

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

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ACCESSION NBR:8808230413 DOC.DATE: 88/08/15 NOTARIZED: NO DOCKET #  
 FACIL:50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397  
 AUTH.NAME AUTHOR AFFILIATION  
 ARBUCKLE,J.D. Washington Public Power Supply System  
 POWERS,C.M. Washington Public Power Supply System  
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-026-00:on 880715,determined that sensing line support  
 hangers would not withstand design basis fire.W/880815 ltr.  
 W/8 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 6  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

## NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
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	SAMWORTH,R	1 1		
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	ACRS WYLIE	1 1	AEOD/DOA	1 1
	AEOD/DSP/NAS	1 1	AEOD/DSP/ROAB	2 2
	AEOD/DSP/TPAB	1 1	ARM/DCTS/DAB	1 1
	DEDRO	1 1	NRR/DEST/ADS 7E	1 0
	NRR/DEST/CEB 8H	1 1	NRR/DEST/ESB 8D	1 1
	NRR/DEST/ICSB 7	1 1	NRR/DEST/MEB 9H	1 1
	NRR/DEST/MTB 9H	1 1	NRR/DEST/PSB 8D	1 1
	NRR/DEST/RSB 8E	1 1	NRR/DEST/SGB 8D	1 1
	NRR/DLPQ/HFB 10	1 1	NRR/DLPQ/QAB 10	1 1
	NRR/DOEA/EAB 11	1 1	NRR/DREP/RAB 10	1 1
	NRR/DREP/RPB 10	2 2	NRR/DRIS/SIB 9A	1 1
	NUDOCS-ABSTRACT	1 1	REG FILE 02	1 1
	RES TELFORD,J	1 1	RES/DSIR-DEPV	1 1
	RES/DSIR/EIB	1 1	<u>RGNS FILE 01</u>	1 1
EXTERNAL:	EG&G WILLIAMS,S	4 4	FORD BLDG HOY,A	1 1
	H ST LOBBY WARD	1 1	LPDR	1 1
	NRC PDR	1 1	NSIC HARRIS,J	1 1
	NSIC MAYS,G	1 1		

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)  
Washington Nuclear Plant - Unit 2DOCKET NUMBER (2)  
0 5 0 0 0 3 9 1 7PAGE (3)  
1 OF 015TITLE (4) Technical Specification Appendix R, Division II, Instrument Sensing Line Support  
Hangers Require Modification/Protection Due to Inadequate Design by the Architect EngineerEVENT DATE (5)  
0 7 1 5 8 8 8 8 8 0 2 6 0 0 0 8 1 5 8 8

LER NUMBER (6)

REPORT DATE (7)

OTHER FACILITIES INVOLVED (8)

MONTH DAY YEAR YEAR SEQUENTIAL NUMBER REVISION NUMBER MONTH DAY YEAR FACILITY NAMES DOCKET NUMBER(S)  
0 5 0 0 0 0 0 5 0 0 0 0OPERATING MODE (9) 1  
POWER LEVEL (10) 1 0 0  
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)  
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) 50.38(c)(1) 50.38(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)(vii) 50.73(a)(2)(viii)(A) 50.73(a)(2)(viii)(B) 50.73(a)(2)(ix) 73.71(b) 73.71(c) OTHER (Specify in Abstract below and in Text, NRC Form 366A)LICENSEE CONTACT FOR THIS LER (12)  
NAME J.D. Arbuckle, Compliance Engineer  
TELEPHONE NUMBER 5 1 0 1 9 3 1 7 1 7 1 - 1 2 1 1 1 5  
AREA CODECOMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)  
CAUSE SYSTEM COMPONENT MANUFACTURER REPORTABLE TO NRCDS CAUSE SYSTEM COMPONENT MANUFACTURER REPORTABLE TO NRCDSSUPPLEMENTAL REPORT EXPECTED (14)  
YES (If yes, complete EXPECTED SUBMISSION DATE) X NO  
EXPECTED SUBMISSION DATE (15)

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

On July 15, 1988 as a result of an engineering calculation, it was determined that sensing line support hangers associated with the following 10CFR50, Appendix R, Division II instruments would not withstand the effects of a Design Basis Fire (DBF), without modification or protection:

- CMS-LT-2 (Suppression Chamber Water Level Monitor)
- MS-LT-26D (Reactor Vessel Level Monitor)
- MS-PT-51B (Reactor Vessel Pressure Monitor)
- RHR-FT-15B (Residual Heat Removal, Loop B, Flow Monitor)

Although the sensing lines for the instrument are stainless steel, the scope of the problems identified by the calculation includes 1) 100 hangers which have carbon steel tubing block clamp bolts that need to be replaced with stainless steel bolts, and 2) 55 hangers which require protection (e.g. Thermolag) from the effects of a DBF. In addition, the calculation also identified the need to perform operability verifications (in accordance with the Plant Technical Specifications) of fire-rated assemblies associated with two non-safe shutdown instrument racks.

The calculation was performed in response to an open item identified in a Nuclear Regulatory Commission Safety Evaluation Report on Amendment 37 to the WNP-2 Final Safety Analysis Report. The cause of this event is inadequate design by the Architect Engineer (AE-Burns and Roe, Inc.). The AE analysis addressed only the stainless steel tubing, and not the associated support hangers for fire protection requirements.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Washington Nuclear Plant - Unit 2	0   5   0   0   0   3   9   7	8   8	—   0   2   6	—   0   0	0   2	OF	0   5

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

Abstract (cont'd)

As required by the Plant Technical Specifications, the areas were placed on an hourly fire tour. Further corrective actions include 1) initiating a Plant Modification record to change the tubing block clamp bolts to stainless steel and provide Thermolag protection on the affected hangers, and 2) modifying appropriate procedures and the Plant Seal Tracking System.

This event did not affect the health and safety of either the public or Plant Personnel.

Plant Conditions

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

Event Description

On July 15, 1988 as a result of an engineering calculation, it was determined that sensing line support hangers associated with the following 10CFR50, Appendix R, Division II instruments would not withstand the effects of a Design Basis Fire (DBF), without modification or protection:

- CMS-LT-2 (Suppression Chamber Water Level Monitor)
- MS-LT-26D (Reactor Vessel Level Monitor)
- MS-PT-51B (Reactor Vessel Pressure Monitor)
- RHR-FT-15B (Residual Heat Removal, Loop B, Flow Monitor)

Although the sensing lines for the instruments are stainless steel, the scope of the problems identified by the calculation includes 1) 100 hangers which have carbon steel tubing block clamp bolts that need to be replaced with stainless steel bolts, and 2) 55 hangers which require protection (e.g. Thermolag) from the effects of a DBF.

The following is a description of the instrument sensing line locations within the Plant:

- Instruments MS-LT-26D and MS-PT-51B are connected to the same instrument tubing. Both instruments are located in a fire-shield-wall-enclosed instrument rack (H22-P027: Reactor Building - Elevation 522'). The fire shield wall enclosed area is a Division II Fire Area and; therefore, hangers within this area below the top of the walls are not threatened by a fire in Multi-Divisional General Reactor Building Fire Area R-I. (Should a fire occur in either a Division I or Multi-Divisional fire area, WNP-2 has committed to use Division II for safe shutdown.)

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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

The instrument tubing runs from Instrument Rack H22-P027, up through Fire Area R-I, and then through the ceiling into the Division II Residual Heat Removal (RHR) pipe chase area (Fire Area R-IV). The tubing to these instruments also has two branch lines. One branch tees off the instrument line in Fire Area R-I above the instrument rack and runs continuously through Fire Area R-I until it reaches another fire-shield-wall-enclosed instrument rack (H22-P009: Reactor Building - Elevation 471'). This branch is connected to MS-LT-44B (Reactor Vessel Level Monitor). The second branch tees off the instrument line in the Division II RHR pipe chase area, close to the point where the tubing enters the containment. The branch line exits the Division II area and runs through Fire Area R-I until it terminates at a fire-shield-wall-enclosed instrument rack (IR-73: Reactor Building - Elevation 522'). This branch is connected to MS-PS-8A-D (Main Condenser Low Vacuum Monitors). Tubing hangers on these three lines are in multi-divisional fire areas.

- Instrument CMS-LT-2 is located in the RHR "B" Pump Room which is a Division II Fire Area (R-IV). The instrument line runs up to Fire Area R-I on the Reactor Building 471' elevation, and then into containment.
- Instrument RHR-FT-15B is located in a Division II fire-shield-wall-enclosed rack (H22-P021: Reactor Building - 501' Elevation). Before the tubing leaves the fire-shield-wall-enclosed area, it branches off to RHR-FT-1 (RHR "B" Flow Monitor - Remote Shutdown). RHR-FT-1 and the hangers on this branch line remain in the Division II fire-shield-wall-enclosed area. After branching, the line from RHR-FT-15B exits to Fire Area R-I. The line runs along the west side of the Reactor Building up to the 522' elevation. On the 522' elevation, the line runs through the RHR-B pipe chase (Fire Area R-IV). After exiting the pipe chase, the line then runs through Fire Area R-I. The line runs up to the 548' elevation and into the RHR-B valve room and pipe chase (Fire Area R-IV), and then into containment.

In addition to the sensing line support hanger problems, the calculation also identified the need to perform operability verifications (in accordance with the Plant Technical Specifications) of fire-rated assemblies associated with Instrument Racks H22-P009 and IR-73. Instrument Racks H22-P009 and IR-73 support MS-LT-44B and MS-PS-8A-D respectively and, while these instruments are not required for shutdown, they do constitute part of the pressure boundary for the sensing lines which run to MS-LT-26D and MS-PT-51B. Both racks are enclosed in fire shield walls which were constructed to meet fire protection requirements when the Supply System utilized the High Pressure Core Spray (HPCS) and Reactor Core Isolation Cooling (RCIC) Systems for a safe shutdown method. When the current safe shutdown method (Automatic Depressurization System and RHR) was implemented, Technical Specification fire protection surveillances of the two instrument racks were no longer required.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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Washington Nuclear Plant - Unit 2	0 5 0 0 0 3 9 7	8 8	- 0 2 6	- 0 0	0 4	OF	0 5

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

The engineering calculation was performed in response to an open item identified in a Nuclear Regulatory Commission (NRC) Safety Evaluation Report (SER, dated November 11, 1987) on Amendment 37 to the WNP-2 Final Safety Analysis Report (FSAR). Included in the amendment (dated September 22, 1986) was a revision of the fire protection program to meet the objectives of NRC Generic Letter 86-10, "Implementation of Fire Protection Requirements," and to also meet the criteria of Appendix A to BTP APCSB 9.5-1 and the intent of 10CFR50, Appendix R, Items III.G and III.L.

The open item identified in the SER was a concern that instrument and sensing lines remain free of fire damage in the absence of fire protection features stipulated in 10CFR50, Appendix R. The Supply System stated in the amendment to the FSAR that stainless steel instrument and sensing line protection is not required since the areas that contain Appendix R related instrument sensing lines have less than a one-half hour fire loading. The analysis was based upon the design assumption that stainless steel instrument sensing lines will not rupture when exposed to a DBF in an area that has less than a one-half hour fire loading.

The cause of this event is inadequate design by the Architect Engineer (AE - Burns and Roe, Inc.). The AE analysis addressed only the stainless steel tubing, and not the associated support hangers for fire protection requirements.

#### Immediate Corrective Action

As required by the Plant Technical Specifications, the areas were placed on an hourly fire tour.

#### Further Corrective Action

1. A Plant Modification Record (PMR) has been initiated to change the tubing block clamp bolts to stainless steel and provide Thermolag protection on the the affected hangers.
2. Regarding Instrument Racks H22-P009 and IR-73:
  - a) Doors and walls in the areas have been added to the appropriate Technical Specification surveillance procedures.
  - b) The Plant Seal Tracking System will be updated to identify the seals and walls in the areas as Technical Specification fire-rated assemblies.

#### Safety Significance

Although there were no fires during the event period, the consequences of a Design Basis Fire are that unprotected equipment and cabling in the areas would assumed to be lost. However, as stated in the FSAR, loss of all unprotected equipment in Fire Area R-I is not considered a credible event due to the low fire loading and geometrical configuration of the Reactor Building. The area is configured such that it has low combustibles spread out over a large area. Fire Area R-I is a General Equipment Area consisting of all open space and equipment rooms within secondary containment (Elevations 442', 441', 471', 501', 522', 548', 572', and 606').

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Washington Nuclear Plant - Unit 2	0500039788	88	026	00	05	OF	05

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

Safety Significance (cont'd)

Fire Area R-IV also has a low fire loading and, as a result, the probability of a fire spreading is considered remote. Fire Area R-IV consists of the RHR Pump Room R1, Pipe Chase and RHR Heat Exchanger "B" Equipment Room (Elevations 422', 444', 471', 501', 522', 548' and 572').

In addition, had a fire occurred in either area, smoke or flame from the fire would activate either an ionization (Fire Areas R-I and R-IV) or ultraviolet (Fire Area R-I) detector which would alarm in the Control Room. The fire brigade would be dispatched which would take appropriate action in accordance with pre-fire plans and emergency response procedures. Manual fire fighting equipment is available in both areas.

Accordingly, this event did not affect the health and safety of either the public or Plant personnel.

Similiar Events

LERs 84-031 (Revisions 0, 1, 2 and 5), 85-043 and 88-022.

EIIS InformationText ReferenceEIIS Reference

System	Component
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CMS-LT-2 (Suppression Chamber Water Level Monitor)	IK	LT
MS-LT-26D (Reactor Vessel Level Monitor)	SB	LT
MS-PT-51B (Reactor Vessel Pressure Monitor)	SB	PT
RHR-FT-15B (Residual Heat Removal, Loop B, Flow Monitor)	BO	FT
Instrument Rack H22-P027	SB	RK
Instrument Rack H22-P009	SB	RK
MS-LT-44B (Reactor Vessel Level Monitor)	SB	LT
Instrument Rack IR-73	SB	RK
MS-PS-8A-D (Main Condenser Low Vacuum Monitors)	SB	PS
Instrument Rack H22-P021	BO	RK
RHR-FT-1 (RHR "B" Flow Monitor - Remote Shutdown	BO	FT
Residual Heat Removal (RHR) System	BO	- - - -
High Pressure Core Spray (HPCS) System	BG	- - - -
Reactor Core Isolation Cooling (RCIC) System	BN	- - - -
Automatic Depressurization System (ADS)	SB	- - - -

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

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Docket No. 50-397

August 15, 1988

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

Subject: NUCLEAR PLANT NO. 2  
LICENSEE EVENT REPORT NO. 88-026

Dear Sir:

Transmitted herewith is Licensee Event Report No. 88-026 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,



C.M. Powers (M/D 927M)  
WNP-2 Plant Manager

CMP:lg

Enclosure:  
Licensee Event Report No. 88-026

cc: Mr. John B. Martin, NRC - Region V  
Mr. C.J. Bosted, NRC Site (M/D 901A)  
INPO Records Center - Atlanta, GA  
Ms. Dottie Sherman, ANI  
Mr. D.L. Williams, BPA (M/D 399)

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