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AUTH. NAME AUTHOR AFFILIATION
SWANK, D.A. Washington Public Power Supply System
BAKER, J.W. Washington Public Power Supply System
RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-024-00: on 920519, discovered inadvertent emergency ventilation actuation. Caused by work practices being less than adequate. Technicians were counseled. W/920618 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352

June 18, 1992
G02-92-146

Docket No. 50-397

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

**SUBJECT: NUCLEAR PLANT WNP-2, OPERATING LICENSE NPF-21
LICENSEE EVENT REPORT NO. 92-024-00**

Transmitted herewith is Licensee Event Report No. 92-024-00 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.

Sincerely,

JT Harold for

J. W. Baker
WNP-2 Plant Manager (Mail Drop 927M)

JWB/DAS/jrd
Enclosure

cc: Mr. J. B. Martin, NRC - Region V
Mr. C. Sorensen, NRC Resident Inspector (Mail Drop 901A, 2 Copies)
INPO Records Center - Atlanta, GA
Mr. D. L. Williams, BPA (Mail Drop 399)

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)

Washington Nuclear Plant - Unit 2

DOCKET NUMBER (2)

0 5 0 0 0 3 9 7

PAGE (3)

1 OF 5

TITLE (4)

INADVERTENT EMERGENCY VENTILATION ACTUATION

EVENT DATE (5)

MONTH DAY YEAR
0 5 1 9 9 2

LER NUMBER (6)

SEQUENTIAL NUMBER
0 2 4

REVISION NUMBER
0 0

REPORT DATE (7)

MONTH DAY YEAR
0 6 1 8 9 2

OTHER FACILITIES INVOLVED (8)

FACILITY NAMES

DOCKET NUMBERS(S)

0 5 0 0 0
0 5 0 0 0

OPERATING MODE (9)

X

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

POWER LEVEL (10)

0 0 0

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)

20.405(C)
50.36(c)(1)
50.36(c)(2)
50.73(a)(2)(i)
50.73(a)(2)(ii)
50.73(a)(2)(iii)

X 50.73(a)(2)(iv)
50.73(a)(2)(v)
50.73(a)(2)(vii)
50.73(a)(2)(viii)(A)
50.73(a)(2)(viii)(B)
50.73(a)(2)(x)

77.71(b)
73.73(c)
OTHER (Specify in Abstract below and in Text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME

D. A. Swank, Compliance Engineer

TELEPHONE NUMBER

AREA CODE

5 0 9 3 7 7 - 4 4 5 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NRPDS | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NRPDS |
|-------|--------|-----------|--------------|---------------------|-------|--------|-----------|--------------|---------------------|
| | | | | | | | | | |
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SUPPLEMENTAL REPORT EXPECTED (14)

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

YES (If yes, complete EXPECTED SUBMISSION DATE) X NO

ABSTRACT (16)

On May 19, 1992 a response time test of a Reactor Building ventilation exhaust radiation monitor was performed. At the completion of testing, a Nuclear Steam Supply Shutoff System (NSSSS) channel trip signal was still present. During troubleshooting of the trip signal, a second channel was inadvertently tripped which resulted in an ESF actuation of the Group 3 (HVAC) NSSSS logic. Plant equipment responded as designed. Plant Operations personnel restored systems to the desired lineups within one hour.

The root-cause for this event was work practices were less than adequate in that the technicians performed work on a second NSSSS channel without concurrence of the Shift Manager. Contributing causes included: 1) self checking techniques were not applied in that the I&C Technicians misread the digital multimeter and continued with the troubleshooting when the problem had actually been located; and 2) training was insufficient in that the significant differences between the NSSSS logic and other Plant logic systems was not emphasized.

Corrective actions for this event include: 1) the technicians involved were counseled on the need to obtain Shift Manager permission prior to changing job scope; 2) this event will be discussed in Maintenance Industry Events training; 3) self checking training has been provided to the I&C Technicians; and 4) the I&C technicians will be provided expanded training on the NSSSS logic.

A Group 3 NSSSS actuation results in shutdown of several non safety-related HVAC systems and startup and operation of safety related HVAC systems in the Reactor and Radwaste and Control Buildings. Since the reactor was defueled with no fuel handling activities in progress at the time of this event, primary and secondary containment were not required to be operable, and all systems performed as expected, this event had no safety significance.

There were no systems, structures, or components inoperable prior to the start of this event that contributed to the event.

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| LICENSEE EVENT REPORT (LER) TEXT CONTINUATION | | | | | | | | |
| FACILITY NAME (1) Washington Nuclear Plant - Unit 2 | DOCKET NUMBER (2) 0 5 0 0 0 3 9 7 | | LER NUMBER (8) | | | PAGE (3) | | |
| | | | Year | Number | Rev. No. | | | |
| | | | 92 | 024 | 00 | 2 | OF | 5 |
| TITLE (4) INADVERTENT EMERGENCY VENTILATION ACTUATION | | | | | | | | |

Plant Conditions

Power Level - 0%
 Plant Mode - 5 (Refueling)

Event Description

On May 19, 1992 a response time test of a Reactor Building exhaust radiation monitor REA-RIS-609B was performed. This testing included a preplanned trip of the monitor's high radiation level trip circuit with input to the Group 3 Nuclear Steam Supply Shutoff System (NSSSS) logic. However, at the completion of testing, a trip signal was still present.

During troubleshooting of the trip signal, a second radiation monitor channel was inadvertently tripped and caused an inadvertent actuation of the Group 3 NSSSS logic occurred. Plant equipment responded as designed. A four hour verbal notification was made to the NRC at 1005 hours on May 19, 1992.

Immediate Corrective Action

Plant Operations personnel restored systems to the desired lineups. Troubleshooting was resumed and the cause of the high radiation monitor trip signal, a failed power supply, was corrected.

Further Evaluation and Corrective Action

A. Further Evaluation

On May 19, 1992 I&C Technicians completed response time testing of Reactor Building ventilation exhaust plenum radiation monitor, REA-RIS-609B. This radiation monitor is part of the Group 3 (Secondary Containment Isolation) Nuclear Steam Supply Shutoff System logic. This radiation monitor is located on the Reactor Building ventilation exhaust prior to its discharge into the main Plant stack. At the completion of testing, however, the trip signal for the monitor to NSSSS was still present.

The NSSSS logic is designed to automatically isolate primary and secondary containment and actuate various Plant safety-related HVAC systems and components to limit the release of radioactive materials to the environment post-accident. NSSSS is a fail safe system in that the logic and associated relays fail to the safe condition on loss of power. The NSSSS logic is divided into seven groups, with the input trip signals and the actuated relays and components being group dependent. The Reactor Building ventilation exhaust plenum radiation monitors provide input only to the Group 3 logic.

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The NSSSS logic consists of two trip systems, A and B. Trip system A includes channels A and B. Trip system B includes channels C and D. The general NSSSS logic design is that trip system A actuates the outboard system components, while trip system B actuates the inboard system components. The NSSSS logic, except Group 1, is a two out of two taken once design in that tripping channels A and B results in actuation of trip system A, while tripping channels C and D results in actuation of trip system B. The actuation of each trip system, A or B, is independent of the state of the second NSSSS trip system and results in component actuation. The logic circuits and relays for both channels of a single group trip system, such as NSSSS Group 3 trip system A, are physically located in a common cabinet. The Group 3 NSSSS trip system A relays (channels A and B) are located in Relay Cabinet 1 (RC1).

The NSSSS logic differs from most other Plant logic systems. Most of the protection systems logic, including the Reactor Protection System, the Emergency Core Cooling System Actuation Instrumentation, the Recirculation Pump Trip Actuation Instrumentation, and the Reactor Core Isolation Cooling System Actuation Instrumentation, are designed on the one out of two taken twice principle. That is, there must be at least one channel in trip system A and at least one channel in trip system B tripped for an actuation of equipment to occur.

At the completion of testing of radiation monitor REA-RIS-609B, the RCI HALF TRIP annunciator was in, indicating a single channel was tripped. Plant I&C technicians were called in to troubleshoot the problem. Several portions of the circuitry were checked, including the 30VDC power supply to the monitor. During testing of the 30VDC power supply the technician, expecting to see 30VDC, misread the digital multimeter as 30VDC instead of the actual 30 mVDC. When no problem with the channel B circuitry was identified, the I&C Technicians began checking the channel A logic since either channel A or channel B can cause the annunciator. Troubleshooting of channel A was not previously approved by the I&C Supervisor or the Shift Manager. This troubleshooting inadvertently resulted in a trip of the channel A Reactor Building ventilation exhaust plenum radiation monitor logic. This trip signal, in conjunction with the channel B trip signal, resulted in a trip system A actuation. This is an unplanned ESF actuation and is reportable pursuant to the requirements of 10CFR50.73(a)(2)(iv).

Further review of the event revealed that the technicians involved were unaware that the NSSSS logic could be actuated by a single trip system. It was the technicians understanding that as long as the trip system B logic was not tripped, no actuation could occur from work on trip system A. One of the two technicians had formal training on the NSSSS system. This formal training covered the NSSSS logic, but did not stress the differences between this logic and most Plant logic systems.

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| LICENSEE EVENT REPORT (LER) TEXT CONTINUATION | | | | | | | | | | | | | | | |
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| TITLE (4) INADVERTENT EMERGENCY VENTILATION ACTUATION | | | | | | | | | | | | 4 | OF | 5 | |

The root cause for this event was work practices were less than adequate in that the technicians went outside the approved work scope and worked on a second NSSSS channel without concurrence of the Shift Manager. Contributing causes for this event included self checking techniques were not applied in that the I&C Technicians misread the digital multimeter reading and continued with the troubleshooting when the problem had actually been located, and training was insufficient in that it did not emphasize the significant differences between the NSSSS logic and other Plant logic systems.

There were no other structures, systems, or components inoperable prior to the start of this event that contributed to the event.

B. Further Corrective Action

Training on the NSSSS logic system, including the significant differences from other Plant logic systems, will be provided to the I&C technicians. This training will be completed by August 14, 1992.

This event, including the causes, will be included in the Industry Events training for I&C personnel. This training will be completed by August 14, 1992.

I&C management has counseled the involved technicians on the necessity of informing the Shift Manager prior to performing work outside the bounds of that previously approved.

Training on effective methods for self checking was provided to I&C personnel. This effort is based on effective self checking programs at other nuclear plants.

Safety Significance

A Group 3 NSSSS actuation impacts Plant ventilation systems. Numerous non essential ventilation systems are isolated to isolate portions of primary and secondary containment. In addition, the safety-related Standby Gas Treatment, Reactor Building Emergency Cooling, and the Control, Cable and Critical Switchgear Rooms HVAC systems start to support required Plant equipment.

At the time of this event all nuclear fuel was in the Spent Fuel Pool with no fuel handling activities in progress. The Plant had been shut down for over one month with the Spent Fuel Pool temperature at approximately 83 °F. Thus, cooling loads were significantly lower than those present during Plant operation. Primary and secondary containment were not required to be operable. Additionally, Plant safety-related HVAC systems responded as required. Normal system lineups were restored in less than one hour. This event is deemed to have had no safety significance.

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Similar Events

LER 88-003 documented an instance where a calibration procedure was not performed in the proper sequence and resulted in an NSSSS Group 1 actuation. As stated earlier, NSSSS Group 1 logic is different from the remainder of NSSSS in that it is a one out of two taken twice logic. LER 90-010 documented an event where, during relay replacement, work was authorized in multiple channels at the same time and resulted in an NSSSS actuation. The corrective actions for these past events would not have prevented the event described in this LER since the work which caused the event was not approved and was initiated based on inadequate knowledge of the NSSSS Group 3 logic.

EIIS Information

Text Reference

EIIS Reference

| <u>System</u> | <u>Component</u> |
|---------------|------------------|
|---------------|------------------|

Reactor Building exhaust radiation monitor,
REA-RIS-609B
Nuclear Steam Supply Shutoff System (NSSSS)
Reactor
Reactor Protection System
Emergency Core Cooling System Actuation
Instrumentation
Recirculation Pump Trip Actuation
Instrumentation
Reactor Core Isolation Cooling System
Actuation Instrumentation
Standby Gas Treatment
Reactor Building Emergency Cooling
Control, Cable and Critical Switchgear Rooms
HVAC
Spent Fuel Pool

| | |
|----|-----|
| VA | MON |
| JM | --- |
| AC | RCT |
| JC | --- |
| JM | --- |
| AD | --- |
| BN | --- |
| BH | --- |
| VA | --- |
| VA | --- |
| DA | TK |