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SUBJECT: LER 90-025-00:on 901023,inoperability of HPCS sys caused by equipment failure.W/901119 ltr.

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 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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Docket No. 50-397

November 19, 1990

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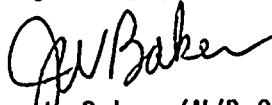
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Washington, D.C. 20555

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 90-025

Dear Sir:

Transmitted herewith is Licensee Event Report No. 90-025 for the WNP-2 Plant. This report is submitted in response to the report requirements of 10CFR50.73 and discusses the items of reportability, corrective action taken, and action taken to preclude recurrence.

Very truly yours,


J. W. Baker (M/D 927M)
WNP-2 Plant Manager

JWB:lr

Enclosure:
Licensee Event Report No. 90-025

cc: Mr. John B. Martin, NRC - Region V
Mr. C. Sorensen, NRC Resident Inspector (M/D 901A)
INPO Records Center - Atlanta, GA
Mr. D. L. Williams, BPA (M/D 399)
NRC Resident Inspector - walk over copy

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ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 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.

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

At 0327 hours on October 23, 1990, during performance of the High Pressure Core Spray (HPCS) system operability surveillance test the Test Return Valve to the Suppression Pool (HPCS-V-23) failed to go full shut. The valve light indicated full closed but the HPCS Minimum Flow Valve (HPCS-V-12) did not come open and the flow indication did not go to zero. This condition could cause the undesired diversion of system flow from in-vessel spray which is the primary function of the system. The uncertainty of performance of HPCS-V-23 made the HPCS system inoperable which is a reportable event.

At 0514 hours Plant operators took action to close the manual block valve for the test return line (HPCS-V-64). This action isolated the faulty valve and would prevent the diversion of system flow.

The root cause of this event is indeterminate at this time. A supplement to this LER will be submitted when further investigations are complete and corrective actions determined.

This event posed no threat to the health and safety of the public or plant personnel.

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.

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

Plant Conditions

- a) Plant Mode - 1 (Power Operation)
- b) Power Level - 100%

Event Description

At 0327 hours on October 23, 1990, during performance of the High Pressure Core Spray (HPCS) system operability surveillance test (PPM 7.4.5.1.11); the Test Return Valve to the Suppression Pool (HPCS-V-23) failed to go full shut. This test was being performed by Licensed Plant Operators and involved the closure of HPCS-V-23 against full discharge pressure of the HPCS Pump (HPCS-P-1). The valve light indicated full closed but the HPCS Minimum Flow Valve (HPCS-V-12) did not come open and the flow indication did not go to zero. This condition could cause the undesired diversion of system flow from in-vessel spray which is the primary function of the system. The uncertainty of performance of HPCS-V-23 makes the HPCS system inoperable which is a reportable event.

Immediate Corrective Action

At 0514 hours Plant operators took action to close the manual block valve for the test return line (HPCS-V-64). This action isolated the faulty valve and would prevent the diversion of system flow. The HPCS Operability Surveillance was completed at 0809 hours on October 23, 1990 thereby confirming system operability.

Further Evaluation and Corrective ActionA. Further Evaluation

1. This event is being reported per the requirement of 10CFR50.73(a)(2)(v) as a "condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to: (A) Shut down the reactor and maintain it in a safe shutdown condition; (B) Remove residual heat; (C) Control the release of radioactive material; or (D) Mitigate the consequences of an accident." The inoperability of the HPCS system is a unique event at WNP-2. Unlike the other Emergency Core Cooling Systems, HPCS system inoperability is reportable even though all requirements of technical specification LCO action statements are being complied with. This is so because it is a "single train" Emergency Core Cooling System and, as such, is reportable any time it is unable to perform its safety function when it is required to be able to do so by Plant conditions.
2. This requirement was not recognized immediately but after further management review it was reported via the Emergency Notification System (ENS) at 0810 hours on October 23 in accordance with 50.72(b)(2)(iii).

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LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 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.

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

3. The preliminary cause of this event is believed to be equipment failure associated with HPCS-V-23. The valve was not able to completely close when the line was pressurized to prevent the undesired diversion of system flow.
4. The root cause of this event is indeterminate at this time. However, a recent inspection of the valve internals indicate this is not the problem (See discussion under Similar Events below). A supplement to this LER will be submitted when further investigations are complete.

B. Further Corrective Action

1. Further tests to investigate reasons for inoperability of HPCS-V-23 will be conducted under controlled conditions. Until that time the valve will be red tagged in the closed position and HPCS-V-64 will remain closed.
2. The plant policy will be reviewed to identify improvements in the process of identifying reportable events including the inoperability of "single train" safety systems.

Safety Significance

There is no safety significance associated with this event. The failure of the HPCS system is within the bounds of the ECCS single failure analyses. At all times the ECCS could have performed its safety function in response to a DBA since the Automatic Depressurization System (ADS) and Low Pressure Coolant Injection (LPCI) systems were operational.

The HPCS System Operability Test is performed on a quarterly basis. During this test HPCS-V-23 is opened and closed against the running pump for only a short period of time. Thus, the probability of system inoperability due to the valve not closing against system pressure is quite small. In addition, the HPCS test data collected during the surveillance indicates the system was not completely degraded. The flow through HPCS-V-23 after it closed against the running pump was approximately 1400 gpm at a pump discharge pressure of 1350 psig. With HPCS-V-23 open the flow was measured at approximately 7000 gpm at a pump discharge pressure of 250 psig.

At all times during the event, the requirements of the WNP-2 Technical Specifications (Section 3.5.1) were complied with. The LCO action for this section requires ensuring the operability of the redundant ECCS Divisions 1 and 2 and the Reactor Core Isolation Cooling system while the HPCS system is inoperable (a maximum of 14 days is allowed). Since no safety significance is associated with this event, it posed no threat to the health and safety of the public or plant personnel.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-830), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, 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 NRC Form 306A's) (17)

Similar Events

This event is similar to the one that occurred on November 21, 1989 as reported in LER 89-043. In that case, HPCS-V-23 was found to stay approximately 10 percent open when the same operability surveillance was performed. At that time, the problem was thought to be an internal mechanical problem with the valve. During the May 1990 refueling outage the valve was disassembled and inspected (Work Request AS3203) but no significant problems were discovered. A root cause analysis was performed on the event associated with LER 89-043 and the subsequent inspection on August 31, 1990. The root cause was judged to be indeterminate.

EIIS InformationText ReferenceEIIS Reference

System Component

HPCS System
HPCS-V-23
HPCS-V-12
HPCS-V-64
HPCS-P-1
ECCS
ADS
LPCI
RCIC

BG --
BG V
BG .V
BG V
BG P
BM --
BG --
BM --
BG --