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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-030-00: on 920630, containment isolation occurred due to poor work layout. Placed sys back in normal configuration. W/920730 ltr.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

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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. 92-030**

Transmitted herewith is Licensee Event Report No. 92-030 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,

J. W. Baker for

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

JWB/CLF/cgeh
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)

CONTAINMENT ENGINEERED SAFETY FEATURE (ESF) ACTUATION CAUSED BY POOR WORK PLACE LAYOUT

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 NAMES			DOCKET NUMBERS(S)			
0	6	3	0	9	2	9	2	--	0	3	0	--	0	0	0	7	3	0	9	2							0	5	0	0	0		
																		0	5	0	0	0											

OPERATING MODE (9)

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

POWER LEVEL (10)	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)	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vi)	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)
0 0 0													X									

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
C. L. Fies, Compliance Engineer	5 0 9 3 7 7 - 4 1 4 7

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) ☒ NO

ABSTRACT (16)

During the reactor refueling outage on June 30, 1992 at 1220 hours a Containment isolation occurred. This Engineered Safety Feature (ESF) actuation resulted in the shutdown of nonsafety related HVAC equipment, the actuation of containment isolation valves, and the startup of various safety related systems such as Standby Gas Treatment. Plant sheet metal workers in the vicinity of Inverter Number 3 (IN-3) appear to have inadvertently caused the ESF actuation.

The root cause for this event was poor work place layout and planning.

Immediate corrective action was taken to place the Containment systems in their normal configuration and work was stopped in the vicinity of IN-3. This event will be reviewed with plant and contractor personnel to prevent recurrence and to assure there is increased awareness of the need to be cautious when working around and on power supplies to control room instrumentation.

There is no safety significance associated with this event. ESF isolations and actuations occurred as designed for the plant configuration at the time of the event. Accordingly, this event posed no threat to the health and safety of the public or plant personnel.

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TITLE (4) CONTAINMENT ENGINEERED SAFETY FEATURE (ESF) ACTUATION CAUSED BY POOR WORK PLACE LAYOUT								

Plant Conditions

Power Level - 0%
Plant Mode - 4

Event Description

During the reactor refueling outage on June 30, at 1220 hours a Containment Isolation Engineered Safety Feature (ESF) Actuation occurred. At the time of the actuation a sheet metal worker was installing additional cooling ductwork around Inverter Number 3 (IN-3). IN-3 is one of two inverters that provide uninterrupted and reliable AC power to Safety Related AC loads in the main control room. These loads include relays, hydrogen-oxygen monitoring systems, radiation monitors, emergency lighting, and various control room cabinets and panels mainly associated with safety related systems.

The work to modify the ventilation duct work on IN-3 and the redundant inverter, IN-2, was performed to provide additional cooling. This task was started on June 23, 1992. During this ductwork installation around IN-3 the craftsman appears to have bumped the transfer pushbuttons on the inverter causing a momentary loss of power. IN-3 provides power to Relay Cabinet Number One (RC-1) which contains the relays for Balance of Plant (BOP) isolations. Loss of power to RC-1 initiated a BOP isolation involving Group 3 (Primary and Secondary Containment Ventilation and Purge Systems) and part of Group 4 (Miscellaneous Balance of Plant Systems). These two Groups are part of the Nuclear Steam Supply Shutoff System (NS⁴) that provides overall isolation of plant systems in response to various process parameters. In addition to the isolations, the Secondary Containment ESF actuation caused the normal Reactor Building (Secondary Containment) heating and ventilating supply and exhaust fans to stop and Reactor Building pressure control is transferred to the safety related Standby Gas Treatment (SGT) system which was initiated by this event.

Immediate Corrective Action

Plant operators took immediate corrective action to place the systems back in their normal configuration. Work was stopped in the vicinity of IN-3 and a temporary plexiglass shield was placed over the inverter pushbutton. An Incident Review Board was formed to immediately investigate the cause of the event.

Further Evaluation and Corrective Action

A. Further Evaluation

1. This event is being reported per the requirements of 10CFR50.73(a)(2)(iv) as an "..... event or condition that resulted in manual or automatic actuation of an Engineered Safety Feature (ESF).....".

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2. Evaluation of the physical layout of the work site showed it was extremely difficult to access the area above the IN-3 inverter. The sheet metal worker needed to move a bulky (36"x14"x5") piece of duct work into the space above inverter IN-3. The inverter has two protruding pushbuttons near the top of the unit labeled forward and reverse. The reverse pushbutton initiates a transfer of the power supply from the inverter to the alternate AC source. The forward pushbutton transfers the power supply from the alternate AC source to the inverter supplied by the battery DC source. The ladder and scaffolding placement were such that inadvertent bumping of the forward and reverse pushbuttons could easily occur.
3. Because of the sensitivity of a loss of one of the main control room instrumentation power supplies an investigation was made of recent transfer events associated with IN-3 to see if there were any precursors to this event. A review of the Transient Data Acquisition System (TDAS) files (these files are available for a four week period) showed IN-3 was on alternate power from 0112 hours on June 27 to 0830 hours on June 28. TDAS also showed the inverter was on alternate power from 1247 to 1331 hours on June 29. The control room logs do not show an alarm entry at the start of these time periods.
4. Further investigations were made of activities associated with IN-2, the inverter for the other safety related division. The TDAS run showed no transfers to reverse power. A review of equipment history showed no NS⁴ isolations as a result of transfer from forward to reverse power.
5. It was the opinion of the technical engineer and the electrical maintenance engineer that the isolation signal was caused by the simultaneous activation of both the forward and reverse push buttons resulting in a "crash" transfer and a subsequent isolation signal. The vendor (ELGAR) was contacted and their representative supported this theory as the most likely method to give an interruption in power. An interruption in power of short duration will initiate a trip of the NS⁴ logic causing an isolation signal.
6. The root cause was inadequate work place layout and planning. The layout of the work area was such that inadvertent bumping of the push buttons on IN-3 was likely and adequate precautions were not taken to bypass the inverter. A contributing root cause was inadequate work practice since briefings by various levels of supervision gave precautionary instructions to guard against such an event and it still occurred.
7. A review of this event resulted in a request to review other recent industry events associated with loss of power in the control room. Further evaluation showed a review was previously completed. The review included events at Palo Verde Unit 3, Quad Cities Unit 1, Dresden

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Unit 3, and Nine Mile Point Unit 2. A Special Operational Bulletin was issued summarizing these events on May 12, 1992. It included a discussion of the applicability of these events to WNP-2.

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

B. Further Corrective Action

1. Permanent protective covers will be installed over the forward, reverse and inverter shutdown push buttons on IN-3 and IN-2. This will be completed by September 1, 1992.
2. A memo will be issued for inclusion in the Operations Instructions which delineates Management's expectations for increased sensitivity in response to a transfer of any safety related inverter. One step in this memo will include a requirement to generate a Problem Evaluation Request (PER) for unexplained transfers of IN-2 and IN-3. This will be completed by September 1, 1992
3. This event and the content of the Special Operations Bulletin referenced in paragraph A.7 above will be reviewed with appropriate Supply System Plant Technical, Operations, Maintenance and Maintenance Contractor employees. This will be completed by November 1, 1992.

Safety Significance

There is no safety significance associated with the ESF actuation. ESF isolations and actuations occurred as designed for the plant configuration at the time of the event. Accordingly, this event posed no threat to the health and safety of the public or plant personnel.

The operation of IN-3 was placed at risk because of maintenance activities in the area. This, in turn, increased the probability of loss of power to a portion of the control room indication powered by Power Panel 7A-A (PP-7A-A). Corrective actions taken above will help to minimize this risk in the future.

Similar Events

LER 84-015 described an event where IN-3 caused an ESF actuation due to a momentary loss of power to Relay Cabinet Number 1. This was caused by operator error.

LER 84-118 was written because a malfunction in IN-2 resulted in an ESF actuation.

LER 85-059 describes a scram and isolation that occurred when a malfunction occurred in IN-3.

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None of these events were directly related to maintenance activity on the inverters.

EIIS Information

Text Reference

Containment
Inverter Number 3 (IN-3)
Inverter Number 2 (IN-2)
Relay Cabinet Number 1 (RC-1)
Power Panel 7A-A (PP-7A-A)

EIIS Reference
System Component

BT	--
EF	INVT
EF	INVT
--	CAB
EF	PL