NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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TITLE (4)

FSAR Assumptions Not Evaluated In The Control Room Post LOCA Dose Calculation Due To Personnel Error Placed Plant Outside its Design Basis

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
07	08	98	1993	-- 13 --	01	9	15	98	Unit 3	05000-362
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	1
POWER LEVEL (10)	100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)	X	50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER
	20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
R. W. Krieger, Vice President, Nuclear Generation	714-368-6255

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On 7/8/1998, while reviewing and revising the post-LOCA control room dose calculations, an engineer realized that the thyroid dose to control room personnel may not meet the requirements of General Design Criteria 19 when the assumptions listed in the UFSAR as "design basis" are used. This condition is reported in accordance with 10CFR50.73(a)(2)(ii)(B).

This event was caused by personnel error in two separate revisions to the Control Room Dose calculation:

1) the Westinghouse analysis evaluating the containment leakage release path assumed the air in-leakage into the control room following a postulated accident was zero, and
2) the translation of a calculation assumption into the IST program did not recognize that the maximum valve operational leakage limit on each of the valve in the flow path to the RWST must be one half of the leakage value modeled in the calculation.

There was no safety significance to plant personnel or the public as a result of this event.

TEXT *(If more space is required, use additional copies of NRC Form 366A)* **(17)**

Background:

On September 19, 1991, the NRC issued Information Notice (IN) 91-56 "Potential Radioactive Leakage to Tank Vented to Atmosphere." This IN was issued to alert addressees to potential problems resulting from the leakage of isolation valves in Emergency Core Cooling system (ECCS) re-circulation lines to the Safety Injection (SI) water storage tank, which may be vented to atmosphere. On January 28, 1993, Southern California Edison (SCE) completed a calculation which assessed valve leakage to the Refueling Water Storage Tank (RWST) from SI and Containment Spray (CS) systems during re-circulation mode of operation.

On August 31, 1994, this calculation was revised to increase the modeled flow path leakage from 60 cc per hour to one gallon per minute. As a result of this calculation, the Inservice Test (IST) program was updated in 1995 to monitor the leakage of the valves in the pathway to the RWST.

Description of Event:

On July 8, 1998, while reviewing and revising the post-LOCA control room dose calculations, an engineer realized that the thyroid dose to control room personnel may not meet the requirements of 10 CFR 50 Appendix A, General Design Criterion (GDC) 19, when the assumptions listed in the Updated Final Safety Analysis Report (UFSAR) as "design basis" are used. SCE concluded the plant was outside its design basis because:

(1) A Westinghouse December 1985 Control Room Dose Analysis evaluating the containment leakage release path, performed to support the removal of the CS system Chemical Additive Tank, did not evaluate the impact of unfiltered air leakage into the Control Room because it assumed unfiltered leakage to be zero.

(2) The leakage acceptance criteria specified in the update to the IST Program for the valves in the pathway to the RWST was twice the maximum operational allowable leakage assumed in the Control Room Dose Analysis.

This condition was reported to the NRC Operations Center on July 8, 1998 (NRC Log Number 34494), and in accordance with 10CFR50.73(a)(2)(ii)(B), the required 30-day LER was submitted on July 31, 1998. This LER revision is being submitted to provide the results of revised control room dose calculations and additional detail regarding planned corrective actions and the safety significance of this occurrence.

Cause of the Event:

1. Control Room Air in-leakage - As stated above, the Westinghouse analysis evaluating the containment leakage release path assumed the air in-leakage into the control room following a postulated accident was zero. This was a Human error (non-utility, non-licensed) because NUREG 75/087 Standard Review Plan (SRP) Section 6.4 revision 1 Section III.3.d required the calculation to assume unfiltered leakage into the control room to be 10 CFM. (Cause Code: A)

2. Engineered Safety Features (ESF) systems leakage consequences - When updating the IST Program, a human error occurred in the translation of the calculation assumption for the maximum valve operational leakage on each of the valves in the flowpath to the RWST. The individual (utility, non-licensed) did not recognize that to comply with the NUREG 75/087 Appendix B SRP 15.6.5 Section III guidance, the maximum operational valve leakage limit (IST Limit) must be one half of the leakage value modeled in the calculation. (Cause Code: A)

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TEXT *(If more space is required, use additional copies of NRC Form 366A)* **(17)**

Corrective Actions:

On July 9, 1998, SCE administratively limited the maximum allowable leakage to the environment from pump seals, valve stems and mechanical joints in ESF systems outside containment to 2000 cc/hr to ensure that post LOCA Control Room Doses do not exceed the GDC 19 control room dose acceptance criteria. This requirement will remain in effect until the new methodology for dose conversion factors is approved by the NRC (see below).

The post-LOCA Control Room dose calculations were revised to include unfiltered in-leakage in the evaluation of the containment leakage release path, and to account for double the Inservice Testing Program maximum operational leakage for valves in the pathway to the Refueling Water Storage Tank. The results of this re-analysis document compliance with the GDC 19 control room dose acceptance criteria.

A licensing amendment request was submitted on May 7, 1998 to change the reference for thyroid dose conversion factors in the Technical Specification 1.1 definition for DOSE EQUIVALENT IODINE-131 from Regulatory Guide 1.109 Revision 1 to International Commission on Radiological Protection Publication 30 (ICRP-30). A similar request submitted by the Arizona Public Service Corporation for the Palo Verde Nuclear Generating Station Units has been approved by the NRC. If the San Onofre amendment request is approved, the calculated Control Room thyroid dose would be reduced by about 28 percent.

The UFSAR will be updated to reflect the assumptions, inputs and results of the revised dose calculations. This is scheduled to be completed by the next UFSAR update.

Safety Significance:

This condition has no safety significance, because the design basis assumptions and methodology are conservative compared to the "realistic" calculation (about a factor of 60), and because:

(1) The calculation assumes a leakage to the RWST from the miniflow recirculation path of 2 gpm, while the measured ESF system leakage outside containment is less than 1 gpm.

(2) A 95 percent efficiency was assumed for the Control Room Emergency Cleanup System (CREACUS) to remove elemental and organic iodine in the air flow entering and existing inside the control room. CREACUS filter efficiency is actually 99 percent or better. If the charcoal filter efficiency were only modeled as 96 percent, then the thyroid dose would decrease by approximately 20 percent.

(3) The thyroid inhalation dose conversion factors (DCFs) as required by the Technical Specification Section 1.0 definition of DOSE EQUIVALENT IODINE-131 are from the guidance in Regulatory Guide 1.109. If the thyroid inhalation DCFs from ICRP-30 are used, then the thyroid dose would decrease by approximately 28 percent.

Additional Information:

In the past three years, there have been no other occurrences involving compliance with GDC 19.