Indian Point 3
Nuclear Power Plant
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New York Power Authority

Joseph E. Russell
Resident Manager

July 20, 1992
IP3-NRC-92-050

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

Document Control Desk
Mail Stop PI-137
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Sir:

The attached License Event Report LER 92-008-00 is submitted in accordance with the requirements of 10CFR50.73. This event is of the type defined in 10CFR50.73 (a)(2)(i) and (ii), and was described in a four hour report provided to the NRC Operations Center on June 19, 1992.

Very truly yours,

Joseph E. Russell
Resident Manager
Indian Point Three Nuclear Power Plant

JER/we/dc

Attachment

cc: Mr. Thomas T. Martin
Regional Administrator
Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King Of Prussia, PA 19406

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

JE22

NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
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TITLE (4)

Loss of Containment Isolation Capability Due to Undersized MOV Spring Packs

EVENT DATE (5) MONTH	DAY	YEAR	LER NUMBER (6) YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	REPORT DATE (7) MONTH	DAY	YEAR	OTHER FACILITIES INVOLVED (8) FACILITY NAMES	DOCKET NUMBER(S)
0 6	1 9	9 2	9 2	— 0 0 8 —	0 0	0 7	2 0	9 2		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): N

POWER LEVEL (10): 0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

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)	X 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
Bryan Ray, OERG/Licensing Manager	AREA CODE 9 1 4 7 3 6 - 8 0 4 8

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS
B	C C	I S V	V 0 8 5	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) | X NO

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

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

On June 19, 1992 with the plant in refueling mode, plant staff confirmed that two series containment isolation valves on a component cooling return header would not have been able to automatically function under maximum design load. The NRC was notified under 50.72(b)(2)(i). The cause of the inoperability was undersized spring packs in the valves' actuators. The actuator spring packs were upgraded and both valves were diagnostically tested to verify operability. Capability to isolate during plant design basis accident (LOCA) conditions existed, but the valves were not capable of isolation following the valves' maximum load event (a reactor coolant pump thermal barrier heat exchanger tube rupture). Corrective action is to complete generic letter 89-10 implementation. Reference LERs 91-01 and 91-06.

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

DESCRIPTION OF THE EVENT

On June 19, 1992 with the plant in refueling mode, plant staff confirmed that two series containment isolation valves (FCV-625 and MOV-789)(CC)(ISV)Velan)(V085) on a component cooling return header would not have been able to automatically function under maximum design load. The cause was undersized spring packs in the valves' actuators (Limitorque SMB-00) (L200). The actuator spring packs were upgraded and both valves were diagnostically tested to verify operability. A four hour report was made on June 19, 1992 in accordance with 10CFR50.72(b)(2)(i).

INVESTIGATION OF THE EVENT

FCV-625 and MOV-789 are normally open three inch gate valves, in series outside containment, on the reactor coolant pump thermal barrier heat exchanger return header in the component cooling water system. The valves close on a phase B (containment spray) containment isolation signal; FCV-625 also closes on high flow (indication of thermal barrier tube rupture). Phase B isolation only requires closing against component cooling water system operating conditions. More severe conditions are imposed by a thermal barrier tube rupture, which provides the maximum design basis load for operability assessment.

MOV-789 had been inoperable for the thermal barrier tube rupture event since plant startup (1976) due to an undersized spring pack (60-600-0021-1). The correct spring pack (0301-112) was installed and proper function of the MOV assembly was verified by diagnostic testing and analysis during the 1992 outage.

FCV-625 was inoperable for the thermal barrier tube rupture event from plant startup to mid 1989, when the original actuator spring pack (60-600-0021-1) was upgraded during routine maintenance. Although the FCV-625 replacement spring pack was adequately sized, valve operability cannot be verified due to a lack of test data (predated Generic Letter 89-10 implementation). During the 1992 outage, the FCV-625 spring pack was again replaced to match MOV-789.

Valves installed in the FCV-625 and MOV-789 locations are different from the original design specifications. FCV-625 and MOV-789 were originally specified as three inch Darling double-disc (two seating surfaces) gate valves; three inch Velan flexible wedge (single seating surface) gate valves were actually installed during construction with undersized actuators. The Limitorque SMB-00 actuators installed on FCV-625 and MOV-789 were sized for two inch globe valve service. Installation of a stronger spring pack allowed the valve operator to deliver the required thrust.

CAUSE OF THE EVENT

A Limitorque actuator misapplication during initial construction resulted in undersized valve actuator spring packs in both valves FCV-625 and MOV-789.

The valve design basis reviews conducted in response to NRC Generic Letter 89-10 resulted in these findings. Following FCV-625 spring pack replacement in 1989, the MOV program established to implement Generic Letter 89-10 was in its early stages. FCV-625 had not been evaluated or diagnostically tested at that time.

CORRECTIVE ACTIONS

1. New spring packs (0301-112), appropriately sized for design loads, were installed in FCV-625 and MOV-789; both valves satisfactorily passed diagnostic testing.

2. Generic Letter 89-10 MOV nameplate data is being compared to design documents, and deviations will continue to be evaluated for consistency with applicable criteria. Completion is scheduled for the next refueling outage (Fall 1994).

3. Periodic diagnostic tests and comparisons to baseline data in accordance with Generic Letter 89-10 are part of the Indian Point 3 MOV program. Initial baselining is approximately 70 percent complete, and is scheduled for completion during the cycle 9/10 refueling outage (fall 1994).

SAFETY SIGNIFICANCE

Technical Specification 3.6.A.1 states that containment integrity shall not be violated unless the reactor is in a cold shutdown condition and requires that all automatic containment isolation valves are either operable or in the closed position, or isolated by a closed manual valve or flange that meets the same design criteria. Technical Specification 3.6.A.3 provides one hour to restore containment integrity, when the reactor is above cold shutdown, or stipulates hot shutdown within six hours and cold shutdown within the next thirty hours. Therefore, the event is being reported pursuant to 10CFR50.73(a)(2)(i)(B) - operations prohibited by Technical Specifications and 10CFR50.73(a)(2)(ii)(B) - principal safety barrier outside the design basis.

No impact on public health and safety resulted from this event. Since both valves were operable for the plant design basis (LOCA) accident, safety consequences of a potential event are limited to a thermal barrier rupture which results in limited release outside containment of reactor coolant with technical specification permitted radionuclide concentrations.

A thermal barrier tube rupture would cause a flow increase in the return header. Based on 2000 gallons of free surge tank volume, at the alarmed flow of 177 gpm the surge tanks would overflow causing a second control room alarm. Off-normal procedures stipulate closure of FCV-625 if automatic actuation has not worked. Isolation is also possible by closure of MOV-789. It is estimated that manual closure would be accomplished within 15 minutes based on operational experience, which would contain reactor coolant leakage within the surge tanks/waste holdup tanks (holdup tanks total volume exceeds 140,000 gallons). Offsite dose consequences would be negligible.

FCV-625 closure is not required to protect the component cooling water system against overpressure. According to Section 9.3.3 of the Final Safety Analysis Report (FSAR), the interconnecting line from surge tanks to waste holdup tanks is sized to relieve the maximum flow rate due to thermal barrier cooling coil rupture. Waste holdup tanks are vented to atmosphere through the building exhaust system.

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

There is no core uncovering potential expected for a thermal barrier tube (3/4 inch O.D.) break. According to Section 14.3.3.4 of the FSAR, sensitivity studies have indicated little or no uncovering for break sizes less than two inches diameter.

SECURING FROM THE EVENT

New spring packs (0301-112), appropriately sized for design loads, were installed in FCV-625 and MOV-789 during May 1992, then both valves satisfactorily passed diagnostic testing performed in accordance with Generic Letter 89-10. Both valves were restored to operable status, following other position indication and torque switch bypass adjustments, by June 23, 1992.

PREVIOUS EVENTS

LER 91-01, January 3, 1991, reports an undersized spring pack and inoperable isolation valve in the component cooling water system. The cause was incorrect valve designation which resulted in an undersized replacement spring pack. The original spring pack had been adequately sized. Corrective action was spring pack upgrade and continuation of the Generic Letter 89-10 MOV program.

LER 91-06, April 26, 1991, voluntarily reports on eleven MOVs with upgraded spring packs, gear ratios, and motors to meet Generic Letter 89-10 standards.