Indian Point 3
Nuclear Power Plant
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NewYorkPower Authority

Mr. Fred R. Dacimo
Plant Manager

August 17, 2000
IPN-00-060

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 # 2000-009-00
Plant Outside Design Basis Due to Valve Seat Leakage During Maintenance that Exceeded the External Recirculation Leakage Limits for the Control Room Ventilation System

Dear Sir:

The attached Licensee Event Report (LER) 2000-009-00 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) for a condition recorded in the New York Power Authority's (NYPA) corrective action process as Deviation Event Report DER 00-01801.

NYPA is making no new commitment in this LER.

Very truly yours,

Fred Dacimo
Plant Manager
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)

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TITLE (4)

Plant Outside Design Basis Due to Valve Seat Leakage During Maintenance that Exceeded the External Recirculation Leakage Limits for the Control Room Ventilation System

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
										05000
07	20	2000	2000	-- 009 --	00	08	17	2000	FACILITY NAME	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)
Tat Chan, System Engineer	(914)736-8874

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
X	CB	RV	C711	Y					

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 15 single-spaced typewritten lines) (16)

On July 20, 2000, Operations determined that the Reactor Coolant System (RCS) indicated (total) leak rate increased to approximately 0.3 gpm. Water draining from the opened bonnet of the Chemical and Volume Control System (CVCS) deborating bed outlet isolation valve (CH-313) was measured. The bonnet on valve CH-313 was purposely loosened to provide a low point drain path to support a corrective maintenance (CM) activity. The measured leakage rate correlated to the observed increase in RCS leakage. After an assessment of possible leak pathways, Operations judged that the leak pathway was from the Reactor Coolant Pump (RCP) seal return line to the normal CVCS letdown line through the seat of relief valve CH-263 and through the opened bonnet of valve CH-313. Because valve CH-313 is in the Primary Auxiliary Building (PAB), a path was created for RCS to leak outside containment. Postulating a Design Basis Accident (DBA) concurrent with this condition would result in exceeding the assumed leak rate in the calculation for control room dose, placing the plant outside its design basis. The event was due to a presumed degraded relief valve, CH-263. Corrective actions for this event included isolating the leakage path, replacement of valve CH-313 bonnet and verification of system leak tightness. Valve CH-263 is scheduled to be inspected and repaired in the upcoming refueling outage, RO11, scheduled for May of 2001. There was no effect on public health and safety.

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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 July 20, 2000, at approximately 0352 hours, with steady state reactor power at approximately 100 percent, Operations determined that the Reactor Coolant System {AB} (RCS) indicated (total) leak rate was approximately 0.3 gpm. Because the daily calculated leak rate had previously been much less (approximately 0.07 gpm), Operations initiated an investigation and performed a calculation of identified/unidentified leakage. As part of an RCS system survey during the investigation, Operations measured water draining from the opened bonnet of the Chemical and Volume Control System {CB} (CVCS) deborating bed outlet isolation valve {ISV}, CH-313. The bonnet of valve CH-313 was purposely loosened at about 2130 hours on July 19, 2000 to provide a low point drainage path to support a corrective maintenance (CM) activity. The CH-313 measured leakage rate correlated to the observed increase in RCS leakage. After an assessment of possible leak pathways, Operations judged that the leak pathway was from the Reactor Coolant Pump {P}(RCP) seal return line to the normal CVCS letdown line through the seat of relief valve {RV} CH-263, and through the loosened bonnet of valve CH-313. Because valve CH-313 is in the Primary Auxiliary Building {NF}(PAB), a path was created for reactor coolant to leak outside containment {NH}. Postulating a Design Basis Accident (DBA) concurrent with this condition would result in exceeding the assumed leakage rate used to calculate dose to the control room {NA}(CR), placing the plant outside its design basis. Operations declared the Control Room Ventilation System {VI} inoperable at approximately 0352 hours and made a one hour event notification to the NRC (Log No. 37178) at 0428 hours on July 20, 2000.

At approximately 0925 hours on July 20, 2000, the CVCS system was re-aligned to isolate the RCS leak pathway and the bonnet on valve CH-313 was tightened. At this time, leakage was restored to the previous, "normal" leakrate. This was confirmed by a preliminary RCS leakage evaluation performed at 1300 hours indicating the RCS leakage rate was no more than 0.07 gpm. An Operability Determination (OD) was performed for the Control Room Ventilation System. The OD identified the basis for concluding that the leakage was past relief valve CH-263. This relief valve was considered a boundary for systems outside containment that could contain radioactive fluid during a transient or accident. The boundary was expanded to reflect the presumed leakage path past the CH-263 relief valve. At 1200 hours on July 21, 2000, the affected portion of the CVCS system was filled and vented and the normal charging and letdown was returned to service.

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

The function of CH-263, a Crosby relief valve model number JB-25, is to provide over-pressure protection for the letdown demineralizers. Engineering determined the seat leakage would not impact the valve's set pressure and therefore valve CH-263 would continue to perform its relief function.

CAUSE OF EVENT

The apparent cause of the event is postulated to be a degraded relief valve CH-263. The cause of degradation is under investigation.

CORRECTIVE ACTIONS

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

- The leakage path was isolated, maintenance was completed and the system's leak tightness was verified. The RCS leak rate was restored to previous low levels.
- The relief valve CH-263 is scheduled to be tested and repaired, as necessary, in the upcoming refueling outage, RO11, scheduled for May of 2001. This maintenance had been scheduled as a normal preventative maintenance (PM) activity prior to this event. Based on the information obtained during the repair, the PM frequency may be adjusted or other actions, as appropriate, may be performed.
- External leakage on the CVCS letdown header will be included in procedure 3PT-C1, "Total Leakage Rate Monitoring Tabulation".
- An extent of condition will be done, as appropriate, as part of the corrective action program.

ANALYSIS OF EVENT

The event is reportable under 10 CFR 50.73 (a) (2) (ii). 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.

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

This event meets the reporting criteria because the leakage through valve CH-263 and out the bonnet of valve CH-313 exceeded the design basis for the Control Room Ventilation System (CRVS). The design basis dose evaluation assumes that the maximum leakage from external recirculation sources (defined in FSAR Section 6.2.3) is 0.7 gph. Failure to meet the assumed external recirculation leakage limit assumed would result in the CRVS not meeting the dose limits of 10CFR50, Appendix A, GDC-19 based on the evaluation methodology currently approved for Indian Point 3. This condition existed from about 2130 hours on July 19, 2000 when the bonnet of valve CH-313 was removed until 0925 hours on July 20, 2000 when the bonnet was replaced.

A review of Licensee Event Reports (LER) for the previous two years for events that involved leakage due to equipment failure that resulted in the plant being outside design basis identified LERs 1998-010, 1998-004, 1999-07. The corrective actions associated with these LERs would not have prevented this event due to different leakage mechanisms.

SAFETY SIGNIFICANCE

This event had no significant 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. The CRVS continued to perform its safety function during this period.

The dose consequences of the increased leakage from the CVCS system were evaluated for offsite and control room effects under postulated events. The excess leakage could contain radioactive fluid, such that it would affect the design basis assumption, only during a small break loss of coolant accident (SBLOCA) when the reactor coolant pumps (RCP) are operating. The design basis for a large break loss of coolant accident (LBLOCA) would give a Phase B containment isolation signal that would isolate the excess letdown line from the RCP seal cooling return. Due to the limited core damage for a SBLOCA, offsite doses would be bounded by the LBLOCA. Control room doses were calculated to be about twice the GDC-19 limits using conservative LBLOCA assumption for core damage (these are the design basis assumptions used in calculations for LBLOCAs). Considering that a SBLOCA would reduce core damage by 90%, the safety significance to the CR operator is judged to be not significant under a postulated SBLOCA scenario.

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). The condition alone would not have prevented the fulfillment of the safety functions of structure or systems that are needed for the criteria identified in 10CFR50.73(a)(2)(ii). The capability to isolate the leaking pathway was available.