IN DR.	Vogtie Electric Generating Plant 1.3011-1 NUCLEAR OPERATIONS Procedure No. Revision No.
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	05-58-90
	RESIDUAL HEAT REMOVAL SYSTEM
1.0	PURPOSE
	This procedure provides the necessary instructions for operation of the Residual Heat Removal System (RHRS). This procedure also provides instructions for filling the Reactor Coolant System (RCS) and/or the Refueling Cavity and for draining the Refueling Cavity using the RHRS. Instructions are included in the following steps:
	4.1 Placing A Train Of RHR In Standby Readiness
	4.2 Placing The RHRS 'In Service For RCS Cooldown
	4.3 Establishing RHR Letdown
	4.4 Shifting RHR Trains
	4.5 Two Train RHR Operation During RCS Recirculation
	4.6 Filling And Venting The RHRS
	4.7 Filling The RCS (And The Refueling Cavity For Refueling)
	4.8 Draining The Refueling Cavity
	4.9 Operating RHR With One Train Of Cold Leg Discharge With Its Cold Leg Flowpath Isolated For Maintenance
2.0	PRECAUTIONS AND LIMITATIONS
2.1	PRECAUTIONS
2.1.1	To prevent overheating the Component Cooling Water System (CCWS), cooling water flow to the RHR Heat Exchanger should not be throttled.
2.1.2	To avoid thermal shock of the RCS components, the flow through the RHRS should be initiated and reduced slowly.
2.1.3	The RCS pressure and temperature should not exceed 6 psig and 350°F when the RHRS is in service.

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2.1.4	prior to re	fill and vent all appl turning them to servic	
2.1.5	hammer due Only one RH	to gas entrainment. IR train should be alte	red at a time when
2.1.6	RHRS operat	vstem configuration. T bility. he RCS is at 188 feet (
2.1.0	mid-nozzle lower end o minimizes p	the RHRS flow should of a range from 3000 to	be limited to the 3500 gpm. This Pump suction due to gas
2.1.7	drilled on are not cap	V-8716A and 1-HV-8716B the RHR Pump side of t pable of a leak tight to pposite Train RHR Pump	the disc. The valves seal when pressurized
2.1.8	Recycle Ev	ACCW System. This min	t down or supplied from
2.2	LIMITATION	<u>s</u>	
2.2.1	With the R RHRS is re Specificat	CS Tavg greater than o quired to be operable ion 3.5.2.	r equal to 350°F, the per Technical
2.2.2	With the R be operabl 3.4.1.3.	CS in Hot Shutdown, th e or in operation per	e RHRS is required to Technical Specification
2.2.3	With the R to be oper	CS Tavg less than 350° able per Technical Spe	F, the RHRS is required cification 3.5.3.
2.2.4	operable o	n Cold Shutdown, the R r in operation per Tec and 3.4.1.4.2.	HRS is required to be chnical Specification
2.2.5	operable a		e RHRS is required to b schnical Specification
2.2.6	Suction Re	d for Cold Overpressur lief Valves are requir Specification 3.4.9.3	
2.2.7	must remain		09A/B and 2-HV-8816A/B valve at a time may be

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2.2.8	
	The RHR Suctions From Hot Legs Loops 1 and 4 (1-HV-8701A, 1-HV-8701B, 1-HV-8702A, 1-HV-8702B) are separately interlocked to prevent from being opened with RCS pressure greater than 365 psig and to automatically close before RCS pressure exceeds 750 psig.
2.2.9	The RHR Suctions From Hot Legs Loops 1 and 4 cannot be opened unless the following valves are closed.
	a. RHR PMP-A DISCH TO CHG PMPS SUCT 1-HV-8804A,
	b. RHR TO SI PMP-B ISO VLV 1-HV-8804B,
	c. RWST TO RHR PMP SUCTION 1-HV-8812A/B,
	d. CNMT SUMP TO RHR PMP A(B) SUCTION 1-HV-8811A/B.
2.2.10	RHR Pump Motor start limitations:
	a. Three consecutive starts from ambient temperature,
	b. Iwo Starts from operating temperature,
	c. Subsequent start permitted after 15 minutes if the motor is left running or 45 minutes if motor is left at standstill.
2.2.11	Fire event safe shutdown analysis requires 1-HV-8804A and 1-HV-8804B to be de-energized while RHR is in service.
3.0	PREREQUISITES OR INITIAL CONDITIONS
3.1	Nuclear Service Cooling Water (NSCW) is supplying cooling water to the RHR Pump Motor Coolers.
3.2	The CCWS is available and supplying cooling water to the RHR Heat Exchangers and Pump Seal Coolers. The RH Pumps may be operated without CCW to the Seal Cooler i the system temperature is less than 150°F.

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4.0	INSTRUC	TIONS		
4.1	and states in a second state of the		HR IN STANDBY RE	ADINESS
			NOTE	
		using Trai designatio	dure is written n A component ns. Train B ns are shown in s.	
4.1.1			being placed in d VENT the train	standby following per Step 4.6.
4.1.2	If the operati	RHRS is being ng RHR Train(placed in stand s) to below 200	iby, COOL DOWN the 'F as follows:
	a. CI	OSE Letdown F	rom RHR 1-HV-01	28,
	ar		ow as necessary	ntroller 1-PIC-0131 to maintain desire
	M	AINTAIN RCP se sing 2-HC-0182	al injection be	tween 8 to 13 gpm
		LOSE RHR TO CV	/CS Letdown Isol	ation 1-1205-U4-021
	d. S	lowly CLOSE th (B) 1-HV-0606	ne RHR HEAT EXCH	OUTLET for Train
	e. <u>S</u>	lowly CLOSE RH -FV-0618 (0619	HR HEAT EXCH BYP	ASS for Train A (B)
			NOTE	
		Exchanger Valves fl be above	ak by of RHR Hea Outlet and Bypa owrate to RCS ma auto open minifi for 1-FV-0610 1).	lss ly
	(1-FV-0611) do 1-HS-0611) to		VLV 1-FV-0610 n, PLACE 1-HS-0610 SE and ENSURF that
	g. M	ONITOR RHR He	at Exchanger Tr TR-0612 (0613),	ain A(B) Inlet

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		NOTE	
	A	llow pump to run for	
	a 1	pproximately one hour ess than or equal to 2 or cooldown of piping	200°F
	h. When R A(B).	HR Train A(B) is below	w 200°F, STOP RHR PUMP
4.1.3	RESTORE pow suction as	er to the RHR Train A follows:	(B) to CCP (SIP)
	a. CLOSE	1ABB-05 to valve 1-HV	-8804A,
	b. CLOSE	1BBB-05 to valve 1-HV	-8804B,
		tags and CLOSE he K 5 and 1BBB-05.	2 link for breaker
4.1.4	ALIGN the F	HR train for standby	per Checklist 2.
4.1.5		eing placed in standb following; independe	
		OWN Inverter 1CD115 (DC 1E Electrical Dist	
	and TA	the K2 links for break G per 00306-C, "Tempo Control",	er 1ABE-15 (1BBE-13) prary Jumper And Lifted
	c. OPEN (1(4)	and LOCK the power sup Inlet Isolations:	oplies to the RHR Loop
		15 (1BBE-13) for 1-HV-	
		DII5N (ICDII6N) OPEN, nnect for 1-HV-8701B	
4.1.6	If depress either:	urization of the RHR	System is required,
	a. OPEN	the following:	
	(1)	OPEN SIS CHECK VALVE	TEST CNMT ISO 1-HV-8964
			TEST CNMT ISO 1-HV-8871
		OPEN SIS RHR PMP A(B) 1-HV-8890A(B),	CHECK VALVE TEST
	-OR-		
		Chemistry OPEN RHR TR 3520(21).	AIN A(B) SAMPLE VALVE
4.1.7	CLOSE all	d, when RHR depressur valves opened in Step on required.	

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4.2	PLACING THE RHRS IN SERVICE FOR RCS COOLDOWN
4.2.1	RESTORE power to both of the RHR PMP-A (B) SUCTION FR HOT LEG LOOP 1(4) Inlet Isolations as follows; independent verification required:
	a. If shut down, PLACE Inverter 1CD115 (1DD116) in service per 13405-1, "125V DC 1E Electrical Distribution System",
	b. At 1CD1I5N (1CD1I6N) REMOVE tag, UNLOCK and CLOS the disconnect for 1-HV-8701B (1-HV-8702A),
	c. UNLOCK and CLOSE RHR PMP A(B) SUCTION FROM HOT I LOOP 1(4), 1-HV-8701A (8702B) Supply Breakers 1ABE-15 (1BBE-13),
	d. REMOVE tags and CLOSE the K2 link for breaker lABE-15 (IBBE-13).
	NOTES
	a. Removing power from 1-HV-8804A/B will also affect 1-HV-8812A/B, 1-HV-8920 and 1-HV-8702B operability from the Control Room. Information tags should be installed on handswitches 1-HV-8812A/B, 1-HV-8920 and 1-HV-8702B stating that the valves can only be operated from the Remote Shutdown Panel.
	b. When in Mode 1, 2 or 3 ensure that 1-HV-8809A/B are not shut simultaneously.
4.2.2	ALIGN the RHRS for shutdown cooling as follows:
	a. CLOSE both of the RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO 1-HV-8716A and 1-HV-8716B,
	b. CLOSE both of the RHR HEAT EXCH OUTLET for Trat
	b. CLOSE both of the RHR HEAT EXCH OUTLET for Trat A (B) 1-HV-0606 and 1-HV-0607,
	 c. CLOSE both of the RHR HEAT EXCH BYPASS for Tran A (B) 1-HV-0606 and 1-HV-0607, c. CLOSE both of the RHR HEAT EXCH BYPASS for Tran A (B) 1-FV-0618 and 1-FV-0619,
	 A (B) 1-HV-0606 and 1-HV-0607, c. CLOSE both of the RHR HEAT EXCH BYPASS for Training

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		ooth of the RHR PMP A(B) NOT LEG LOOP 1(4) Valves NO2B,	
		ooth of the RHR PMP A(B) NOT LEG LOOP 1(4) 1-HV-87	
4.2.3		er from the RHR to Charg: Valves as follows:	ing and SI Pump
	1BBB-(the K2 links for breakers 5 and TAG per 00306-C, ' Wire Control'',	
	b. OPEN b	breaker 1ABB-05 to valve	1-HV-8804A,
	c. OPEN b	preaker 1BBB-05 to valve	1-SV-8804B.
4.2.4	START UP or	ne train of RHR as follo	ws:
	a. VERIFY 1-FV-0	OPEN the RHR PMP-A (B) 0610 (1-FV-0611),	MINIFLOW ISO
	b. START	RHR PUMP A(B),	
	c. ESTABI	LISH RHR Letdown per Ste	p 4.3.
4.2.5	WARM UP the	e RHRS as follows:	
		NOTE	
		The recommended RHR to R temperature difference f the completion of RHR wa is 25°F; however, the Ur Shift Supervisor (USS) m allow a greater temperat difference at his discre	for inmup hit May ture
	1-PIC	T the LOW PRESSURE LETDO -0131 and/or LETDOWN FRO 0128 as required to main	OM RHR Control Valve
	b. MONIT	OR RHR Heat Exchanger T	rain A(B) Inlet

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Temperature 1-TR-0612 (0613) and Wide Range RCS Hot Leg Temperatures 1-TI-0413A, 1-TI-0423A, 1-TI-0433A, and 1-TI-0443A.

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4.2.6	When RHR wa RCS as foll		pleted, INI	TATE full flow	to the
	A (B)			CH BYPASS for Tr ablish a minimum	
		the RHR PM 610 (0611)		LOW ISO VIV	
		CAU	TION		
	A F a F A S	The RHR Heat (B) Bypass Potentiomete minimum fl prior to pla UTO. The p setting is a to (Desired	Flow Contro r should be ow of 3000 cing contro otentiomete pproximate,	ller set for gpm ller in r y equal	
		Controller 'l		SS for Train A ((0619A) in AUTO	
	1-PIC-	0131 and/or	LETDOWN FF	OWN Controller OM RHR Control V ntain desired le	
	Train	THROTTLE (A (B) 1-HV- poling.	PEN RHR HEA 0606 (0607)	T EXCH OUTLET fo to establish d	or esire
4.2.7	If RCS coo the second	ling using t train in se	ooth RHR tra ervice as fo	ins is desired, bllows:	PLAC
	a. VERIF 4.2.2		cable RHR T	rain aligned per	Step
		Y OPEN the 1 0610 (1-FV-		B) MINIFLOW ISO	VLV
	c. START	RHR PUMP A	(B).		

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NOTE

The recommended RHR to RCS temperature difference for the completion of RHR warmup is 25°F; however, the USS may allow a greater temperature difference at his discretion.

4.2.8

- When RHR warmup is completed, INITIATE full flow to the RCS as follows:
 - a. THROTTLE OPEN the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) to establish a minimum flow rate of 3000 gpm,
 - b. VERIFY the RHR PMP-A (B) MINIFLOW ISO 1-FV-0610 (0611) CLOSES,

CAUTION

The RHR Heat Exchanger Train A(B) Bypass Flow Controller Potentiometer should be set for a minimum flow of 3000 gpm prior to placing controller in AUTO. The potentiometer setting is approximately equal to (Desired Flow/5000)².

- c. PLACE the RHR Train A(B) Heat Exchanger Bypass Flow Controller 1-FIC-0618A (0619A) in AUTO if desired,
- d. ADJUST the LOW PRESSURE LETDOWN Controller 1-FIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow,
- Slowly THROTTLE OPEN RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607) to establish desired RCS cooling.
- 4.2.9 ESTABLISH RCS Cooldown per 12006-C, "Unit Cooldown To Cold Shutdown".

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4.3	ESTABLISHI	G RHR LETDOWN	
4.3.1		ETDOWN FROM RHR Contro	1 Velve 1-WV-0129
4.5.1	CLOSE CHE	NOTE	1 VALVE 1-NV-0120.
		Only one train of RHR s of aligned for letdown operation to prevent pressurizing the suctio an idle RHR Pump from t operating RHR train.	n of
4.3.2	RHR train	HR to CVCS Letdown Isol that will be used for 1 on required:	ation of the operation etdown; independent
	a. 1-120 letdo	5-U4-021 if Train A wil	<u>.1</u> be used for RHR
	b. 1-120 letdo	5-U4-022 if Train B will	<u>.1</u> be used for RHR
4.3.3	If CVCS le LETDOWN Co	tdown is <u>not</u> in service ntrol Valve 1-PV-0131.	, CLOSE LOW PRESSURE
		NOTES	
	a.	Design maximum letdown 120 gpm.	flow is
		The Low Pressure Letdor Valve lifts at 600 psi;	
4.3.4	Slowly OPE	N the LETDOWN FROM RHR	1-HV-0128.
4.3.5	and the LE	LOW PRESSURE LETDOWN TDOWN FROM RHR Control to obtain the desired L	Valve 1-HV-0128 as

VEGP13011-11811 of 324.4SHIFTING RHR TRAINS4.4.1VERIFY the lineup on the idle RHR Train as follows: a. CLOSE the RWST TO RHR FMP A(B) SUCTION 1-HV-8812A (8812B),b. OPEN the RHR PMP-A (B) DOWNSTREAM AND UPSTREAM SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B),c. ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) is in MAN and CLOSED,d. CLOSE the RHR HEAT EXCH BYPASS for Train A (B) 1-HV-8716A (8716B),e. CLOSE the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-8066 (0607),f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO VLV 1-FV-0610 (0611),CAUTIONStarting an RHR Pump at RCS water level below 216 foot elevation and with 1-AV-8809A (B) closed will cause water hammer in the discharge piping.g. ENSURE OPEN RHR PMP A (B) TO COLD LEG 1 5 2 (3 5 4) ISO VLV 1-HV-8809A (8809B).	 4.4 SHIFTING RHR TRAINS 4.4.1 VERIFY the lineup on the idle RHR Train as follows a. CLOSE the RWST TO RHR PMP A(B) SUCTION 1-HV-8 (8812B), b. OPEN the RHR PMP-A (B) DOWNSTREAM AND UPSTREA SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B), c. ENSURE the RHR HEAT EXCH BYPASS for Train A (1 1-FV-0618 (0619) is in MAN and CLOSED, d. CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVEN 1-HV-8716A (8716B), e. CLOSE the RHR HEAT EXCH OUTLET for Train A (1 1-HV-0606 (0607), f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO VI 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the	PROCEDURE NO.		REVISION	PAGE NO.
 4.4.1 VERIFY the lineup on the idle RHP Train as follows: a. CLOSE the RWST TO RHR PMP A(B) SUCTION 1-HV-8812A (8812B), b. OPEN the RHR PMP-A (B) DOWNSTREAM AND UPSTREAM SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B), c. ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) is in MAN and CLOSED, d. CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO 1-HV-8716A (8716B), e. CLOSE the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607), f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO VLV 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the discharge piping. g. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 6 2 	 4.4.1 VERIFY the lineup on the idle RHR Train as follows a. CLOSE the RWST TO RHR FMP A(B) SUCTION 1-HV-8 (8812B), b. OPEN the RHR PMP-A (B) DOWNSTREAM AND UPSTREA SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B), c. ENSURE the RHR HEAT EXCH BYPASS for Train A (1-FV-0618 (0619) is in MAN and CLOSED, d. CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVEN 1-HV-8716A (8716B), e. CLOSE the RHR HEAT EXCH OUTLET for Train A (1-HV-0606 (0607), f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO VI 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the 	VEGP	13011-1	18	11 of 32
 4.4.1 VERIFY the lineup on the idle RHP Train as follows: a. CLOSE the RWST TO RHR PMP A(B) SUCTION 1-HV-8812A (8812B), b. OPEN the RHR PMP-A (B) DOWNSTREAM AND UPSTREAM SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B), c. ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) is in MAN and CLOSED, d. CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO 1-HV-8716A (8716B), e. CLOSE the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607), f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO VLV 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the discharge piping. g. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 6 2 	 4.4.1 VERIFY the lineup on the idle RHR Train as follows a. CLOSE the RWST TO RHR PMP A(B) SUCTION 1-HV-8 (8812B), b. OPEN the RHR PMP-A (B) DOWNSTREAM AND UPSTREA SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B), c. ENSURE the RHR HEAT EXCH BYPASS for Train A (1-FV-0618 (0619) is in MAN and CLOSED, d. CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVEN 1-HV-8716A (8716B), e. CLOSE the RHR HEAT EXCH OUTLET for Train A (1-HV-0606 (0607), f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO VI 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the 				
 a. CLOSE the RWST TO RHR PMP A(B) SUCTION 1-HV-8812A (8812B), b. OPEN the RHR PMP-A (B) DOWNSTREAM AND UPSTREAM SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B), c. ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) is in MAN and CLOSED, d. CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVER IS(1-HV-8716A (8716B), e. CLOSE the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607), f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO VLV 1-FV-0610 (0611),. CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the discharge piping. g. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 & 2 	 a. CLOSE the RWST TO RHR PMP A(B) SUCTION 1-HV-8 (8812B), b. OPEN the RHR PMP-A (B) DOWNSTREAM AND UPSTREA SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B), c. ENSURE the RHR HEAT EXCH BYPASS for Train A (1-FV-0618 (0619) is in MAN and CLOSED, d. CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVEN 1-HV-8716A (8716B), e. CLOSE the RHR HEAT EXCH OUTLET for Train A (1-HV-0606 (0607), f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO V 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the 	4.4	SHIFTING RH	IR TRAINS	
 (8812B), DEN THE RHR PMP-A (B) DOWNSTREAM AND UPSTREAM SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B), ENSURE THE RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) is in MAN and CLOSED, CLOSE THE RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO 1-HV-8716A (8716B), CLOSE THE RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607), ENSURE OPEN THE RHR PMP-A (B) MINIFLOW ISO VLV 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the discharge piping. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 & 2 	 (8812B), b. OPEN the RHR PMP-A (B) DOWNSTREAM AND UPSTREA SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B), c. ENSURE the RHR HEAT EXCH BYPASS for Train A (1-FV-0618 (0619) is in MAN and CLOSED, d. CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVEN 1-HV-8716A (8716B), e. CLOSE the RHR HEAT EXCH OUTLET for Train A () 1-HV-0606 (0607), f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO V 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the 	4.4.1	VERIFY the	lineup on the idle RHR T	rain as follows:
SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B), C. ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) is in MAN and CLOSED, d. CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVER IS(1-HV-8716A (87168), e. CLOSE the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607), f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO VLV 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the discharge piping. g. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 & 2	SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B), c. ENSURE the RHR HEAT EXCH BYPASS for Train A (1-FV-0618 (0619) is in MAN and CLOSED, d. CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVEN 1-HV-8716A (8716B), e. CLOSE the RHR HEAT EXCH OUTLET for Train A (1 1-HV-0606 (0607), f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO V 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the				SUCTION 1-HV-8812A
 1-FV-0618 (0619) is in MAN and CLOSED, CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO 1-HV-8716A (87168), CLOSE the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607), ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO VLV 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the discharge piping. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 & 2 	 1-FV-0618 (0619) is in MAN and CLOSED, d. CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVEN 1-HV-8716A (8716B), e. CLOSE the RHR HEAT EXCH OUTLET for Train A (1 1-HV-0606 (0607), f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO V 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the 		SUCTIO	N FROM HOT LEG 1-HV-8701	
 1-HV-8716A (8716B), CLOSE the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607), ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO VLV 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the discharge piping. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 & 2 	 1-HV-8716A (87168), CLOSE the RHR HEAT EXCH OUTLET for Train A (1 1-HV-0606 (0607), ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO V 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the 		c. ENSURE 1-FV-0	the RHR HEAT EXCH BYPAS 618 (0619) is in MAN and	S for Train A (B) CLOSED,
<pre>1-HV-0606 (0607), f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO VLV 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the discharge piping.</pre> g. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 & 2	<pre>1-HV-0606 (0607), f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO V 1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the</pre>				T LEG CROSSOVER ISC
CAUTION CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the discharge piping. g. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 & 2	1-FV-0610 (0611), CAUTION Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the				for Train A (B)
Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the discharge piping. g. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 & 2	Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the		f. ENSURE 1-FV-0	OPEN the RHR PMP-A (B)	MINIFLOW ISO VLV
water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the discharge piping. g. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 & 2	water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the			CAUTION	
g. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 & 2 (3 & 4) ISO VLV 1-HV-8809A (8809B).				water level below 216 for elevation and with 1-HV-8809A (B) closed will cause water hammer in the	ot Ll
	g. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 & 2 (3 & 4) ISO VLV 1-HV-8809A (8809B).		g. ENSURI (3 &)	E OPEN RHR PUMP A (B) TO 4) ISO VLV 1-HV-8809A (8)	COLD LEG 1 & 2 809B).
4.4.2 START the RHR PUMP A(B).	4.4.2 START the RHR PUMP A(B).	4.4.2	START the	RHR PUMP A(B).	

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4.4.3		letdown to the train w ow as follows:	which is operating on
	letdo Contr Contr	OR Letdown Flow 1-FI-0 wwn and ADJUST the LOW coller 1-PIC-0131 and/o col Valve 1-HV-0128 as red letdown flow,	PRESSURE LETDOWN Dr LETDOWN FROM RHR
	trair	the RHR To CVCS Letdown which is operating on bendent verification re	
	(1)	1-1205-U4-021 if Trais minimum flow,	n A is operating on
	(2)	1-1205-U4-022 if Trai minimum flow.	n B is operating on
	c. CLOSI oppor	E the RHR To CVCS Letd site train; independen	own Isolation of the t verification required.
4.4.4	SHIFT flow follows:	w to the RHR 'train tha	t was just started as
		RE OPEN the RHR PUMP A) ISO VLV, 1-HV-8809A	
	and	1-FI-0619A and MAINTAI and 3500 gpm through	ain B Flow 1-FI-0618A N total RHR flow between out the remainder of this
	1 - FV	RE the RHR HEAT EXCH E -0618 (0619) of the tr ice is in MAN,	SYPASS for Train A (B) rain being removed from
	flow Cont Cont	and ADJUST the LOW PI roller 1-PIC-0131 and	-0132C while shifting RHN RESSURE LETDOWN /or LETDOWN FROM RHR s required to maintain
	I-HV remo Exch serv	ly THROTTLE the RHR H -0606 (0607) and Bypa ved from service CLOS anger Bypass of the t rice OPEN while mainta een 3000 and 3500 gpm	ss of the train being ED and the RHR Heat rain being placed in ining total RHR flow
	(1-F 1-HS	THR PMP-A(B) MINIFLOW V-0611) does not auto S-0610 (1-HS-0611) to URE that 1-FV-0610 (1-	open, if required, PLAC OPEN and RELEASE and

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	RHR tr fully	the Heat Exchanger Outlet ain being removed from s closed, MONITOR RHR Heat ature 1-TR-0612 (0613),	ervice are both
	h. When t the RH	the RHR train has cooled IR Pump,	to below 200°F, ST
	1-FIC-	Heat Exchanger Bypass H 0618A (0619A) as require timately 3000 gpm, then H ed.	ed to obtain
4.4.5	Slowly THRO A (B) 1-HV- cooling.	OTTLE OPEN the RHR HEAT I -0606 (0607) to establish	EXCH OUTLET for Tra h desired RCS
4.4.6	ENSURE the 1-FV-0618 (3000 gpm.	RHR HEAT EXCH BYPASS for (0619) maintains a minim	r Train A (B) um total RHR flow o
4.4.7	If required Step 4.1.	d, PLACE the idle train	in standby per
4.5	TWO TRAIN H	RHR OPERATION DURING RCS	RECIRCULATION
4.5.1	VERIFY the	lineup on the idle RHR	Train as follows:
		the RWST TO RHR PUMP A(8812A (8812B),	B) SUCTION
	SUCTIO	the RHR PMP A(B) DOWNSTR ON FROM HOT LEG 1-HV-870 8701B (8702B),	
		the RHR TRAIN A(B) TO H 8716A (8716B),	HOT LEG CROSSOVER I
		E the RHR HEAT EXCH BYPA 0618 (0619) is in MAN an	
		the RHR HEAT EXCH OUTLE 0606 (0607),	ET for Train A (B)
		E OPEN the RHR PMP-A (B 0610 (0611),) MINIFLOW ISO VLV

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		and the second	
		CAUTION	
	e 1 c	tarting an RHR Pump at RCS ater level below 216 foot levation and with -HV-8809A (E) closed will ause water hammer in the ischarge piping.	
		OPEN RHR PUMP A (B) TO CO) ISO VLV 1-HV-8809A (8809	
4.5.2	START the R	HR PUMP A(B),	
4.5.3	If desired, follows:	SHIFT RHR letdown to the	alternate train as
	letdow Contro Contro	R Letdown Flow 1-FI-0132C n and ADJUST the LOW PRES ller 1-PIC-0131 and/or LE 1 Valve 1-HV-0128 as requ d letdown flow,	SURE LETDOWN TDOWN FROM RHR
	train	he RHR TO CVCS Letdown Is which is to be used for 1 cation required:	olation of the RHR etdown: independen
	(1) 1 m	-1205-U4-021 if Train A i inimum flow,	s operating on
	(2) 1	-1205-U4-022 if Train B i inimum flow.	s operating on
	c. CLOSE opposi	the KHR To CVCS Letdown I te train; independent ver	solation of the
4.5.4	THROTTLE OF 1-FV-0618 (is establis	PEN RHR HEAT EXCH EYPASS in (0619) until a minimum flo shed.	for Train A (B) owrate of 3000 gpm
4.5.5	VERIFY RHR closes.	PMP A (B) MINIFLOW ISO VI	LV 1-FV-0610 (0611)
		CAUTION	
		The RHR Heat Exchanger Tr. A(B) Bypass Flow Controll Potentiometer should be s for a flow of 3000 gpm pr to placing controller in Potentiometer setting is approximately equal_to (desired flow/5000) .	er et ior
4.5.6		HEAT EXCH BYPASS for Trai 1-FIC-0618A (0619A) in A	

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	and a set of a start of the fraction of the set of the		
4.5.7	Slowly THRO	TTLE OPEN RHR HEAT EXC 06 (0607) to establish	H OUTLET for Train A desired RCS cooling.
4.5.8	When two tr DOWN one tr	ain RHR operation is n ain of RHR as follows:	o longer desired, SHUT
	provid	e train being removed f ling RHR letdown, SHIFT nate train per 4.5.3,	rom service is RHR letdown to the
	I-HV-0 Train	THROTTLE CLOSED the R 606 (0607) and RHR HEA A (B) 1-FV-0618 (0619) d from service,	T EXCH BYPASS for
	c. STOP R	HR PUMP A(B),	
	d. If req Step 4	uired, PLACE the idle	train in standby per
4.6	FILLING AND	VENTING THE RHRS	
		CAUTION	
		All vented effluent sho be handled as potential contaminated fluid.	
		NOTE	
	1	The 1-HV-8812A(B) valve be opened using motor simultaneously with the Vents open, as detaile to achieve a successfu of the RHR Hx.	operator e System d below
4.6.1	INSTALL Typ	gon hoses at the follo	wing vent points:
		o CCP (SI Pump) on Header Vent,	1-1205-X4-141(124),
		rain A(B) Cold Leg tion Vent,	1-1205-X4-013(030),
		ot Leg Injection over Vent,	1-1205-X4-120,
		ump Suction Flush ction Vent,	1-1205-X4-196(400),
	e. RHR P	ump Seal Water Vent,	1-1205-04-235(236).
4.6.2	ROUTE the contaminat	Tygon hoses to contair ed vented effluent.	n the potentially

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4.6.3	If power has Isolations, verification	been removed from the PERFORM the following; for the required:	RHR Loop Inlet Independent
	service	t down, PLACE Inverter 10 e per 13405-1, "125V DC 1 bution System",	CD1I5 (1DD1I6) in 1E Electrical
	b. At 1CD the dis	115N (1CD116N) REMOVE tag sconnect for 1-HV-8701B	g, UNLOCK and CLOSE (1-HV-8702A),
	1-HV-8	and CLOSE RHR Loop 1(4) 701A (8702B) Supply Brea 13-1) and 1ABE-15-2 (1BB	kers 1ABE-15-1
	d. REMOVE for bro 1BBE-1	tags and CLOSE the link eaker lABE-15-1, lABE-15 3-2.	s for the K2 Relay -2, 1BBE-13-1 and
4.6.4	ALIGN the RI filling and	HR train remote-operated venting per Checklist 1	components for
4.6.5	If required venting per Alignment".	, ALIGN the RHR train fo 11011-1, "Residual Heat	r filling and Removal System
4.6.6	CLOSE the R the opposit	HR TRAIN A(B) TO HOT LEG e train:	CROSSOVER ISOs of
	a. 1-HV-8	716A if train A is the o	opposite train,
	b. 1-HV-8	7168 if train B is the c	opposite train.
4.6.7	OPEN the RH 1-HV-8716A	R TRAIN A(B) TO HOT LEG (8716B).	CROSSOVER ISO
4.6.8	OPEN the RH (0607).	R HEAT EXCH OUTLET 1-HV-	-0606 for Train A (B
4.6.9	CLOSE the R 1-FV-0618 (HR HEAT EXCH BYPASS for 0619).	Train A (B)

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		ar an ann an the state of the	
		CAUTIONS	
	a.	If vent 1-HV-10465 is when venting is compl RHR Train A will rest overflowing contamina from the Vent Valve H into the Auxiliary Bu vestibule R-Cl31 (Let	lete, venting ult in ated water Room down uilding
	b.	If vent 1-HV-10466 is when venting is comp RHR Train B will rest contaminated water of of the room containing B vent, and actuation room sump level switt Panel QPCP.	lete, venting ult in n the floor ng the Train n of the
		NOTE	
		RHR Suction Vent Val 1-HV-10465 (10466) a rooms and therefore visually observed as Personnel at these 1 should stand outside wall and verify adeq by listening for a c sound indicating that vented.	re in sealed cannot be vented. ocations the knockout uate venting change in the
4.6.10	(10466), Room R-C	NOTIFY Health Physics	Vent Valves 1-HV-10465 Department to monitor ary Building to contain ntamination.
4.6.11	STATION OPEN the	personnel at the follo valves:	owing valve locations and
		TO CCP (SI PUMP) tion Header Vent,	1-1205-X4-141(124),
		TRAIN A(B) Cold Leg ection Vent,	1-1205-X4-013(030),
		Hot Leg Injection ssover Vent,	1-1205-X4-120,
		R SUCT VENT LINE -A (B),	1-HV-10465(10466).

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			and and an and an and a second se
4.6.12	a see an a set of the set of the	SED the RHR PMP A(B) UPS 4) 1-HV-8701B (8702B).	STREAM SUCTION FROM
4.6.13		HR PMP A(B) DOWNSTREAM S 1-HV-8701A (8702A).	SUCTION FROM HOT LEG
4.6.14	Miniflow I	HOLD CLOSED handswitch : solation Valve 1-FV-0610 approximately 10 second 5.	0 (0611). RELEASE the
4.6.15		HR Fill by opening RWST HV-8812A (8812B).	TO RHR PMP A(B)
4.6.16		id stream of water issu ted in Step 4.6.11, CLO	
4.6.17	REOPEN all 4.6.1.	of the Vent Valves tha	t are listed in Step
4.6.18	When a sol CLOSE the	id stream of water issu associated Vent Valve.	es from the vent,
4.6.19	CLOSE 1-HV	-8701A (8702A).	
4.6.20	are in the	enting is completed, EN condition listed below on required:	
		CO CCP (SIP) Suction Head Source (SIP) Suction Head Source (SIP) Suction Head Source (SIP) Suction Head Source (SIP) Sourc	
		Train A(B) Cold Leg Inje 05-X4-013 (030) CLOSED	
		lot Leg Injection Cross D with vent line capped	
	d. RHR H	Pump Suction Vent 1-HV-	10465 (10466) CLOSED,
		Pump Suction Flush Conn 05 X4-196 (400) CLOSED	
		Pump Seal Water Vent 1- ED with vent line cappe	

VEGP 13011-1 18 19 of 32 NOTE The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.21 VENT the Containment A Suction Line back to the Containment Sump as follows: 4.6.21.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, LABD2W in MCCLABD to enable CNMT SUMP TO RHR PMP-A 1-HV-8811A to open with RWST TO RHR PMP-A 200306-C, "Temporary Jumper And Lifted Wire Control". 4.6.21.2 OPEN CNMT SUMP TO RHR PMP-A 1-HV-8811A. 4.6.21.2 OPEN CNMT SUMP TO RHR PMP-A 1-HV-8811A. 4.6.21.2 OPEN RHR BYPASS FROM CNMT EMERC SUMPS 1-1205-U4-120 to Bypass Check Valve 1-1205-U4-122. 4.6.21.4 OBSERVE the Containment Sump for water entering from the Containment Suction Line. 4.6.21.4 OBSERVE the Containment Sump for water entering from the Containment Suction Line. 4.6.21.4 OBSERVE the Containment Sump, CLOSE 1-HV-8811A. 4.6.21.1 per 00306-C, "Temporary Jumper And Lifted Wire Control". NOTE MOTE Mote Suppose is to be performed if in the judgment of the USS the line may be airbound. 4.6.22.1 WENT the Containment B Suction Line back to the Containment Sump as follows: 4.6.22.1 WENT the Electrical Department connect a jumper from Ter			REVISION	PAGENO
 The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.21 VENT the Containment A Suction Line back to the Containment Sump as follows: 4.6.21.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, lABD29W in MCClABD to enable CNMT SUMP TO RHR PMF-A 1-HV-8811A to open with RWST TO RHR PMF-A SUCTION 1-HV-8612A open, per 00306-C, "Temporary Jumper And Lifted Wire Control". 4.6.21.2 OPEN CNMT SUMP TO RHR PMF-A 1-HV-8811A. 4.6.21.3 OPEN RHR BYPASS FROM CNMT EMERC SUMPS 1-1205-U4-120 to Bypass Check Valve 1-1205-U4-122. 4.6.21.4 OBSERVE the Containment Sump for water entering from the Containment Suction Line. 4.6.21.5 When water is observed entering the Containment Sump, CLOSE 1-HV-8811A. 4.6.21.6 CLOSE 1-1205-U4-120. 4.6.21.7 HAVE the Electrical Department remove the jumper And Lifted Wire Control". NOTE The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.22 VENT the Containment B Suction Line back to the Containment Sump as follows: 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, IBBD29W in MCClBBD to enable CNMT SUMP TO RHR PMF-B 1-HV-8811B to open with RWST TO RHF PMF-B SUCTION 1-HV-8812B open, per 00306-C, "Temporar Jumper from Terminal C6 to C7, IBBD29W in MCClBBD to enable CNMT For NHR PMF-B 1-HV-8812B open, per 00306-C, "Temporar Jumper from Terminal C6 to C7, IBBD29W in MCClBBD to enable CNMT For NHR PMF-B 1-HV-8812B open, per 00306-C, "Temporar from Terminal C6 to C7, IBBD29W in MCClBBD to enable CNMT For NHR PMF-B 1-HV-8812B open, per 00306-C, "Temporar Jumper And Lifted Wire Control". 	VEGP	13011-1	18	19 of 32
 The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.21 VENT the Containment A Suction Line back to the Containment Sump as follows: 4.6.21.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, lABD29W in MCClABD to enable CNMT SUMP TO RHR PMF-A 1-HV-8811A to open with RWST TO RHR PMF-A SUCTION 1-HV-8812A open, per 00306-C, "Temporary Jumper And Lifted Wire Control". 4.6.21.2 OPEN CNMT SUMP TO RHR PMP-A 1-HV-8811A. 4.6.21.3 OPEN RHR BYPASS FROM CNMT EMERC SUMPS 1-1205-U4-120 to Bypass Check Valve 1-1205-U4-122. 4.6.21.4 OBSERVE the Containment Sump for water entering from the Containment Suction Line. 4.6.21.5 When water is observed entering the Containment Sump, CLOSE 1-HV-8811A. 4.6.21.6 CLOSE 1-1205-U4-120. 4.6.21.7 HAVE the Electrical Department remove the jumper And Lifted Wire Control". NOTE The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.22 VENT the Containment B Suction Line back to the Containment Sump as follows: 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, IBBD29W in MCClBBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8811B to open with RWST TO RHF PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporar Jumper from Terminal C6 to C7, IBBD29W in MCClBBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8812B open, per 00306-C, "Temporar Jumper And Lifted Wire Control". 				
 performed if in the judgment of the USS the line may be arbound. 4.6.21 VENT the Containment A Suction Line back to the Containment Sump as follows: 4.6.21.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, IABD29W in MCCIABD to enable CNMT SUMP TO RHR PMP-A 1-HV-8811A to open with RWST TO RHR PMF-A SUCTION 1-HV-8812A open, per 00306-C, "Temporary Jumper And Lifted Wire Control". 4.6.21.2 OPEN CNMT SUMP TO RHR PMP-A 1-HV-8811A. 4.6.21.3 OPEN RHR BYPASS FROM CNMT EMERG SUMPS 1-1205-U4-120 to Bypass Check Valve 1-1205-U4-122. 4.6.21.4 OBSERVE the Containment Sump for water entering from the Containment Suction Line. 4.6.21.5 When water is observed entering the Containment Sump, CLOSE 1-HV-8811A. 4.6.21.6 CLOSE 1-1205-U4-120. 4.6.21.7 HAVE the Electrical Department remove the jumper place in Step 4.6.21.1 per 00306-C, "Temporary Jumper And Lifted Wire Control". NOTE The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.22 VENT the Containment B Suction Line back to the Containment Sump as follows: 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, IBBD29W in MCCIBBD to enable CMMT SUMP TO RHR PMP-B 1-HV-8812B to open with RWST TO RHS PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporary Jumper And Lifted Wire Control". 			NOTE	
Containment Sump as follows: 4.6.21.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1ABD29W in MCCIABD to enable CNMT SUMP TO RHR PMP-A 1-HV-8811A to open with RWST TO RHR PMF-A SUCTION 1-HV-8812A open, per 00306-C, "Temporary Jumper And Lifted Wire Control". 4.6.21.2 OPEN CNMT SUMP TO RHR PMP-A 1-HV-8811A. 4.6.21.3 OPEN RHR BYPASS FROM CNMT EMERG SUMPS 1-1205-U4-120 to Bypass Check Valve 1-1205-U4-122. 4.6.21.4 OBSERVE the Containment Sump for water entering from the Containment Suction Line. 4.6.21.5 When water is observed entering the Containment Sump, CLOSE 1-HV-8811A. 4.6.21.6 CLOSE 1-1205-U4-120. 4.6.21.7 HAVE the Electrical Department remove the jumper place in Step 4.6.21.1 per 00306-C, "Temporary Jumper And Lifted Wire Control". NOTE The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.22 VENT the Containment B Suction Line back to the Containment Sump as follows: 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1BBD29W in MCCIBBD to enable CNMT SUMP TO RHR PMP-B SUCTION 1-HV-8811B to open with RWST TO RHF PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporary Jumper And Lifted Wire Control".		pe	erformed if in the judgmen I the USS the line may be	
 Terminal C6 to C7, 1ABD29W in MCClABD to enable CNMT SUMP TO RHR PMP-A 1-HV-8811A to open with RWST TO RHR PMP-A SUCTION 1-HV-8812A open, per 00306-C, "Temporary Jumper And Lifted Wire Control". 4.6.21.2 OPEN CNMT SUMP TO RHR PMP-A 1-HV-8811A. 4.6.21.3 OPEN RHR BYPASS FROM CNMT EMERG SUMPS 1-1205-U4-120 to Bypass Check Valve 1-1205-U4-122. 4.6.21.4 OBSERVE the Containment Sump for water entering from the Containment Suction Line. 4.6.21.5 When water is observed entering the Containment Sump, CLOSE 1-HV-8811A. 4.6.21.6 CLOSE 1-1205-U4-120. 4.6.21.7 HAVE the Electrical Department remove the jumper place in Step 4.6.21.1 per 00306-C, "Temporary Jumper And Lifted Wire Control". NOTE The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.22 VENT the Containment B Suction Line back to the Containment Sump as follows: 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1BBD29W in MCClBBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8811B to open with RWST TO RHF PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporary Jumper And Lifted Wire Control". 	4.6.21			back to the
 4.6.21.3 OPEN RHR BYPASS FROM CNMT EMERG SUMPS 1-1205-U4-120 to Bypass Check Valve 1-1205-U4-122. 4.6.21.4 OBSERVE the Containment Sump for water entering from the Containment Suction Line. 4.6.21.5 When water is observed entering the Containment Sump, CLOSE 1-HV-8811A. 4.6.21.6 CLOSE 1-1205-U4-120. 4.6.21.7 HAVE the Electrical Department remove the jumper place in Step 4.6.21.1 per 00306-C, "Temporary Jumper And Lifted Wire Control". NOTE The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1BBD29W in MCC1BBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8811B to open with RWST TO RHR PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporar Jumper And Lifted Wire Control". 	4.6.21.1	Terminal C6 SUMP TO RHR PMP-A SUCTIO	to C7, lABD29W in MCCLAB PMP-A 1-HV-8811A to open ON 1-HV-8812A open, per 0	D to enable CNMT with RWST TO RHR
 Bypass Check Valve 1-1205-U4-122. 4.6.21.4 OBSERVE the Containment Sump for water entering from the Containment Suction Line. 4.6.21.5 When water is observed entering the Containment Sump, CLOSE 1-HV-8811A. 4.6.21.6 CLOSE 1-1205-U4-120. 4.6.21.7 HAVE the Electrical Department remove the jumper place in Step 4.6.21.1 per 00306-C, "Temporary Jumper And Lifted Wire Control". NOTE The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.22 VENT the Containment B Suction Line back to the Containment Sump as follows: 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1BBD29W in MCC1BBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8811B to open with RWST TO RHR PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporar Jumper And Lifted Wire Control". 	4.6.21.2	OPEN CNMT ST	UMP TO RHR PMP-A 1-HV-881	1A.
 the Containment Suction Line. 4.6.21.5 When water is observed entering the Containment Sump, CLOSE 1-HV-8811A. 4.6.21.6 CLOSE 1-1205-U4-120. 4.6.21.7 HAVE the Electrical Department remove the jumper place in Step 4.6.21.1 per 00306-C, "Temporary Jumper And Lifted Wire Control". NOTE The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.22 VENT the Containment B Suction Line back to the Containment Sump as follows: 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1BBD29W in MCC1BBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8811B to open with RWST TO RHF PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporar Jumper And Lifted Wire Control".	4.6.21.3			S 1-1205-U4-120 to
 CLOSE 1-HV-8811A. 4.6.21.6 CLOSE 1-1205-U4-120. 4.6.21.7 HAVE the Electrical Department remove the jumper place in Step 4.6.21.1 per 00306-C, "Temporary Jumper And Lifted Wire Control". NOTE The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.22 VENT the Containment B Suction Line back to the Containment Sump as follows: 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1BBD29W in MCC1BBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8811B to open with RWST TO RHF PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporar Jumper And Lifted Wire Control".	4.6.21.4	OBSERVE the the Contains	Containment Sump for wat ment Suction Line.	er entering from
 4.6.21.7 HAVE the Electrical Department remove the jumper place in Step 4.6.21.1 per 00306-C, "Temporary Jumper And Lifted Wire Control". NOTE The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.22 VENT the Containment B Suction Line back to the Containment Sump as follows: 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1BBD29W in MCC1BBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8811B to open with RWST TO RHF PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporar Jumper And Lifted Wire Control".	4.6.21.5	When water CLOSE 1-HV-	is observed entering the 8811A.	Containment Sump,
 in Step 4.6.21.1 per 00306-C, "Temporary Jumper And Lifted Wire Control". NOTE The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.22 VENT the Containment B Suction Line back to the Containment Sump as follows: 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1BBD29W in MCC1BBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8811B to open with RWST TO RHF PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporar Jumper And Lifted Wire Control". 	4.6.21.6	CLOSE 1-120	5-U4-120.	
 The following Step is to be performed if in the judgment of the USS the line may be airbound. 4.6.22 VENT the Containment B Suction Line back to the Containment Sump as follows: 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1BBD29W in MCC1BBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8811B to open with RWST TO RHF PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporar Jumper And Lifted Wire Control". 	4.6.21.7	in Step 4.6	.21.1 per 00306-C, "Tempo	ve the jumper place prary Jumper And
 performed if in the judgment of the USS the line may be airbound. 4.6.22 VENT the Containment B Suction Line back to the Containment Sump as follows: 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1BBD29W in MCC1BBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8811B to open with RWST TO RHF PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporar Jumper And Lifted Wire Control". 			NOTE	
Containment Sump as follows: 4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1BBD29W in MCC1BBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8811B to open with RWST TO RHF PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporar Jumper And Lifted Wire Control".		P	erformed if in the judgme f the USS the line may be	ent
Terminal C6 to C7, 1BBD29W in MCC1BBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8811B to open with RWST TO RHF PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporar Jumper And Lifted Wire Control".	4.6.22			back to the
4.6.22.2 OPEN CNMT SUMP TO RHR PMP-B 1-HV-8811B.	4.6.22.1	Terminal C6 SUMP TO RHF PMP-B SUCTI	to C7, 1BBD29W in MCC1B PMP-B 1-HV-8811B to ope ION 1-HV-8812B open, per	BD to enable CNMT n with RWST TO RHR
	4.6.22.2	OPEN CNMT S	SUMP TO RHR PMP-B 1-HV-88	118.

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HR	R BY Chec	ASS FROM CNMT EMERG SUMPS 1-1205-U4- valve 1-1205-U4-123.	121 to
		Containment Sump for water entering ment Suction Line.	from
		is observed entering the Containment 8811E.	Sump,
1.	-120	5-U4-121.	
p	4.6	ectrical Department remove the jumper .22.1 per 00306-C, "Temporary Jumper Control".	
		HR train in a configuration appropri- tions as follows:	ate to
		temperature is greater than or equa PERFORM the following:	l to
1	(NSURE OPEN the RHR TRAIN A (B) TO HO ROSSOVER ISO 1-HV-8716A (8716B) of t pposite train,	
(2		ERFORM Step 4.1 starting at Step 4.1 lace the train in standby.	.3 to
l f RH	E RCS	temperature is less than 350°F, ALI ain for RCS circulation as follows:	GN the
(1		LOSE the RWST TO RHR PMP A(B) SUCTION-HV-8812A (8812B),	N
(2		PEN the RHR PMP A(B) DOWNSTREAM SUCT OT LEG 1(4) 1-HV-8701A (8702A),	CION FROM
(3		PEN the RHR PMP A(B) UPSTREAM SUCTION NOT LEG 1(4) 1-HV-8701B (8702B),	ON FROM
(4		CLOSE the RHR TRAIN A(B) TO HOT LEG ISO 1-HV-8716A (8716B),	CROSSOVE
(5		OPEN the RHR PUMP A(B) TO COLD LEG 1 ISO VLV 1-HV-8809A (8809B); independ verification required.	
(5		ISO VLV 1-HV-88	09A (8809B); independ

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4.7	FILLING TH REFUELING)	HE RCS (AND THE REFUELING CAN	VITY FOR
		CAUTIONS	
	а.	Maintain seal injection flow whenever RCS level is at or above the level of the a RCI Seals (elevation 190 feet). This prevents crud infiltra- into the seal chambers.	P
	ъ.	Airborne activity should be monitored when filling the Refueling Cavity from RHR until the level is above th Reactor Vessel Flange.	e
		NOTES	
	8.	With the water level in the Refueling Cavity less than 217 feet 0 inches elevation (23 feet above the vessel flange), both trains of the RHRS are required to be operable with one train in operation.	
	b.	Performance of this step as use of the RHR train that i operable but not operating.	.9
	c.	To minimize airborne activit it is preferred to fill the Refueling Cavity by gravity to the Reactor Vessel Flang prior to starting an RHR Pr	e 7 2 e
4.7.1	ESTABLISH applicabl	RCS or Refueling Cavity leve.	vel monitoring as
4.7.2		RHR PUMP A(B) TO COLD LEG A (8809B).	1&2 (3&4) ISO VLV
4.7.3		e RHR HEAT EXCH BYPASS for (0619) is in MANUAL and CL	
4.7.4	CLOSE the 1-HV-0606	RHR HEAT EXCH OUTLET for T	rain A (B)

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4.7.5		HR PMP A(B) SUCTION FROM 1 (8702A) and 1-HV-8701B (8	
4.7.6	OPEN the RWS (8812B).	ST TO RHR PMP A(B) SUCTION	N 1-HV-8812A
4.7.7	VERIFY OPEN (0511).	the RHR PMP A(B) MINIFLO	W ISO VLV 1-FV-0610
4.7.8		R PUMP A(B) TO COLD LEG 1 (8809B) to start gravity	
4.7.9	If desired,	START RHR PUMP A(B).	
		NOTE	
	s e a	ill the Refueling Cavity lowly to the 200 foot levation to prevent irborne activity and to aintain water clarity.	
4.7.10	Slowly THRO A (B) 1-HV-	TTLE OPEN the RHR HEAT EX 0606 (0607) to obtain the	CH OUTLET for Train desired flow rate.
4.7.11	At the desi 1-HV-0606 (red level, CLOSE the RHR 0607).	HEAT EXCH OUTLET
4.7.12	CLOSE the R 1-HV-8809A	HR PUMP A(B) TO COLD LEG (8809B).	1&2 (3&4) ISO VLV
4.7.13	If running,	STOP RHR PUMP A(B).	
4.7.14	CLOSE the R (8812B).	WST TO RHR PMP A(B) SUCT	ION 1-HV-8812A
4.7.15		IR PMP A(B) SUCTION FROM 1 1 1-HV-8701B (8702B),	HOT LEGS 1-HV-8701A
4.7.16	OPEN the RH 1-HV-8809A	IR PUMP A(B) TO COLD LEG (8809B); independent ver	Isolation ification required.

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4.8

DRAINING THE REFUELING CAVITY

CAUTION

Excessive flowrate during pumpdown with Upper Internals Assembly installed could lead to void formation in RHR Pump suction. Trend RHR Pump parameters on ERF for early detection of possible RHR Pump degradation due to vortexing.

NOTES

- a. With the water level in the Refueling Cavity less than 217 feet 0 inches elevation (23 feet above the vessel flange), both trains of the RHRS are required to be operable with one train operating.
- b. Performance of this step assumes use of the RHR train that is operable but not operating.
- 4.8.1 ENSURE OPEN the RHR Pump A(B) TO COLD LEG 1&2 (3&4) ISO VLV 1-HV-8809A (8809B).
- 4.8.2 CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO of the operating RHR Train:
 - a. 1-HV-8716A if Train A is operating,

b. 1-HV-8716B if Train B is operating.

- 4.8.3 ENSURE CLOSED the RHR TO HI ISO VLV 1-HV-8840.
- 4.8.4 ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) is in MANUAL and CLOSED.
- 4.8.5 CLOSE the RHR HEAT EXCH OUTLET for Train & (B) 1-HV-0606 (0607).
- 4.8.6 UNLOCK and OPEN RHR Test Recirculation To RWST 1-1205-U6-027 and 1-1205-U4-226; independent verification required.

4.8.7 CLOSE the RWST TO RHR PMP A(B) SUCTION 1-HV-8812A (8812B).

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4.8.8		MP A(B) DOWNSTREAM AND solations 1-HV-8701A (02B).	
4.8.9	VERIFY OPEN th (0611).	ne RHR PMP A(B) MINIFLO	W ISO VLV 1-FV-0610
4.8.10	START the RHR	PUMP A(B).	
4.8.11	CLOSE the RHR VLV 1-HV-8809A	PUMP A (B) TO COLD LEG A (8809B).	1 & 2 (3 & 4) ISO
4.8.12		TRAIN A(B) TO HOT LEG C 716B) for the RHR Loop	
4.8.13	Slowly OPEN th 1-HV-0606 (060	he RHR HEAT LXCH OUTLET 07) to obta . the desir	f for Train A (B) red flow rate.
4.8.14	At the desired RHR HEAT EXCH	d level in the Refuelin OUTLET for Train A (B)	ng Cavity, CLOSE the) 1-HV-0606 (0607).
4.8.15	STOP the RHR	PUMP A(B).	
4.8.16	OPEN the RHR 1 1-HV-8809A (8	PUMP A(B) TO COLD LEG (809B); independent ver	1&2 (3&4) ISO VLV ification required.
4 3.17	CLOSE and LOC 1-1205-U6-027 verification	K RHR Test Recirculation and 1-1205-U4-226; in required.	on RWST dependent
4.9	OPERATING RHR ITS COLD LEG	WITH ONE TRAIN OF COL FLOWPATH ISOLATED FOR	D LEG DISCHARGE WITH MAINTENANCE
4.9.1	ENSURE both R per Step 4.5.	HR trains are lined up	for recirculation
4.9.2	ENSURE opposi ISO VLV 1-HV- required.	te RHR PMP-A (B) TO CC 8809A(B) OPEN; indepen	LD LEG 1 & 2 (3 & 4) dent verification
4.9.3		N A (B) TO HOT LEG CRO d 1-HV-8716B; independ	
4.9.4	OPEN breakers verification	for RHR X-TIE Valves; required:	independent
	Valve	Breaker	
	a. 1-HV-871	16A 1ABD-20,	
	b. 1-HV-871	16B 1BBD-20.	

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4.9.5			cold leg dischar fication required	ge path in service; i:
	7	alve	Breaker	
	a. 1	-HV-8809A	1ABB-14,	
	b. 1	-HV-3809B	1888-14.	
4.9.6				train to be isolated ification required:
	1	Alve	Breaker	
	a. 1	-HV-8809A	1ABB-14,	
	b. 1	-HV-8809B	1BBB-14.	
4.9.7	MAINTAIN the running RHR Pump in service and OPERATE the system as necessary to maintain the desired flow rate.			
4.9.8	When RHR System Cross-tie operation is no longer desired and maintenance is completed, FERFORM the following; independent varification required:			eted, FERFORM the
4.9.8.1	CLOSE requi	the follow	wing breakers; in	dependent verification
		Breaker	Valve	
	а.	LABB-14	1-HV-8809A,	
	ь.	1BBB-14	1-HV-8809B,	
	с.	1ABD-20	1-HV-8716A,	
	d.	1875-20	1-HV-8716B.	

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4.9.8.2	ENSURE the	idle RHR Train is aligned	i as foll	ows:
		0 RHR A (B) SUCTION 812A (8812B)		CLOSED
	UPSTRE 1-HV-8	P A (B) DOWNSTREAM AND AM SUCTION FROM HOT LEG 701A (8702A) AND 701B (8702B)		OPEN
		AT EXCH BYPASS FOR TRAIN FV~0618 (0619)	A	CLOSED IN MANUAL
		AT EXCH OUTLET FOR TRAIN HV-0606 (0607)	A	CLOSED
		P A (B) MINIFLOW ISO VLV 610 (0611)		OPEN
4.9.8.3	START PHR P	ump A (B).		
4.9.8.4	If required be maintain	, SHIFT RHR letdown to t ed on cold leg recircula	he train tion as	which is to follows:
	letdow Contro Contro	R Letdown Flow 1-FI-0132 n and ADJUST the LOW PRE ller 1-PIC-0131 and/or L l Valve 1-HV-0128 as req d letdown flow,	SSURE LE	TDOWN ROM RHR
	train	he RHR To CVCS Letdown I which is operating on mi ndent verification requi	nimum fl	of the RHR ow;
	(1) 1	-1205-U4-021 if Train A minimum flow,	is opera	ting on
	(2) 1	-1205-U4-022 if Train B minimum flow.	is opera	ting on
		the RHR To CVCS Letdown te train; independent vo		

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follo a. b.	T flow to the RHR train that was just started as ows: MONITOR RHR Train A and Train B Flow 1-FI-0618A and 1-FI-0619A and MAINTAIN total RHR flow between 3000 and 3500 gpm throughout the remainder of this step, ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) of the train being removed from service is in MAN, MONITOR Letdown Flow 1-FI-0132C while shifting RHR flow and ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow, Slowly THROTTLE the RHR HEAT EXCH A(B) OUTLET 1-HV-0606 (0607) and Bypass of the train being removed from service CLOSED and the RHR Heat
follo a. b. c.	OWS: MONITOR RHR Train A and Train B Flow 1-FI-0618A and 1-FI-0619A and MAINTAIN total RHR flow between 3000 and 3500 gpm throughout the remainder of this step, ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) of the train being removed from service is in MAN, MONITOR Letdown Flow 1-FI-0132C while shifting RHF flow and ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow, Slowly THROTTLE the RHR HEAT EXCH A(B) OUTLET I-HV-0606 (0607) and Bypass of the train being removed from service CLOSED and the RHR Heat
b. c.	and 1-FI-0619A and MAINTAIN total RHR flow between 3000 and 3500 gpm throughout the remainder of this step, ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) of the train being removed from service is in MAN, MONITOR Letdown Flow 1-FI-0132C while shifting RHF flow and ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow, Slowly THROTTLE the RHR HEAT EXCH A(B) OUTLET I-HV-0606 (0607) and Bypass of the train being removed from service CLOSED and the RHR Heat
с.	1-FV-0618 (0619) of the train being removed from service is in MAN, MONITOR Letdown Flow 1-FI-0132C while shifting RHF flow and ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow, Slowly THROTTLE the RHR HEAT EXCH A(B) OUTLET I-HV-0606 (0607) and Bypass of the train being removed from service CLOSED and the RHR Heat
	flow and ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow, Slowly THROTTLE the RHR HEAT EXCH A(B) OUTLET I-HV-0606 (0607) and Bypass of the train being removed from service CLOSED and the RHR Heat
d.	I-HV-0606 (0607) and Bypass of the train being removed from service CLOSED and the RHR Heat
	Exchanger Bypass of the train being placed in service OPEN while maintaining total RHR flow between 3000 and 3500 gpm,
е.	If RHR PMP-A(B) MINIFLOW ISO 7LV 1-FV-0610 (1-FV-0611) does not auto open, if required, PLAC 1-ES-0610 (1-ES-0611) to OPEN and RELEASE and ENSURE that 1-FV-0610 (1-FV-0611) opens,
f.	When the Heat Exchanger Outlet and Bypass of the RHR train being removed from service are both fully closed, MONITOR RHR Heat Exchanger Inlet Temperature 1-TR-0612 (0613),
g.	When the RHR train has cooled to below 200°F, STO the RHR Pump,
h.	ADJUST Heat Exchanger Bypass Flow Controller 1-FIC-0618A (0619A) as required to obtain approximately 3000 gpm, then PLACE it in AUTO if desired.
4.9.8.6 CLOSE VALVE	E the RHR TRAIN A (B) TO HOT LEG CROSSOVER ISO ES 1-HV-8716A and 1-HV-8716B.

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VEGF	15011-1		10	20 01 32
		NOTY		
		The following slowly refill section of the	the downstre	
		was drained.		
4.9.8.7	CLOSE 1-HV idle train) and 1-HV-8	701B (8702B) for the
4.9.8.8	OPEN 1-HV-	3812A (B) for	the idle tra	ain.
4.9.8.9		PEN 1-HV-8809/ ndependent ver		r the train that was equired.
4.9.8.10	OPEN SIS CH 1-HV-8964.	ECK VALVE TE:	ST CNMT ISO	VALVES 1-HV-8871 and
4.9.8.11	OPEN RHR PR (88905).	IPA (B) CHECI	K VALVE TEST	VALVE 1-HV-8890A
4.9.8.12	OPEN ACCUM	1 (3) CHECK	VLV TEST 1-H	V-8879A (8879C).
4.9.8.13	OPEN ACCUM	2 (4) CHECK	VLV TEST 1-H	V-8879B (8879D).
4.9.8.14	When ventin	ng is complete	ed, CLOSE th	e following:
	Train	A	Train B	
	a. 1-HV-8	890A	1-HV-8890B	
	b. 1-HV-8	3879A	1-HV-8879C	
		3879B	1-HV-8879D	
4.9.8.15		-8871 and 1-H		
4.9.8.16	CLOSE 1-HV	-8812A (8812B).	
49817	OPEN 1-HV-	8701A (8702A)	and 1-HV-87	01B (8702B).

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5.0	REFERENCES				
5.1	P&ID's				
5.1.1	1X4DB121	Safety Inject	tion System	n	
5.1.2	1X4DB122	Residual Heat	: Removal :	System	
5.2	ELEMENTARY DI	AGRAMS			
5.2.1	1X3D-BD-D02L	1-HV-8804A	Safecy	Injection	n System
5.2.2	1X3D-BD-D02M	1-HV-8804B	Safety	Injection	n System
5.2.3	1X3D-BD-D02V	1-HV-8809A	Safety	Injection	n System
5.2.4	1X3D-BD-D02W	1-EV-8809B	Safety	Injectio	n System
5.2.5	1X3D-BD-D03J	1-HV-8840	Safety	Injectio	n System
5.2.6	1X3D-BD-E01A	RHR Pump 001	-MC1		
5.2.7	1X3D-BD-E01B	RHR Pump 002	-M01		
5.2.8	1X3D-BD-E02C	1-FV-0610	Residua System	l Heat R	emoval
5.2.9	1X3D-BD-E02D	1-FV-0611	Residua System	l Heat R	emoval
5.2.10	1X3D-BD-E02E	1-HV-8812A	Residua System	l Heat R	emoval
5.2.11	1X3D-BD-E02F	1-HV-8812B	Residua System	l Heat R	emoval
5.2.12	1X3D-BD-E02G	1-HV-8701A	Residua System	l Heat R	emoval
5.2.13	1X3D-BD-E02H	1-HV-8701B	Residua System	l Heat R	lemosal
.2.14	1X3D-BD-E02J	1-HV-8702A	Residua System	1 Heat F	lemoval
.2.15	1X3D-BD-E02K	1-HV-8702B	Residua System	1 Heat F	lemoval
.2.16	1X3D-BD-E02L	1-HV-8986A	Residua System	l Heat F	Removal
.2.17	1X3D-BD-E02M	1-HV-8986B	Residua System	1 Heat H	Removal

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	and the second	n de la decenaria e constante en la constante de la decenaria de la constante de	
5.2.18	1X3D-BD-E02N	1-HV-8716A	Residual Heat Removal System
5.2.19	1X3D-BD-E02P	1-HV-8716B	Residual Heat Removal System
5.2.20	1X3D-BD-E03F	1-HV-8811A	Residual Heat Removal System
5.2.21	1X3D-BD-E03G	1-HV-8811B	Residual Heat Removal System
5.2.22	1X3D-BD-E03H	1-HV-10465/ 10466	Residual Heat Removal System
5.3	PROCEDURES		
5.3.1	11011-1	"Residual Heat	Removal System Alignmen
5.3.2	13405-1	"125V DC 1E EL System"	ectrical Distribution
5.3.3	13427-1	"4160V AC 1E E System"	lectrical Distribution
5.3.4	13429-1	"480V AC 1E E1 System"	ectrical Distribution
5.3.5	13711-1	"Instrument Ai	r System"
5.3.6	13715-1	"Component Coo	ling Water System"
5.3.7	13150-1	"Nuclear Servi	ce Cooling Water"
5.4	CORRESPONDENC	E	
5.4.1	GP-12615	RHRS Open Perm	issive Setpoint
5.4.2	PFE0-01628	Operation Of T During Single	he Recycle Evaporator Train Cooldown
5.4.3	PFEO-805	Fire Induced O HV-8804B	pening Of HV-8804A And
5.4.4	BW-4979	Fire Induced C HV-8804B	pening Of HV-8804A And

END OF PROCEDURE TEXT

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	CHECKLIST 1	Sheet 1 of 1
	the fact that which is a first state of the	
RHR AL	IGNMENT FOR FILLING AND VE	NTING
CONTROL SWITCH/		
VALVE NUMBER	DESCRIPTION	POSITION
1-HS-0620(0621)	RHR PMP A(B)	PULL-TO- LOCK
1-HV-8701A(8702A)	RHR PMP A(B) DOWNSTRE SUCTION FROM HOT LEG 1(4)	
1-HV-8701B(8702B)	RHR PMP A(B) UPSTREAM SUCTION FROM HOT LEG 1(4)	
1-HV-10465(10466)	RHR SUCT VENT LINE TR	NA(B) CLOSED
1-HV-8812A(8812B)	RWST TO RHR PUMP A(B) SUCTION	CLOSED
1-HV-8811A(8811B)	CNMT SUMP TO RHR PMP SUCTION	A(B) CLOSED
1-HV-8809A(8809B)	RHR PUMP A(B) TO COL 1&2 (3&4) ISO VLV	LEG CLOSED
1-HV-8804A(8804B)	RHR PMP A DISCH TO CH PMPS SUCT (RHR TO SI ISO VLV)	
1-HV-8716A(8716B)	RHR TRAIN A(B) TO HO' CROSSOVER ISO	T LEG CLOSFD
1-HV-8840	RHR TO HL ISO VLV	CLOSED

CEDURE NO		REVISION	1	GENO	
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				Sheet 1 of 1	
		CHECKLIST 2			
		RHR ALIGNMENT FOR STANDBY	READINESS		
CONTROL ST	WITCH/			POSITIONED	
VALVE NUM		DESCRIPTION	POSITION	BY	I/V
1-HS-0620	(0621)	RHR PMP A(B)	OTUA	-	
1-HV-8701	A(8702A)	RHR PMP A(E) DOWNSTREAM SUCTION FROM HOT LFG LOOP 1(4)	CLOSED		
1-HV-8701	8(87028)	RHR PMP A(B) UPSTREAM SUCTION FROM HOT LEG LOOP 1(4)	CLOSED	-	
1-HV-1046	5(10466)	RHR SUCT VENT LINE TRN A(B)	CLOSED	sandapancality on a couperaction and	
1-HV-8812	A(8812B)	RWST TO RHR PUMP A(B) SUCTION	OPEN		
1-HV-8811	A(8811B)	CNMT SUMP TO RHR PMP A(B) SUCTION	CLOSED		-
1-HV-8809	A(8809B)	RER PUMP A(B) TO COLD LEG 162 (364) ISO VLV	OPEN		-
1-HS-8809	C(8809D)	RHR FUMP A(B) TO COLD LEG 162 (364) ISO VLV	OFF	-	-
1-HV-8804	A(8804B)	RHR PMP A DISCH TO CHG PMPS SUCT (RHR TO SI PMP B ISO VLV)	CLOSED		
1-HV-8716	A(8716B)	RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO	OPEN	And Contract Contract of the second	
1-HV-8840)	RHR TO HL ISO VLV	CLOSED	-	
1-HS-8840	A	RHR TO HL ISO VLV	OFF	COLUMN D. March. Bourses	
1-HV-0606	6(0607)	RHR HEAT EXCHANGER TRAIN A(8) OUTLET	OPEN		
1-FV-0618	8(0619)	PHR HEAT EXCHANGER TRAIN A(B) BYFASS	MAN & CLOSED		

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Y LOT		Sheet 1 of 1
	DATA SHEET I	이 사람은 한 것을 잘 하는 것을 했다.
	EXAMPLE	
	VOGTLE NUCLEAR STAT!ON	•
	VEHICLE ACCESS REQUEST	r
	NON-DESIGNATED	
	VEHICLE DESCRIPTION	VENICLE INFORMATION
HAME: DONNIE MILLITE.	MARE: G. M. C. Service The	CCA COMPANY NAME: GPC.
BADGE 1:5.6.205/ 1405		
DEPT: Equip.	COLOR: Blue	CITY/STATE: Upgnesborg Ga
STATION CONTACT: 3361	TAG 0: P.G. 8785	
	VEH 1:023-49.003	
STATE REASON VEHICLE REQUIRES PRO	PURPOSE DTECTED AREA ACCESS: Fuel	ing Equipment
	AUTHORIZATION	
2	-20-40 TIME: 1800	a contract of the second se
Date of Authorization: From:	0905 To: 3.2090 Approv	al Date: 3-20-96 Approved by: COakst
Date of Authorization: From:	0905 To: 3-26-90 Approv	BAINE 1'S 0763
Date of Authorization: From:	0905 To: 3-26-90 Approv	BAINCE 1'S 0763 BAINCE 1'S 0763

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ESCORT OFFICER Close vehicle log at midnight each night. Any vehicles still within the PA will be carried over to next day's log. 13 of 15 end Sheet 1 of 1000 4112 9 day 4/2 2.10 NIN 10 1 4344 3 TINE OF 0260 TILI pp B. A burg 1025 1023-GATE: PAGE 830087 0771C28 Page No UNN BIREY 2 1.12 JIN 7 XIA 211. CATE OFFICER TINE OF ENTRY 1527 11:20 1420 2260 VOCTLE NUCLEAR STATION 1031 DATA SHEET 2 VEHICLE LOG 55662 VEHICLES LOG 60 No313 1 2363 WNCH REPERT. 58318 1 0793 DRIVER'S MANE AND BADCE MOMER 52121 2120 Willhit Derdie & 201 1405 BENNETT VIENDA SENTON 1 2422 [ccr3 (HUSE VERICLE STICKER NUMBER FOR DESIGNATED YEALCLES) 50 177 1 3113 50-024 Rendol yrs AckSet Hust WA DESIGNATED NO RREICL JOHES hord wird JACON C PENICLES CLASSIFICATIONS: "PRETIGNATED 90015-C CLASS dr. 13 r_a 0 2 in the 3 20- 70 APRILICIE & 023.49.963 ASCP ŝ 045 134 CX3 137 154 125 in ear ----too the state BATEL 67 < **R**

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EXAMPLE

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