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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. 2010-002
San Onofre Nuclear Generating Station, Unit 2

Dear Sir or Madam:

This submittal provides Licensee Event Report (LER) 2-2010-002 to report a manufacturing defect that caused a condition prohibited by the 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. 2010-002

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

P.O. Box 128
San Clemente, CA 92672
(949) 368-9275 PAX 89275
Fax: (949) 368-9881
Doug.Bauder@sce.com

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NRR

NRC FORM 366 (9-2007) | 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: 08/31/2010

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

4. TITLE

Non-qualified Part in Turbine Driven Auxiliary Feedwater Pump

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
05	12	2010	2010	002	00	6	30	10	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	1
10. POWER LEVEL	98

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
20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC Form 366A
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
B	BA	P	I075	Y					

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
X	YES (If yes, complete EXPECTED SUBMISSION DATE)		NO		12	13	10

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

On 5/12/10 at 0900 PDT with Unit 2 at 98% Power, Dresser Rand (D-R) informed SONGS the Digital Control System (DCS) installed for the Turbine Driven Auxiliary Feedwater Pump (TDAFWP) may contain a circuit board with a missing solder joint. The seismic qualifications of the circuit board are in question with the missing solder joint. D-R filed a Part 21 report on 5/12/10 when the defect was discovered at Farley. The Unit 2 DCS was installed during the Cycle 16 refueling outage, and in service from 4/1/10 until the TDAFWP was declared inoperable at 0915 PDT on 5/12/10.

TS 3.7.5 "Auxiliary Feedwater (AFW) System," requires the TDAFWP to be operable in Modes 1 - 4 when the steam generators are used for heat removal. The operation of the TDAFWP for greater than 72 hours with a potentially non-qualified component is being reported under 50.73(a)(2)(i)(B). The TDAFWP was returned to service on 5/14/10 at 2222 PDT after a qualified replacement was obtained from the vendor, installed, and tested in the plant. A supplemental LER will provide seismic qualification test results on the suspect circuit board.

There was minimal safety significance as the circuit board had passed its TS required surveillances and the two motor driven AFW pumps were available, if needed. Neither the health nor safety of plant personnel or the public was affected by this occurrence.

Plant: San Onofre Nuclear Generating Station (SONGS) Unit 2
Event Date: May 12, 2010
Reactor Vendor: Combustion Engineering
Mode: Mode 1
Power: 98 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 AFW pump (TDAFWP)[P]. The analog governor control circuitry for the TDAFWP was recently upgraded during the Cycle 16 refueling outage to a new Digital Control System (DCS) supplied by Dresser Rand [I075]. The Unit 2 TDAFWP was returned to service with the new DCS installed on April 1, 2010; a similar modification is planned for the Unit 3 Cycle16 refueling outage later this year.

Description of Event
On May 12, 2010 [Event Date] at approximately 0900 PDT with Unit 2 at 98% Power, Dresser Rand informed SCE of a potential defect in the output filter circuit board installed in the Unit 2 TDAFWP DCS panel. The output filter circuit directs the output of the governor speed controller to the turbine steam admission throttle control valve motor.

The vendor had filed an initial Part 21 report with the USNRC on May 12, 2010 when the circuit board terminal connection failed during installation of a similar DCS at the Farley plant [Log Number 2010-18-00]. Subsequently, the vendor determined SONGS was operating with an installed circuit card that may not be seismically qualified. As a result, on 5/12/10, at 0915 PDT, operators conservatively declared the Unit 2 TDAFWP inoperable. Unit 3 was at 100% power, and not affected by the event.

Technical Specification (TS) 3.7.5 "Auxiliary Feedwater (AFW) System," requires three operable trains of AFW in Modes I, 2, 3, and 4 when a steam generator is relied upon for heat removal. Action B has a completion time of 72 hours to restore the AFW train to OPERABLE status. If the time limit in Action B is not met, Action E requires the plant be in Mode 3 (hot standby) within the next 6 hours, and Mode 4 (hot shutdown) within the next 12 hours. Unit 2 operated with the potentially defective circuit board from April 1, 2010 until the TDAFWP was declared inoperable on May 12, 2010.

The Unit 2 TDAFWP operated with the potentially non-seismically qualified component installed for greater than 72 hours. As the seismic qualification of the as-installed circuit board has not as yet been confirmed, this event is conservatively being reported under 50.73(a)(2)(i)(B) as an operation prohibited by the Technical Specifications. The TDAFWP was returned to service on 5/14/10 at 2222 PDT after a qualified replacement circuit board was obtained from the vendor, installed, and tested in the plant.

Cause of the Event:
The vendor failed to complete a specified solder joint on the circuit board, Dresser Rand Output Filter Network P/N 890313-001.

The defect is an electrical connection soldered to one side of the circuit board that should have been soldered to both sides for structural strength. The procedure used by the vendor for assembling the printed circuit board is to crimp and solder eyelets on both sides of the board prior to mounting the motor

connections terminal block. On some of the circuit boards the eyelets were not soldered to the board on the terminal block side. As a result, the connection between the circuit board trace and the terminal block may be broken when the connection is stressed such as when tightening wire connections on the terminal block, or potentially under seismic conditions.

Dresser-Rand reported that the circuit board is not seismically qualified with a single point connection. The defect was discovered during installation of a DCS at the Farley plant, and was initially confined to a lot of four circuit boards (suspect lot), three of which failed at Farley, and one which was installed in SONGS Unit 2 (Card #10). During the period that Card #10 was installed in the plant, the TDAFWP had passed its TS required surveillances; it was considered not seismically qualified and was removed.

Corrective Actions:
A qualified circuit board was obtained from the vendor, installed, and tested in the plant.

The defective card, and other potentially suspect circuit boards from SONGS, are being returned to the vendor for seismic qualification testing or repair. The results of the seismic qualification test will be submitted in a supplemental LER.

Safety Significance:
There was minimal safety significance as the circuit board had passed its TS required surveillances while installed in the plant and the two motor driven AFW pumps were available, if needed. Neither the health nor the safety of plant personnel or the public was affected by this occurrence.

Operating Experience
The DCS was a first of a kind, first time installation at SONGS.