

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Indian Point, Unit 3										DOCKET NUMBER (2) 0 5 0 0 0 2 8 16				PAGE (3) 1 OF 0 13		
TITLE (4) Reactor Trip, Main Boiler Feed Pump Trip Due to Oil System Transient Caused by Oil Pump Seizure Due to an Overgreased Motor Bearing																
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 2	0 2	8 8	8 8	0 0 1	0 0	0 2	2 6	8 8					0 5 0 0 0			
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)														
N		20.402(b)				20.405(c)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				73.71(b)		
POWER LEVEL (10)		20.405(a)(1)(i)				50.38(c)(1)				50.73(a)(2)(v)				73.71(c)		
1 1 0 0		20.405(a)(1)(ii)				50.38(c)(2)				50.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
		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)(ix)						
LICENSEE CONTACT FOR THIS LER (12)																
NAME Roger Lauricella, Resident Engineer										TELEPHONE NUMBER AREA CODE 9 1 4 7 3 16 1 8 10 14 6						
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD						
D	SIL	I M O W	1 1 2 1 0	Y												
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)												<input checked="" type="checkbox"/> NO				

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

On February 2, 1988, with the reactor at 100 percent power, a manual unit trip was initiated by plant operators due to the loss of both main boiler feed pumps (MBFPs) and the anticipated decrease of steam generator levels. All plant systems functioned properly following the trip. It was determined subsequent to the trip that both MBFPs had tripped due to a Control/Auto Stop Oil System pressure perturbation caused by bearing seizure of the No. 31 A.C. oil pump. This seizure of the No. 31 oil pump caused a rapid decrease in system oil pressure from which the standby oil pump could not recover before the MBFPs tripped. Investigations revealed overgreasing had caused the bearing on the No. 31 A.C. oil pump to seize. The overgreasing of the bearing occurred previous to this event and is attributed to procedural deficiencies concerning lubrication activities. A preventative maintenance procedure on equipment lubrication has been implemented to preclude similar occurrences. The No. 31 A.C. oil pump was repaired and cleaned with both sets of bearings replaced, and the motor was returned to service. Following the No. 31 oil pump repairs, the reactor was brought critical and synchronized to the bus on February 3, 1988. Full reactor power was reached on February 4, 1988.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Indian Point, Unit 3	05000286	88	001	00	02	OF	03

TEXT (If more space is required, use additional NRC Form 368A's) (17)

DESCRIPTION OF THE EVENT:

At 2121 hours on February 2, 1988, with the plant at 100%, the main boiler feed pump (MBFP) No. 32 tripped. Four (4) seconds later No. 31 MBFP also tripped. Operators responding to the loss of both MBFPs manually tripped the reactor from 100% power in anticipation of the decrease of steam generator levels. All plant systems functioned properly following the unit trip.

Subsequent investigation revealed that the trip of both MBFPs was due to a significant decrease in pressure in the control oil system (SL) for the feedwater pumps. The rapid decrease of oil pressure resulted from the seizure of No. 31 A.C. oil pump's lower motor (W120) bearing (MO) which was operating at that time and supplying oil to both MBFPs. The standby pump, No. 32 main A.C. oil pump, started as required, but was ineffective in raising oil pressure quickly enough to avoid an MBFP trip. It has been concluded that the pressure drop in the control oil system was more rapid than has been experienced in the past following electrical trips of the oil pumps since, in this event, the oil pump seized.

CAUSE OF THE EVENT:

The failure of No. 31 A.C. main oil pump bearing (SKF brand shielded type bearing No. 2736D30G06) was due to grease overpressure which caused the compression of the bearing shield into the inner rollers, increasing friction in the bearing and eventually causing the seizure. Evidence of this was noted in the damaged bearing. The Maintenance Department had previously recognized the potential for this type of problem and in November of 1986 replaced the standard grease plug with a pressure relief plug. The pressure relief plug was installed in the upper and lower bearings of both 31 and 32 main A.C. oil pumps. It is concluded that damage to the bearing had already occurred prior to the pressure relief plug installation. The primary root causal factor for the bearing failure was a procedural problem concerning preventative maintenance lubrication of the failed bearing which resulted in the bearing being overgreased. The previous procedures for plant equipment lubrication lacked adequate guidance and instruction on proper lubrication methods.

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

ANALYSIS OF THE EVENT:

This event is reportable under 10CFR50.73 (a) (2) (iv). An evaluation has determined that this event has been considered under the guidelines of plant FSAR and Technical Specifications and no other safety concerns exist as a result of this event.

The following actions were undertaken as a result of this incident:

- 1) The No. 31 main oil pump was repaired and cleaned with both sets of bearings replaced.
- 2) A commitment was made to disassemble and inspect both bearings on the No. 32 A.C. oil pump at the earliest possible maintenance interval.
- 3) A newly developed Preventative Maintenance procedure concerning lubrication of plant equipment has been implemented. This procedure covers in detail the proper method to be used in greasing and lubricating bearings on motors. Units of measure concerning the amounts of grease and type are included for guidance in the greasing activities.
- 4) Efforts are underway to evaluate the possible development and implementation of an Oil Accumulator System to be installed on the Auto-Stop/Control Oil System for the MBFPs to reduce the potential for plant trips resulting from oil system perturbations.

On February 3, 1988, following the completion of minor maintenance items being performed during the shutdown (including the work on No. 31 main A.C. oil pump), the reactor was brought critical at 1335 hours. The generator was synchronized to the bus on February 3 at 1903 hours and full reactor power was reached on February 4 at 1805 hours. No similar events or LERs have occurred or been reported to date.

Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511
914 739.8200



February 26, 1988
IP3-88-015
IP3-88-001R

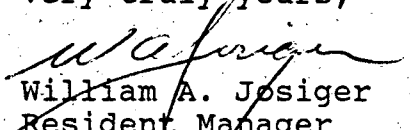
Docket No. 50-286
License No. DPR-64

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

Dear Sir:

The attached Licensee Event Report LER 88-001-00 is hereby submitted in accordance with the requirements of 10CFR50.73. This event is of the type defined in Paragraph 50.73 (a) (2) (iv).

Very truly yours,


William A. Josiger
Resident Manager
Indian Point 3 Nuclear Power Plant

RL:rj
Attachment

cc: Mr. William Russell
Regional Administrator
Region 1
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339

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bcc: IP3 Resident Inspector's Office
J. P. Bayne, WPO
J. C. Brons, WPO
G. M. Wilverding, (SRC), WPO
Records Center, WPO
OERG