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Douglas R. Bauder
Site Vice President & Station Manager
San Onofre Nuclear Generating Station

10 CFR 50.73 (a)(2)(i)(B)

June 30, 2010

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555-0001

Subject: **Docket No. 50-361**
Licensee Event Report No. 2010-001
San Onofre Nuclear Generating Station, Unit 2

Dear Sir or Madam:

This submittal provides Licensee Event Report (LER) 2-2010-001 to report an inoperable manual valve that resulted in a condition that was prohibited by the plant's Technical Specifications. Neither the health nor safety of plant personnel or the public was affected by this occurrence.

If you require any additional information, please contact me.

Sincerely,

Unit 2 LER No. 2010-001

cc: E. E. Collins, NRC Regional Administrator, Region IV
G. G. Warnick, NRC Senior Resident Inspector, San Onofre Units 2 & 3

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NRR

NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2010

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
San Onofre Nuclear Generating Station Unit 2	05000-361	1 OF 4

4. TITLE

Broken Manual Valve Prevents Timely Condensate Storage Tank Isolation

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	26	2010	2010	001	00	6	30	10	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	5
10. POWER LEVEL	0

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR : (Check all that apply)

20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)
20.2203(a)(1)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)
20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)
20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)	
20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)	
20.2203(a)(2)(v) **X**	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)	
20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)	
20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Douglas R. Bauder, Site VP and Station Manager	949-368-9275

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
E	KA	ISV	F130	Y					

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

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

On January 26, 2010 at about 1700 PST with Unit 2 in Mode 5 (Cold Shutdown), the handwheel actuator for manual isolation valve 2HV-5715 failed during a surveillance test; the last successful stroke test was on March 29, 2008. The failure was due to a lack of lubrication and corrosion of the handwheel stem. The surveillance test frequency had been changed from quarterly to biennial in 2004 without implementing periodic lubrication of the stem.

Technical Specification (TS) 3.7.6 establishes inventory requirements for the Condensate Storage Tanks (CST). Valve 2HV-5715 is closed within 90 minutes of a seismic event to maintain the CST inventory in compliance with license commitments for Decay Heat Removal (RSB 5-1). The inability to close the valve within the committed time limit is being reported under 50.73(a)(2)(i)(B) as a failure to comply with the TS. The valve was repaired on January 27, 2010. Corrective actions were taken to lubricate this valve and add it to the preventive maintenance program. Preventive maintenance plans are being developed for the remaining affected valve population.

The safety significance was minimal as sufficient water inventory would have remained within the design margins to comply with the licensed safety functions. Neither the health nor the safety of plant personnel or the public was affected by this occurrence.

Plant: San Onofre Nuclear Generating Station (SONGS) Unit 2
Event Date: January 26, 2010
Reactor Vendor: Combustion Engineering
Mode: Mode 5- Cold Shutdown
Power: 0 percent

Background

The Auxiliary Feedwater (AFW) System [BA] at San Onofre Unit 2 supplies water to the steam generators, removing heat from the Reactor Coolant System (RCS) during plant startup / shutdown operations, and removing decay heat for accident mitigation. The AFW system consists of two 100% capacity motor driven AFW pumps and one 100% capacity steam turbine driven pump, with a common supply header connecting to two Condensate Storage Tanks (CST) [KA] T-121 and T-120.

CST T-121 contains a minimum of 144,000 gallons, as required by Technical Specification 3.7.6, in a 150,000 gallon Seismic Category (SC) - I tank designed to maintain the Reactor Coolant System (RCS) at Hot Standby for two hours, and to cooldown the RCS to the maximum temperature for shutdown cooling entry conditions of the Safety Analysis.

CST T-120 contains a minimum of 360,000 gallons, as required by Technical Specification 3.7.6, in a 500,000 gallon seismically restrained SC-II tank, enclosed in an SC-I concrete structure designed to retain water from the tank should the tank fail during a Design Basis Earthquake (DBE). In the event of a rupture of T-120, a gravity feed through an SC-I crosstie line from the T-120 enclosure sump provides make-up to CST T-121.

For normal plant operations condensate is transferred from T-120 to T-121 through a non-safety related condensate transfer pump. Following an Operating Basis Earthquake (OBE) (50% of a DBE), operator action within 90 minutes is credited to close manual isolation valve 2HV-5715 to isolate the non-seismic portion of the condensate transfer piping from the T-120 seismic enclosure, thereby limiting the amount of water that could be lost from T-120 through the non-seismically qualified piping.

Description of Event

On January 26, 2010 [Event Date], at about 1700 PST with Unit 2 in Mode 5 (Cold Shutdown), the handwheel for operating manual isolation valve [ISV] 2HV-5715, failed at the stem connection during the biennial surveillance close stroke test. The valve was repaired and returned to service the next day. The Technical Specifications (TS) do not contain a specific Limiting Conditions for Operation (LCO) for valve 2HV-5715, however the Bases for TS 3.7.6 "Condensate Storage Tank (CST T-121 and T-120)," states the closure of 2HV-5715 is required within 90 minutes of an OBE to maintain the inventory in CST T-120.

Manual isolation valve 2HV-5715 is a 6" diameter T-ring butterfly valve manufactured by Fisher Controls [F130]. In March 2010, the handwheel failure was evaluated by SCE as not reportable, based on the ability to operate the valve by placing a wrench directly on the exterior butterfly valve stem.
On May 26, 2010, NRC inspectors conducting the Problem Identification & Resolution Inspection questioned the timely closure of the valve within 90 minutes. Subsequently SCE, using conservative assumptions, determined the valve closure could require as long as 140 minutes, rendering valve 2HV-5715 non-functional in the as-found condition to meet the 90 minute closure limitation. Valve 2HV-5715 became non-functional sometime between the last successful stroke test on March 29, 2008 and the discovery date of January 26, 2010. With 2HV-5715 considered non-functional, CST T-120 should

have been considered out of compliance with the requirements of TS 3.7.6 and reportable under 10 CFR 50.73(a)(2)(i)(B). The event only affected Unit 2; the similar valve at Unit 3 was installed in 2001 and found to be fully functional as required.

Cause of the Event:
The handwheel stem is threaded and rotates through a threaded pivot to transfer the rotary motion of the handwheel to rotate the butterfly valve open or closed. The handwheel stem failed at the connecting drill pin hole. The failure was due to the increased thread-on-thread friction of the actuating rod and the pivot caused by excessive corrosion and / or hardened grease build up. The valve is located outside, subject to the local marine environment, and did not receive adequate preventative maintenance to lubricate the stem.

When the 2004 ten year In Service Test (IST) program update changed the stroke test frequency from quarterly to biennial, the Component Classification Assessment (CCA) process did not capture the need for preventative maintenance for the valve.

Corrective Actions:
The handwheel was replaced and the shaft lubricated.

A review of the equipment history for manual valves which require manual manipulation as defined by the "Abnormal Operating Instructions" with actions to manually manipulate within 4 hours and lack a Preventive Maintenance strategy was conducted. These valves are a different type and in most cases in a different application. The valves were confirmed to be functional, and the Preventative Maintenance program is being revised to include these valves.

The Equipment Reliability Process procedure is being revised to ensure that a Preventive Maintenance Strategy is verified when a CCA is being processed.

Safety Significance:
The safety significance was found to be minimal as a sufficient water inventory was available within the design margins. The broken handwheel on 2HV5715 would not have prevented the ability to safely shutdown the plant following a seismic event, nor would have it resulted in a loss of safety function.

The licensing basis for the cooldown rate of the RCS is described in SONGS UFSAR Section 5.4.7.2.5 "Plant Cooldown to Shutdown Cooling System Initiation Conditions," in accordance with Branch Technical Position (BTP) RSB 5-1, "Design Requirements of the Decay Heat Removal System." The minimum condensate storage tank levels assumed in the analysis are incorporated into TS 3.7.6.

The RCS cooldown was evaluated assuming the delay in closing 2HV-5715 allowed a loss of condensate inventory through a critical crack in the non-seismic condensate transfer system piping. Cases with and without offsite power, and with and without rupture of the SC-II CST T-120 were considered and analyzed based on the lowest water levels recorded in the CSTs since the last successful test of the valve.

For the loss of offsite power case, closure of 2HV-5715 is not required. With offsite power available, flow diversion is assumed through the operating condensate transfer pump. The inventory in CST T-120 would have provided sufficient margin to close 2HV-5715. As described in the UFSAR, other sources of water not credited for RSB 5-1 were also available.

Operating Experience

SONGS has experienced failures of manual butterfly valves in the non-safety related portions of the plant. In October, 2005 the pin failed in the manual actuator for a 20" butterfly valve in the Turbine Plant Cooling Water System.