SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL Company

R. W. Krieger
Vice President
Nuclear Generation

April 16, 1997

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Subject: Docket No. 50-361
Voluntary Report
Licensee Event Report No. 97-005
San Onofre Nuclear Generating Station, Unit 2

This submittal provides a voluntary written report of reactor coolant system leakage from a Shutdown Cooling System isolation valve. Neither the health nor safety of plant personnel or the public were affected by this occurrence.

Sincerely,

Enclosure: LER No. 97-005

cc: E. W. Merschoff, Regional Administrator, NRC Region IV
A. T. Howell, III, Director, Division of Reactor Projects, NRC Region IV
K. E. Perkins, Jr., Director, Walnut Creek Field Office, NRC Region IV
J. A. Sloan, NRC Senior Resident Inspector, San Onofre Units 2 & 3
M. B. Fields, NRC Project Manager, San Onofre Units 2 & 3
Institute of Nuclear Power Operations (INPO)

IE22

P. O. Box 128
San Clemente, CA 92674-0128
714-368-6255
Fax 714-368-6183

LICENSEE EVENT REPORT (LER)

Facility Name (1)	Docket Number (2)	Page (3)
SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2	0 5 0 0 0 3 6 1	1 of 0 4

Title (4)

Reactor Coolant System Leakage - Shutdown Cooling System Valve Packing Leakoff Plug

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 Names	Docket Number(s)
0 3	1 9	9 7	9 7	---	0 0 5	--- 0 0	0 4	1 5	9 7	None	

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)			
3	___ 20.402(b)	___ 20.405(c)	___ 50.73(a)(2)(iv)	___ 73.71(b)
POWER LEVEL (10) 0 0 0	___ 20.405(a)(1)(i)	___ 50.36(c)(1)	___ 50.73(a)(2)(v)	___ 73.71(c)
	___ 20.405(a)(1)(ii)	___ 50.36(c)(2)	___ 50.73(a)(2)(vii)	XX Other (Specify in Abstract below and in text) Voluntary
	___ 20.405(a)(1)(iii)	___ 50.73(a)(2)(i)	___ 50.73(a)(2)(viii)(A)	
	___ 20.405(a)(1)(iv)	___ 50.73(a)(2)(ii)	___ 50.73(a)(2)(viii)(B)	
	___ 20.405(a)(1)(v)	___ 50.73(a)(2)(iii)	___ 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

Name	TELEPHONE NUMBER
R. W. Krieger, Vice President, Nuclear Generation	AREA CODE 7 1 4 3 6 8 - 6 2 5 5

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

		Expected Submission Date (15)	Month	Day	Year
___ Yes (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

On 3/18/97, Operators were moving Unit 2 from Mode 4 to Mode 3 at the end of the Cycle 9 refueling outage. At about 2045, an Engineer performing a routine inspection noted steam emanating from the Shutdown Cooling System isolation valve. At 0500 on 3/19/97, the leak was determined to be through the body of the valve's packing leakoff plug.

Technical Specification (TS) Limiting Condition For Operation (LCO) 3.4.13.a allows no Reactor Coolant System pressure boundary leakage in Modes 1 through 4. If this LCO is not met, this TS requires the Unit to be in Mode 5 within 36 hours. In response to the observed leak, Operators returned the Unit to Mode 5 at 0638 on 3/20/97, within the 36 hour limit of the TS LCO. While Edison has determined that 10CFR50.72 and 50.73 do not require a report to be submitted for this occurrence, Edison is voluntarily submitting this report due to potential industry interest and for NRC reference.

This event was caused by a material defect in the packing leakoff plug. The defective plug was replaced. Edison believes this is an isolated event. The defective plug was installed during this refueling outage (U2C9) and developed a leak within four days after entering Mode 4. Inspections of similar plugs in Units 2 and 3, all with much longer service times, identified no leaks.

The defective plug did not adversely affect the valve's operation. The plug is a 1/2 inch nominal pipe size (approximately 5/8 inch diameter hole). Catastrophic failure of the plug, while not considered credible, is bounded by the small break loss of coolant accident analysis in the UFSAR. Therefore, this event did not pose a substantial safety hazard.

Description of Event:

Plant: San Onofre Nuclear Generating Station Unit 2
Reactor Vendor: Combustion Engineering
Event Date: March 19, 1997
Event Time: 0500
Mode: 3
Power: 000%
Temperature: 545 Deg F
Pressure: 2250 PSIA

On March 18, 1997, Operators were moving Unit 2 from Mode 4 to Mode 3 at the end of the Cycle 9 refueling outage. At about 2045, an Engineer (utility, non-licensed) performing a routine Mode 3 inspection inside containment noted steam emanating from the Shutdown Cooling System [BP] isolation valve 2HV9339 (a WKM valve). At 0500 the next day, the leak was determined to be through the metal body of the valve's packing leakoff plug. See Figure 1.

Technical Specification (TS) Limiting Condition For Operation (LCO) 3.4.13.a allows no Reactor Coolant System (RCS) pressure boundary leakage in Modes 1 through 4. If this LCO is not met, this TS requires the Unit to be in Mode 5 within 36 hours. In response to the observed leak, Operators (utility, licensed) returned the Unit to Mode 5 at 0638 on March 20, 1997, within the 36 hour limit of the TS LCO.

This event was caused by a material defect in the packing leakoff plug (see Cause of the Event, below). While Edison has determined that 10CFR50.72 and 50.73 do not require a report to be submitted for this occurrence, Edison is voluntarily submitting this report due to potential industry interest and for NRC reference.

Cause of the Event:

Edison determined the leak was caused by a metallurgical defect in the plug itself. This defect, micro-shrinkage porosity and micro-shrinkage cracking, was introduced during manufacturing of the ingot from which the plug's bar stock was made. Under operating conditions, these flaws interconnected, providing a leak path through the plug's body.

This was a new plug, installed during this outage (U2C9). The threads were in good condition. Edison confirmed the plug had been installed properly and in accordance with plant procedures.

Corrective Actions:

Edison replaced the defective plug with a new plug which had been confirmed to be free of similar defects. After the plug was installed, its head was removed and ground smooth, and the plug seal welded in place.

Edison believes this is an isolated event. The defective plug was installed during this refueling outage (U2C9) and developed a leak very quickly (within four days after entering Mode 4). Inspections of similar plugs in Units 2 and 3, all with much longer service times, did not identify any leakage.

Safety Significance of the Event:

The defective plug did not adversely affect the valve's operation. Leakage through the defect was limited to the normal leakage past the inner valve disc and was measured at 0.4 gpm. The plug is a 1/2 inch nominal pipe size (approximately 5/8 inch diameter hole). The catastrophic failure of the plug, while not considered credible, is bounded by the small break loss of coolant accident analysis in the UFSAR. Therefore, this event had minimal safety significance and did not pose a substantial safety hazard.

Additional Information:

No similar events of RCS leakage due to defective materials have been reported by Edison in the past three years.

Although this plug leakage is considered to be RCS pressure boundary leakage, the valve design and the ASME Section XI IWA-7400 exemption (1 inch and smaller replacement items) do not require the use of ASME material for this application.

Figure 1 - SDC Isolation Valve 2HV9339