

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8810110371 DOC.DATE: 88/09/30 NOTARIZED: NO DOCKET #  
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 AUTH.NAME AUTHOR AFFILIATION  
 WASHINGTON,S.L. Washington Public Power Supply System  
 POWERS,C.M. Washington Public Power Supply System  
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-023-01: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: 7  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

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	AEOD/DSP/TPAB	1 1	ARM/DCTS/DAB	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 6		
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 1	0 9	3 0	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)														
1		20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(b)		
POWER LEVEL (10)		20.405(a)(1)(i)				50.36(c)(1)				X 50.73(a)(2)(v)				73.71(c)		
0 6 3		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)				X 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										TELEPHONE NUMBER						
Steven L. Washington, Compliance Engineer										AREA CODE		3 7 7 1 - 2 0 8 0				
5 0 9										3 7 7 1 - 2 0 8 0						
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)										X NO						

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

On June 29, 1988 it was determined that the plant configuration for sensing the Reactor Building (Secondary Containment) to outside differential pressure was incorrect and that the setpoint relied upon to maintain the technical specification value did not take into account instrument loop inaccuracies and drift. In addition, a rereview of event reportability determined that the event should have been reclassified as reportable per 50.72 (b)(2)(iii) and 50.73 (2)(2)(v) once the instrument setpoint calculation was completed and the margin required was determined to be greater than -.25. This event was previously evaluated as reportable per 50.73(a)(2)(i)(B). The 50.72 verbal notification report was made August 12, 1988 at 1546 hours. In addition, the Architect/Engineer Burns & Roe Inc. has been asked to evaluate this event for reportability per 10CFR Part 21.

A system configuration error caused by ambiguity in the Architect/Engineer (AE)(Burns & 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 enabled instead of the correct high value select option.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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 3	— 0 1	0	12	OF 0 6

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

Abstract (cont'd)

The Reactor Building to outside differential pressure controller setting did not account for instrument inaccuracies and drift and; therefore, could also have contributed to a non-conservative Reactor Building to outside differential pressure. The cause of this error is programatic in that the Architect/Engineer (AE) did not calculate a setpoint for the controller setting to account for loop component inaccuracies and drift. A records review has not determined the extent of actual drift and therefore the loop could have indicated a -.25 vacuum water gauge pressure differential when indeed a positive pressure could have existed during normal operation.

Both of these conditions have existed since WNP-2 was licensed on Dec. 20, 1983. The error could have caused a positive pressure condition with the normal Reactor Building supply and exhaust system in operation. The Standby Gas Treatment System uses a similar control system design, but would have led to a decreasing pressure condition and an eventual trip if the worst case drift occurred. This would have led to operator action and the necessary adjustment of the setpoint to provide continued SGT operation.

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 when the ISCR was 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 are other technical specification limits that are maintained by control circuits for which instrument loop inaccuracies and instrument drift may not have been calculated, an engineering study is currently being performed to evaluate the secondary containment design bases, the event reportability evaluation process will be changed to include a re-evaluation if new information becomes available during report preparation, and a letter has been sent to Burns & Roe Inc. requesting that they perform a 10CFR Part 21 evaluation of this event.

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

Plant Conditions

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

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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 3	—	0 1	0 13	OF 0 6

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

Event Description

On June 29, 1988 a Plant configuration problem was discovered and 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 configuration condition that did not compensate for wind direction as described in the FSAR. In addition, the Reactor Building differential pressure setpoint could not be verified to account for instrument loop component inaccuracies and drift and therefore could have contributed to a non-conservative Reactor Building differential pressure. Both of these conditions have existed since Plant Startup. During normal operation, the Reactor Building Ventilation is provided by a constant supply and regulated exhaust system. Inaccuracies and drift of the control loop could have resulted in a positive building pressure during normal operation only. Since the Standby Gas Treatment system takes a suction on the building, pressure would be reduced upon initiation and have been maintained negative provided the accumulated drift did not exceed the controller setting. Excessive drift, if present would have caused a fan flow reduction until the fan tripped on low flow. At this point operator action would have taken place and the necessary controller setpoint adjustment made to sustain SGT operation. Current analysis for SGT response assumed initial building pressure to be atmospheric.

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. 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 direction. The result of the configuration error is that the Reactor Building to outside differential pressure would not compensate for a wind condition. The current WNP-2 design base does not specify a design bases wind for pressure control maintenance on SGT system response. However, during some wind, portions of the Reactor Building could become positive with respect to the outside pressure. This omission and other conditions than can affect SGT & Reactor Building HVAC System performance are currently being evaluated (reference corrective action to be taken #2).



## 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)

Washington Nuclear Plant - Unit 2

0 5 0 0 0 3 9 7 8 8 - 0 2 3 - 0 1 0 4 OF 0 6

TEXT (If more space is required, use additional NRC Form 365A's) (17)

Secondly, further evaluation determined that instrument loop component inaccuracies and drift were not taken into account when the Reactor Building pressure controller was set. The calculated instrument loop component inaccuracies is 1.756%. The span of control is 10 inches vacuum water gauge pressure (-3" to +7") and the instrument loop component inaccuracy is +/- .175". Instrument drift was not specifically established by trend data and was estimated conservatively by doubling the instrument loop component inaccuracy (Instrument drift +/- .35") until a design engineering setpoint calculation is complete. The Reactor Building to outside differential pressure was controlled by manually setting the pressure controller (REA-DPIC-1A or 1B) for each Reactor Building exhaust fan so that a -0.25" vacuum water gauge differential pressure was maintained on the Reactor Building to outside differential pressure recorders. Therefore, when instrument loop component inaccuracies and instrument drift are considered, Reactor Building to outside differential pressure could have been greater than the technical specification limit if the postulated component inaccuracy and instrument drift occurred during normal operation.

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 instrument loop component inaccuracies and drift in a conservative manner until a final setpoint calculation can be completed. With the approved ISCR the pressure controller was set to -0.6" on June 29, 1988.

Further Evaluation and Corrective ActionA. Further Evaluation

1. This event was initially 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 actual instrument drift cannot be determined. The Plant could have been outside the technical specification limit for some period of time since Plant Startup, December 1983.

A rereview of the applicable reportability criteria for this event was initiated following discussions with Region V of the Nuclear Regulatory Commission. During the investigations undertaken to prepare the original issue of this LER information became known which should have caused a re-evaluation of reportability per 10CFR50.72. The rereview concluded the event should have been reported as a four hour report per criterion 10CFR50.72(b)(2)(iii). The four hour report was made on August 12, 1988 at 1546 hours. This event is also reportable per criterion 10CFR50.73(a)(2)(v). Burns and Roe Inc. has been requested to review this event for 10CFR Part 21 reportability.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

TEXT (If more space is required, use additional NRC Form 365A'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 document calculations demonstrating the inclusion of instrument drift for the building pressure control setpoint is due to failure to apply the setpoint calculation program executed by the Architect/Engineer. 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  $-.25''$  vacuum water gauge. There is no analytical value associated with this setpoint other than the Technical Specification value of  $-.25$  inches vacuum water gauge and; therefore, any setpoint inaccuracies or drift could cause a non-conservative pressure condition. The root cause of this deficiency is a programmatic error in the Architect/Engineer setpoint methodology program in that only devices that had a analytical limits were evaluated for instrument drift.
5. The cause of the missed 10CFR50.72 report is programatic in that no process was in place to cause a reportability rereview when new information becomes available.

## B. Corrective Action to be Taken

1. The design drawings will be revised to show the signal select devices as high value select instead of low value select.
2. An engineering study is currently being performed to evaluate the secondary containment design bases.
3. 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.
4. A letter has been sent to Burns and Roe Inc. to evaluate this event for reportability per 10CFR Part 21.

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

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

5. The WNP-2 reportability review program will be revised to include a process to re-evaluate reportability when new information becomes available.

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 Loss of Coolant Accident (LOCA) occurred, there could have been unmonitored leakage through the Reactor Building in excess of that previously evaluated. The problem with instrument drift also could have caused a significant safety hazard since the maximum drift would have caused the Reactor Building to outside differential pressure to become positive during normal operating but would not have resulted in a significant release. 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

September 30, 1988

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Washington, D.C. 20555

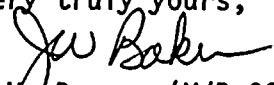
Subject: NUCLEAR PLANT NO. 2  
LICENSEE EVENT REPORT NO. 88-023-01

Dear Sir:

Transmitted herewith is Licensee Event Report No. 88-023-01 for the WNP-2 Plant. The Revision to LER 88-023 (Revision 1) is submitted to correct errors made in the previous submittal and reclassify the condition as also reportable per 10CFR50.72. The errors primarily effected the manner in which the incorrect setpoint would have affected Standby Gas Treatment System response and also removed the discussion concerning the affects wind may have on building pressure control. The Supply System is currently evaluating various conditions that can affect Reactor Building pressure control and upon conclusion of the evaluation will evaluate reportability.

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. 88-023-01

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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