UNIT 2

FNP-2-ESP-0.4 5-19-2010 Revision 18

FARLEY NUCLEAR PLANT

EVENT SPECIFIC PROCEDURE

FNP-2-ESP-0.4

NATURAL CIRCULATION COOLDOWN WITH ALLOWANCE FOR REACTOR VESSEL HEAD STEAM VOIDING (WITHOUT RVLIS)

PROCEDURE USAGE REQUIREMENTS-per FNP-0-AP-6	SECTIONS	
Continuous Use	ALL	
Reference Use		
Information Use		
		2

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Approved:

David L. Reed(for)

Operations Manager

Date Issued: 01/11/11

	IINI		closure 3 to NL-13-1257
6/14/2013 11:31 FNP-2-ESP-0.4	NATURAL CIRCULATION COOL REACTOR VESSEL HEAD STEAM	DOWN WITH ALLOWANCE FOR VOIDING (WITHOUT RVLIS)	Revision 18
	TABLE C	F CONTENTS	
	<u>Procedure Contains</u>	<u>Number of Pages</u>	
	Body Figure 1 Figure 2 Figure 3 Attachment 1 Attachment 2 Foldout Page		

6/14/2013 11:31 FNP-2-ESP-0.4

A. <u>Purpose</u>

This procedure provides actions to continue plant cooldown and depressurization to cold shutdown, with no accident in progress, under conditions that allow for the potential formation of a void in the upper head region without a vessel level system available to monitor void growth.

B. <u>Symptoms or Entry Conditions</u>

- I. This procedure is entered after completing the first ten steps of FNP-2-ESP-0.2 when the limits of FNP-2-ESP-0.2 must be exceeded; from the following:
 - a. FNP-2-ESP-0.2, NATURAL CIRCULATION COOLDOWN TO PREVENT REACTOR VESSEL HEAD STEAM VOIDING, step 11
 - b. FNP-2-ESP-0.2, NATURAL CIRCULATION COOLDOWN TO PREVENT REACTOR VESSEL HEAD STEAM VOIDING, step 14

		ire 3 to NL-13-1257			
6/14/2013 11:3 FNP-2-ESP-0.4	1 NATURAL CIRCULATION COOLDOWN WITH ALLOWANCE FOR REACTOR VESSEL HEAD STEAM VOIDING (WITHOUT RVLIS)	Revision 18			
Sten	Action/Expected Response Response NOT ()htained			
<u>CAUTION</u> :	<u>CAUTION</u> : [CA] To ensure proper plant response, FNP-2-EEP-0, REACTOR TRIP OR SAFETY INJECTION, must be entered upon any SI actuation.				
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*****	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *			
<u>CAUTION</u> :	The first ten steps of FNP-2-ESP-0.2, NATURAL CIRCULATION PREVENT REACTOR VESSEL HEAD STEAM VOIDING, must be performation with this procedure.	ON COOLDOWN TO ormed before			
* * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *			
****	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *			
<u>CAUTION</u> :	If RCP seal cooling had previously been lost, the affect not be started prior to a status evaluation.	ted RCP should			
* * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *			
NOTE:	• FOLDOUT PAGE should be monitored continuously.				
	• To ensure adequate pressurizer spray, the priority for RCP support conditions is 2B, 2A and then 2C.	r establishing			
1 [C/ coi	A] Establish RCP support aditions.				
	Step 1 continued on next page.				

		2	Enclosu	re 3 to NL-13-1257
6/14/2013 11:31 FNP-2-ESP-0.4	NATURAL CIRCULATION COOLDOWN REACTOR VESSEL HEAD STEAM VOID	WITH AL ING (WI	LOWANCE FOR THOUT RVLIS)	Revision 18
Step	Action/Expected Response		Response NOT ()btained
			-	
******	* * * * * * * * * * * * * * * * * * * *	* * * * * * *	* * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
CAUTION:	To prevent heat exchanger damage, seal return flow unless the CCW m operating CCW loop.	do not iscella	attempt restora neous header is	ation of RCP aligned to an
* * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * *	* * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
1.1 Ver EST	rify CCW cooling - TABLISHED.	1.1	Proceed to step	p 1.3.
1.1.1	Verify miscellaneous header aligned.			
[]	CCW TO SECONDARY HXS Q2P17MOV3047 open			
1.1.2	Verify flow indicated in the On-Service train.			
[] [] []	HX 2A(2B,2C) CCW FLOW FI 3043AA FI 3043BA FI 3043CA			
1.2 Ver EST	rify seal return flow – TABLISHED.			
RCI RTT [] Q21 [] Q21	P SEAL WTR N ISO E21MOV8100 open E21MOV8112 open			
1.3 Ver cor	rify No. 1 seal support nditions established.			
1.3.1	Maintain seal injection flow - GREATER THAN 6 gpm.			
1.3.2	Verify No. 1 seal leakoff flow – WITHIN FIGURE 1 LIMITS.			
1.3.3	Verify No. 1 seal differential pressure – GREATER THAN 200 psid.			
	Step 1 continued	on next	page.	

		Enclosure 3 to NL-13-12	57
6/14/2013 1 FNP-2-ESP-0	1:31 D.4 NATURAL CIRCULATION COOLDOWN W REACTOR VESSEL HEAD STEAM VOID	WITH ALLOWANCE FOR ING (WITHOUT RVLIS) Revision 13	8
Ston	Action/Expected Regnonse	Response NOT Obtained	
	Action, impected Response	Kesponse nor obtained	Γ
1.4	Verify CCW - ALIGNED.		
[]	CCW FROM RCP THRM BARR Q2P17HV3045 open Q2P17HV3184 open		
1.5	Check RCP thermal barrier - INTACT.	1.5 Verify CCW flow isolated.	
[]	RCP THRM BARR CCW FLOW HI Annunciator DD2 clear	CCW FROM RCP THRM BARRIER [] Q2P17HV3045 closed [] Q2P17HV3184 closed	
1.6	Verify at least one RCP bus – ENERGIZED.	1.6 Proceed to step 1.13.	
[] [] []	2A 4160 V bus 2B 4160 V bus 2C 4160 V bus		
1.7	Check CCW to RCP oil coolers - SUFFICIENT.	1.7 Perform the following.	
		1.7.1 Verify CCW - ALIGNED.	
	FROM RCP OIL CLRS	CCW TO RCP CLRS [] Q2P17MOV3052 open	
[]	Annunciator DD3 clear	CCW FROM RCP OIL CLRS [] Q2P17MOV3046 open [] Q2P17MOV3182 open	
		1.7.2 <u>IF</u> Annunciator DD3 clear, <u>THEN</u> proceed to step 1.8. <u>IF NOT</u> proceed to step 1.13.	
1.8	Check at least one RCP oil level – SUFFICIENT.	1.8 Proceed to step 1.13.	
[] [] []	RCP 2A(2B,2C) BRG UPPER/LOWER OIL RES LO LVL Annunciator HH1 clear Annunciator HH2 clear Annunciator HH3 clear Step 1 continued of	on next page.	

	TINI	TO	Enclosu	ure 3 to NL-13-1257
6/14/2013 11:31 FNP-2-ESP-0.4	NATURAL CIRCULATION COOLD REACTOR VESSEL HEAD STEAM	OOWN WITH AL VOIDING (WI	LOWANCE FOR THOUT RVLIS)	Revision 18
Step	Action/Expected Response		Response NOT (Obtained
1.9 Che THA	eck RCS pressure – GREATER AN 1850 psig.	1.9	<u>IF</u> RCS within 1 <u>THEN</u> proceed to <u>IF NOT</u> , proceed	FIGURE 2 limits, o step 1.10. d to step 1.13.
2C RCS [] PI [] PI	(2A) LOOP S WR PRESS 402A 403A			
1.10 CH GH	heck pressurizer level – REATER THAN 67%.	1.10	Raise pressur greater than charging and	izer level to 67% using letdown.
			• Raise charg CHG FLOW [] FK 122 adju	ing flow. sted
			• Reduce letd	own flow.
1.11 CH MC TH MC	heck SUB COOLED MARGIN ONITOR indication – GREATER HAN 40°F SUBCOOLED IN CETC DDE.	1.11	Raise SUB COO MONITOR indic than 40°F sub mode.	LED MARGIN ation to greater cooled in CETC
		1.1	1.1 Dump steam rate.	at a faster
1.12 Us ne pi	se PRZR heaters, as ecessary to saturate the ressurizer water.			
PI VA [] 20	RZR HTR GROUP ARIABLE C			
PI BA [] 24	RZR HTR GROUP ACKUP A			
[] 21 [] 21 [] 21	B D E			

Step 1 continued on next page.

	TINIT			Enclosure	3 to NL-13-1257
6/14/2013 11:31 FNP-2-ESP-0.4	NATURAL CIRCULATION COOLDOW REACTOR VESSEL HEAD STEAM VC	N WITH ALL DIDING (WIT	OWAN HOUT	CE FOR RVLIS)	Revision 18
Step A	ction/Expected Response	Г	Res	ponse NOT Obt	ained
NOTE: Ch	nanges in RCP configuration ma	ay affect p	ress	urizer spray	flow.
1.13 [C/ exi <u>THI</u> 1.13.1 [] 1.13.2 1.13.3 [] 1.13.4 [] 1.13.4 [] 1.14 [C/ sta THI SHU LO/	A] <u>IF</u> support conditions ist to start an RCP <u>EN</u> start at least one RCP. Start bearing oil lift pump. RCP OIL LIFT PUMP 2B(2A,2C) Check oil lift pressure indicating light - LIT. Start RCP. RCP 2B(2A,2C) WHEN RCP has operated for one minute, <u>THEN</u> stop bearing oil lift pump. RCP OIL LIFT PUMP 2B(2A,2C) A] <u>IF</u> at least one RCP arted, <u>EN</u> go to FNP-2-UOP-2.1, JTDOWN OF UNIT FROM MINIMUM AD TO HOT STANDBY.	1.13	Per a) b) c)	form the fol: Continue ef: establish R(conditions. <u>WHEN</u> support exist to sta <u>THEN</u> return Proceed to s OBSERVE NOT STEP 2.	lowing. forts to CP support t conditions art an RCP, to step 1. step 2. E PRIOR TO

	Enclosure 3 to NL-13-1257
6/14/2013 1 FNP-2-ESP-	1:31 0.4NATURAL CIRCULATION COOLDOWN WITH ALLOWANCE FOR REACTOR VESSEL HEAD STEAM VOIDING (WITHOUT RVLIS)Revision 18
Step	Action/Expected Response Response NOT Obtained
NOTE :	To prevent excessive pressure variations, saturated conditions should be established in the pressurizer prior to lowering pressurizer level.
2	Establish pressurizer level to accommodate void growth.
2.1	Check pressurizer level - 2.1 Control charging and letdown as necessary.
2.2	Place charging flow control in manual.
[]	CHG FLOW FK 122
3	Reduce RCS hot leg temperature to 500°F.
3.1	Maintain RCS cold legs cooldown rate – LESS THAN 50°F/hr.
[]	RCS COLD LEG TEMP TR 410
3.2	Maintain RCS pressure - approximately 1950 psig.
[]	2C(2A) LOOP RCS WR PRESS PI 402A PI 403A
3.3	Maintain RCS cold leg temperature and pressure – WITHIN FIGURE 3 LIMITS.
[]	RCS COLD LEG TEMP TR 410
[]	2C(2A) LOOP RCS WR PRESS PI 402A PI 403A
	Step 3 continued on next page.

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6/14/2013 11:31 FNP-2-ESP-0.4	NATURAL CIRCULATION COOLD REACTOR VESSEL HEAD STEAM	OWN WITH AL VOIDING (WI	LOWANCE FOR THOUT RVLIS)	Revision 18
Step A	Action/Expected Response		Response NOT (Obtained
		1 []
3.4 Mai STA	ntain pressurizer level – BLE AT EXISTING VALUE.			
CHG [] FK	FLOW 122 manually adjusted			
3.5 Che - L	ck RCS hot leg temperature ESS THAN 500°F.	3.5	Return to step	3.1.
RCS [] TR	HOT LEG TEMP 413			
3.6 Sto	p RCS cooldown.			
4 Redu 1600	ce RCS pressure to psig.			
4.1 <u>IF</u> <u>THE</u> to	normal letdown in service, <u>N</u> control auxiliary spray reduce RCS pressure.	4.1	Open only one reduce RCS pre	PRZR PORV to ssure.
4.2 Che 160	ck RCS pressure - LESS THAN O psig.	4.2	Return to step	4.1.
2C(RCS [] PI [] PI	2A) LOOP WR PRESS 402A 403A			
4.3 Sto	p RCS pressure reduction.			

	Enclosure 3 to NL-13-12	57
6/14/2013 1 FNP-2-ESP-	1:31 0.4NATURAL CIRCULATION COOLDOWN WITH ALLOWANCE FOR REACTOR VESSEL HEAD STEAM VOIDING (WITHOUT RVLIS)Revision 1	8
Step	Action/Expected Response Response NOT Obtained	
NOTE:	After cooldown is stopped, RCS hot leg temperatures will fall due to reduction in heat transfer rate.	
5	Reduce RCS hot leg temperature to 450°F.	
5.1	[CA] Maintain RCS cold legs cooldown rate – LESS THAN 100°F IN ANY 60 MINUTE PERIOD.	
[]	RCS COLD LEG TEMP TR 410	
5.2	Maintain RCS pressure – STABLE AT 1600 psig.	
[]	2C(2A) LOOP RCS WR PRESS PI 402A PI 403A	
5.3	Maintain RCS cold leg temperature and pressure – WITHIN FIGURE 3 LIMITS.	
[]	RCS COLD LEG TEMP TR 410	
[]	2C(2A) LOOP RCS WR PRESS PI 402A PI 403A	
5.4	Maintain pressurizer level – STABLE AT EXISTING VALUE.	
[]	CHG FLOW FK122 manually adjusted	
5.5	Check RCS hot leg temperatures 5.5 Return to step 5.1. - LESS THAN 450°F.	
[]	RCS HOT LEG TEMP TR 413	
5.6	Stop RCS cooldown.	

	Enclosure 3 to NL-13-1257
6/14/2013 FNP-2-ESP	11:31 -0.4 NATURAL CIRCULATION COOLDOWN WITH ALLOWANCE FOR REACTOR VESSEL HEAD STEAM VOIDING (WITHOUT RVLIS) Revision 18
Step	Action/Expected Response Response NOT Obtained
6	[CA] Maintain seal injection flow to each RCP - 6-13 gpm.
[]	SEAL WTR INJECTION HIK 186 adjusted
NOTE:	With an RCS flow balance established, the magnitude of PZR level rise during any subsequent RCS depressurization is indicative of the degree of reactor vessel steam voiding.
7	Establish RCS flow balance.
7.1	Adjust charging and seal injection flow total to equal letdown and RCP seal leakoff flow total.
[CHG FLOW] FK 122 manually adjusted
	SEAL WTR
[INJECTION] HIK 186 adjusted

open

open

open

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6/14/2013 11:31 FNP-2-ESP-0.4	NATURAL CIRCULATION COOL REACTOR VESSEL HEAD STEAM	DOWN WITH AL. VOIDING (WI	LOWAN THOUT	NCE FOR F RVLIS)	Rev	ision 18	
Step A	Action/Expected Response	Response NOT Obtained					
8 Chec accu	k when to isolate SI mulators.						
8.1 Chev val	ck power to discharge ves - AVAILABLE.	8.1	Clos valv ATTA	se accumul ve disconn ACHMENT 1	lator dis nects usin	charge ng	
2A(: DIS [] Q2E [] Q2E [] Q2E	2B,2C) ACCUM CH ISO 21MOV8808A 21MOV8808B 21MOV8808C						
8.2 [CA] thai THE] <u>WHEN</u> RCS pressure less n 1000 psig, N close all SI accumulator	8.2	Vent	t any SI a not be iso	accumulato	or that	
dis	_ charge valves.		ACCU N2 V	UM VENT			
2A() DIS	2B,2C) ACCUM CH ISO	[]	HIK	936 open			
[] Q2E	21MOV8808A						
[] Q2E	21MOV8808B	SI ACCUM		2A	2B	2C	
[] Q2E:	21MOV8808C	2A(2B,2C) A N2 SUPP/VT 02E21HV	CCUM ISO	[] 88754	[] 8875R	[] 88750	
		dener in a		LJ 007 511	[] 00, JD	11 00,00	

8.3 [CA] <u>WHEN</u> SI accumulator discharge valves closed, <u>THEN</u> open and lock accumulator discharge valve disconnects using ATTACHMENT 2.

	I INII'	Enclosu	re 3 to NL-13-1257
6/14/2013 FNP-2-ESP-	11:31 •0.4 NATURAL CIRCULATION COOLDO REACTOR VESSEL HEAD STEAM V	WN WITH ALLOWANCE FOR OIDING (WITHOUT RVLIS)	Revision 18
Step	Action/Expected Response	Response NOT (Obtained
NOTE:	Reactor vessel steam voiding m This will cause a rapid rise i	ay occur during RCS press n pressurizer level.	ire reduction.
9	Reduce RCS pressure.		
9.1	<u>IF</u> normal letdown in service, <u>THEN</u> control auxiliary spray to reduce RCS pressure.	9.1 Open only one reduce RCS pres	PRZR PORV to ssure.
9.2	<u>WHEN</u> RCS pressure less than 800 psig <u>OR</u> pressurizer level greater than 90%, <u>THEN</u> stop RCS pressure reduction.		
NOTE:	To continue RCS pressure reduc pressurizer level several time pressure (in accordance with s reactor vessel upper head cool	tion, it may be necessary s by raising and then low teps 9 and 10). This will ing.	to cycle ering RCS l enhance
10	Check pressurizer level - LESS	10 Raise RCS press	ire by 100 psig.
	111AN 90%.	10.1 Turn on addition heaters.	onal pressurizer
		PRZR HTR GROUP VARIABLE [] 2C	
		PRZR HTR GROUP BACKUP	
		[] 2A [] 2B	
		[] 2D [] 2E	
		10.2 Return to step CAUTION PRIOR 1	9. OBSERVE FO STEP 9.

	Enclosure 3 to NL-13-1257
6/14/2013 1 FNP-2-ESP-	1:31 0.4NATURAL CIRCULATION COOLDOWN WITH ALLOWANCE FOR REACTOR VESSEL HEAD STEAM VOIDING (WITHOUT RVLIS)Revision 18
Sten	Action/Expected Response Response NOT Obtained
NOTE:	After cooldown is stopped, RCS hot leg temperatures will fall due to reduction in heat transfer rate.
11	Reduce RCS hot leg temperatures to 400°F.
11.1	Maintain RCS cold legs cooldown rate – LESS THAN 100°F IN ANY 60 MINUTE PERIOD.
[]	RCS COLD LEG TEMP TR 410
11.2	Maintain RCS pressure - STABLE AT 800 psig.
[]	2C(2A) LOOP RCS WR PRESS PI 402A PI 403A
11.3	Maintain RCS cold leg temperature and pressure – WITHIN FIGURE 3 LIMITS.
[]	RCS COLD LEG TEMP TR 410
[]	2C(2A) LOOP RCS WR PRESS PI 402A PI 403A
11.4	Maintain pressurizer level - STABLE AT EXISTING VALUE.
[]	CHG FLOW FK 122 manually adjusted
11.5	Check RCS hot leg temperatures 11.5 Return to step 11.1. - LESS THAN 400°F.
[]	RCS HOT LEG TEMP TR 413
11.6	Stop RCS cooldown.

	Enclosure 3 to NL-13-1257
6/14/2013 1 FNP-2-ESP-	1:31 0.4 NATURAL CIRCULATION COOLDOWN WITH ALLOWANCE FOR REACTOR VESSEL HEAD STEAM VOIDING (WITHOUT RVLIS) Revision 18
Step	Action/Expected Response Response NOT Obtained
12	Maintain seal injection flow to each RCP - 6-13 gpm.
[]]	SEAL WTR INJECTION HIK 186 adjusted
13	Establish RCS flow balance.
13.1	Adjust charging and seal injection flow total to equal letdown and RCP seal leakoff flow total.
[]	CHG FLOW FK 122 manually adjusted
[]	SEAL WTR INJECTION HIK 186 adjusted
NOTE :	Reactor vessel steam voiding may occur during RCS pressure reduction. This will cause a rapid rise in pressurizer level.
14	Reduce RCS pressure.
14.1	IFnormal letdown in service,14.1Open only one PRZR PORV toTHENcontrol auxiliary sprayreduce RCS pressure.to reduce RCS pressure.
14.2	WHEN RCS pressure less than 600 psig <u>OR</u> pressurizer level greater than 90%, <u>THEN</u> stop RCS pressure reduction.

		I INII		Enclosu	re 3 to NL-13-1257
6/14/2013 FNP-2-ESP	11:31 -0.4	NATURAL CIRCULATION COOLDOR REACTOR VESSEL HEAD STEAM	OWN WITH AL VOIDING (WI	LOWANCE FOR THOUT RVLIS)	Revision 18
Step	ŀ	Action/Expected Response		Response NOT O	btained
L U				-	
NOTE :	T p p r	o continue RCS pressure reduc ressurizer level several time ressure (in accordance with s eactor vessel upper head coo	ction, it m es by raisi steps 14 an ling.	nay be necessary ng and then lowe nd 15). This wil	to cycle ering RCS 1 enhance
15	Chec	k pressurizer level – LESS	15	Raise RCS pressu	ire by 100 psig.
	THAN	90%.	15.1	Turn on additic heaters.	onal pressurizer
			[]	PRZR HTR GROUP VARIABLE 2C	
				PRZR HTR GROUP BACKUP	
			[] [] []	2A 2B 2D 2F	
			15.2	Return to step CAUTION PRIOR T	14. OBSERVE CO STEP 14.

	Enclosure 3 to NL-13-1257
6/14/2013 1 FNP-2-ESP-	1:31 0.4 NATURAL CIRCULATION COOLDOWN WITH ALLOWANCE FOR REACTOR VESSEL HEAD STEAM VOIDING (WITHOUT RVLIS) Revision 18
Step	Action/Expected Response Response NOT Obtained
NOTE:	After cooldown is stopped, RCS hot leg temperatures will fall due to reduction in heat transfer rate.
16	Reduce RCS hot leg temperatures to 350°F.
16.1	Maintain RCS cold legs cooldown rate – LESS THAN 100°F IN ANY 60 MINUTE PERIOD.
[]	RCS COLD LEG TEMP TR 410
16.2	Maintain RCS pressure - STABLE AT 600 psig.
[]	2C(2A) LOOP RCS WR PRESS PI 402A PI 403A
16.3	Maintain RCS cold leg temperature and pressure - WITHIN FIGURE 3 LIMITS.
[]	RCS COLD LEG TEMP TR 410
[]	2C(2A) LOOP RCS WR PRESS PI 402A PI 403A
16.4	Maintain pressurizer level - STABLE AT EXISTING VALUE.
[]	CHG FLOW FK 122 manually adjsuted
16.5	Check RCS hot leg temperatures 16.5 Return to step 16.1. - LESS THAN 350°F.
[]	RCS HOT LEG TEMP TR 413
16.6	Stop RCS cooldown.

	Enclosure 3 to NL-13-1257
6/14/2013 11:3 FNP-2-ESP-0.4	31 4NATURAL CIRCULATION COOLDOWN WITH ALLOWANCE FOR REACTOR VESSEL HEAD STEAM VOIDING (WITHOUT RVLIS)Revision 18
Step	Action/Expected Response Response NOT Obtained
1,	ch RCP - 6-13 gpm. AL WTR JECTION K 186 adjusted tablish RCS flow balance. djust charging and seal njection flow total to equal etdown and RCP seal leakoff low total.
C] [] F] S] [] H:	HG FLOW K 122 manually adjusted EAL WTR NJECTION IK 186 adjusted
NOTE:	Reactor vessel steam voiding may occur during RCS pressure reduction. This will cause a rapid rise in pressurizer level.
19 Re(duce RCS pressure.
19.1 <u>I</u> <u>T</u> to	E normal letdown in service,19.1Open only one PRZR PORV toHENcontrol auxiliary sprayreduce RCS pressure.o reduce RCS pressure.
19.2 <u>W1</u> 31 g; <u>T1</u> r0	HEN RCS pressure less than 50 psig <u>OR</u> pressurizer level reater than 90%, <u>HEN</u> stop RCS pressure eduction.

			2	Enclosu	re 3 to NL-13-1257
6/14/2013 1 FNP-2-ESP-	11:31	NATURAL CIRCULATION COOLDOW REACTOR VESSEL HEAD STEAM VO	N WITH ALI IDING (WI	LOWANCE FOR THOUT RVLIS)	Revision 18
Step	A	ction/Expected Response		Response NOT (Obtained
				-	
NOTE :	To pi ro	o continue RCS pressure reduct ressurizer level several times ressure (in accordance with st eactor vessel upper head cooli	ion, it ma by raisin eps 19 and ng.	ay be necessary ng and then lowe d 20). This wil	to cycle ering RCS ll enhance
20	Checl	s pressurizer level – LESS	20	Raise RCS press	ire by 100 psig.
	ITAN	90%.	20.1	Turn on addition heaters.	onal pressurizer
			[]	PRZR HTR GROUP VARIABLE 2C	
				PRZR HTR GROUP	
			[]	BACKUP 2A	
			[]	2B 2D	
			[]	2E	
			20.2	Return to step CAUTION PRIOR 1	19. OBSERVE FO STEP 19.
21	Chec place	<pre>k if RHR system can be ed in service.</pre>			
21.1	Cheo - Ll	ck RCS hot leg temperatures SSS THAN 350°F.	21.1	Return to step	16.
[]	RCS TR 4	HOT LEG TEMP 413			
21.2	Cheo pres	ck RCS narrow range ssure – LESS THAN 350 psig.	21.2	Return to step	19.
[]	2C(2 RCS PI PI	2A) LOOP NR PRESS 402B 403B			
21.3	Plac usii HEA	ce RHR system in service ng FNP-2-SOP-7.0, RESIDUAL F REMOVAL SYSTEM.			

	Enclos	ure 3 to NL-13-1257
6/14/2013 1 FNP-2-ESP-	11:31 0.4 NATURAL CIRCULATION COOLDOWN WITH ALLOWANCE FOR REACTOR VESSEL HEAD STEAM VOIDING (WITHOUT RVLIS)	Revision 18
Step	Action/Expected Response Response NOT	Obtained
	1 1 1	I
22	[CA] Continue RCS cooldown to cold shutdown with RHR.	
* * * * * * * * * *	*****	*****
<u>CAUTION</u>	I: Reactor vessel steam voiding may occur if the RCS is de before the entire RCS is cooled to less than 200°F.	epressurized
* * * * * * * * * *	***************************************	* * * * * * * * * * * * * * * * * * * *
23	[CA] Continue cooldown of inactive portion of RCS.	
23.1	Maintain RCS pressure - 350-400 psig.	
	2C(2A) LOOP RCS NR PRESS	
[]	PI 402B PI 403B	
23.2	Verify both CRDM CLG FANs - STARTED.	
23.3	Continue dumping steam from all SGs.	

	LINI		Enclosu	re 3 to NL-13-1257
6/14/2013 1 FNP-2-ESP-0	1:31 0.4 NATURAL CIRCULATION COO REACTOR VESSEL HEAD STEA	LDOWN WITH ALLO M VOIDING (WITH	OWANCE FOR HOUT RVLIS)	Revision 18
Step	Action/Expected Response		Response NOT C	Obtained
		_	r	
24	Check if RCS depressurization			
	is permitted.			
NOTE :	FNP-2-SOP-68.0, INADEQUATE detailed operating instruct	CORE COOLING MG ions for the co	ONITORING SYSTE ore exit T/C mo	EM provides onitor.
24.1	Check reactor vessel upper head temperature - LESS THAN 200°F.	24.1 H	Return to step	22.
[] []	CORE EXIT THERMOCOUPLE MONITOR TRAIN A (Points 22,23) TRAIN B (Points 16,20)			
24.2	Check all atmospheric relief valves – OPEN.	24.2	Perform the fol	llowing.
[]	2A(2B,2C) MS ATMOS REL VLV PC 3371A PC 2271B	24.2.1	1 Direct count perform FNP STEAM ABNORN ENVIRONMENTA	ting room to -0-CCP-645, MAIN MAL AL RELEASE.
[]	PC 3371C	24.2.2	2 Open all atr valves.	nospheric relief
			2A(2B,2C) MS REL VLV [] PC 3371A [] PC 3371B [] PC 3371C	5 ATMOS
24.3	Locally check SGs – NOT STEAMING.	24.3 H	Return to step	22.
24.4	Go to FNP-2-UOP-2.2, SHUTDOWN OF UNIT FROM HOT STANDBY TO COLD SHUTDOWN.	ſ		
	-	END-		

SGL42013 11:31 NP-2-ESP-0.4 NATURAL CIRCULATION COOLDOWN WITH ALLOWANCE FOR REACTOR VESSEL HEAD STEAM VOIDING (WITHOUT RVLIS) Revision 18 START STEP CONTINUOUS ACTION Revision 18 CAUTION [CA] To ensure proper plant response. FNP-2-ESP-0.4 FNP-2-ESP-0.4 Revision 18 START STEP CONTINUOUS ACTION must be entered upon any SI actuation. Number of the second of the sec			Sule 3 10 NL-13-1257
START STEP CONTINUOUS ACTION CAUTION [CA] To ensure proper plant response. FNP-2-SEP-0. REACTOR TRIP OR SAFETY INJECTION. must be entered upon any SI actuation. 1 [CA] Establish RCP support conditions 1.13 [CA] IF support conditions exist to start an RCP THEN 1.14 [CA] IF at least one RCP started. THEN go to FNP-2-UOP-2.1. SHUTDOWN OF UNIT FROM MINIMUM LOAD TO HOT STANDBY. 5 5.1 6 [CA] Maintain RCS cold legs cooldown rate - LESS THAN 100F IN ANY 60 MINUTE PERIOD. 6 [CA] Maintain seal injection flow to each RCP - 6-13 gpm. 8 8.2 8.3 [CA] Ontinue RCS pressure less than 1000 psig. THEN close all SI accumulator discharge valves. 21 [CA] Continue RCS cooldown to cold shutdown with RHR. 22 [CA] Continue RCS cooldown of inactive portion of RCS.	6/14/2013 11:31 FNP-2-ESP-0.4	NATURAL CIRCULATION COOLDOWN WITH ALLOWANCE FOR REACTOR VESSEL HEAD STEAM VOIDING (WITHOUT RVLIS)	Revision 18
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22 [CA] Continue RCS cooldown to cold shutdown with RHR. 23 [CA] Continue cooldown of inactive portion of RCS.		8.3 [CA] WHEN SI accumulator discharge valves closed, 2 and lock accumulator discharge valve disconnects us ATTACHMENT 2.	ΓΗΕΝ open sing
23 [CA] Continue cooldown of inactive portion of RCS.	22	[CA] Continue RCS cooldown to cold shutdown with RHR.	
Page 21 of 21	23	[CA] Continue cooldown of inactive portion of RCS.	
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				E	nclosure 3 to NL-	13-1257
6/14/201 FNP-2-E	13 11:31 SP-0.4 REA	TURAL CIRCULATION COOLDOWN WI	TH ALLOWAN NG (WITHOUT	ICE FO C RVLI	R Revisi	ion 18
Step	Actio	n/Expected Response	Res	ponse	NOT Obtained	
				-		
		ATTACHMENT	1			
1	Close the	following				
	disconnec	ts.				
		'B' Train Dis	sconnects			7
	Disconnect TPNS No.	Description	Position	Кеу	Location	
	Q2R18B035-B	Disconnect FV-S2 MOV 8808B-I	3 ON	V - 5	139' hall way outside elec. penetration room	-
		'A' Train Dis	sconnects			7
	Disconnect	Description	Position	Kev	Location	
	TPNS No.	Debeription	robition	ney	Docución	
	Q2R18B031-A	Disconnect FU-Z3 MOV 8808C-A	A ON	V-6	139' hall way	
	Q2R18B032-A	Disconnect FU-Z2 MOV 8808A-A	A ON	V - 4	outside counting room	
2	Verify ac valves MC AVAILABLE 2A(2B,2C) DISCH ISO [] Q2E21MOV8 [] Q2E21MOV8 [] Q2E21MOV8 Notify co accumulat disconnec	cumulator discharge B indication - POWER ACCUM 808A 808B 808C ntrol room of or discharge valve t status.				
		- END -				

) 	Action/Expected Response Response NOT Obtained							
		I ATTACHMENT	2					
(Open and i lisconnect	lock the following ts.						
	'A' Train Disconnects							
Dis TPN	sconnect NS No.	Description	Position	Кеу	Location			
Q2I	R18B031-A	Disconnect FU-Z3 MOV 8808C-	A LOCKED OPEN	V-6	139' hallway- outside counting room			
Q2I	R18B032-A	Disconnect FU-Z2 MOV 8808A-	A LOCKED OPEN	V - 4				
	'B' Train Disconnects							
Dis TPN	sconnect NS No.	Description	Position	Кеу	Location			
Q2F	R18B035-B	Disconnect FV-S2 MOV 8808B-	B LOCKED OPEN	V-5	139' hallway- outside elec. penetration room			

Enclosure 3 to NL-13-12								
6/14/2013 11:31 FNP-2-ESP-0.4	NATURAL CIRCULATION COOLDOWN WITH ALLOWANCE FOR REACTOR VESSEL HEAD STEAM VOIDING (WITHOUT RVLIS)		Revision 18					
Step A	ction/Expected Response		Response NOT Obtained					
1 <u>Monitor SI criteria.</u>								
1.1 Grea CETC 4%.	ater than 16°F subcooled in C mode and PRZR level above	1.1	Verify SI actuated <u>AND</u> go to FNP-2-EEP-0.					
2 <u>Monit</u>	tor switchover criteria.							
2.1 CST	level greater than 5.3 ft.	2.1	Align AFW pump using FNP-2-SO	s suction to SW P-22.0.				