safety analysis report. Procedural controls will be established and appropriate training, inspection and audits will be provided to preclude recurrence of the above deficiency.