

## ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 FACIL:50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397  
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 WASHINGTON,S.L. Washington Public Power Supply System  
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 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-023-00:on 880629,Tech Spec violation of secondary  
 containment to outside differential pressure.

W/8 . ltr.

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

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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
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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 0 5	
TITLE (4) Technical Specification Violation of Secondary Containment to Outside Differential Pressure Caused by Design Due to Programmatic Errors																
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 NUMBER(S)			
0 6	2 9	8 8	8 8	0 2 3	0 0 0	7 2	9 8	8 8					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(c)				50.73(a)(2)(iv)				73.71(b)		
0 6 3		20.405(a)(1)(i)				50.36(c)(1)				50.73(a)(2)(v)				73.71(c)		
		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)				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)(ix)						
LICENSEE CONTACT FOR THIS LER (12)																
NAME Steven L. Washington, Compliance Engineer										TELEPHONE NUMBER 5 0 9 3 7 7 - 2 0 8 0						
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs						
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 (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																
<p>On June 29, 1988 it was determined that under certain conditions the Reactor Building (Secondary Containment) to outside differential pressure could have unknowingly exceeded the Plant Technical Specification (3/4.6.5.1) requirement to maintain at least a <math>-0.25</math>" of vacuum water gauge differential pressure.</p> <p>A system configuration error caused by ambiguity in the Architect/Engineer (AE)(Burns &amp; Roe Inc.) functional description of signal select instruments in the Reactor Building differential pressure control circuit, and the lack of clarification on the the signal select configuration required, caused the low value select option to be selected instead of the correct high value select option. This created a condition that when winds exceeded five miles per hour (mph) the Reactor Building to outside differential pressure could have been greater than the technical specification limit.</p> <p>A second error was found in that the Reactor Building to outside differential pressure control point did not account for instrument loop inaccuracies or instrument drift and; therefore, could also have contributed to a non-conservative Reactor Building to outside differential pressure. The cause of this error is programmatic in that the AE only calculated loop inaccuracies and instrument drifts for those instrument loops that had an analytical value associated with a setpoint. The <math>-0.25</math>" vacuum water gauge differential pressure is not an analytically determined value.</p> <p>Both of these conditions have existed since Plant startup, and both could occur during normal or accident conditions since both normal (Reactor Building Heating and Ventilation System) and accident (Standby Gas Treatment System (SGT)) systems are controlled in the same manner.</p>																

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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

Abstract (cont'd)

Immediate corrective actions included modifying the signal select instruments to select the high value select option, and initiating an Instrument Setpoint Change Request (ISCR) to change the Reactor Building to outside differential pressure control point from -0.25" to -0.6" to account for the instrument loop inaccuracies and instrument drift.

Further corrective actions include: Changing the differential pressure control point as soon as the ISCR is approved, revising the design drawings to show the signal select instruments select on the high value select option, Plant Technical Specifications will be reviewed to determine if there other technical specification limits that are maintained by control circuits for which instrument loop inaccuracies and instrument drift may not have been calculated, and an engineering study is currently being performed to evaluate the secondary containment design bases.

There were no adverse safety significant consequences associated with this event since no Plant radiological conditions existed that could have caused an unmonitored release in excess of allowable limits.

Plant Conditions

- a) Power Level - 63%
- b) Plant Mode - 1 (Run)

Event Description

On June 29, 1988 it was determined that under certain conditions the Reactor Building (Secondary Containment) to outside differential pressure could have unknowingly exceeded the Plant Technical Specification (3/4.6.5.1) requirement to maintain at least a -.25" of vacuum water gauge differential pressure. A system configuration error created a condition that under certain wind conditions would result in the Reactor Building differential pressure being greater than the technical specification limit and, in addition, the Reactor Building differential pressure control method did not account for instrument loop inaccuracies or instrument drift and; therefore, could also have contributed to a non-conservative Reactor Building differential pressure. Both of these conditions have existed since Plant Startup, and both could occur during normal operation and during accident conditions.

The Reactor Building secondary containment pressure control system (part of the Reactor Building Heating and Ventilation System) utilizes eight differential pressure transmitters (REA-DPT-1A1 thru 1A4 and REA-DPT-1B1 thru 1B4) (one on each side of the building for each redundant Reactor Building exhaust fan (REA-FN-1A & 1B)) to monitor building to atmospheric differential pressure. The signal select device for each exhaust fan controller (REA-LWS-1A and 1B) should select the least negative differential pressure signal; however, since Plant Startup the select devices have been configured to select the most negative differential pressure signal.

## 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 368A's) (17)

The selection of the least negative pressure ensures that the required  $-.25''$  vacuum water gauge differential pressure is maintained on all Reactor Building walls, regardless of wind conditions. The result of the configuration error is that with winds exceeding five miles per hour (mph) the Reactor Building to outside differential pressure could have been higher than the required  $-0.25''$  vacuum water gauge differential pressure. Further, during moderate winds (greater than 17 mph) the Reactor Building pressure could have been positive with respect to the outside. Since the Standby Gas Treatment System is also controlled by the same instrumentation the same conditions would apply for Plant accident conditions.

Secondly, further evaluation determined that the instrument loop inaccuracies and instrument drift were not taken into account when the Reactor Building pressure controller is set. The calculated accuracy of the control loop from the Reactor Building to outside differential pressure transmitters to the Reactor Building differential pressure recorders (REA-DPR-1A and 1B) is 1.172%. The span of control is 10 inches vacuum water gauge pressure ( $-3''$  to  $+7''$ ). Thus, the loop accuracy is  $\pm .12$  inches. The Reactor Building to outside differential pressure is controlled by manually setting the pressure controller for each Reactor Building exhaust fan (REA-DPIC-1A and 1B for the Reactor Building exhaust fans and SGT-DPIC-1A1, 1A2 and 1B1 and 1B2 for the two fans per SGT train), so that a  $-0.25''$  vacuum water gauge differential pressure is maintained on the Reactor Building to outside differential pressure recorders. Therefore, when instrument loop inaccuracies and instrument drift are considered, Reactor Building to outside differential pressure could have been greater than the technical specification limit.

#### Immediate Corrective Action

The signal select devices (REA-LWS-1A and 1B) were modified to select the least negative differential pressure signal for Reactor Building pressure control.

An Instrument Setpoint Change Request (ISCR) was initiated to change the Reactor Building to outside differential pressure control value from  $-0.25''$  to  $-0.6''$ . This value will account for, in a conservative manner, instrument loop inaccuracies and instrument drift. When the ISCR is approved Plant Reactor Operators will set the pressure controller to maintain the Reactor Building differential pressure at  $-0.6''$  as read on the Reactor Building to outside differential pressure recorders.

#### Further Evaluation and Corrective Action

##### A. Further Evaluation

1. This event is reported under the provisions of 10CFR50.73(a)(2)(i)(B) as a condition prohibited by the Plant's Technical Specifications. The actual dates and times when the Plant was outside technical specifications due to wind conditions will not be determined as winds in excess of five mph are common in this locale. Since the actual errors from the instrument loop inaccuracies and instrument drift cannot be determined, the Plant could have been outside the technical specification limit since Plant Startup, December 1983.

## 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 368A's) (17)

2. There were no Plant structures, systems, or components inoperable prior to this event that contributed to the event.
3. The instrument configuration error was caused by design drawings supplied by the Plant Architect/Engineer, Burns and Roe, Inc.. The signal select instruments were erroneously identified on design drawings as low value select, and in order to select the least negative signal they should have been identified as high value select. The root cause is attributed to the ambiguity of the method used by the Architect/Engineer to describe the function of the instruments and the lack of clarification as to which signal select configuration was required. A single jumper is relied on to configure the signal select instrument for high or low value select.
4. The failure to include loop inaccuracies and instrument drift in the building pressure control point is due to the uniqueness of this situation. The building pressure controller is a dial controller set by Licensed Plant Reactor Operators to maintain Reactor Building to outside differential pressure at less than or equal to  $-0.25''$  vacuum water gauge. There is no analytical value associated with this setpoint and; therefore, application of the setpoint error calculation margins places the  $-0.25''$  control point in a non-conservative perspective. The root cause of this deficiency is a programmatic error in the setpoint methodology program in that only devices that had an analytical limits were evaluated for loop inaccuracies and instrument drift.

#### B. Corrective Action

1. As soon as the ISCR is approved the Reactor Building to outside differential pressure will be controlled to the new, more conservative  $-0.6''$  control point.
2. The design drawings will be revised to show the signal select devices as high value select instead of low value select.
3. An engineering study is currently being performed to evaluate the secondary containment design bases.
4. Plant Technical Specifications will be reviewed to determine if there are other technical specification limits that are maintained by control circuits for which instrument loop inaccuracies and instrument drift may not have been calculated.

#### Safety Significance

There are no adverse consequences associated with this event. There were no Plant radiological events which would have caused unmonitored effluents in excess of allowable limits during this event period. If during this event period a combination of high winds and a Loss of Coolant Accident (LOCA) had occurred it is estimated that there could have been unmonitored leakage through the Reactor Building in excess of 10CFR100 limits.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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The problem with the instrument loop inaccuracies and instrument drift alone could not have caused a significant safety hazard since the maximum error would not have caused the Reactor Building to outside differential pressure to become positive. The health and safety of the public or Plant personnel were not affected by this event.

Similar Events

None

EIIS InformationText ReferenceEIIS Reference

	System	Component
Reactor Building	NG	- - - - -
Secondary Containment	NG	- - - - -
Reactor Building Differential Pressure Control Circuit	VA	PDC
Signal Select Instrument (Device)(REA-LWS-1A & 1B)	VA	PDS
Reactor Building Heating and Ventilation System	VA	- - - - -
Standby Gas Treatment System (SGT)	BH	- - - - -
Differential Pressure Transmitters (REA-DPT-1A1 thru 1A4)	VA	PDT
Differential Pressure Transmitters (REA-DPT-1B1 thru 1B4)	VA	PDT
Reactor Building Exhaust Fan REA-FN-1A and 1B	VA	FAN
Reactor Building Differential Pressure Recorders (REA-DPR-1A and 1B)	VA	PDR
Pressure Controller REA-DPIC-1A and 1B	VA	PDC
Pressure Controller SGT-DPIC-1A1, 1A2, 1B1, and 1B2	BH	PDC

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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

July 29, 1988


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

Subject: NUCLEAR PLANT NO. 2  
LICENSEE EVENT REPORT NO. 88-023

Dear Sir:

Transmitted herewith is Licensee Event Report No. 88-023 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,



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

CMP:lg

Enclosure:  
Licensee Event Report No. 88-023

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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