

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



L. M. Hill  
Resident Manager

June 28, 1994  
IPN-94-077

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 # 94-005-00  
"Central Control Room Heating Ventilation and Air Conditioning  
System Outside Design Basis Due to Personnel Error"

Dear Sir:

The attached Licensee Event Report (LER) 94-005-00 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,

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

Attachment

LMH/vjm

cc: See next page.

9407080061 940628  
PDR ADOCK 05000286  
S PDR

*IPN*  
||

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

List of Commitments

| Number        | Commitment  | Due              |
|---------------|---|------------------|
| IPN-94-077-01 | 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.   | Prior to startup |
| IPN-94-077-02 | 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.   | July 31, 1994    |
| IPN-94-077-03 | Reactor Engineering will perform an unavailability analysis on the CCR HVAC system to identify additional deficiencies that may exist.  | Prior to startup |
| IPN-94-077-04 | Project Engineering is performing 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 will determine the safety significance of the event and Nuclear Engineering and Design will prepare an LER supplement to discuss safety significance. | July 31, 1994    |

**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)<br>Indian Point Unit 3 |  | DOCKET NUMBER (2)<br>05000286 | PAGE (3)<br>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 --         | 00              | 06              | 28  | 94   | FACILITY NAME                 | DOCKET NUMBER<br>05000 |
|                |     |      |                |                   |                 |                 |     |      | FACILITY NAME                 | DOCKET NUMBER<br>05000 |

|                         |   |   |                      |  |
|-------------------------|---|---|----------------------|--|
| OPERATING MODE (9)<br>N | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11) |   |                      |  |
| POWER LEVEL (10)<br>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)  | <input checked="" type="checkbox"/> 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<br>Joe Raffaele, Electrical Engineer | TELEPHONE NUMBER (Include Area Code)<br>(914) 681-6803 |
|---|--|

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 |
|-------|--------|-----------|--------------|---------------------|-------|--------|-----------|--------------|---------------------|
|       |        |           |              |                     |       |        |           |              |                     |
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|   |                             |                               |       |     |      |
|---|-----------------------------|-------------------------------|-------|-----|------|
| SUPPLEMENTAL REPORT EXPECTED (14)   |                             | EXPECTED SUBMISSION DATE (15) | MONTH | DAY | YEAR |
| <input checked="" type="checkbox"/> YES<br>(If yes, complete EXPECTED SUBMISSION DATE). | <input type="checkbox"/> NO |                               | 07    | 31  | 94   |

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**

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 (MNB 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 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.

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

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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 is performing 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 will determine the safety significance of the event and Nuclear Engineering and Design will prepare an LER supplement to discuss safety significance. The supplement is scheduled for submittal by July 31, 1994.

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 effects of this event on the health and safety of the public have not yet been fully evaluated.

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

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

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.

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

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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 is being evaluated to determine the effect on public health and safety. This LER will be supplemented to identify the temperature increase and the safety significance.

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.