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September 9, 1993

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 93-09-00

Document Control Desk
US Nuclear Regulatory Commission
Mail Station P1-137
Washington, DC 20555

The attached Licensee Event Report LER 93-09-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,

Attachment

cc: Mr. Thomas T. Martin
Regional Administrator - Region I
US Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Francis J. Williams, Jr., Project Manager
Project Directorate I-1
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NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Indian Point Unit No. 2	0 5 0 0 0 2 4 7	1 OF 0 4

TITLE (4)

Entry Into Technical Specification 3.0.1

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 5 0 0 0
0 8	1 0	9 3	9 3	— 0 0 9	— 0 0	0 9	0 9	9 3		0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	1 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		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)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	X 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
	AREA CODE
Robert H. Stonum, Sr. Engineer	9 1 4 5 2 6 — 5 1 2 9

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

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

On Tuesday, August 10, 1993, two separate occurrences of entry into Technical Specification 3.0.1 and initiation of plant shutdown took place.

The first occurrence took place with Indian Point 2 operating at full power. Emergency Diesel Generator (EDG) 22 was out of service for scheduled Preventative Maintenance (PM). Service Water Pump (SWP) No. 22 on the non-essential header was inoperable (later determined to be caused by a failed pump shaft coupling). At 0740 hours, SWP No. 21 was declared inoperable due to a low flow/pressure condition (later determined to be caused by a failed pump shaft coupling). The simultaneous inoperability of SWP No. 21 and EDG No. 22 created a condition that was not in accordance with Technical Specification 3.7.B.1, which in turn caused entry into the Limiting Condition for Operation (LCO) requirements of Technical Specification 3.0.1, which called for the plant to be placed in hot shutdown within 7 hours. At 1430 hours, No. 22 EDG was returned from PM, tested successfully, and declared operable, allowing exit from Technical Specification 3.0.1.

The second occurrence was at 1525 hours when one of two DC control power fuses for EDG No. 22 blew. This caused EDG No. 22 to again be declared inoperable and recreated the TS 3.0.1 condition. The fuses were replaced, the EDG retested successfully, and declared operable again at 2130 hours. The health and safety of the public were not affected by this event.

PLANT SYSTEM IDENTIFICATION

Westinghouse 4-Loop Pressurized Water Reactor

IDENTIFICATION OF OCCURRENCE

Scheduled preventative maintenance on Emergency Diesel Generator (EDG) No. 22 and subsequent loss of Service Water Pump (SWP) No. 21 created a condition that was prohibited by Technical Specifications, thereby requiring entry into Technical Specification 3.0.1.

EVENT DATE: August 10, 1993

REPORTABILITY DETERMINATION DATE: August 10, 1993

REPORT DUE DATE: September 9, 1993

REFERENCES: Significant Occurrence Reports (SOR) 93-408, 93-409, 93-410, 93-412

PAST SIMILAR OCCURRENCES: LER 88-015, LER 89-011

DESCRIPTION OF OCCURRENCE:

Prior to the event, at 0300 hours on August 9, 1993, Indian Point 2 was operating at full power when the Essential Service Water header low pressure alarm was received in the central control room. The third Service Water Pump (SWP) was started and subsequent investigation by operations revealed that SWP No. 22 was inoperable (later determined to be due to a shaft coupling failure). The 12 hour Limiting Condition for Operation (LCO) specified in Technical Specification 3.3.F.1.b for a degraded essential service water header was entered. At 0330 hours the eight hour LCO regarding the interconnection of service water headers specified in Technical Specification 3.3.F.3 was entered while the essential header was changed to the one serviced by SWPs No. 24, 25 and 26. At 0445 hours the service water header serviced by SWPs No. 24, 25 and 26 was declared as the essential header and the LCOs for Technical Specification 3.3.F.1.b and 3.3.F.3 were exited. SWP No. 22 remained inoperable.

On Tuesday, August 10, 1993, Indian Point 2 was operating at full power with Emergency Diesel Generator (EDG) No. 22 removed from service for scheduled Preventative Maintenance (PM) and the LCO specified in Technical Specification 3.7.B.1 in effect. The designated non-essential service water header was served by SWPs No. 21, 22 and 23. SWP No. 22 on the non-essential header was undergoing replacement.

DESCRIPTION OF OCCURRENCE: (continued)

At 0740 hours the non-essential service water pressure decreased from approximately 60 psig to 40 psig. Upon investigation by operations, 21 SWP was shut down and declared inoperable and the 24 hour LCO specified in Technical Specification 3.3.F.2.b was entered. In addition, with 21 SWP inoperable the equipment operability requirements of Technical Specification 3.7.B.1 were no longer satisfied since an engineered safety feature (SWP No. 21) associated with the remaining EDG buses (EDGs 21 and 23) was inoperable. Therefore, since a condition in excess of the LCO in Technical Specification 3.7.B.1 existed, Technical Specification 3.0.1 was entered requiring the unit be in a hot shutdown condition within 7 hours.

At 1430 hours, EDG No. 22 was returned from Preventative Maintenance. The full monthly surveillance test, which included running and loading the diesel, was performed successfully and EDG No. 22 was declared operable. This allowed exit from the EDG LCO associated with Technical Specification 3.7.B.1 and Technical Specification 3.0.1. At 1525 hours one of two DC control power fuses for the starting circuitry of EDG No. 22 blew. EDG No. 22 was declared inoperable and, since SWP No. 21 was still inoperable, Technical Specification 3.0.1 was re-entered. EDG No. 22 was test run and declared operable again at 2130 hours, which allowed exit from the LCO of Technical Specification 3.0.1. The 24 hour LCO associated with Technical Specification 3.3.F.2.b remained in effect until 0330 hours on Wednesday August 11 when SWP No. 22 was tested satisfactorily and declared operable. Power escalation to 100% did not occur until August 13, when the failure mechanism of the SWP couplings was identified and corrective actions taken.

ANALYSIS OF OCCURRENCE:

When SWP No. 22 was declared inoperable, the twelve hour LCO specified in Technical Specification 3.3.F.1.b was entered for a degraded essential service water header. The designated essential service water header was swapped to the header serviced by SWP No. 24, 25, 26 and the LCO exited.

When EDG No. 22 was removed from service to perform scheduled PM, the LCO specified in Technical Specification 3.7.B.1 was entered and a 7 day LCO was declared. The inoperability of SWP No. 22 did not result in any additional LCO since Technical Specification 3.3.F.2.a only requires two SWPs on the non-essential header. The failure of SWP No. 21 caused the operators to recognize that the plant was in not only a 24 hour LCO for purposes of Technical Specification 3.3.F.2.b which requires 2 SWPs on the non-essential header, but also in a Technical Specification 3.0.1 LCO due to the inability to satisfy the requirements of Technical Specification 3.7.B.1 pertaining to EDG operability. Technical Specification 3.7.B.1 allows an Emergency Diesel Generator to be out of service for 7 days, provided the Engineered Safety Features associated with the remaining EDG buses are operable. Since SWP No. 21 is fed from the bus supplied by EDG No. 21, this requirement was no longer satisfied. Entries into Technical Specification 3.0.1 are reportable pursuant to 10 CFR 50.73(a)(2)(i)(b) because the plant is not in accordance with the operability requirements of the Technical Specifications.

ANALYSIS OF OCCURRENCE: (continued)

Following a design basis event, the safety related loads supplied by the non-essential service water system are the Component Cooling Water Heat Exchangers. One pump on the non-essential service water header is capable of supplying the minimum safeguards loads. With SWP No. 23 and EDG No. 23 operable, sufficient service water was available to supply the minimum safeguards loads throughout this event.

The service water pump failures were caused by a failure of a pump shaft coupling.

CAUSE OF THE OCCURRENCE:

The failure of the couplings on SWP No. 22 and SWP No. 21 was attributed to a single one time event, such as the impact of the impeller against entrained debris. No evidence of fatigue was observed on the fracture faces of the coupling.

The initial investigation and testing did not determine the cause of the EDG No. 22 control power fuse failure and therefore it is still under investigation.

CORRECTIVE ACTION:

A search of the Service Water Bay for debris that might have caused the failure of the couplings on SWP No. 21 and SWP No. 22 was conducted. Several items were removed from the bay, none of which were believed to be responsible for the failure of the pumps. An inspection of the Service Water Bay in the vicinity of the Service Water Pumps determined that whatever debris may have caused the pump failures was no longer present or a threat to the operation of the pumps. The Service Water Pump Strainers were also inspected and there was no evidence of debris found in any of the strainers.

In order to help prevent foreign material from entering the service water bay in the future, a material accountability program is being set up to track materials brought into the area surrounding the service water bay.

Subsequent to the failure of the control power fuse for EDG No. 22, Instrument and Control (I&C) took resistance measurements of the circuit and found no evidence of a short circuit. A visual inspection of the EDG Control Cabinet and the Jacket Water Temperature sensor wiring, which had been worked on during the EDG P.M., also found no evidence of electrical failure. Ammeters were installed and readings taken during the start and test run of 22 EDG and for one hour after the shutdown. All of the readings were normal. Failure analysis of the control power fuse is being conducted.