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Robert J. Barrett
Site Executive Officer

February 16, 2000
IPN-00-011

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

SUBJECT: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
License No. DPR-64
Licensee Event Report # 2000-001-00
Plant Outside Design Basis Due to a Mispositioned Valve Caused by a Procedure Error that Could Prevent Use of Low to High Head Safety Injection Recirculation Under Postulated Accident Conditions When Considering a Passive Failure

Dear Sir:

The attached Licensee Event Report (LER) 2000-001-00 is hereby submitted as required by 10 CFR 50.73. This event is of the type defined in 10 CFR 50.73 (a)(2)(ii)(B) for a condition recorded in the New York Power Authority's (NYPA) corrective action process as Deviation Event Report DER 00-00121.

NYPA is making no new commitments in this LER.

Very truly yours,

Robert J. Barrett
Site Executive Officer
Indian Point 3 Nuclear Power Plant

cc: See next page

IE22

cc: Mr. Hubert J. Miller
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U.S. Nuclear Regulatory Commission
Resident Inspectors' Office
Indian Point 3 Nuclear Power Plant

NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Indian Point 3	05000286	1 OF 5

TITLE (4)

Plant Outside Design Basis Due to a Mispositioned Valve Caused by a Procedure Error that Could Prevent Use of Low to High Head Safety Injection Recirculation Under Postulated Accident Conditions When Considering a Passive Failure

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 NAME	DOCKET NUMBER
01	17	2000	2000	-- 001 --	00	02	16	2000	N/A	05000
									FACILITY NAME: N/A	DOCKET NUMBER: 05000

OPERATING MODE (9)	N
POWER LEVEL (10)	100

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

	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)	✓	50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER
	20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Dennis Main, Operations Engineer	914-736-6205

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	✓ NO				

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

On January 14, 2000, Operations discovered Safety Injection (SI) system manual butterfly valve SI-1863 mispositioned closed during an extent of condition inspection for the inability to establish excess letdown. The valve was opened shortly after discovery, the event was reviewed and the system was considered to be operable and not reportable. Further assessment of the event report on January 17 determined that the condition could potentially place the plant outside design basis and a one hour event notification was made to the NRC. FSAR Table 6.2-8 describes the use of an alternate low-to-high head SI flowpath during recirculation following a postulated accident should the normal flowpath be unavailable due to a passive failure. The inappropriate closure of valve SI-1863 could prevent the use of the alternate SI flowpath thereby placing the plant outside its design basis. The event was due to a deficiency in procedure SOP-RP-20, "Draining the Refueling Cavity," caused by personnel error as a result of inadequate error detection/self checking. The procedure did not require the valve to be returned to the Check Off List (COL) open position. Corrective actions for this event included opening valve SI-1863, issuance of a shift order for operators to review safety related procedures against their associated COL to ensure components are restored to the COL position upon completion of the procedure and the need for attention to detail, and re-performing accessible portions of safety related COLs. Procedure SOP-RP-20 will be revised prior to next use, and all safety related procedures will be reviewed to ensure they require components to be restored to the COL position. There was no effect on public health and safety.

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Indian Point 3	05000286	2000	-- 001	-- 00	2 OF 5

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

Note: The Energy Industry identification system Codes are identified within the brackets {}

DESCRIPTION OF EVENT

On January 14, 2000, at approximately 0914 hours, with steady state reactor power at approximately 100 percent, Operations discovered Safety Injection (SI) system {BP} manual butterfly valve SI-1863 {V} mispositioned closed during an extent of condition inspection for the inability to establish excess letdown {CB}. The valve was re-positioned to open in accordance with Check Off List COL-RHR-1 shortly after discovery. The SI-1863 valve mispositioning event was recorded in a Deviation Event Report (DER 00-00121), and further investigations initiated. Initially the event was classified as potentially reportable, but after review of plant procedures and drawings, and discussion with system engineering, the condition was judged not reportable. On January 17, the event reportability determination was further assessed and the inability to perform low head (LH) {BP} to high head (HH) recirculation {BQ} with a passive failure in the alternate flow pathway was recognized. This condition could place the plant outside design basis and a one hour event notification was made to the NRC (Log No. 36598).

The finding was a result of actions initiated by Operations based on a suspicion that the inability to establish excess letdown was a result of a mispositioned valve. FSAR Table 6.2-8 describes the use of an alternate low-to-high head SI flowpath during recirculation following a postulated accident should the normal flowpath be unavailable due to a passive failure. Either set of SI containment recirculation pumps {BP} (2) or RHR pumps {BP} may be aligned to support the low head recirculation function via the RHR heat exchangers {HX}. Similarly, either set of pumps may be aligned to support the HH recirculation function through branch lines from the outlet of the RHR heat exchangers to the common suction piping of the HH SI pumps. At a time between 14 and 23.4 hours, following a loss of coolant accident (LOCA), hot leg recirculation is established by aligning the HH SI pump's discharge branch line valves to close four of eight cold leg flowpaths and open two hot leg flowpaths. The plant's design basis includes the ability to realign SI based on postulation of a passive failure 24 hours post accident. If a loss of the normal LH to HH recirculation flowpath should occur in the common HH SI suction flowpath (this would require a passive failure), then this flowpath would be isolated in accordance with established procedures. Plant design allows HH hot leg recirculation to be established using an alternate flowpath from the RHR pump discharge to the isolated suction of the 32 SI pump {P}. This alternate flowpath requires that locally operated manual valve SI-1863 be open. As a result of mispositioning valve SI-1863 closed, this alternate flowpath would not be available to operators. The procedure for aligning this flowpath in the event of a passive failure does not recognize the need to open valve SI-1863. The inappropriate closure of valve SI-1863 could prevent the use of the alternate SI flowpath in the event of a passive failure thereby placing the plant outside its design basis.

On October 8, 1999, during closure for refueling outage 10, valve SI-1863 was verified opened in accordance with Check Off List COL-RHR-1.

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

Subsequently, the valve was closed in accordance with procedure SOP-RP-20,"Draining the Refueling Cavity." Procedure SOP-RP-20 included a requirement to reposition the valve closed. Personnel performing SOP-RP-20 followed the procedure which required the valve to be left in the closed position contrary to COL-RHR-1. Valve SI-1863 is also identified in surveillance procedure 3PT-R34. The surveillance procedure operates the valve but leaves it in the open position in agreement with COL-RHR-1. Valve SI-1863 is assumed open when performing ONOP-ES-3, "Passive Failures During Recirculation." If procedure ONOP-ES-3 was performed with SI-1863 closed, that condition could result in starting SI pump 32 with its suction path isolated which could lead to pump failure.

An extent of condition (EOC) investigation for this event was initiated that was in addition to the existing EOC for the inability to establish excess letdown due to a mispositioned valve (DER 00-00086). The EOC for the reported event reviewed a sample of safety related procedures to determine if there are other examples of procedures that result in an as-left configuration that is contrary to the applicable COL. Safety related COLs were re-performed in all accessible areas to verify that components were positioned as directed by the applicable COL. The COLs for the remaining inaccessible safety related valves were reviewed to ensure they are in the COL required correct position and verified signed-off as in that position.

CAUSE OF EVENT

This event was due to a procedure deficiency caused by a personnel error as a result of inadequate error detection/self checking during procedure revision. System Operating Procedure SOP-RP-20 specified valve SI-1863 to be closed and failed to require the valve to be returned to the COL-RHR-1 required open position. On October 8, 1999, during closure for refueling outage 10, valve SI-1863 was verified opened in accordance with Check Off List COL-RHR-1. Subsequently, the valve was closed per refueling procedure SOP-RP-20 and left in that position contrary to COL-RHR-1. SOP-RP-20 was changed by revision 9, effective May 23, 1997, adding a new section for draining the refueling cavity using the RHR system. The new section required valve SI-1863 to be closed.

CORRECTIVE ACTIONS

The following corrective actions have been or will be performed under the New York Power Authority's corrective action program to address the cause of the event:

- Valve SI-1863 was re-positioned to open per COL-RHR-1 shortly after discovery of misposition.

- Operations issued a shift order (January 17, 2000) that included requiring the following for addressing this event; 1) procedures performed on safety related systems be checked against their associated COL to ensure the system is left in the required COL alignment, and 2) management expectations on the need for accuracy, attention to detail, and use of the "STAR" process when performing COLs.

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

- Procedure SOP-RP-20 was made inactive until revised prior to its next use for aligning the SI system and using SI-1863.

- Operations re-performed the plant accessible portions of all safety related COLs to ensure components were correctly positioned. Operations concluded inaccessible safety related valves (high radiation areas) were in the COL required position based on acceptable surveillance testing and proper remote indication of system operation.

- The appropriate personnel will be counseled regarding management expectations for attention to detail and the need to perform adequate error detection. Counseling of all applicable personnel is scheduled to be completed by February 29, 2000.

- All applicable safety related procedures will be reviewed to ensure components are required to be positioned in accordance with their applicable COL. The review is scheduled to be completed by December 31, 2000.

ANALYSIS OF EVENT

The event is reportable under 10 CFR 50.73 (a) (2) (ii) (B). The licensee shall report any operation or condition that resulted in the plant being in a condition that was outside the design basis of the plant.

This event meets the reporting criteria because the design basis for HH SI stated in FSAR Table 6.2-8 discusses the use of an alternate LH to HH SI flowpath during recirculation following a postulated accident should the normal flowpath be unavailable due to a passive failure. The inappropriate closure of valve SI-1863 could prevent the use of the alternate SI flowpath discussed in the FSAR. On October 10, 1999, SI-1863 was placed in the closed position in accordance with SOP-RP-20 and remained in this position until discovery on January 14, 2000, at approximately 1914 hours. Valve SI-1863 was re-positioned to open in accordance with COL-RHR-1 on January 14, shortly after discovery.

A review of Licensee Event Reports (LER) for the previous two years for events that involved safety systems outside design basis due to system operating procedural deficiencies did not identify any reported conditions. However, there was an event on October 11, 1999 (DER 99-02254), which did not meet 10CFR50.73 reporting criteria, but was a result of a procedural inadequacy that caused a valve alignment error. The event was the loss of approximately 1500 gallons of water from the reactor vessel to the containment sump as a result of a valve alignment error due to an inadequacy with procedure 3PT-R003A, "Safety Injection Test of Recirculation Switches." The cause of that event was inadequate technical review and inattention to detail regarding procedure revision which is similar to this event. A long term corrective action for that event was to revise administrative procedure AP-3, "IP-3 Procedure Preparation, Review, and Approval."

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Indian Point 3	05000286	2000	-- 001	-- 00	5 OF 5

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

The revision to AP-3 was to clearly delineate management expectations regarding the process for conducting interdepartmental technical reviews, and to amplify the requirement for the review process to include verification of proper component lineups using appropriate plant drawings. This corrective action once implemented, should also address the error identified for this event. Scheduled completion is June 30, 2000. Also, as a result of DER 00-00212, procedural and drawing deficiencies are to be assessed and corrective actions identified as necessary.

SAFETY SIGNIFICANCE

This event had no effect on the health and safety of the public. There were no actual safety consequences for the event because there were no event or conditions that required mitigation.

Review of this event against the guidelines of draft NEI 99-02 Rev. D, "Regulatory Assessment Performance Indicator Guideline," concluded it was not a safety system functional failure (SSFF). In accordance with the definition of a SSFF, which NEI 99-02 states is identical to 10CFR50.73(a)(2)(v),"Any event or condition that alone could have prevented fulfillment of the safety function ...," and the guidelines of NUREG-1022 for 10CFR50.73(a)(2)(v), "In determining reportability of an event or condition that affects a system, it is not necessary to assume an additional random single failure in that system," this event was not a SSFF since there was no actual failure of an SI flow pathway. In the absence of an identified potential failure mechanism, it is not necessary to satisfy the single failure criterion for purposes of determining a SSFF. The plant design basis assumes a random passive failure to the normal pathway used for recirculation after 24 hours of an accident. The normal pathway that was assumed to have a passive failure was available and capable of performing its safety function.

There were no significant potential safety consequences of the event under reasonable and credible alternative conditions. The mispositioned condition during design basis events results in low safety significance. The Indian Point 3 design could have performed all emergency core cooling (ECCS) functions with a single active failure. The valve that was closed (i.e., SI-1863) is located in the alternate pathway for HH SI (i.e., RHR pumps to SI pumps). A single active failure would not require use of the alternate flowpath. The Indian Point 3 licensing basis does not identify or evaluate specific passive failures, but considers the loss of flowpaths due to the need to isolate in response to a passive failure. The flowpath containing valve SI-1863 would be used in response to having to isolate the normal LH to HH flowpath.

An assessment of risk was performed which assumed that HH SI was unavailable under postulated conditions. The results of the risk assessment determined that the core damage frequency (CDF) would be approximately 3E-8 per year. Assessing the condition for a period of three months (approximate duration of valve misposition) resulted in a conditional CDF (CCDF) of 7.5E-9, which is not risk significant(i.e., much less than 1E-6).