

ACCELERATED DOCUMENT DISTRIBUTION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9304290026 DOC. DATE: 93/04/23 NOTARIZED: NO DOCKET #
 FACIL: 50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397
 AUTH. NAME AUTHOR AFFILIATION
 FIES, C.L. Washington Public Power Supply System -
 PARRISH, J.V. Washington Public Power Supply System
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 93-014-00: on 930325, identified five electrical lighting circuits associated w/primary containment not turned off & did not have adequate overcurrent protection. Caused by less adequate design analysis. TS & FSAR changed. W/930423 ltr.

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

NOTES:

RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
ONDD LA	1 1	ONDD PD	1 1
CLIFFORD, J	1 1		
INTERNAL: ACNW	2 2	ACRS	2 2
AEOD/DOA	1 1	AEOD/DSP/TPAB	1 1
AEOD/ROAB/DSP	2 2	NRR/DE/EELB	1 1
NRR/DE/EMEB	1 1	NRR/DORS/OEAB	1 1
NRR/DRCH/HHFB	1 1	NRR/DRCH/HICB	1 1
NRR/DRCH/HOLB	1 1	NRR/DRIL/RPEB	1 1
NRR/DRSS/PRPB	2 2	NRR/DSSA/SPLB	1 1
NRR/DSSA/SRXB	1 1	REG FILE 02	1 1
RES/DSIR/EIB	1 1	RGN5 FILE 01	1 1
EXTERNAL: EG&G BRYCE, J.H	2 2	L ST LOBBY WARD	1 1
NRC PDR	1 1	NSIC MURPHY, G.A	1 1
NSIC POORE, W.	1 1	NUDOCS FULL. TXT	1 1

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 504-2065) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED
 TOTAL NUMBER OF COPIES REQUIRED: LTTR 32 ENCL 32

AD 4

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

April 23, 1993
G02-93-093

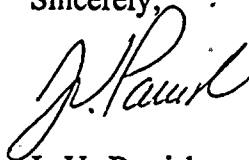
Docket No. 50-397

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. 93-014**

Transmitted herewith is Licensee Event Report No. 93-014 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. V. Parrish
Assistant Managing Director, Operations

JVP/CLF/jd
Enclosure

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

9304270026 930423
PDR ADDCK 05000397
S PDR

IF22
11

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Washington Nuclear Plant - Unit 2	DOCKET NUMBER (2) <div style="display: flex; justify-content: space-between;"> 05000397 </div>	PAGE (3) <div style="display: flex; justify-content: space-between;"> 1OF5 </div>
---	---	---

TITLE (4) INADEQUATE BACKUP OVERCURRENT PROTECTION FOR CONTAINMENT PENETRATIONS

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
0	3	2	5	9	3	9	3	0	1
0	3	2	5	9	3	9	3	0	1

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)
--------------------------------	--

POWER LEVEL (10) 0	20.402(b)	20.405(C)	50.73(a)(2)(iv)	77.71(b)
9	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.73(c)
9	20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
	20.405(a)(1)(iv)	X 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 C. L. Fies, Licensing Engineer	TELEPHONE NUMBER <div style="display: flex; justify-content: space-between;"> 509377-4147 </div>

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

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 (16) <p>On March 25, 1993, an Electrical Engineer found five electrical lighting circuits associated with Primary Containment that were not turned off during plant operation and did not have adequate backup overcurrent protection. This condition could cause failure of the impacted Primary Containment electrical penetrations. This problem was discovered as part of an Electrical Calculation Improvement Program being carried out by Engineering at WNP-2. All circuits entering Primary Containment must be properly protected with primary and secondary overcurrent protection or shut off procedurally during power operation. It was found that procedures did not address shutting off five circuits that feed 120 volt receptacles within containment. The backup protection to these circuits was found to be too large to protect the containment penetrations.</p> <p>Immediate action was taken by opening the breakers feeding the five involved electrical circuits.</p> <p>The root cause of this event was a less than adequate design analysis change prepared using inaccurate and incomplete documentation.</p> <p>Further corrective action was taken by changing Plant Procedure PPM 1.3.4, Operating Data and Logs, to require the impacted circuit breakers be verified in the tripped condition at least once per day when the plant is in modes 1, 2, or 3. In addition, the Technical Specifications and the FSAR are being changed to reflect the condition of the circuits.</p> <p>The event posed no threat to the health and safety of either the public or plant personnel.</p>

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.			
		93	014	00	2	OF	5
TITLE (4) INADEQUATE BACKUP OVERCURRENT PROTECTION FOR CONTAINMENT PENETRATIONS							

Plant Conditions

Power Level - 99%

Plant Mode - 1

Event Description

On March 25, 1993, an Electrical Engineer found five electrical lighting circuits that were not required by procedure to be shutoff during power operation. With the associated breakers closed and with inadequate backup overcurrent protection an overcurrent condition in conjunction with the single failure of the primary overcurrent protection device could cause failure of the involved Primary Containment electrical penetrations. This problem was discovered as part of an Electrical Calculation Improvement Program being carried out by Engineering at WNP-2. The original calculation (Calculation Number 02.03.12) provided to the Supply System by the architectural engineer was being updated to verify compliance with Regulatory Guide 1.63, Electric Penetration Assemblies in Containment Structures for Nuclear Power Plants, by checking the overcurrent protection of each wire. During the update of this calculation, it was found that the following lighting circuits for the Primary Containment were not procedurally controlled and did not have adequate backup overcurrent protection for their penetrations.

Circuit No. 19 & 21 of Lighting Panel E-LP-3DAC

Circuit No. 16 & 17 of Lighting Panel E-LP-6BAC

Circuit No. 19 of Lighting Panel E-LP-6BAB

Immediate Corrective Action

Compensatory action was taken by opening the breakers feeding the five involved electrical circuits which feed 120 volt outlets in Primary Containment.

Further Evaluation Root Cause, and Corrective Action

A. Further Evaluation

1. This event is being reported per the requirements of 10CFR50.73(a)(2)(ii)(B) as " . . . a condition that was outside the design basis of the plant" The event was also called in to the NRC Operations Center as required by 10CFR50.72(b)(1)(ii)(B).

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.			
			93	014	00	3	OF	5
TITLE (4) INADEQUATE BACKUP OVERCURRENT PROTECTION FOR CONTAINMENT PENETRATIONS								

2. Interviews with engineering personnel disclosed that in the late 1970s the Three Mile Island Accident raised a concern about ignition sources in the Primary Containment. As part of this concern, potential ignition sources were evaluated in the containment including lighting circuits. It was determined that all lighting in the containment would be deenergized and procedurally controlled in modes 1 through 3. In February 1982, the original draft of the Technical Specifications added Section 3.8.4.1 that listed two Lighting Panels supplying circuits inside Primary Containment. The interviews identified that the circuits described in this LER should have been part of that amendment.
3. A review of the WNP-2 electrical penetrations to verify compliance to Regulatory Guide 1.63 was performed in 1981. The result of this review was documented in the Supply System response to FSAR question 040.034. Tables associated with the response to this question list approximately 300 line items where penetration conductors, circuit data, and both primary and secondary overcurrent devices are listed.
4. The evaluation performed in 1981 made incorrect assumptions and contained errors associated with the plotting of the I^2t characteristics for the No. 10 AWG conductors for the Westinghouse supplied penetrations. The most significant of the incorrect assumptions was that all breakers from various manufacturers have similar characteristics. Although the characteristics may be similar between manufacturers, there were enough differences to lead to improper conclusions. In addition, the curves developed as part of calculation 02.03.12 consistently reflect a higher current carrying capability than the curves provided by Westinghouse for the electrical penetrations. This resulted in the identification of the five circuits with inadequate backup overcurrent protection. Primary overcurrent protection devices are properly sized.
5. This event was discovered as part of the Electrical Engineering Calculation Improvement Program. Because this effort is not complete it may generate additional reportable items. These will be reported as revisions to this LER.
6. There were no structures, components, or systems that were inoperable prior to the start of this event that contributed to the event.

B. Root Cause

The root cause of this event was a less than adequate design analysis change prepared using inaccurate and incomplete documentation prior to plant operation. This led to the approval and installation of a design that was not in compliance with regulatory requirements.

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.			
		93	014	00	4	OF	5
TITLE (4) INADEQUATE BACKUP OVERCURRENT PROTECTION FOR CONTAINMENT PENETRATIONS							

C. Further Corrective Action

1. Plant Procedure PPM 1.3.4, Operating Data and Logs, was changed to require breakers for LP-3D-A-C circuits 19 and 21, LP-6B-A-C circuits 16 and 17, and LP-6B-A-B circuit 19 be verified in the tripped condition at least once per day when the plant is in modes 1, 2, or 3.
2. Technical Specification 3.8.4.1, AC Circuits Inside Primary Containment will be modified. The additional circuit breakers that required deenergization will be added or Generic Letter 91-08 will be used to remove this list of equipment from the Technical Specifications. This request to revise the Technical Specification will be made by September 30, 1993.
3. The response to FSAR Question 040.034 will be modified to eliminate the circuits that do not have adequate redundant overcurrent protection. This will be completed by October 29, 1993.
4. Electrical distribution system calculations are currently being reviewed and updated on an ongoing basis under the Calculation Improvement Program. The condition described in this report involved an update of the calculation on Primary Containment Electrical Penetration Short Circuit Capability. Update of this calculation is expected to be complete by October 29, 1993.

Safety Significance

The circuits associated with this event feed electrical receptacles inside Primary Containment. During power operation the Primary Containment is normally inerted and no equipment is operated from these receptacles. The receptacles are mainly used during refueling outages when Primary Containment is not required. The circuit breakers feeding these circuits protect the penetration if a fault occurs. There is a low probability of having high fault currents at the time Primary Containment is needed (Loss of Coolant Accident conditions) combined with the failure of the primary overcurrent protection device. It is concluded there is no safety significance associated with this event.

Similar Events

There have been no similar events involving adequacy of overcurrent protection of electrical penetrations. There have been other reportable events associated with electrical calculations. LERs 89-034 and 92-027 were written on inadequate coordination of undervoltage protection on 480 volt Motor Control Centers. LER 91-033 discussed inadequate fuse coordination on the 250 volt DC system. LER 93-003 documented inadequate coordination of primary undervoltage on the 4.16 kV vital buses.

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.		
							93	014	00	5	OF 5
TITLE (4) INADEQUATE BACKUP OVERCURRENT PROTECTION FOR CONTAINMENT PENETRATIONS											

EIIS Information

Text Reference

Primary Containment
Lighting Panel E-LP-3DAC
Lighting Panel E-LP-6BAC
Lighting Panel E-LP-6BAB

EIIS Reference

System Component

BD	-
EC	LP
EC	LP
EC	LP