

Paul H. Kinkel  
Vice President

Consolidated Edison Company of New York, Inc.  
Indian Point Station  
Broadway & Bleakley Avenue  
Buchanan, NY 10511  
Telephone (914) 734-5340  
Fax: (914) 734-5923

May 20, 1998

Re: Indian Point Unit No. 2  
Docket No. 50-247  
LER 98-06-00

Document Control Desk  
US Nuclear Regulatory Commission  
Mail Station P1-137  
Washington, DC 20555-0001

The attached Licensee Event Report LER 98-06-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,

*Paul H. Kinkel*

Attachment

cc: Mr. Hubert J. Miller,  
Regional Administrator-Region I  
US Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406-1498

Mr. Jefferey F. Harold, Project Manager  
Project Directorate I-1  
Division of Reactor Projects I/II  
US Nuclear Regulatory Commission  
Mail Stop 14B-2  
Washington, DC 20555

Senior Resident Inspector  
US Nuclear Regulatory Commission  
PO Box 38  
Buchanan, NY 10511

9806020348 980521  
PDR ADDCK 05000247  
S PDR

1/1  
IE 22

NRC FORM 366 (4-95)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98  <small>ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND 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.</small>							
<b>LICENSEE EVENT REPORT (LER)</b>  (See reverse for required number of digits/characters for each block)												
FACILITY NAME (1) <div style="text-align: center;">Indian Point Unit No. 2</div>					DOCKET NUMBER (2) <div style="text-align: center;">05000247</div>			PAGE (3) <div style="text-align: center;">1 OF 4</div>				
TITLE (4) <div style="text-align: center;">POTENTIAL FOR INSUFFICIENT CAPACITY OF NITROGEN FOR THE OVERPRESSURE PROTECTION SYSTEM.</div>												
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		
04	20	98	98	-- 006	-- 00	05	21	98	None	05000		
									FACILITY NAME	DOCKET NUMBER		
										05000		
OPERATING MODE (9)		5	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)(B)		50.73(a)(2)(viii)			
POWER LEVEL (10)		0	20.2203(a)(1)		20.2203(a)(3)(i)		x 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 Name: I. G. Kjellberg Position Title: Sr Engineer								TELEPHONE NUMBER (Include Area Code) <div style="text-align: center;">(914) 734-5567</div>				
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
X YES (If yes, complete EXPECTED SUBMISSION DATE).				NO						07	20	98
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)  <p>On April 20, 1998, with the Indian Point Unit No. 2 (IP2) station in a cold shutdown condition, it was determined that the nitrogen accumulators, which are the nitrogen supply system to the power operated relief valves (PORVs) for the low temperature overpressure protection system, may not meet the Updated Final Safety Analysis Report (USFAR) design basis to support a minimum of 200 cycles of the PORVs. The accumulators are part of the overpressure protection system (OPS) for the reactor coolant system (RCS). Although the available accumulator nitrogen supply is adequate to perform most duties required by the system, further investigation is required to determine if the system is large enough to sustain 200 continuous cycles of a PORV. The OPS system was not required to be operable during the time of the occurrence.</p> <p>Corrective action implemented was to increase the available nitrogen storage volume by connecting it to one safety injection accumulator.</p>												

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)	PAGE (3)
Indian Point Unit No. 2	05000247	YEAR	2 OF 4
		98 -- 006 -- 00	

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

## PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-Loop Pressurized Water Reactor

## IDENTIFICATION OF OCCURRENCE:

Potential for insufficient capacity of the nitrogen accumulators used by the overpressure protection system.

## EVENT DATE:

April 20, 1998

## REPORT DUE DATE:

May 20, 1998

## REFERENCES:

SOR No 98-E03301

## PAST SIMILAR OCCURRENCE:

None

## DESCRIPTION OF OCCURRENCE:

On April 9, 1998, with the IP2 station in a cold shutdown condition, Operations identified that the nitrogen supply system to power operated relief valve (PORV) PCV-456 in the overpressure protection system (OPS) had not met its acceptance criteria in test PT-R82, "RCS OPS Nitrogen System Check, Rev. 2." One section of the test (Section 3.4) performs stroke time testing of the PORV and also records the nitrogen accumulator pressure before and after the valve stroke. The acceptance criteria requires less than or equal to a 3 PSI difference between the initial accumulator pressure and the final accumulator pressure.

The test was initially performed using a 0-1000 psi pressure gauge which can be inadequate to detect error with respect to a 3 PSI acceptance criteria. A temporary procedure change was issued to allow the test to be performed using a pressure gauge with a digital readout. The recorded pressure difference for PCV-456 was 3.5 PSI not meeting the acceptance criteria. Subsequent investigation identified a number of nitrogen system leaks that were repaired. In addition, PT-R82 was revised to minimize the time between the initial and final pressure readings to minimize the affect of minor system leakage on the test results consistent with the design basis function of the RCS pressure control which requires rapid PORV cycling.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
Indian Point Unit No. 2		05000247		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 4
				98	-- 006	-- 00	

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

## DESCRIPTION OF OCCURRENCE (continued):

PCV-456 was re-tested on April 16, 1998 using the revised procedure and again did not meet the 3 psi acceptance criteria. Additional testing was performed on April 20 to more accurately determine the actual PORV actuator nitrogen consumption. Further analysis of the data is needed, but preliminary indications are that the PORV nitrogen mass consumption is greater than was calculated in the original system design analysis. The nitrogen supply system accumulators are required to provide adequate stored volume to support a minimum 200 cycles (full open/closed) of the PORVs. This potential condition was reported via a 10 CFR 50.72(b) 4 hour report on April 20, 1998.

## ANALYSIS OF OCCURRENCE:

This report is being made pursuant to 10 CFR 50.73(a)(2)(ii)(B) with regard to shutdown events involving degradation of a principal safety barrier. The OPS accumulators are sized to provide adequate stored volume of nitrogen for PORV operation. For most modes of PORV operation the 6 cubic foot volume of the accumulators are more than adequate. The limiting mode of PORV operation with respect to available nitrogen supply is the requirement to address the impact of an inadvertent start of a safety injection pump when the pressurizer is filled with water which makes the RCS system liquid bound. The PORVs are then assumed to cycle 200 times before the operator takes action. Calculations made in 1978 showed that the OPS accumulators would meet this requirement. However current test results have initiated Engineering reviews of the existing design analysis and other relevant information to determine the adequacy of the accumulator supply capacity. Analysis indicates that this pressure change may be sensitive to temperature changes which were not accounted for in the original calculations. Engineering has not yet completed its evaluation of the probable cause of the event. A supplement to this report will be issued when the results of the ongoing evaluation becomes available.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)	PAGE (3)			
Indian Point Unit No. 2	05000247	<table border="1"><tr><th data-bbox="1010 268 1062 289">YEAR</th><th data-bbox="1068 268 1224 289">SEQUENTIAL NUMBER</th><th data-bbox="1230 268 1305 289">REVISION NUMBER</th></tr></table>	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 4
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
98 -- 006 -- 00						

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

## CAUSE OF OCCURRENCE:

The cause of occurrence is presently under engineering evaluation. A supplemental report will be issued to address this issue.

## CORRECTIVE ACTIONS:

The immediate corrective action taken was to increase the capacity of the OPS nitrogen supply by utilizing one of the SI accumulators and tying it to the common nitrogen supply line to both OPS accumulators. The OPS accumulators will remain isolated from each other via check valves 4106 & 4107, but would allow re-pressurization from the SI accumulator after each valve stroke. This would insure there is always sufficient capacity for 200 valve strokes. The common flow path between the selected SI Accumulator and the PORV contains passive and active components. The active components that can affect the operation of redundant trains have been locked in their service position for this change. Check valves on the fill line will also prevent depressurization of the PORV accumulators. Valve line-up and valve blocking functions required for this change are controlled by procedures. To use one SI Accumulator with its nitrogen fill valve locked open as a nitrogen supply to the PORVs meets the requirement of a single active failure and will support more than 200 cycles of operation during the most limiting OPS transient event. This corrective action only applies to RCS temperatures below 305 degrees Fahrenheit when the SI accumulators are not in service.

Long term corrective actions are presently under engineering evaluation and will be addressed in a supplement to this report.