REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8708030226 DOC. DATE: 87/07/28 NOTARIZED: NO DOCKET #
FACIL: 50-323 Diablo Canyon Nuclear Power Plant, Unit 2, Pacific Ga 05000323
AUTH. NAME AUTHOR AFFILIATION
WILSON, S. D. Pacific Gas & Electric Co.
SHIFFER, J. D. Pacific Gas & Electric Co.
RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 85-029-00: on 850827, controlled leakage exceeding limit of Tech Spec 3.4.6.2 occurred. Caused by improper installment of reactor coolant pump seal injection flow measurement orifices, cited on 870629. Orifices corrected. W/870728 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD5 LA	1	1	PD5 PD	1	1
	TRAMMELL, C	1	1			
INTERNAL:	ACRS MICHELSON	1	1	ACRS MOELLER	2	2
	AEOD/DOA	1	1	AEOD/DSP/NAS	1	1
	AEOD/DSP/ROAB	2	2	AEOD/DSP/TPAB	1	1
	DEDRO	1	1	NRR/DEST/ADE	1	0
	NRR/DEST/ADS	1	0	NRR/DEST/CEB	1	1
	NRR/DEST/ELB	1	1	NRR/DEST/ICSB	1	1
	NRR/DEST/MEB	1	1	NRR/DEST/MTB	1	1
	NRR/DEST/PSB	1	1	NRR/DEST/RSB	1	1
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	NRR/DLPQ/QAB	1	1	NRR/DOEA/EAB	1	1
	NRR/DREP/RAB	1	1	NRR/DREP/RPB	2	2
	NRR/PMAS/ILRB	1	1	NRR/PMAS/PTSB	1	1
	REG FILE 02	1	1	RES DEPY GI	1	1
	RES TELFORD, J	1	1	RES/DE/EIB	1	1
	RGN5 FILE 01	1	1			
EXTERNAL:	EG&G GROH, M	5	5	H ST LOBBY WARD	1	1
	LPDR	2	2	NRC PDR	1	1
	NSIC HARRIS, J	1	1	NSIC MAYS, G	1	1

TOTAL NUMBER OF COPIES REQUIRED: LTTR 46 ENCL 44

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
DIABLO CANYON UNIT 2	0 5 0 0 0 3 2 3	1 OF 0 4

TITLE (4) IMPROPER INSTALLATION OF REACTOR COOLANT PUMP SEAL INJECTION FLOW ORIFICES CAUSED CONTROLLED LEAKAGE IN EXCESS OF TECHNICAL SPECIFICATION LIMIT

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 8	2 7	8 5	8 5	0 2 9	0 0	0 7	2 8	8 7		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	2
POWER LEVEL (10)	0 0 1

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (11)

[X] 10 CFR 50.73(a)(2)(i)

[ ] OTHER (Specify in Abstract below and in Text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER AREA CODE
STEPHEN D. WILSON, REGULATORY COMPLIANCE ENGINEER	8 0 5 5 9 5 - 7 3 5 1

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)

[ ] YES (If yes, complete EXPECTED SUBMISSION DATE)

[X] NO

EXPECTED SUBMISSION DATE (15): MONTH | DAY | YEAR

ABSTRACT (16)

On August 27, 1985, Unit 2 entered Mode 2 (Startup), with controlled leakage exceeding the limit of Technical Specification (TS) 3.4.6.2. Plant personnel performing Surveillance Test Procedure (STP) M-54, "Measurement of Reactor Coolant Pump Seal Injection Flow," were unaware that two of the four flow measurement orifices (FE-144 and FE-115) had previously been installed backwards in the reactor coolant pump (RCP) seal injection lines. On June 29, 1987, the incorrect installation was discovered by Instrumentation and Controls technicians. The Engineering Department determined that the reversed orifice plates had caused an erroneous RCP seal injection flowrate indication approximately 20 percent (1.5 gpm) less than the actual flowrate for each of the two seal injection lines.

The orifices were installed correctly and the flow measurement surveillance test of the RCP seal injection lines was completed July 2, 1987.

The cause of this event was lack of adequate detail in the written instructions for orifice installation.

All flow measurement orifices that provide data for TS-related surveillance tests were inspected to verify proper orientation. Four other orifice plates were found installed backwards. These incorrect installations did not adversely affect any TS surveillance tests or system performance. The Work Planning Center will provide written work instruction for proper installation of orifice plates.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
DIABLO CANYON UNIT 2	0 5 0 0 0 3 2 3	8 5	0 2 9	0 0	0 2 OF 0 4

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

I. Initial Conditions

Unit 2 was in Mode 2 (Startup).

II. Description of Event

A. Event:

On August 27, 1985, Unit 2 entered Mode 2 (Startup), with controlled leakage exceeding the limit of Technical Specification (TS) 3.4.6.2. Plant personnel performing Surveillance Test Procedure (STP) M-54, "Measurement of Reactor Coolant Pump Seal Injection Flow," were unaware that two of the four flow measurement orifices (FE-144 and FE-115) had previously been installed backwards in the reactor coolant pump (RCP) seal injection lines. Controlled leakage is defined as the seal water flow supplied to the RCP seals.

On June 29, 1987, the incorrect installations were discovered by Instrumentation and Controls personnel while the unit was in Mode 4 (Hot Shutdown) during a refueling outage. The Engineering Department determined that the reversed orifice plates had caused an erroneous RCP seal injection flowrate indication approximately 20 percent (1.5 gpm) less than the actual flowrate for each of the two seal injection lines. It was determined that since the orifice plates were incorrectly installed, results of the monthly required STP M-54 had been adversely affected four times, exceeding the 40 gpm controlled leakage limit of TS 3.4.6.2.

The orifices were installed correctly and the flow measurement surveillance test of the RCP seal injection lines was completed July 2, 1987.

B. Inoperable structures, components or systems that contributed to the event:

None

C. Dates and approximate times for major occurrences:

1. June - July 1985: The flow measurement orifices on RCP 2-1 and 2-4 were reversed during maintenance on RCP seal injection lines.

2. August 27, 1985, December 7, 1985, January 24, 1986, and March 28, 1986: Event dates - STP M-54 was performed to determine RCP seal injection flow. The "as left" data combined with the reversed orifice error exceeded the 40 gpm controlled leakage criteria of TS 3.4.6.2.

3. June 29, 1987: Discovery date - Incorrect installation of FE-144 and FE-115 identified during corrective maintenance.

4. July 2, 1987: The orifices were installed correctly and the flow measurement surveillance test of the RCP seal injection lines was completed.

D. Other systems or secondary functions affected:

None

E. Method of discovery:

An Instrumentation and Controls technician discovered the incorrect installation during maintenance on the associated flow transmitters.

F. Operator actions:

Not required

G. Safety system responses:

None required

III. Cause of Event

A. Immediate cause:

RCP seal injection flow measurement orifices FE-115 and FE-144 were installed backwards which caused indicated flowrate to be approximately 1.5 gpm less than actual flowrate for each of the two orifices. This caused the controlled leakage limit of TS 3.4.6.2 to be inadvertently exceeded.

B. Root cause:

Adequate detail was not provided in the written instructions to ensure proper installation and orientation of a flow measurement orifice.

IV. Analysis of Event

An engineering analysis was conducted to determine the effect of RCP seal injection flow in excess of the TS limit on the required safety injection flow at normal operating pressure. Graphical data provided in the Final Safety Analysis Report and surveillance test data from centrifugal charging pump testing were used to determine the safety injection flowrate margin. It was concluded that the minimum safety injection flowrate through the boron injection tank would have been met. Thus, no safety consequences or implications resulted from this event.

1567S/0051K

V. Corrective Actions

A. The Work Planning Center will provide adequate written instruction for proper installation of orifice plates.

B. The Mechanical Maintenance department and the Work Planning Center will conduct a training session on the written instructions for orifice installation.

C. The Training Department will include orifice installation instructions at the quarterly maintenance training seminar and in the Quality Control Specialist training program.

D. All flow measurement orifices that provide data for TS-related surveillances were inspected to verify proper orientation. Four other orifice plates were found to be installed backwards. These incorrect installations did not adversely affect any TS surveillance tests or system performance.

VI. Additional Information

A. Failed components:

None

B. Previous LERs on similar events:

None

PACIFIC GAS AND ELECTRIC COMPANY

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JAMES D. SHIFFER
VICE PRESIDENT
NUCLEAR POWER GENERATION

July 28, 1987

PGandE Letter No.: DCL-87-183

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

Re: Docket No. 50-323, OL-DPR-82
Diablo Canyon Unit 2
Licensee Event Report 2-85-029-00
Improper Installation of Reactor Coolant Pump Seal Injection Orifices Caused Controlled Leakage in Excess of Technical Specification Limit

Gentlemen:

Pursuant to 10 CFR 50.73(a)(2)(i), PGandE is submitting the enclosed Licensee Event Report concerning the improper installation of reactor coolant pump seal injection orifices which caused controlled leakage in excess of the Technical Specification limit.

This event has in no way affected the public's health and safety.

Kindly acknowledge receipt of this material on the enclosed copy of this letter and return it in the enclosed addressed envelope.

Sincerely,

J.D. Shiffer

Enclosure

cc: L. J. Chandler
J. B. Martin
P. P. Narbut
B. Norton
CPUC
Diablo Distribution
INPO

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