

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



John H. Garrity  
Resident Manager

November 17, 1993  
IPN-93-142

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

SUBJECT: Indian Point 3 Nuclear Power Plant  
Docket No. 50-286  
Licensee Event Report # 93-043-00  
"Plant Outside Its Design Basis Due to  
Deficiencies in the Installation of Orifice  
Plates in the Weld Channel and Containment  
Penetration Pressurization System Supply to  
the Personnel Air Locks"

Dear Sir:

The attached Licensee Event Report (LER) 93-043-00 is hereby submitted in accordance with the requirements of 10CFR50.73. This event is of the type defined in the requirements pursuant to 10CFR50.73(a)(2)(ii)(B). Also attached are the commitments made by the Authority in this LER.

Very truly yours,

A handwritten signature in cursive script, appearing to read "JH Garrity".

John H. Garrity  
Resident Manager  
Indian Point 3 Nuclear Power Plant

23-107

JHG/DOB/vjm

cc: See Next Page

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Mr. Thomas T. Martin  
Regional Administrator  
Region 1  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, Pennsylvania 19406

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700 Galleria Parkway  
Atlanta, Georgia 30339-5957

U.S. NRC Resident Inspectors' Office  
Indian Point 3

Attachment 1  
List of Commitments

Number	Commitment	Due
IPN-93-142-01	The Technical Services department will complete an inspection of all orifice plates in safety related systems prior to plant startup to ensure they are installed correctly.	Prior to plant startup
IPN-93-142-02	The Technical Services department will oversee a reconstitution of the design basis data for orifice plates in the WCCPP system because of insufficient design basis documentation. This reconstitution will be completed prior to plant startup.	Prior to plant startup
IPN-93-142-03	The Maintenance department will replace the orifice plates (FE-1128 and FE-1129) for the Personnel and Equipment Air Locks prior to startup based on the orifice sizes that are to be determined during the design basis reconstitution.	Prior to plant startup

**LICENSEE EVENT REPORT (LER)**

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

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.

FACILITY NAME (1) <b>Indian Point Unit 3</b>	DOCKET NUMBER (2) <b>05000286</b>	PAGE (3) <b>1 OF 5</b>
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TITLE (4) **Plant Outside Its Design Basis Due to Deficiencies in the Installation of Orifice Plates in the Weld Channel and Containment Penetration Pressurization System Supply to the Personnel Air Locks**

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	18	93	93	-- 043 --	00	11	17	93	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9) <b>N</b>	POWER LEVEL (10) <b>000</b>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)																				
		<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 73.71(b)	<input type="checkbox"/> 73.71(c)	<input type="checkbox"/> OTHER
		(Specify in Abstract below and in Text, NRC Form 366A)																				

Name <b>John Boufford, System Engineer</b>	TELEPHONE NUMBER (Include Area Code) <b>(914) 736-8382</b>
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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)				EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/>	NO						

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

On October 18 and 19, 1993, with the reactor in the cold shutdown condition, Maintenance department mechanics inspected two Weld Channel and Containment Penetration Pressurization (WCCPP) system union orifice plates (FE-1128 and FE-1129), as part of the ongoing plant review of orifice plate installations. The as-found condition of these orifice plates, which had existed since initial plant startup, could cause the WCCPP system to exceed the intended leak rate following failure of the personnel hatch and/or the equipment hatch airlock door interlocks or seals. The inspection revealed deficiencies in the as-found condition of these two orifice plates. Corrective actions include replacement of the orifice plates, a reconstitution of the design basis data for WCCPP system orifice plates, completion of the safety related orifice plates inspection task, and procedural requirements for assuring the quality of the plant is maintained in the design, installation, maintenance and training processes.

**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 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.

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

DESCRIPTION OF EVENT

On October 18, 1993 and October 19, 1993, the reactor was in the cold shutdown condition (Reactor power level at 10 cps, Reactor Coolant system temperature at 108 degrees Fahrenheit and 109 degrees Fahrenheit, respectively, atmospheric pressure, Pressurizer level at 31% and 33%, respectively on the subject dates). In accordance with an ongoing orifice plates orientation inspection task, a Technical Services system engineer requested that the Maintenance department visually inspect Weld Channel and Containment Penetration Pressurization (WCCPP) system (BD) flow restricting orifice plates (OR) (FE-1128 and FE-1129, located in line #818 and line #817, respectively) for the Vapor Containment (VC) (NH) personnel air lock hatch and equipment hatch air lock located on the 80 foot and 95 foot elevations, respectively. On October 18, 1993, upon opening the WCCPP supply to the personnel air lock union orifice (FE-1128), a Maintenance department mechanic found the original 3/32 inch orifice plate opening to be plugged with weld splatter with an off-center oblong hole of approximately 3/16 inch x 1/8 inch in the orifice plate. Significant Occurrence Report (SOR) 93-636 was issued at approximately 1400 hours on that date. On October 19, 1993, upon opening the equipment hatch personnel air lock WCCPP supply orifice (FE-1129), a Maintenance department mechanic found the original orifice plate to be spot welded inside the pipe union with multiple leak paths around the orifice plate circumference. The leakage path area was estimated to exceed the original 3/32 inch hole by approximately 50% to 60%. SOR 93-640 was issued at approximately 1430 hours on that date. The WCCPP system was not declared inoperable when the orifice plates' deficiencies were determined because the system is not required while in a cold shutdown condition.

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

At the time the SORs were written, the Technical Services system engineer determined that the increase in orifice flow area was outside the design basis of plant. The Final Safety Analysis Report (FSAR) section 6.6.2 identifies the restricting orifice to the Air Locks as being installed, "to assure that the air consumption, even upon failure of the interlock, will be within the capacity of the pressurization system, and will not result in the loss of pressure in other zones of the WCCPP connected to the same pressurization header." The increased orifice area would result in exceeding the intended WCCPP system leak rate following failure of the subject interlock. This interlock is provided to prevent depressurization of the WCCPP system when the air lock doors are not in a closed position.

CAUSE OF THE EVENT

The cause of the event were personnel errors during initial installation of the WCCPP orifice plates prior to initial plant startup. The factors contributing to the personnel error could not be identified because there is insufficient information available to make a definitive determination, and the personnel involved are unavailable and unknown.

CORRECTIVE ACTIONS

In order to prevent recurrence, the following corrective actions have or shall take place:

- The personnel errors were made during plant construction. The plant Administrative Procedures (APs) have been developed since this event occurred in order to provide assurance that the quality of the plant is maintained in the design, installation, maintenance and training processes. Administrative Procedures have been enhanced; to increase mechanic awareness via training (AP-15, "Training," and AP-15.1, "Training Policy"), to incorporate a regimented Quality Assurance Program (AP-16, "Quality Assurance Program"), and to proceduralize maintenance and planning activities (AP-22, "Conduct Of Maintenance," AP-22.1 "Control Of Maintenance Documented Instructions," and AP-22.2, "Maintenance Directives").

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

- The Technical Services department will complete an inspection of all orifice plates in safety related systems prior to plant startup to ensure they are installed correctly.
- The Technical Services department will oversee a reconstitution of the design basis data for orifice plates in the WCCPP system because of insufficient design basis documentation. This reconstitution will be completed prior to plant startup.
- The Maintenance department will replace the orifice plates (FE-1128 and FE-1129) for the personnel and equipment air locks prior to plant startup based on the orifice sizes that are to be determined during the design basis reconstitution.

ANALYSIS OF THE EVENT

The event is reportable under 10CFR50.73 (a) (2) (ii) (B). The licensee shall report any event or condition that results in the plant being in a condition that was outside its design basis. This event constitutes installation deficiencies that would cause the WCCPP system to exceed the intended leak rate following failure of the airlock door interlocks or seals. Based on a review of maintenance work history, the installation deficiency has existed since initial plant startup. LER 93-029-00 reported a similar event involving an installation deficiency during initial plant construction.

SAFETY SIGNIFICANCE

This event had no significant effect on the health and safety of the public. No credit was taken for the operation of the WCCPP system in the calculation of offsite doses when the plant design basis accidents were analyzed. This is documented in FSAR section 6.6.1. The WCCPP system is required to be depressurized and vented when VC leak testing is performed so that containment integrity is demonstrated without the WCCPP system.

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The normal WCCPP supply header is supplied by the Instrument Air (IA) (LD) system. The IA system supplies compressed air at approximately 100 psig to the WCCPP header which supplies the four WCCPP zone receivers. An automatic backup to the IA is the Station Air (SA) (LF) system which automatically supplies compressed air to the WCCPP supply header if the IA pressure falls below 90 psig. In the event of loss of the IA and SA systems, the WCCPP system is provided with an automatic nitrogen gas backup system to individual zones when specific WCCPP zone header pressures approach 43 psig. The total capacity of the gas backup system, WCCPP system air receivers and WCCPP nitrogen cylinders, are sized to maintain a pressure greater than peak accident containment pressure for a period of 24 hours following a loss of IA and SA with a design basis leakage of 0.2% containment free volume per day (0.1% leakage rate into the VC and 0.1% leakage into the environment). The worst case accident, in terms of peak containment pressure, is that due to a double ended pump suction line break with minimum safeguards. This Loss of Coolant Accident (LOCA) produces a peak pressure of 42.29 psig. By maintaining the WCCPP system at some pressure level above the peak accident pressure, any potential leakage would be into the VC rather than out of the VC.

The increased orifice size would have resulted in exceeding the intended WCCPP system leak rate following failure of the air lock door interlock and, therefore, a reduction in the backup margin. The capacities of the IA and SA systems are greater than the leak rate created via the enlarged orifice plates (FE-1128 and FE-1129) and would have maintained proper system pressure in the remaining three zones.

The Technical Services department is evaluating the extent of orifice plate installation deficiencies and will complete this review prior to plant startup.