Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511
914 736.8001

NewYorkPower Authority

L. M. Hill
Resident Manager

December 15, 1994
IPN-94-157

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop Pl-137
Washington, D.C. 20555

SUBJECT: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
License No. DPR-64
Licensee Event Report # 94-011-01
"A Failure to Maintain the Required Equivalent Vented Opening of 2.00 Square Inches in the Reactor Coolant System Placed the Plant in a Condition Prohibited by Technical Specifications"

Dear Sir:

The attached Licensee Event Report (LER) 94-011-01 is hereby submitted as required by 10CFR50.73. This revision details the cause of the event and additional corrective actions. This is of the type defined in 10CFR50.73(a)(2)(i)(B). Also attached are the commitments made by the Authority in this LER.

Very truly yours,

L. M. Hill
Resident Manager
Indian Point 3 Nuclear Power Plant

LMH/DWO/vjw

Attachments

cc: See next page

9412230148 941215
PDR ADOCK 05000286
S PDR

IE22

cc: Mr. Thomas T. Martin
Regional Administrator
Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

INPO Records Center
700 Galleria Parkway
Atlanta, Georgia 30339-5957

U.S. Nuclear Regulatory Commission
Resident Inspectors' Office
Indian Point 3 Nuclear Power Plant

List of Commitments

Number	Commitment	Due
IPN-94-157-01	The Operations shift order, which was issued on October 25, 1994, describing the operational guidance for maintaining an RCS equivalent vented opening of at least 2.00 square inches, will be incorporated into POP 4.1, "Operation at Cold Shutdown," by February 2, 1995.	February 2, 1995
IPN-94-157-02	Administrative Procedure (AP) 10.1, "Operating Orders and Control of Stop Tags, and Locks," has been revised, with a limited term procedure change, to require application of AP-13, "Temporary Modification Procedure," where safety related plant components are positioned using devices not integral to the components' design. This prohibition will not include locks and chains used to prevent component manipulation or adjustment by personnel. This revision will be made permanent by February 2, 1995.	February 2, 1995
IPN-94-157-03	Improvement in interdepartmental communication will be accomplished through the completion of Restart Action Plan, R-2.1.2.1, "Roles, Responsibilities and Interfaces for Restart." This Restart Action Plan is required to be completed prior to plant startup.	Prior to startup
IPN-94-157-04	An evaluation of the extent of condition for operating orders requiring component positioning using blocking devices not integral to the component's design will be completed by the Operations department by December 30, 1994.	December 30, 1994

NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

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 Unit 3	05000286	1 OF 7

TITLE (4) A Failure to Maintain the Required Equivalent Vented Opening of 2.00 Square Inches in the Reactor Coolant System Placed the Plant in a Condition Prohibited by Technical Specifications

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
10	19	94	94	-- 011 --	01	12	15	94		05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)					
POWER LEVEL (10)	000	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
		20.405(a)(1)(iii)	✓	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
		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 (Include Area Code)
Alfred R. Froebrich, Watch Engineer-Operations	914-736-8836

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 15 single-spaced typewritten lines) **(16)**

On October 18, 1994, between 1305 hours and 2127 hours, and on October 22, 1994 between 1030 hours and 1140 hours, with the plant in the cold shutdown condition and the reactor coolant system (RCS) depressurized, the available RCS equivalent vented opening was less than 2.00 square inches. This condition was in violation of Technical Specification 3.1.A.8.b(1). This event was due to a failure to fully block open one Power Operated Relief Valve (PORV), RC-PCV-455C or RC-PCV-456, while the other PORV was being stroked opened and closed during testing. The initial Licensee Event Report (LER) 94-011-00 reported that PORV RC-PCV-456 was not fully blocked open, and subsequently it was concluded that both PORVs were not blocked fully open. The cause of this event was that the critical technical information regarding the necessity to block each PORV fully open was not included in the plant operating procedures. Corrective actions include installation of blocking devices to fully block open the PORVs, procedural revisions to provide guidance for maintaining an RCS equivalent opening of at least 2.00 square inches and to provide technical review of valve blocking devices, and completion of the Restart Action Plan to improve interdepartmental communication.

Description of Event

On August 30, 1994, the plant was in the cold shutdown condition with reactor power at 3 counts per second, and reactor coolant system (RCS)(AB) temperature at 94 degrees Fahrenheit and vented at atmospheric pressure. At 2200 hours, a reactor operator with the assistance of a maintenance mechanic blocked open both Power Operated Relief Valves (PORV)(RV), RC-PCV-455C and RC-PCV-456, located on top of the pressurizer by placing a pair of metal disks into the yoke area next to the valves' stems. This was done in accordance with operating order #006719. The purpose of this action was to maintain these valves open when the nitrogen (N_2) supply to the valves' operators was isolated. The isolation of N_2 to these valves was in support of maintenance on the N_2 supply to the safety injection system (BQ) accumulators (ACC). The PORVs had been held open since the completion of RCS fill and vent evolution by applying N_2 to them. The PORVs are opened by N_2 and shut by springs in their valve operators when the N_2 is vented. By maintaining the PORVs open in this way, the Technical Specification requirement for providing an equivalent vented opening in the RCS of at least 2.00 square inches was satisfied. Each PORV is capable of satisfying this requirement when in the full open position.

The blocking devices for the PORVs had been fabricated by the Maintenance department upon request by the Operations department based upon operating order #006719 which called for blocking the PORVs open. This request did not specifically include a requirement that the blocking devices were to be fabricated to achieve the effect of blocking the PORVs in their full open positions. As a result, the blocking devices were fabricated in such a manner as to permit some movement in the valve stem to allow for ease of installation and removal. Essentially, the blocking devices were custom made for each PORV based on the condition and configuration of the valves at the time of measurement by the maintenance mechanic who also fabricated them. Prior to installation, both the shift supervisor and the reactor operator questioned the maintenance supervisor regarding the appearance that the blocking devices were different in size. They were reassured by the maintenance supervisor that the blocking devices had been properly measured. Additionally, the reactor operator who installed the blocking devices questioned the resulting Central Control Room (CCR) dual indication of the open/shut valve position indicating lights (IL) for RC-PCV-456. The senior reactor operator was satisfied that both valves were blocked open far enough to provide the combined equivalent vented opening at least 2.00 square inches. The Operations shift crew who installed the blocking devices did not know at that time that the valves would be stroke-tested in the future.

On October 18, 1994, the reactor was in the cold shutdown condition with reactor power at 3 counts per second, and RCS temperature at 91 degrees Fahrenheit and vented at atmospheric pressure. The day shift senior reactor operator granted permission for a Technical Services department contract engineer to perform engineering acceptance test, ENG-558, revision 1, "PORV Stroke Test for Nitrogen Storage Determination." The precautions and limitations section of ENG-558 required that the RCS be vented with an opening of at least 2.00 square inches. The test also required that each PORV would be stroked opened and closed, but the PORVs would not be closed at the same time to ensure that the RCS retained a 2.00 square inch vent as required by Technical Specifications (assuming each valve had 2.00 square inches).

At 1305 hours on October 18, 1994, the blocking devices were removed from RC-PCV-455C as directed by ENG-558 to permit the stroking of the valve. The blocking devices for RC-PCV-456 remained in place. At 1823 hours, the blocking devices were re-installed on RC-PCV-455C. RC-PCV-455C had been stroked fourteen times during the period. The opening provided by RC-PCV-456 was being used to satisfy the equivalent vented opening requirements for the RCS. Between 1940 hours and 2127 hours RC-PCV-456 was similarly tested. RC-PCV-456 had been stroked ten times during this period. The opening provided by RC-PCV-455C was being used to satisfy the equivalent vented opening requirements for the RCS.

On October 19, 1994, at approximately 0700 hours, the NRC resident inspector, who had witnessed the test the previous day, informed an Operations department shift supervisor that he had observed that the two sets of PORV blocking devices were of different sizes, and questioned whether the Technical Specification requirement for the RCS equivalent vented opening had been met. The shift supervisor initiated a Deviation Event Report (DER) 94-987 at that time to evaluate the inspector's concern. Technical Services department system engineering and Maintenance department engineering evaluated the condition and concluded on October 19, 1994, that the set of blocking devices for RC-PCV-456 did not block open the valve sufficiently to meet the Technical Specification requirement of 2.00 square inches as specified in Technical Specification section 3.1.A.8.b(1). This valve was being solely relied upon to satisfy that requirement when RC-PCV-455C was being stroke-tested in accordance with ENG-558. On October 20, 1994, at 0230 hours, the set of blocking devices for RC-PCV-456 were replaced with a set of blocking devices to block the valve fully open to an equivalent vented opening of 2.00 square inches.

On October 22, 1994, between approximately 1030 hours and 1140 hours, valve RC-PCV-456 was stroked opened and closed to permit Maintenance and Technical Services engineering to measure the full open valve stroke, and from these measurements and measurements of the original set of blocking devices, to determine the equivalent vented opening when the original set of blocking devices had been installed. Maintenance and Technical Services engineering determined, with the assistance of the valve manufacturer, Copes-Vulcan, that the set of blocking devices installed in RC-PCV-456 provided an equivalent vented opening of 1.71 square inches.

When RC-PCV-456 was being stroked for measurement to determine its equivalent blocked open area, the adequacy of the set of blocking devices installed in RC-PCV-455C was not in question as the valve's position indicating lights in the CCR indicated the valve was opened. The CCR valve position indicating lights for RC-PCV-456 had indicated both opened and closed dual indication with its original set of blocks installed. The set of blocking devices for RC-PCV-455C were fabricated by Maintenance to a size less than required for blocking the valve full open in order to facilitate their installation. It was subsequently concluded by Maintenance engineering that the set of blocking devices for RC-PCV-455C also did not block open the valve sufficiently to meet the Technical Specifications requirement. This valve was being solely relied upon to satisfy that requirement when RC-PCV-456 was being stroked. The set of blocking devices installed in RC-PCV-455C provided an equivalent opening of greater than 1.71 square inches but less than 2.00 square inches.

The time that the plant was in violation of the Technical Specification requirement to be vented with an equivalent opening of 2.00 square inches was a maximum of 8 hours and 15 minutes as recorded in the CCR log book. This time bounds the duration for stroking RC-PCV-455C and RC-PCV-456 opened and closed for test ENG-558, on October 18, 1994, and the duration for measuring the stroke on RC-PCV-456 on October 22, 1994.

Cause of Event

The event that resulted in an RCS equivalent opening of less than 2.00 square inches that was in violation of the Technical Specification was due to the failure to fully block open the PORVs. The cause of this event was that the technical information regarding the necessity to block each PORV fully open was not clearly specified and for that reason the technical information was not included in the operational guidance provided in the plant procedures. A February 9, 1994, memorandum which addressed the equivalent vented opening of one fully open PORV stated that the nominal effective flow area for a PORV is 2.05 square inches, and the memorandum had a limited distribution in the Operations and Technical Services departments.

Contributing to this event were the following:

- No provision is made for a technical review of operating orders that describe how to block open valves that do not possess blocking devices integral to the valves' design.
- Operations department personnel did not aggressively pursue their questions regarding the size difference between the two sets of blocking devices and the dual valve position indication for RC-PCV-456.
- There was a failure to effectively communicate between departments the critical information regarding blocking the valves fully open.

Corrective Actions

The following corrective actions have been or will be performed to prevent recurrence of this event:

- The set of blocking devices to fully open RC-PCV-456 was installed on October 20, 1994, at 0230 hours. On November 27, 1994, the blocking devices for RC-PCV-455C and RC-PCV-456 were replaced, via a temporary modification, with a set of adjustable blocking devices that were fabricated to ensure the valves are fully blocked open.

- An Operations shift order was issued on October 25, 1994, to provide the guidance necessary for ensuring the Technical Specification section 3.1.A.8 requirement for a RCS equivalent vented opening of at least 2.00 square inches is maintained.

- The Operations shift order, which was issued on October 25, 1994, describing the operational guidance for maintaining an RCS equivalent vented opening of at least 2.00 square inches, will be incorporated into POP 4.1, "Operation at Cold Shutdown," by February 2, 1995.

- Administrative Procedure (AP) 10.1, "Operating Orders and Control of Stop Tags, and Locks," has been revised, with a limited term procedure change, to require application of AP-13, "Temporary Modification Procedure," where safety related plant components are positioned using devices not integral to the components' design. This prohibition will not include locks and chains used to prevent component manipulation or adjustment by personnel. This revision will be made permanent by February 2, 1995.

- Improvement in interdepartmental communication will be accomplished through the completion of Restart Action Plan, R-2.1.2.1, "Roles, Responsibilities and Interfaces for Restart." This Restart Action Plan is required to be completed prior to plant startup.

- An evaluation of the extent of condition for operating orders requiring component positioning using blocking devices not integral to the component's design will be completed by the Operations department by December 30, 1994.

Analysis of the Event

This event is reportable under 10 CFR 50.73(a)(2)(i)(B). The licensee shall report any operation or condition prohibited by the plant's Technical Specifications. Between 1305 hours and 1823 hours, and between 1940 hours and 2127 hours on October 18, 1994, and between 1030 hours and 1140 hours, on October 22, 1994, the RCS equivalent vented opening was less than the minimum 2.00 square inches as required by Technical Specification section 3.1.A.8.b(1).

Similar LERs related to a failure to recognize nonadherence to Technical Specifications include LERs 93-001, 93-003, 93-004, 93-008, 93-009, 93-010, 93-013, 93-019, 93-020, 93-021, 93-022, 93-023, 93-024, 93-028, 93-034, 93-039, 93-040, 93-049, 93-053, 94-003, 94-004 and 94-010.

Safety Significance

This event had no significant effect on the health and safety of the public. The period of time where the Technical Specification required equivalent vented opening of at least 2.00 square inches was not being met was 8 hours and 15 minutes. During this time, RC-PCV-455C or RC-PCV-456 were being opened and closed, one at a time, as part of a test. Had the Operations shift crew identified a challenge to the Overpressure Protection System (OPS) (AB), they would have fully opened the valve that was being tested. The plant did not experience any evolution or transient which would have presented a challenge to the OPS.