

Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511
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L. M. Hill
Resident Manager

July 29, 1994
IPN-94-098

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
License No. DPR-64
Licensee Event Report # 94-005-01
"Central Control Room Heating, Ventilation and Air Conditioning
System Outside Design Basis Due to Personnel Error"

Dear Sir:

The attached Licensee Event Report (LER) 94-005-01 is hereby submitted as required by 10CFR50.73. This event is of the type defined in 10CFR50.73(a)(2)(ii)(B). The supplement completes the evaluation of safety significance and updates the corrective action status. There are no commitments made by the Authority in this LER supplement.

Very truly yours,

A handwritten signature in black ink, appearing to read 'L. M. Hill', written over a horizontal line.

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

Attachment

LMH/vjm

cc: See next page

040018

9408040313 940729
PDR ADDCK 05000286
S PDR

JE22

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

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

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

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 (MNNB 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) Indian Point Unit 3	DOCKET NUMBER (2) 05000286	PAGE (3) 1 OF 5
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TITLE (4)
Central Control Room Heating, Ventilation and Air Conditioning System Outside Design Basis Due to Personnel Error

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
06	01	94	94	-- 005 --	01	07	29	94	FACILITY NAME	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)								
		<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)					
		<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)					
POWER LEVEL (10)	000	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> OTHER					
		<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)					
		<input type="checkbox"/> 20.405(a)(1)(iv)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)						
		<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)						

LICENSEE CONTACT FOR THIS LER (12)

NAME Joe Raffaele, Electrical Engineer	TELEPHONE NUMBER (Include Area Code) (914) 681-6803
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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
<input type="checkbox"/> 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 June 1, 1994, at approximately 1130 hours with the reactor in cold shutdown, Nuclear Engineering and Design concluded that there was a Central Control Room (CCR) Heating, Ventilating and Air Conditioning (HVAC) system design deficiency. After loss of offsite power, the compressors for the CCR HVAC system air conditioning would not automatically restart upon restoration of power. This is outside the CCR HVAC design basis. This event was caused by a personnel error in the original design of the control circuit. Corrective action will be taken to modify the compressor control circuits to provide automatic restart capability. The extent of condition will be determined by a review of the CCR HVAC circuits for similar problems and an unavailability analysis of the CCR HVAC system.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Indian Point Unit 3	05000286	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 5
		94	-- 005 --	01	

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

DESCRIPTION OF EVENT

On June 1, 1994, at approximately 1130 hours with the reactor in cold shutdown condition (reactor power level at 15 cps, reactor coolant temperature at 110 degrees F, reactor coolant pressure at atmospheric and pressurizer level at 26%), Nuclear Engineering and Design (NED) issued a Deviation Event Report (DER) 94-461 to report a design deficiency in the Central Control Room (CCR) Heating, Ventilating and Air Conditioning (VI) (HVAC) system. Nuclear Engineering and Design identified the deficiency while investigating an increase in Emergency Diesel Generator (DG) loading to support a potential upgrade of the CCR HVAC system. The design deficiency prevents automatic loading of the air conditioning compressors (CMP) when power is restored following a loss of power.

The CCR HVAC system design basis is to maintain temperature control without operator action. The system was designed with a push button reset to energize/start the compressor which is then sealed in by the starter circuit. The control circuit design opens the seal-in contact on loss of power to the compressor power circuit stopping the compressor motor. When power is restored to the circuit, the push button reset must be manually pushed or the compressor motor will not restart.

CAUSE OF THE EVENT

The event was caused by personnel error of an indeterminate origin during the original system design. The architect engineer did not design the circuit to auto restart after loss of power or identify the design deficiency when upgrading the system from non-safety to safety.

CORRECTIVE ACTIONS

The following corrective actions will be performed in order to correct the deficiency and prevent recurrence.

1. Site Engineering will modify the CCR HVAC compressor control circuits to provide for auto restart after an interruption of power to the compressor motors. The modification is scheduled for completion prior to startup.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Indian Point Unit 3	05000286	94	-- 005 --	01	3 OF 5

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

2. The Nuclear Engineering and Design department will evaluate all safety related circuits on MCCs 36A, 36B and 36C (i.e., those automatically powered from the Emergency Diesel Generators) to identify deficiencies where a loss of power to a system would require a manual reset to restart a component. The evaluation is scheduled for completion by July 31, 1994.
3. Reactor Engineering will perform an unavailability analysis on the CCR HVAC system to identify additional deficiencies that may exist. The analysis is scheduled for completion prior to startup.
4. Project Engineering performed an assessment of the temperature change in the control room assuming the design basis outside air temperature and water temperature occur during a loss of coolant accident with loss of offsite power. The results were used to determine the safety significance of the event and Nuclear Engineering and Design prepared an LER supplement to discuss safety significance. Commitment IPN-94-077-04 is completed.

ANALYSIS OF THE EVENT

This event is reportable under 10 CFR 50.73 (a)(2)(ii)(B). The Licensee shall report any event or condition that resulted in the plant being in a condition that was outside the design basis of the plant. The CCR HVAC was not designed so that it could prevent unacceptable temperatures to safety related equipment in the control room without operator action.

Other events related to the CCR HVAC system were reported in LERs 93-08, -39, -44, and -45. Other events where personnel design errors have occurred in the original design are reported in LERs 92-06, -18, 93-02, -26, -35, -36, -43, -45, -47 and -48.

SAFETY SIGNIFICANCE

The event did not significantly affect the public health and safety.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Indian Point Unit 3	05000286	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 5
		94	-- 005 --	01	

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A failure of CCR HVAC system cooling could occur during any mode of operation if there is an interruption of power to the CCR HVAC compressors. Four scenarios with a loss of offsite power (LOOP) were considered to evaluate the consequences during different modes.

- Normal Operation

If a LOOP were to occur during normal operation, the operators would become aware of the increasing temperature and take manual action to reset the compressors. There are no procedures or alarms for resetting of the compressors, but the operators have reset the compressors in the past.

- Toxic Gas Release

Toxic gas releases are postulated to result from accidents (e.g., rail car accident) and not as a result of an event that could also result in a loss of power. Nevertheless, the inoperable compressors would not prevent control room personnel from initiating safe shutdown because the operators would be able to isolate the control room in accordance with procedure. The consequences of the LOCA situation would be bounding for the operators.

- Earthquake

There would be no radioactive releases to prevent the operators from taking action to reset the compressors if a LOOP were to occur with an earthquake.

- Loss of Coolant Accident (LOCA)

The effect of a LOOP with a LOCA would result in the presence of radioactive materials when the control room was without air conditioning. The CCR HVAC functions of pressurization and filtration are not affected by the failure of the compressors to restart. However, loss of these functions was assumed in evaluating the safety significance because LER 93-045 identifies the loss of these functions in the same scenario due to a loss of instrument air.

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FACILITY NAME (1)		DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Indian Point Unit 3		05000286	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	5 OF 5
			94	-- 005 --	01	

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The dose consequences evaluated in LER 93-036 were referenced as bounding for the event reported in LER 93-045. That event, loss of CCR HVAC functions due to loss of instrument air, is postulated to occur under the same circumstances (i.e., LOOP coincident with LOCA) postulated for this LER. LER 93-036 reported that the operators would have received thyroid doses in excess of 10 CFR 50 General Design Criteria 19 limits but would not have been prohibited from performing their function. The failure of the compressors would not, by itself, have resulted in any dose so the loss of the CCR HVAC air compressors would not have resulted in a significant effect on public health and safety.

The temperature increase in the control room would not have had a significant effect on public health and safety. Nuclear Engineering and Design calculated the temperature change in the control room assuming that the design basis outside air temperature and water temperature exist at the start of the postulated event. Allowing adequate time, up to 60 minutes, for the operators to reset the CCR HVAC compressors, the calculation demonstrates that the CCR HVAC temperature does not exceed 120 degrees F and will rapidly drop after cooling is reinitiated.

The extent of condition will be determined by a review of the CCR HVAC safety related circuits for the effects of a loss of power and by an unavailability analysis of the CCR HVAC system.