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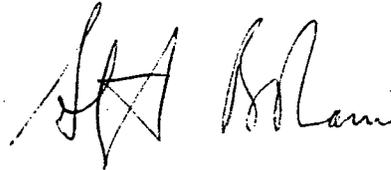
October 12, 1993

Re: Indian Point Unit No. 2  
Docket No. 50-247  
LER 93-12-00

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

The attached Licensee Event Report LER 93-12-00 is hereby  
submitted in accordance with the requirements of 10 CFR  
50.73.

Very truly yours,



Attachment

cc: Mr. Thomas T. Martin  
Regional Administrator - Region I  
US Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Mr. Francis J. Williams, Jr., 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  
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**LICENSEE EVENT REPORT (LER)**

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Indian Point Unit No. 2	DOCKET NUMBER (2) 0 5 0 0 0 2 4 7	PAGE (3) 1 OF 0 6
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TITLE (4)  
Weld Channel and Penetration Pressurization System Nitrogen Backup Inoperable

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 NAMES		DOCKET NUMBER(S)																																																										
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">OPERATING MODE (9) N</td> <td style="width:15%;">POWER LEVEL (10) 1 1 0 0</td> <td colspan="9">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)</td> </tr> <tr> <td></td> <td></td> <td>20.402(b)</td> <td>20.405(a)(1)(i)</td> <td>20.405(a)(1)(ii)</td> <td>20.405(a)(1)(iii)</td> <td>20.405(a)(1)(iv)</td> <td>20.405(a)(1)(v)</td> <td>20.406(c)</td> <td>60.38(c)(1)</td> <td>60.38(c)(2)</td> <td>60.73(a)(2)(i)</td> <td>60.73(a)(2)(ii)</td> <td>60.73(a)(2)(iii)</td> <td>60.73(a)(2)(iv)</td> <td>60.73(a)(2)(v)</td> <td>60.73(a)(2)(vii)</td> <td>60.73(a)(2)(viii)(A)</td> <td>60.73(a)(2)(viii)(B)</td> <td>60.73(a)(2)(ix)</td> <td>73.71(b)</td> <td>73.71(c)</td> <td>OTHER (Specify in Abstract below and in Text, NRC Form 366A)</td> </tr> <tr> <td></td> <td>X</td> <td></td> </tr> </table>												OPERATING MODE (9) N	POWER LEVEL (10) 1 1 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(a)(1)(i)	20.405(a)(1)(ii)	20.405(a)(1)(iii)	20.405(a)(1)(iv)	20.405(a)(1)(v)	20.406(c)	60.38(c)(1)	60.38(c)(2)	60.73(a)(2)(i)	60.73(a)(2)(ii)	60.73(a)(2)(iii)	60.73(a)(2)(iv)	60.73(a)(2)(v)	60.73(a)(2)(vii)	60.73(a)(2)(viii)(A)	60.73(a)(2)(viii)(B)	60.73(a)(2)(ix)	73.71(b)	73.71(c)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)											X													
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LICENSEE CONTACT FOR THIS LER (12)

NAME Michael A. Whitney, Senior Engineer	TELEPHONE NUMBER 9 1 4 5 2 6 - 5 1 3 1
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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)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On September 10, 1993, during a review resulting from a previously identified and reported condition associated with nitrogen backup pressure control valves for the Auxiliary Feedwater System, a condition was identified which could have rendered the Weld Channel and Penetration Pressurization System (WCPPS) air receiver and nitrogen backup system inoperable in the event of loss of the normal and backup air supply systems. Since these features are an integral part of the design of the WCPPS system, the WCPPS was declared inoperable, resulting in the entry of the plant into Technical Specification 3.0.1 at 1715 hours on September 10, 1993. Based on 10 CFR Part 100, the condition was determined to have minimal safety significance. Shortly thereafter, the NRC was contacted verbally with a request for enforcement discretion to allow continued operation for up to twenty-four hours. This request was subsequently granted verbally the same day.

**LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION**

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)  Indian Point Unit No. 2	DOCKET NUMBER (2)  0 5 0 0 0 2 4 7 9 3 — 0 1 2 — 0 0 0 2 OF 0 6	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

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

**PLANT AND SYSTEM IDENTIFICATION:**

Westinghouse 4-Loop Pressurized Water Reactor

**IDENTIFICATION OF OCCURRENCE:**

Weld Channel and Penetration Pressurization System (WCPPS) Nitrogen Backup Inoperable

**EVENT DATE:**

September 10, 1993

**REPORT DUE DATE:**

October 12, 1993

**REFERENCES:**

Significant Occurrence Report (SOR) 93-459  
Station Administrative Order No. 132 Event Report No. 93-15

**PAST SIMILAR EVENT:**

LER 93-09 "Nitrogen Backup for Auxiliary Feedwater System Valves"

**DESCRIPTION OF OCCURRENCE:**

On September 10, 1993, during a review resulting from a previously identified and reported (LER 93-10) condition associated with nitrogen backup pressure control valves for the Auxiliary Feedwater System, a condition was identified which could have rendered the WCPPS air receiver and nitrogen backup system inoperable in the event of loss of the normal and backup air supply systems. Since these features are an integral part of the design of the WCPPS system, the WCPPS was declared inoperable, resulting in the entry of the plant into Technical Specification 3.0.1 at 1715 hours on September 10, 1993. Shortly thereafter, the NRC was contacted verbally with a request for enforcement discretion to allow continued operation for up to twenty-four hours. This request was subsequently granted. The identified condition involved four pressure control valves receiving dome pressure through their sensing lines from an inappropriate source.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
			0 1   2 - 0   0		0 3	OF 0 6

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

DESCRIPTION OF OCCURRENCE: (continued)

The WCPPS provides a means for continuously pressurizing the positive pressure zones incorporated into the containment penetrations, the channels over the welds in the steel inner liner, and certain containment isolation valves in the event of a loss-of-coolant accident. Although no credit is taken for WCPPS operation in the calculation of offsite accident doses in accident analyses contained in the UFSAR, the WCPPS is designed as an engineered safety feature and is intended to provide assurance that the containment leakage in the event of an accident is lower than that assumed in the accident analysis.

A regulated supply of clean and dry compressed air is supplied to all containment penetrations, inner liner weld channels and certain containment isolation valves from either of the plant's 100-psig compressed air systems located outside the containment. The system continuously maintains a pressure in excess of containment design pressure during all reactor operations, thereby ensuring that there will be no out-leakage of the containment atmosphere through the penetrations and liner welds during an accident.

The primary source of air for this system is the instrument air system. The plant design provides two instrument air compressors. The station air compressor acts as a backup to the instrument air compressors for added reliability. All three of these compressors are powered from electrical busses which are backed up by emergency diesel generators. In addition, two compressors powered from Unit 1 offsite power are available as a backup source of air.

A standby source of gas pressure for the system is provided by a bank of three nitrogen cylinders. The associated nitrogen system is designed to automatically deliver nitrogen to the WCPPS in the event the normal and backup air supply systems fail. This ensures reliable pressurization under both normal and accident conditions.

Containment penetration and liner weld channels are grouped into four independent zones to simplify the process of locating WCPPS leaks during operation. Each zone is served by its own air receiver and pressure control valve. In the event that all normal and backup air supplies are lost, each of the four pressurization system zones continues to be supplied with air from its respective air receiver. Each of the air receivers is sized to supply air to its pressurized zone for a period of at least 4 hours, based on a leakage rate of 0.2 percent of the containment free volume per day.

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

DESCRIPTION OF OCCURRENCE: (continued)

If the receivers become exhausted before normal or backup air supplies can be restored, nitrogen from the bank of pressurized cylinders can be supplied to the affected zones. The nitrogen bank is sized to provide a 24 hour supply of gas to the system, again based on a total leakage rate from the pressurization system of 0.2 percent of the containment free volume in per day.

Each of the four zones of WCPPS are designed with a pressure control valve located downstream of the air receiver and the source of nitrogen backup. These pressure control valves are designed to maintain the downstream pressure equal to the pressure in the dome of the pressure control valve. On September 10, 1993, it was discovered that the sensing line to the dome received air pressure from the instrument air system up stream of each air receiver through an adjustable pressure regulator independent of the WCPPS. Thus, in the event of a loss of instrument air or its backup, the pressure control valves in the four zones of WCPPS would have maintained proper WCPPS pressure as instrument air pressure slowly decreased. When instrument air pressure decreases to below 52 psig, the pressure control valve then controls WCPPS pressure to the instrument air pressure value until the pressure control valve closes at zero air pressure. The closure then isolates its air receiver and source of nitrogen backup. Although a bypass line and valve is installed around each of the pressure control valves enabling manual control of the weld channel system under these conditions, the design was intended to provide automatic control. Therefore, the WCPPS was declared inoperable.

ANALYSIS OF OCCURRENCE:

This report is being made because an entry into Technical Specification 3.0.1 is interpreted as being in a condition prohibited by the Technical Specifications and is reportable under 50.73(a)(2)(i)(B).

Indian Point Unit No. 2 Technical Specification section 3.3.D.1 requires that "The reactor shall not be brought above cold shutdown unless: All required portions of the four WC & PPS (Weld Channel & Penetration Pressurization System) zones are pressurized at or above 47 psig." This technical specification allows a modification of this requirement as follows: Any one zone of the WC & PPS may be inoperable for a period not to exceed seven consecutive days. If the WC & PP System is not restored to an operable status within the time period specified, then: If the reactor is critical, it shall be brought to the hot shutdown condition utilizing normal operating procedures.

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

ANALYSIS OF OCCURRENCE: (continued)

Technical Specification 3.0.1 requires that "in the event a Limiting Condition for Operation (LCO) and/or associated action requirements cannot be satisfied because of circumstances in excess of those addressed in the specification, the unit shall be placed in at least hot shutdown within the next 7 hours, and in at least cold shutdown within the following 30 hours unless corrective measures are completed that restore compliance to the LCO within these time intervals as measured from initial discovery or until the reactor is placed in a condition in which the LCO is not applicable."

On September 10, 1993, based on the minimal safety significance of the condition, Consolidated Edison requested enforcement discretion from Technical Specifications 3.3.D and 3.0.1 to allow continued operation of the unit for up to 24 hours with the WCPPS inoperable. This request was granted and was documented in a Con Edison Letter to the NRC dated September 13, 1993 and a NRC Letter to Con Edison dated September 15, 1993. The plant exited the provisions of Technical Specifications 3.0.1 at 2025 hours on September 10, 1993, when three of the four WCPPS zones were declared operable. By 2200 hours the same day, the fourth WCPPS zone was declared operable.

The safety significance of this condition was minimal since the accident analyses set forth in the UFSAR do not rely on the operation of the weld channel pressurization system to demonstrate compliance with 10 CFR 100. Also, the failure of the normal and backup air supplies during a twenty-four hour period is considered highly unlikely. In addition to the Instrument Air Compressors and the Station Air Compressor, two air compressors powered from Indian Point Unit No. 1 electric power supplies are available to supply air to the WCPPS. In the event of a loss of power to the station, Indian Point Unit No. 2 procedures provide for emergency power from the Emergency Diesel Generators to be restored to the Instrument Air Compressors within about 5 to 10 minutes.

CAUSE OF OCCURRENCE:

This condition has existed since the original plant design.

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

CORRECTIVE ACTION:

While the WCPPS was declared inoperable, a Nuclear Plant Operator (NPO) was stationed at the bypass valves around the pressure control valves. The NPO was directed to manually regulate the pressure of the WCPPS in the event of a Loss of Coolant Accident and a failure of the normal and backup air supply systems.

A temporary modification was designed to reroute the sensing line to an instrument tap upstream of the pressure control valve and down stream of the air receiver. The air receiver or the standby source of nitrogen will now supply pressure to the dome of the pressure control valve through the adjustable pressure regulator. This restored the design of the system to automatically maintain pressurization of weld channels and penetrations in the event of a failure of the normal and backup air supply systems. This modification was completed and tested on three of the four WCPPS zones by 2025 hours on September 10, 1993. By 2200 hours the same day, the fourth WCPPS zone was declared operable.

A portion of the investigation referenced in LER 93-10 has been completed. The remaining CASHCO regulators were reviewed and found to be satisfactorily designed. Three modifications involving pressure regulators installed in the late 1980's were reviewed for proper design and testing requirements and found to be satisfactory. Station work orders on pressure regulating valves were also reviewed to determine if other pressure regulating valves exhibited similar problems as the auxiliary feedwater system nitrogen backup regulators. No related design problems were found. We are continuing to review the design of all regulators that provide a back up function and a sample of modifications for proper post-installation testing.