ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

			· · · · · · · · · · · · · · · · · · ·	· ·	
ACCESSION FACIL: 50 AUTH.NA DAVISON POWERS, 0 RECIP.N	N NBR:8809080163 D-397 WPPSS Nuclear AME AUTHOR A ,W.S. Washingto C.M. Washingto NAME RECIPIEN	DOC.DATE: Project, U FFILIATION n Public Po n Public Po T AFFILIAT	88/09/02 NOTARIZE Jnit 2, Washington ower Supply System ower Supply System ION	D: NO Public Powe	DOCKET # 05000397
SUBJECT DISTRIBU TITLE:	: LER 88-006-01:on reactor protectiv UTION CODE: IE22D 50.73 Licensee Even	880213,low e sys actua COPIES RECI t Report ()	reactor pressure v ation occurred. EIVED:LTR (ENCL LER), Incident Rpt,	vessel level W/8 l <u>/</u> SIZE: etc.	r. R // I
					D
NOTES:		11	*i		S
	RECIPIENT	COPIES	RECIPIENT	COPIES	,
	ID CODE/NAME	LTTR ENCL	ID CODE/NAME	LTTR ENC	L . /
	PD5 LA	1 1	PD5 PD	1 1	
	SAMWORTH, R	1 1			, А
TNTERNAL.	ACRS MICHELSON	1 / 1	ACRS MOELLER	2 2	n
	ACRS WYLIE	īī	AEOD/DOA	ī 1	
	AEOD/DSP/NAS	īī	AEOD/DSP/ROAB	2 2	n
	AEOD/DSP/TPAB	1 1.	ARM/DCTS/DAB	1 1	v
	DEDRO	1 1	NRR/DEST/ADS 7E	1 0	S
	NRR/DEST/CEB 8H	1 1	NRR/DEST/ESB 8D	1 1	5
	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	22	NRR/DRIS/SIB 9A	1 1	<i>`</i>
	NUDOCS-ABSTRACT	1 1	REG_FILE 02	1 1	•
	RES TELFORD, J	1 1	RES/DSIR DEPY	1 1	
	RES/DSIR/EIB	1 1	RGN5 FILE 01	1 1	= % 1
EXTERNAT .:	EG&G WILLTAMS S	4 4	FORD BLDG HOY.A	1 1	
•••••••••••••••••••••••••••••••••••••••	H ST LOBBY WARD	i i	LPDR	īĪ	n
	NRC PDR	īī	NSIC HARRIS.J	1 1	Я
	NSIC MAYS,G	īī	······································		' T
	•				1

D S / A D D

S

TOTAL NUMBER OF COPIES REQUIRED: LTTR 46 ENCL

CL 45

)					
NRC Forr (9-93)	n 366	•			LIC	ENSE	E EVE	NT RE	PORT	(LER)	U.S. N	UCLEA APPI EXPI	AR REGU ROVED C IRES: 8/3	ULATOR DMB NO 1/88	Y COMMIS: . 3150-0104	SION
Wash	ingto	on Nucle	ear	Plant - U	Init 2		,		•		00000000000000000000000000000000000000	3 (2) O	3 9	17	PAGE ((3) 1 0
TITLE (4	'Low of P	Reactor	r Pr ral	ressure Ve Inadequad	essel Le Sy	vell	React	or Pr	otecti	ve Syste	m Actuati	on	As a	Res	ult	
EV	DAY	(5) YEAR YI	EAR		S)	RE MONTH	PORT DAT	E (7) YEAR		OTHEF FACILITY NA	A FACILITIES INVO	DOC) (8) CKET NU	MBERIS	3	
				NUMBER	NOMBER							0	5 0	101	0	
02	1 3	8 8 8 TH	8	0 0 6		0 9		88 ENTS OF	0 CFR §: /(Check one or more	of the following) (0	1510	101	0	
M	DDE (9)	3	20.4	02(6)		20,405	(c)		Ň	50,73(e)(2)(iv)	i.	T	73,71(b)		
LEVE (10)			20.4	05(a)(1)(ii) 05(a)(1)(ii) 05(a)(1)(iii)		50.38(i 50.73(i	c)(1) c)(2) c)(2)(i)			50,73(a)(2)(vii) 50,73(a)(2)(viii) 50,73(a)(2)(viii)		F	OTHE <i>below</i> <i>366A</i>	R (Speci and in 1	ily in Abstra Text, NRC F	ect Form
			20.4	05(a)(1)(iv) 05(a)(1)(v)		50,73(i 50,73(i	6)(2)(iii) 6)(2)(iiii)			50,73(s)(2)(vili) 50,73(s)(2)(x))(B)					
NAME					1	ICENSEE	CONTACT	FOR TH	S LER (12)			TEL	EPHONE	NUMBE	R	
·w.	S. Da	vison.	Con	npliance E	ngineer	•		,	ŋ	-	AREA CODE	3	1717	-	2 5	011
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13) Ext. 2726																
CAUSE	SYSTEM	COMPONE	NT	MANUFAC. TURER	REPORTABLE TO NPRDS			CAUS	ESYSTEM	COMPONENT	MANUFAC- TURER	R	EPORTA TO NPRI			<u></u>
_x	SIJ	1 14	I R	<u>B 0 4 0</u>	NO											
		11														
				SUPPLEME	NTAL REPORT	EXPECT	ED (14)		1	<u>.</u>	EXPEC	TED	M	ONTH	DAY	YEAR
YE	S (If yes, c	omplete EXPE	CTED S	SUBMISSION DATE) sinale-spece tvp	written li	X NO				DATE					_I
Foll Febr an a init caus lowe dive thro Cycl proc to e pres	owing uary ctual iated ed by r th rsion ugh t edura nsure sure	a man 13, 198 10w RI by 10 openi an RPV flowp the Sta eanup F 1 inado that is high	ual 88, PV L oss ng / p ath rtu Flow equa the	scram in a series evel Reac of the the the Start ressure. of reac p Flow Co control acy. Plan RFW Syste than Reac	itiated of Read tor Pro only ru up Flow This tor coo ontrol Valve. tor Fee tor Fee	due tor otect nning Con resu lant Valve Th edure d be dwate	to h Press ive S g Rea trol llted from e and le rol es dic opera er Sys	igh i ure V ystem ctor Valve in to t to t to t ated stem	reacton Vessel Feedw while establ React the Ma use o give correc pressu	r coolan (RPV) le ation. T ater (RF e RFW Sy ishing tor Wate in Conde f the e adequate tly duri re.	t conduct evel trans The low lo W) Pump stem pres a previo r Cleanu nser Hot vent was e guidanc ng situat	tivi sier eve and sur sur sur sur sur sur sur sur sur sur	ty p nts n l cor d wa e wa y un Syste l vi term co th is in	orob resu ndit s d s 2 nrec m b a t ined ined i wh	lems lted ion wa irect 50 ps ognize ackwan ne Lon to l perate ich Rl	on in as ig ed rg be PV
Corr	ectiv	e Actio	ons	consisted	l of:											

Modifying the RFW Speed Control System to eliminate undesirable speed ramp characteristics, modification of operating procedures to add suficient guidance for RFW System operations, evaluation of the need for Simulator Training, required reading of this LER, evaluation of RPV level management policy, repair of the condensate pump minimum flow control valve and evaluation of the need for feedwater system design changes. During the event all manual and automatic safety system responses occurred as designed. This event posed no threat to the safety of Plant personnel or the public.

Jen



NRC Form 36 (9-83)	LICENSEE EVENT REPOR	T (LER) TEXT CONTINU	U.S. I JATION	NUCLEAR REGULATORY (APPROVED OMB NO. 315 EXPIRES: 8/31/88	COMMISSION 0-0104
FACILITY N	AME (1)	DOCKET NUMBER (2)	LER NUMBER (6)	PAG	3E (3)
			YEAR SEQUENTIAL	REVISION NUMBER	
Washi	ngton Nuclear Plant - Unit 2	0 5 0 0 0 3 97	8 8 - 0 0 6	- 011012	^{⊃F} 1_10
TEXT (If more	spece is required, use additional NRC Form 306A's) (17)				
<u>Pla</u>	nt Conditions				
a) b)	Power Level - 0% Plant Mode - 3 (Hot Shutdown)		r.		
<u>Eve</u>	nt Description				
On 35 aut tra pro act and Tur	February 13, 1988, at 1655 h percent reactor power due to omatic Reactor Protective System actual low Reactor Pressure nsients initiated by the operati cess of plant shutdown. Prior uation, the plant was in the Hot pressure being maintained usin bine Bypass Valves (BPV).	nours, the reactor rapidly increasi (RPS) actuation of Vessel (RPV) wat ing Reactor Feed Pu to the time of Shutdown (Plant Mo ng Reactor Feed Pu	r was manuall ng coolant c ccurred 21 minus er level con mp speed contr the Low RPV ode 3) condition mp 1A (RFW-P-	y scrammed onductivity. utes later du dition follor roller during Water Level on with RPV IA) and the	from An ue to owing g the RPS level Main
The	sequence of events occurred as	follows, with time	zero at 1655 h	ours, 50 sec	onds:
0	<u>Time 0 minutes, 0 seconds</u> - plant chemistry that hotwell cloudy, the reactor was manua The rapid increase in reac centimeter was later determine	About 2 minutes an conductivity was ally scrammed at a ctor coolant cond d to be due to rupt	fter receiving very high and pproximately 3 luctivity to ured tubes in	the report the sample 5 percent po 1 micro-mho the condense	from was ower. per r.
ο	<u>Time O minutes, 23 seconds - I part of the reactor scram reco</u>	Reactor Feed Pump T very action, leavin	IB (RFW-P-1B) g RFW-P-1A in	was shut dow service.	vn as
0	<u>Time 2 minutes, 9 seconds</u> - decreased to zero demand init speed lockup feature is design last value. Instead, pump spec	RFW-P-1A automatic iating an automati ned to hold the fee ed began to increas	turbine speed c shift to sp ed turbine RPM e rapidly.	control cin eed lockup. constant at	rcuit The t its
0	Time 2 minutes, 18 seconds - 60 percent pumping capacity). rate of about 50 inches per min	RFW-P-1A turbine At this point, I nute.	speed reached RPV level was	3500 RPM (a increasing	about at a
0	Time 2 minutes, 40 seconds - RPV level increased through +5 at +54.5 inches.	RFW-P-1A was tripp 51 inches. An auto	oed by the rea matic trip wou	ctor operato Jld have occu	or as urred
0	Time 3 minutes, 50 seconds - T this point, the decision was source for maintaining RPV inv of the high conductivity water	he RPV level trans made to use the ventory and cooling in the condenser h	ient crested a RCIC system a down, thus mi ot well as a s	t +62 inches as the prefe inimizing the ource of make	. At erred e use eup.
0	<u>Time 5 minutes, 20 seconds</u> - per minute. This is consider shutdown.	RPV level started ed normal level d	to decrease a rop immediatel	t about 3 in y after a p	nches plant

,

NRC FORM 366A (9-83)

•

1

j.

1

ž

a

• لأ

Ņ

. . r L ÷

ν.

N •

	►		
NRC Form 366A (9-83)	LICENSEE EVENT REPORT (LER) TEXT CONTIN	U.S. NUCLEAR REGULATORY C	COMMISSION
•		EXPIRES: 8/31/68	
FACILITY NAMI	E (1) DOCKET NUMBER (2)	LER NUMBER (6) PAG	E (3)
		YEAR WINDER WINDER	
Washin	ngton Nuclear Plant - Unit 2 0 5 0 0 3 9 1	818 - 01016 - 017 013 0	^{pF} 10
TEXT (If more so	ece is required, use additional NRC Form 306A's) (17)		
0	Time 6 minutes, 15 seconds - The Long Cyc RFW-FCV-15 was opened to provide a recircul system filter demineralizers back to the con- minimize the conductivity increase and to p flow. Use of this valve resulted in a 70 p system pressure. Normally, COND-LCV-11 would b condensate flow. At this point however, COND-LC	le Cleanup Flow Control ation path from the conde lenser hotwell in an effor rovide condensate pump mi rig lower than normal feed ave been used to supply mi W-ll was in manual and clos	Valve nsate rt to nimum water nimum ed.
ο	<u>Time 15 minutes, 0 seconds</u> (approximate) - B valve to the Condensate Storage Tank's (CST caution tagged, the only RCIC suction source Pool. Since depressurization using RCIC wou pool water to CSTs, the decision was made to Condensate Storage Tanks prior to starting the B	ecause the RCIC system su s) was closed, deenergized was the Pressure Suppre d mean discharging suppre realign the RCIC suction to CIC pump.	ction and ssion ssion o the
0	<u>Time 15 minutes, 30 seconds</u> (approximate) - using the condenser hotwell as the RPV water could be realigned.	The decision was made to source until the RCIC su	start ction
0	<u>Time 15 minutes, 54 seconds</u> - Startup Flow Contropened in preparation for using the conder feedwater to the RPV when pressure decreased pumps. RPV level had dropped into the normal 1 at this point. RPV level immediately began to inches per minute. (See Figure 1 for Condensa lineup). The operators were not aware that inventory loss rate was backflow of RWCU water condenser via the RFW System Long Cycle Cleanup	rol Valve RFW-V-10A was man sate booster pumps to s to within the capability of evel control range of +35 i o decrease at approximatel te and Reactor Feedwater S the reason for the rapid through RFW-V-10A and into Valve RFW-FCV-15.	ually upply f the nches ly 20 ystem I RPV o the
0	Time 16 minutes, 9 seconds - The RPV Low Lev decreased through +31.5 inches.	el alarm was received as	level
o	<u>Time 16 minutes, 55 seconds</u> - The DEH panel op minute depressurization ramp with a pressure s existing setpoint for the DEH pressure contro pressure was 840 psig, no BPV movement occurred.	erator initiated a 200 psig etpoint of 600 psig. Since ller was 940 psig and re	g per e the actor
0	<u>Time 17 minutes, 45 seconds</u> - When RPV level Reactor Core Isolation Cooling (RCIC) System was high pressure feedwater to the RPV by injection	decreased to +18 inches, started to provide a sourd via the RCIC head spray noz	the ce of zle.
0	<u>Time 17 minutes, 55 seconds</u> - The DEH pressure 840 psig, matching reactor pressure. As the s pressure, the Main Turbine Bypass Valves automa open, causing a rapid increase in depressuriza rapid RPV level swell transient.	setpoint decrease ramp rea etpoint decreased below rea tically positioned to 50 per tion rate, which resulted	ached actor rcent in a

+

-

•

*

1

I

.

٠

.

a

•

*

4 , n ->

ì 4 .

2

4

٠

÷

.

•

'n

NRC Form 366A (9-83)	LICENSEE EVENT REPOR	T (LER) TEXT CONTINU	U.S ATION	APPROVED OMB NO. EXPIRES: 8/31/88	RY COMMISSION 3150-0104
FACILITY NAME	E (1)	DOCKET NUMBER (2)	LER NUMBER (3)	PAGE (3)
			YEAR SEQUENTIAL	REVISION NUMBER	
Washin	gton Nuclear Plant - Unit 2	0 5 0 0 0 3 9 7	818 - 010 6		
TEXT III more so	ce is required, use additional NRC Form 308A's/ (17)				
0	Time 18 minutes, 10 seconds to level swell transient combined auto trip setpoint of +54.5 i System. The level increase t started to decrease rapidly initial pressure control system	o 18 minutes, 27 se to increase RPV 1 nches, causing an ransient crested at as a result of B m reaction to regul	econds - RCIC evel to the R automatic shu t +57.5 inche PV oscillatio ate the depre	injection CIC High RP utdown of t s. RPV lev ons caused essurization	and the V Level he RCIC el then by the rate.
0	Time 20 minutes, 45 seconds RCIC System was restarted to s	- As RPV level dec supply high pressure	reased through water to the	gh +19 inch e RPV.	es, the
0	Time 21 minutes, 0 second depressurization rate to 2 approximately 625 psig. RPS +13 inch Low RPV Level RPS act	nds - The DEH 25 psig per minut automatically actua cuation setpoint.	panel opera ce as RPV ted when RPV	tor change pressure Level reac	ed the reached hed the
0	Time 21 minutes, 0 seconds t pressure ramp rate change, th 50 percent Open to 15 percent the depressurization rate caus RCIC System could increase RPV	o 21 minutes, 20 ne BPVs repositione Open. As the BPV ed RPV level to sh level. RPV level	<u>seconds</u> - As ed in the Clo s closed down rink at a rat started to de	s a result ose directi n, the decr e greater t ecrease rapi	of the on from ease in han the dly.
0	<u>Time 21 minutes, 30 seconds</u> - the level shrink transient dam	The RPV level decr pened.	ease leveled	off at 0 in	ches as
0	Time 21 minutes, 40 seconds setpoint to 550 psig at a rate begin to open rapidly. RPV 10 combined effects of level swel	- The DEH panel e of 200 psig per m evel again started l and RCIC injectio	operator cha inute. This to increase on.	nged the p caused the rapidly due	pressure BPVs to to the
0	Time 21 minutes, 45 seconds -	The BPVs reached 10	00 percent Ope	en position.	
ο	Time 21 minutes, 50 seconds the RCIC System to automatica RPV Level automatic trip setpo	- RPV level increa lly shut down due t int.	sed to +54.5 to again reac	inches and hing the RC	caused IC High
0	Time 21 minutes, 55 seconds pressure control system respo a level shrink transient which	- As RPV pressunded by rapidly clo caused RPV level t	re reached osing the BPV to decrease ra	550 psig, t 's. This in apidly.	the DEH itiated
0	Time 22 minutes, 10 seconds pressure water to the RPV. R of the condensate booster pu water to the RPV.	- The RCIC System RPV pressure droppe mp, allowing the 1	was restart d below the RFW system t	ed to supp discharge p o begin to	ly high pressure supply
⁷ 0	Time 24 minutes, 10 seconds - -4 inches due to the combinat supply.	The RPV level decr ion of RCIC inject	rease transie ion and conde	nt was arre nsate boost	sted at er pump

NRC FORM 366A (9-83)

...

5

ţ

1

.

*U.S.GPO:1986-0-624-538/455

•

.

NRC	Form	366A	
(9-83)	•		•

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)
	4	YEAR SEQUENTIAL REVISION	
Washington Nuclear Plant - Unit 2	0 5 0 0 0 3 9 7	818 -0 1016 - 011	0 1 5 0 1 10
TEXT (If more space is required, use additional NRC Form 366A's) (17)			

- o <u>Time 24 minutes, 30 seconds</u> RPV level increased to above +13 inches, the RPS Low RPV Level actuation setpoint.
- o <u>Time 25 minutes, 20 seconds</u> RPV level reached the normal operating level of +36 inches. Event end.

Further Evaluation and Corrective Action

Further Evaluation

- This incident is being reported as an event which resulted in the automatic actuation of an Engineered Safety Feature per the requirements of 10CFR50.13(a)(2)(iv).
- 2. The reportable occurrence was an automatic RPS actuation due to an actual low RPV level at 1716 hours on February 13, 1988. The low RPV level event was a result of transients initiated during the follow-up action for the manual scram initiated at 1655 hours.
- 3. The immediate cause of the low RPV level RPS actuation was determined to be the opening of the Startup Flow Control Valve RFW-FCV-10A while RPV pressure was 250 psig greater than Reactor Feedwater System pressure. Because the Long Cycle Cleanup Valve RFW-FCV-15 had been previously opened to the condenser hotwell, opening RFW-FCV-10A resulted in a rapid diversion of water inventory from the RPV through the RWCU System backwards through RFW-FCV-10A to the condenser via RFW-FCV-15. The cause of this loss was unknown during the event.
- 4. The root cause of the low RPV level RPS actuation was determined to be procedural deficiency. The Reactor Scram Recovery Procedure did not contain adequate information to properly direct operation of the Reactor Feedwater System during conditions in which RPV pressure is greater than Reactor Feedwater System pressure. This allowed the Startup Flow Control Valve to be opened to inadvertently establish an unrecognized diversion path of reactor coolant from the RPV via RWCU to the condenser hotwell. This diversion flow path was the primary cause for RPV level dropping from +35 inches to the +13 inch RPS actuation setpoint.
- 5. The following were evaluated as contributing factors to the event:
 - o The condensate pump recirculation control valve COND-LCV-11 was inoperable due to high piping vibration experienced during previous use. This valve controls the prefered flowpath of condensate through the condensate filter demineralizers and back to the condenser hotwell when clean up of the feedwater system is desired. Inability to use this cleanup flow path necessitated the use of RFW-FCV-15, the Long Cycle Cleanup Flow Control Valve. During the event, the use of RFW-FCV-15 provided an unexpected diversion flowpath of water from the RPV via the RWCU System to the condenser hotwell. Normally RWCU flow would return to the RPV via the feedwater inlet piping.

NRC Form 366A (9-83)	LICENSEE EVENT REPO	RT (LER) TEXT CONTINU	U.S. NUCLEAR REC JATION APPROVED O EXPIRES: 8/31	BULATORY COMMISSION MB NO. 3150-0104 /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	VEAR SEQUENTIAL AEVISION NUMBER	
TEXT (If more spece is req	uired, use additional NRC Form 305A'sJ (17)			
o	During a previous play modification to the Pay	nt refueling and	maintenance outage,	a design

modification to the Reactor Feedwater Pump speed control circuitry was installed to maintain RPV level during a loss of feedwater drive turbine control signal.

The design added a speed lockup feature which would lock in the speed of the Reactor Feedwater Pump during loss of power/loss of signal conditions. This design however, did not accomplish that objective. As a combined result of calibration inaccuracies, minor system oscillations and insufficient governor control deadband, the governor unit functioned to either increase or decrease turbine speed as a result of minor differences between governor input signal and the lockup signal developed by the feedwater pump control tachometer. Instead of a speed lock-up for the pump, the circuit functioned during the event to insert a speed increase ramp resulting in a 1700 rpm increase in approximately 9 seconds. This pump speed increase resulted in overfeeding of the RPV and manual trip of the Reactor Feed Pump. The loss of the Reactor Feed Pump resulted in the RPV pressure being greater than Reactor Feedwater System pressure by approximately 250 psig. This unusual pressure differential established the driving head required for flow of RPV water inventory from RWCU through the Startup Flow Control Valve in the reverse direction and to the condenser hotwell via RFW-FCV-15.

- o The operation of the BPV's during the event was not coordinated well with the attempt to feed the RPV using the RCIC system. The rapid RPV level increases resulting in the automatic shutdown of the RCIC System were brought about by the effort to expeditiously depressurize the RPV to less than 600 psig in order to use the condensate booster pumps to supply feedwater to the RPV. The depressurization rate initially used and subsequent changes to the rate resulted in rapid BPV movement which caused rapid RPV level shrink and swell transients. The inability to continuously feed the RPV using the RCIC System contributed significantly to the existing level inventory control problem.
- 6. The following factors contributed to the failure of the operators to either recognize the cause of the RPV water inventory loss or understand the severity of the level transient during the course of the event:
 - o The combined effects of the overspeeding of RFW-P-1A causing a large RPV level increase and rapid turbine bypass valve movement resulted in a series of RPV level transients. The particular transient associated with opening RFW-V-10A causing a 20 inch per minute level decrease only lasted 15 to 20 seconds after which the decrease rate settled out at 7 inches per minute. Associating a change in the rate of level decrease with the action of opening RFW-V-10A was difficult at best due to the masking effect of these ongoing level transients.

NRC Form 366 (9-83) -	LICENSEE EVENT REPORT (LER) TEXT CONTINUATION	EAR REGULATORY COMMISSION IOVED OMB NO. 3150-0104 RES: 8/31/88
FACILITY NAM	/ NAME (1) LER NUMBER (6)	PAGE (3)
	YEAR WE SEQUENTIAL WER	EVISION IUMBER
Washir	hington Nuclear Plant - Unit 2 $0 15 10 10 10 131917 818 - 01016 - 0$	1 1 1 0 1 7 OF 1 10
TEXT (If more a	Thing con indicated in a control 2 10 10 10 10 10 10 10 10 10 10 10 10 10	
Ð	o Until the BPV movement ceased and the RPV level transien about eight minutes after RFW-V-10A was opened, the extent inventory loss was not able to be seen as a stable indication.	ts normalized, ; of the water low RPV level
	o The plant condition set up by the loss of operating RFW pump Feedwater System pressure was 250 psig less than RPV pres condensate pump recirculation control valve out of service Plant operators did not have experience maneuvering the pla condition.	s in which the sure with the was unusual. nt during this
7.	During the initial high RPV level transient resulting in a level at Time 3 minutes, 50 seconds, the ink pen for the Narrow Ra Recorder (RFW-LR-608) located on the Reactor Control Console ver stuck at the high limit and stayed there during the remainder of t	of +62 inches nge RPV Level tical section, the event.
8.	All automatic actions which should have been initiated at RPV inches) did occur as designed. The only actual operation of c occurred were logic relay actuation and repositioning of valves f scram function of the Control Rod Drive (CRD) System. No cont actually repositioned since they had been previously inserted f core. Other automatic functions which occurred are:	Level 3 (+13 omponents that or the reactor rol rods were fully into the
	o Reactor Recirculation Pumps received a signal to automatic slow speed (15 hertz) operation. This shift did not occur pumps were being operated at 15 hertz at the time of the ever	ally shift to r because both nt.
	o Nuclear Steam Supply Shutoff System (NS4) Groups 5 and isolation signal. No valves or components changed status were in the isolation position at the time of the event.	6 received an because they
	o An Automatic Depressurization System (ADS) Low RPV Level Signal was generated. This is one of two control loc functions required for the ADS initiation of seven Safety Rel	3 Confirmation jic RPV level ief Valves.
<u>Corr</u>	prrective Action	
٦.	The Reactor Feedwater Pump Speed Control System has been modified the undesirable speed ramp characteristic.	d to eliminate
2.	Narrow Range RPV Level Recorder RFW-LR-608 has been overhaule reinstalled in the Reactor Control Console. This recorder is a manufactured by Bailey Instrument Company, GE MPL Number C34-R6 currently pursuing replacement of this type of recorder with a type.	d, tested and Model No. 732, 08. WNP-2 is more reliable

.

NRC FORM 366A (9-83)

\$

•

٧

NRC Form 366A 9-83)	LIC	ENSEE	EVE	NT RE	POR	T (L	ER)	TE	хт	co	NTI	NU	ΑΤΙΟ	DN		ı).S. NU Al EX	CLEAR F PROVED PIRES: 8	EGULA OMB N /31/88	TORY 0, 31	50-010	15510N 4
ACILITY NAME (1) DOCKET NUMBER (2) LER NUM					UMBER	(6)		PAGE (3)														
									1			t	YEAR		SEC	UENTI	AL 🛞	REVISK	R			
Washington Nu	clear	Plant	- Un	nit 2		0	5 () 0	0	3	ρι	7	8 8		0	a o	_	-0 [0	8	OF	10
TEXT (If more space is required,	use additional i	VRC Form 30	SA 'SJ (17)																			

- 3. Operating procedures have been modified to include additional information concerning both control of RPV level during shutdown conditions with RPV pressure greater than feedwater system pressure and use of BPV's to control depressurization rates.
- 4. A study will be conducted to evaluate the need to add this scenario to the Simulator Training Program.
- 5. This LER will be required reading for all licensed operators and will be added to the subject matter list for requalification training.
- 6. An evaluation will be conducted by the Operations Manager to determine the requirement for increased policy guidance concerning methods for improved early management of RPV level control options following a reactor scram.
- 7. The condensate pump minimum flow valve COND-LCV-11 will be modified during the upcomming 1988 refueling and maintenance outage to rectify the previously experienced vibration problems.
- 8. A technical evaluation will be performed to determine the necessity for design changes to the Feedwater System to preclude recurrence of this event.

Safety Significance

All manual and automatic safety system responses occurred as designed. The Reactor Protective System functioned correctly to respond to the manually initiated reactor scram and to cause an automatic actuation in response to an actual reactor vessel low level (Level 3) condition. The faulty RPV narrow range level recorder reading was compensated for by valid readings on the vertical section of the reactor control console from three narrow range RPV level indicators. With the reactor shut down, the significant safety concern is potential uncovering of the fuel. The top of active fuel is located at -161 inches vessel level. Since the level transient was terminated at -4 inches, more than adequate vessel water inventory remained to assure fuel coverage. This event posed no threat to the safety of Plant personnel or the public.

Similar Events

LER 88-001 reported a previous low RPV level RPS actuation which occurred shortly after a plant shutdown.

EIIS Information

Text Reference	EIIS	Reference
	System	Component
RPS RPV	, JC SB	RP V

*U.S GPO-1986-0-624-538/455

LICENSEE EVENT REPOR	RT (LER) TEXT CONTINU		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	YEAR SEQUENTIAL 8 8 — 0 0 6	
EIIS Information			
Text Reference		EIIS	Reference
•		System	Component
Reactor Feed Pump 1A Reactor Feed Pump 1B Reactor Feed Pump Speed Controller Main Turbine Bypass Valves Feed Turbine RCIC RFW-FCV-15 Reactor Feed Water System RFW-V-10A DEH Condensate Storage Tank COND-LCV-11 RFW-LR-608 Reactor Recirculation Pumps NS4 ADS CRD RWCU Safety Relief Valve		, SJ JB SO SJ BN SJ SJ SJ SJ SB KA SD SJ AD JM SB AA CE SB	P P SC V TRB FCV FCV V L L CV L R P RV

,

Ì

4

.

ء چ

Ĺ,

x

.







WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

Docket No. 50-397

September 2, 1988

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

Subject: NUCLEAR PLANT NO. 2 LICENSEE EVENT REPORT NO. 88-06-01

Dear Sir:

Transmitted herewith is Licensee Event Report No. 88-06-01 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:sm

Enclosure: Licensee Event Report No. 88-06-01

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)