Appro	Reduct	Vogtle Electric General NUCLEAR OPERATIONS	ating Plant	Procedure No. 12006 - C
Date	hackelo (of	man and a second of the forther that the	A	Revision No. 15
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	UNIT NO	e. Serie area da concensaria	DATE _	1 1
		UNIT COOLDOW	N TO COLD SHUTDOWN	
	1.0	PURPOSE		
		This procedure provi hot standby following standby following re from hot standby to provided for mainta between.	ides instructions for a ng reactor trip, maint eactor shutdown, takin cold shutdown. Instru ining conditions stable	maintaining aining hot g the unit uctions are e at points
	2.0	PRECAUTIONS AND LIM	ITATIONS	
	2.1	PRECAUTIONS		
	2.1.1	If this procedure is the Unit Shift Super for the termination	s terminated prior to o rvisor (USS) should not in the comments sectio	completion, te the reason
	2.1.2	The Reactor Coolant temperature shall be region of RCS Pressu Technical Data Book	System (RCS) pressure maintained within the re Temperature Limits Tab 3.1).	and e operating (Plant
	2.1.3	Do not add positive controlled method at subcritical.	reactivity by more that t a time while the read	in one stor is
	2.1.4	Whenever RCS tempera RCP should be in ope ensure best spray ca	ature is above 160°F, a eration. Preferably Pu apability.	at least one imp 4 to
	2.1.5	Frior to opening any atmosphere, the hydr portion must be redu	y portion of the RCS to rogen concentration in need to less than 5cc/H	the affected g.
	2.1.6	The boron concentrat be different from th Pressurizer Backup H necessary to equaliz	tion in the pressurizer ne RCS by more than 50 leaters may be energize the boron concentrat	should not ppm. d as ion.
	2.1.7	The Control Rod Driv shall be operating w or equal to 350°F or	ve Mechanism (CRDM) Coo when RCS temperature is when any CRDM is ener	oling System greater tha gized.
	920219051 PDR ADOC	3 920116 K 05000424		

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2.1.8	During cooldown (MSIVs) should b to allow uniform (RCS) loops and the preferred me	, all Main Steam Is be open or atmosphe n-cooldown of all R Steam Generators (athod of heat remov	Glation Valves ric reliefs balance eactor Coolant Syst SGs). Steam dump i al.
2.1.9	The Residual Hea should not be is steam bubble in	at Removal (RHR) Pu solated from the RC the Pressurizer.	mp Suction Line S unless there is a
2.1.10	One Reactor Cool anytime RCS temp one hour.	lant Pump (RCP) sho perature is changed	uld be running by more than 10°F
2.1.11	Spray flow into if the temperatu steam space and	the Pressurizer sh ire difference betw the spray fluid ex	ould not be initiat een the Pressurizer ceeds 125°F.
2.1.12	Before auxiliary difference betwe spray fluid exce (Technical Speci	spray is initiate en the pressurizer eding 320°F, notif lfication 5.7.1)	d with a temperatur steam space and th y the USS.
2.1.13	While in Hot Sta be continuous to Feedwater Nozzle	andby, feeding Steam minimize thermal	m Generators should stresses on the
2.1.14	Vacuum should be "pllowing unit s to approximately emergency dictat Rotor.	e maintained on the shutdown until the 66% rated speed (es rapid coastdown	Main Turbine Turbine coasts down 1200 rpm) unless an of the Turbine
2.1.15	If Main Turbine coastdown parame "Main Turbine Op	coastdown is in prosters should be mon peration" Sub-subse	ogress, then itored per 13800, ction 4.3.2.
2.1.16	The Main Turbine metal casing ten Bearing lube oil	should be kept on peratures have ret circulation must	Turning Gear until urned to ambient. also be maintained.
2.1.17	During periods of the Reactor Vess elevation), ongo scrutinized and potential for re	of operation with t el Flange elevation oing work activitie any work activity educing RMRS capabi	he RCS level below n (194 feet s should be closely limited that has th

1. 10

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2.2	LIMITATIONS	e e en al contra de la contra de	
2.2.1	The RCS pre psig and 3	essure and temperature sh 50°F when open to the RHR	all not exceed 425 system.
2.2.2	While in Mo greater tha Technical S	odes 3 and 4, shutdown ma in or equal to the limit Specification 3.1.1.2, Fi	rgin shall be specified in gure 3.1-1.
2.2.3	While in Mo or equal to Specificati	de 5, shutdown margin sh the limit specified in on 3.1.1.2, Figure 3.1-2	all be greater than Technical
2.2.4	While in Mo operation w least one i open. (Teo	de 3, at least two RCS 1 with the Reactor Trip Bre n operation with the Rea chnical Specifications 3.	oops shall be in akers closed and at ctor Trip Breakers 4.1.2)
2.2.5	While in Mc trains shal loops and/c (Technical	de 4, at least two RCS 1 1 be operable and at lea or RHR trains shall be in Specifications 3.4.1.3)	oops and/or RHR st one of the RCS operation.
2.2.6	While in Mc RHR train s one additic water level greater tha 3.4.1.4.1)	de 5 with the RCS loops hall be operable and in nal RHR train operable of of at least two steam g n 17% wide range. (Tech	filled, at least on operation and eithe r the secondary sid enerators shall be nical Specification
2.2.7	While in Mo two RHR tra train shall Valves 1208 1208-U4-183 mechanical may be open control pro operable wi times backg	de 5 with the RCS loops in ins shall be operable and be in operation. React -U4-175, 1208-U4-176, 120 shall be closed and sec stops), except 1208-U4-1 ed for short periods of vided the Hi Flux at Shu th a setpoint of less the round. (Technical Specie	not filled, at leas d at least one RHR or Makeup Water 08-U4-177, and ured in position (b 76 and 1208-U4-177 time for chemistry tdown Atarm is an or equal to 2.30 fication 3.4.1.4.2)
2.2.8	While in Mo on, at leas protection	des 4, 5, and 6 with the t one of the following cosystems shall be operable	Reactor Vessel Hea old overpressure e:
	a. Two PC the li	RVs with lift settings wi mits established in Figu	hich do not exceed re 1,
	b. Two RH of 450	R suction Relief Valves $r_{psig} \pm 3\%$, or	each with a setpoin
	c. The RC reliev (Techn	S depressurized with an 1 ing at least 670 gpm wat ical Specification 3.4.9	RCS vent capable of er flow at 470 psig .3)

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2.2.9	While in M the requir operable.	odes 5 and ed boron in (Technical	6, at least jection flo Specificat	ome Charging Pump in w path shall be ion 3.1.2.3)
2.2.10	The primar not exceed differenti tests.	y to second 1600 psid al of 670 p	ary pressur or a second sid during t	e differential shall ary to primary pressure unit operations or leak
2.2.11	The maximu 100°F in a 3.4.9.1)	m cooldown ny one hour	of the RCS (period, (shall be limited to Technical Specification
2.2.12	The maximus limited to Specificat	m cooldown 200°F in a ion 3.4.9.2	of the press ny one hour)	surizer shall be period. (Technical
2.2.13	The maximum spray wate (Technical	m temperatu r and press Specificat	re differen urizer stear ion 3.4.9.2	tial between auxiliary n space is 625°F.
2.2.14	The temper coolant in 70°F when Generator Specificat	ature of bot the Steam (the pressure is greater (ion 3.7.2)	th the prime Generators a e of either than 200 ps:	ary and secondary shall be greater than coolant in the Steam ig. (Technical
2.2.15	While in M Range Nucl (Technical	odes 3, 4 am ear Instrume Specificat:	nd 5, both o entation sha ions Table 3	channels of Source all be operable. 3.3-1, 6.B)
2.2.16	While in Ma Range Nucle Recorder NI SHUTDOWN a	odes 3, 4, a ear Instrume R-45 and the larm operabl	and 5 at lea entation sho e CONTROL RO le.	ast one channel Source buld be selected to DOM HI FLUX LEVEL AT
2.2.17	While in Ma Reactor Ver the RWST w 99,404 gal boron conce	odes 5 and 6 ssel Flange ill be opera lons (92 of entration be	6, with the elevation able with a instrument etween 2400	RCS level below (194 feet elevation), minimum volume of span) of water at a and 2600 ppm.
3.0	INITIAL CON	NDITIONS		
3.1	The reactor shutdown or withdrawn	r is shut do r reactor tr or inserted	own either f rip with Shu	following normal itdown Rods either
3.2	RCS temperation of valves.	ature is sta the steam o of the Stear	abilized at dumps in Ste n Generator	no load Tavg under am Pressure mode or by Atmospheric Relief
3.3	RCS pressu	re is stable	e at normal	operating pressure.

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				and the second sec				
3.4	At least	oné RCP is	operating.					
3.5	Pressuriz the progr (PD) Pump operating injection	er level is am level wi or a Centr to supply flow.	at approxi th either t ifugal Char normal char	mately or the Positiv ging Pump ging and R	returning to © Displacement (CCP) CCP seal			
3.6	SG levels Feedwater	levels are at 45% to 55% NR level with Auxiliary dwater (AFW) operating.						
3.7	The main on the Tu	Turbine is rning Gear.	tripped and	l either co	asting down or			
4.0	INSTRUCTI	ONS						
			NOTES					
	a.	This proce into secti either coo stable con specified may be per with Secti	dure is div ons which p ldown or ma ditions wit mode. Sect formed conc ons A, B, C, D	ided ermit intaining hin a ion E urrently				
	b.	Asterisk (INITIAL st steps that documents.	*) steps be eps indicat generate a	side es dditional				
	с.	This proce Train A de component shown in p	dure is wri signations. designation arenthesis.	tten using Train B s are				
	The secti	ons of this	procedure	are:				
	A. Hot Shut	Standby Fol down or Tri	lowing Reac p.	tor				
	B. Cool	down to not	less than	350°F.				
	C. Cool	down to not	less than	205°F.				
	D. Cool than	down to Col 200°F).	d Shutdown	(less				
	E. Seco	ndary Plant	Shutdown.					

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UNIT NO.												
SECTION	A: H	or Sta	indby	v Fo	11ow	ing	Read	tor	Shu	tdow	n or Tri	
A4.1	OPERAT:	ING IN	HOT	T ST.	ANDB	Y FO	LLOV	VING	REA	CTOR	SHUTDOW	N O
	IRIFI										INITI	ALS
A4.1.1	If this a react follows	proc for tr ng:	edu; ip,	the	as be n pe:	een rfor	ente m tł	ered	fro	m		
	a. IN Re	NITIAT view"	E 10	0006	-C,	'Rea	ctor	r Tr	l.p			
	b. If SI 11 Ac	ente term 886, tuati	ring inat "Rec on",	g ch tion tove:	is pr , the ry Fr	roce en p rom	dure erfo ESF	e fr	om			
	c. MC pa Op	NITOR ramet erati	Mai ers on"	n Tu per and	urbin 1380	ne c D0,	oast ''Mai	down In Ti	n urbin	ne		
	(1) EN Mo in	SURE tor AUT	Cont Cont CO/PI	at th trol ULL-1	ho T Han FO-L	urni dswi OCK	tch pos	Gear is ition	n.,		
	(2	2) Wh sp Tu Tu	eed, rnin	VEI Ng Ga	ine H RIFY ear (ear (Roto all Dil enga	r re Lif Pump geme	t Pos Ol	as ze imps Nand	ero		
	d. Ii Pu "A re Ch	appl mp ha uxili turne ieckli	icab s be ary d to st 2	en s Fee ST	ENSI stopp dwate ANDB	JRE bed ar S č pe	that per yste r 13	TD/ 1361 m'' - 3610	AFW LO, and			
	e. If 92 Ra Te Ta	not days inge N st" (ble 4	perf CO IS C Tech	Orme MPLE Chann inic:	ed in ETE 1 nel 4 sl Sp em 6	h th 1442 Anal Deci	e pr 3, og C fica	Sour Dera tion	ous rce ation	nal		

UFOD	1200	6.0	16		7 . 6 1.6
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UNIT NO.	-				INITIALS
	f.	When indi CONT SHUT perf	Source Range channe cation stabilize PLA ROL ROOM HI FLUX LEV DOWN alarm in operat orming the following	ls CE EL AT ion by	
		(1)	NOTIFY I&C and if m RESET the HI FLUX A alarm setpoint per 24696, "N.I. System Range Channel Calib	ecessary, T SHUTDOWN 24695 and Source ration",	
		(2)	ENABLE THE HI FLUX alarm by placing th AT SHUTDOWN NORMAL/ switches to the NOR	AT SHUTDOWN e HIGH FLUX BLOCK MAL,	
		(3)	VERIFY annunciator HI SHUTDOWN FLUX AL ALB-10 B01 resets,	SOURCE RNG ARM BLOCKED	
		(4)	SELECT both channel Range indication on NR-45,	s of Source Recorder	
			ANNOTATE chart to r channels selected,	eflect	
	g.	CALC 1400 Calc	ULATE SHUTDOWN MARGI 5, "Shutdown Margin ulations",	N per	*
	h.	If n 1300 Cont	ecessary, BORATE the 9, "CVCS Reactor Mak rol System",	RCS per eup	
	i.	SHUT	DOWN the CVCS BTRS orming the following	System by	
		(1)	PLACE the CVCS BTRS Switch HS-10351 in position,	SELECTOR the OFF	-
		(2)	CLOSE the BTRS Demi Flow Control HV-038 FULLY CLOSED positi	neralizer 7 to the on,	

UNIT NO.				INITIALS
j.	DIRECT Chemistry hydrogen, gas as concentrations lodine sample as required frequent Specifications	y to sample the ctivity and PERFORM an R nalysis per the ncies of Technic Table 4.4-4,	RCS CS al	
Person Contact	ed	Date	Time	
k.	MAXIMIZE CVCS 1 flow rate per 1 And Volume Contr And Normal Opera	etdown purificat 3006, "Chemical rol System Start ation",	ion up	
		/ Date Tim	e	
1.	If required, IN of the Auxiliar 13760-C, "Auxil System",	ITIATE STARTUP y Boiler per iary Steam Boile	r	
	NOTIFY Chemistry	y Department,		
m .	At the Steam Ger Panel, slowly LG Cooling Water To Tank temperature the setpoints of Blowdown tempera Controllers TIC 1194,	nerator Blowdown OWER Steam Gener o The Heater Dra e to 200°F by ad n the Steam Gene ature Control Va -1191, 1192, 119	ator in justing rator lves 3 and	
n,	STOP both Heate:	r Drain Pumps,		NUMBER OF STREET
ο.	STOP all but one	e Condensate Pum	ıp,	
p.	REDUCE in-servi Demineralizer Po applicable per Filter Deminera	ce Condensate owdex Vessels as 13616, "Condensa lízer System",	te	

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UNIT NO.		and thread of				INITIALS
	q. P S 1 S a	LACE ystem 3615, ystem nticij	the Condensate a on Long cycle r "Condensate And s", or if a retu pated, OPEN MF?	nd Feedw ecirc pe Feedwat rn to po A & B BY	ater r er wer is PASS:	
	U	NIT 1	: 1 - 1 3 0 5 - U 4 - 6 5	5		
	U	NIT 2	2-1305-04-65	5		
	o a c S c	r at 1 nd VE hemist team (oncurs	least one MFP Di RIFY condensate/ try is acceptabl Generators by ob rence from Chemi	scharge feedwate e for fe taining stry Dep	MOV r eding artment,	
	r. N pi	OTIFY lacing nto pr	Chemistry to in g condensate and roper chemical w	itiate feedwat et layup	er	
	s. I C	f nece ircula	essary, SHUT DOW ating Water Pump	N all bu	t one	
	t. I F. i	f nece iver M n the	essary, SHUT DOW Makeup Pump and Unit Control Lo	N all bu RECORD t g Book,	t one ime	
	u. E	NSURE -HV-76	SG Blowdown Iso 503A(B, C, D) op	lation V en.	alves	
A4.1.2	lf No- to exc demand	Load 1 essive by pe	Tavg cannot be m e steam demand, erforming the fo	aintaine REDUCE s llowing:	d due team	
	a. E	NSURE alves	MSR Heating Ste HS-6015 and HS-	am Supply 6030 clo	y sed,	
	b. T s p	RANSFE team s er 137	ER the Auxiliary supply to the Aux 761, "Auxiliary S	Steam S xiliary Steam Sy	ystem Boiler stem",	
	c. Ti sy p	RANSFE upply er 138 ystem'	ER the Turbine S to the Auxiliar 325, "Turbine St ',	team Sea y Steam S aam Seal	l Supply	
	d. Ti ti	RANSFE ne Aux Conder	ER the SJAE steam ciliary Steam Sup nser Air Ejection	n supply oply per n System	13620,	

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UNIT NO.					INITIAL
	e. If for pre lin Pro 003 Lif	Main Gener more than vent over ks TBR 28 tective Re 06-C, "Ter ted Wire (rator is to be two days, the heating relay 3 , 29 and 30, lo elay Panel Bay mporary Jumper . Control",	shut down n to 60A, OPEN cated in 4, per And	
	f. If (13 de- the TBS Rel "Te Con tri 386 Bre	the General 28-P5-GRC energized n OPEN lin 4 and 5 l ay Panel H mporary Ju trol". Th pping Lock G10 which akers,	ator Regulator is to be for maintenance hks TBR 56 and located in Prot Bay 4, per 0030 imper and Liften his will preven cout Relays 386 h trip Generator	Panel 57 and ective 6-C, d Wire t G9 and r Output	
	g. At Cab Tra 138 Sub	the Main 1 inets, de- nsformer (00, "Main -subsectio	Fransformer Con- energize the Dil Pumps and Fa Turbine Operation 4.3.1.	trol ans per ion"	
A4.1.3	At the U MFPT tri and tagg applicab	SS's discr p circuits ing the fo le unit:	retion, DISABLE by to AFWAS by sollowing fuses of	the removing on the	
	UNIT 1:	Train A	- Aux Relay Par INCPAR2, Fus	nel e FU-4	
		Train B	- Aux Relay Par INCPAR4, Fus	nel e FU-1	īv
	UNIT 2:	Train A	- Aux Relay Par 2NCPAR2, Fus	nel e FU-4	IV
		Train B	- Aux Relay Par 2NCPAR4, Fus	nel e FU-l	IV
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UNIT NO.				·*	INITIALS
A4.1.4	Either OPERA to maintain PROCEED to e unit cooldow to return to	TE unit syst the unit at ther Section of 12003-0 power.	ems as nece Hot Standby on B to init , "Reactor	essary y, or tiate Startup"	
		END OF SEC	TION A		

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UNI	T NO.	and and all other and the statements		
		SECTION B:	Cooldown to not 1	ess than 350° F
			NOTE	
			This section directs c to 375°F or any point b without crossing the b for Mode 4 at 350°F.	ooldown between oundary
B4.	1	PREPARA'IIO	N FOR UNIT COOLDOWN	
				INITIAL
Β4.	1.1	lf require then INITI	d to cooldown secondar ATE Section E of this j	y systems, procedure.
В4.	1.2	If Condens then INITI the MSR's Operation"	er vacuum is being main ATE placing a steam bla per 13800, "Main Turbin	ntained, anket on né
В4.	1.3	INITIATE p equalizati Backup Hea	ressurizer and RCS bord on by energizing Pressu ters.	on urizer
B4.	1.4	MAXIMIZE C flowrate.	VCS letdown purificatio	on
В4.	1.5	INITIATE B shutdown b "CVCS Reac	orating the RCS to the oron concentration per tor Makeup Control Syst	cold 13009, cem".
		If applica Acid Injec Inservice	ble, PERFORM 14835, "Bo tion Check Valve Cold S Test" during the borat:	oric Shutdown lon.
В4.	1.6	DIRECT Che Pressurize	mistry to sample the RG r boron concentration.	CS and
Β4.	1.7	If withdra Banks to t	wn, INSERT all Shutdown he fully inserted posit	tion.
B4.	1.8	OPEN the R	eactor Trip breakers.	

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UNIT NO.				INITIALS
B4.1.9	If not curr INITIATE RC by performi	ently in progress, S gaseous activity de, ng the following:	gas	
	a. ENSURE Steam operat the PR Valves open,	that the Pressurizer Space Sample line is ion by verifying that ZR STM SAMPLE IRC/ORC HV-3513/HV-3514 are	in	
	b. NOTIFY pressu flow r	Chemistry to adjust rizer steam space sam ate to maximum,	the ple	
	c. While gas, D VCT ga Gaseou to app HIC-10 Hydrog	maintaining hydrogen EGAS the RCS by raising s purge flow rate to s Waste Processing Sys roximately 1.2 scfm us 94, as limited by the en Recombiners.	cover ng the stem sing	
B4.1.10	When notif: RCS gaseous to an accep cover gas t Hydrogen de Control And	ed by Chemistry that activity has been rec table level, TRANSFER o Nitrogen and INITIA gas per 13007, "VCT G RCS Chemical Addition	the duced VCT TE RCS as n''.	
		NOTE		
	P C C	rior to opening the R(ontainment the hydrogo oncentration shall be han 5 cc/kg.	CS to en less	
B4.1.11	START both Units using FAN HS-2620	Containment Pre-access CTB PREACCESS FLTR UN /2621. day	s Filter NIT-1/2 te/time	
B4.1.12	If it is pl Shutdown, a previous th 'AFW Check	anned to cool down to nd if not performed in ree months, COMPLETE I Valve Shutdown Inserv:	Cold n the 14748, ice	*

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UNIT NO.			*1	INITIAL
B4.2	RCS COOLDO	WN TO 375°F		
B4.2.1	COMMENCE R temperatur intervals computer. 4,4.9,1,4	CS/Pressurizer pressure e trending at 30 minute using Data Sheet 1 and 1 (Technical Specification .4.9.2)	and ERF on	
	Data takin suspended cooldown i to exceed	g and plotting may be during holds in the f the duration is expec- one hour.	ted	
		CAUTION		
		To reduce thermal strat: in the Pressurizer Surge maintain the Delta-T bes the RCS and the Pressur: Steam Space as low as pr The Delta-T of 320°F sho be exceeded.	ification E Line tween izer ractical. puld not	
		NOTE		
		It is recommended that the RCS temperature be maint 100°F ±25°F below Pressus steam space temperature. (See Figure 1.)	the tained trizer	
B4.2.2	COMMENCE t psig at a approximat the follow	he cooldown to 375°F and recommended rate of ely 50°F per hour by per ing:	1 540 forming	
	a. REDUC to two Pump	E the number of operation o per 13003, "Reactor Co Operation",	ng RCPs bolant	
	Pumps runni	4 and 1 are the preferming pumps,	red	
	b. INITI depre the P	ATE Pressurizer cooldown ssurization by <u>slowly</u> op ressurizer Spray Valves,	n and bening	
	If ne Press Contro	cessary, selectively DE- urizer Back-up Heaters H ol Switches to PULL-TO-I	ENERGIZE by placing LOCK,	

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UNIT NO.				INITIAL
		CAUTION		
		RCS temperature and shall be maintained the acceptable opera of Figure 1.	pressure within ting region	
	c. <u>Slow</u> setp Atmo RCS	ly ADJUST the Steam D oint or if applicable spheric Relief Valves cooldown.	ump Controller the to initiate	
B4.2.3	At approx PORV BLOC auto clos	imately 2185 psig, OB K VALVES HV-8000A and e.	SERVE PRZR HV-8000B	
		NOTE		
		Depending on the rate cooldown and depresse Step B4.2.5 may occur Step B4.2.4.	e of RCS urization, r before	
B4.2.4	At approx PERFORM t	imately 550°F RCS temp he following:	perature	
	a. VERI A ST	FY status light LO LO EAM DUMP INTL P12 illu	TAVG TRAIN	
	b. BYPA mome B St Swit posi	SS the LO LO TAVG intential placing the Tream Dump Interlock Second Seco	erlock by rain A and lector TERLOCK	
	If o VERI PV-0 obse	perating on Steam Dump FY Steam Dump Cooldown 507A,B and C are open rving ZLB-2 on QMCB.	ps, then n Valves by	

imon	10000 0	HE FLORENCE	PAGE NO.			
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UNIT NO.	energenere, one out of the	O A LIDY ON		INITIAL		
		Tf the RCS is allowed	to			
		pressurize above P11 and pressure is below 085 Safety Injection and S Line Isolation will oc	nd SG psig, team cur.			
B4.2.5	At approxi Pressurize Safety Inj Steam Line the follow	mately 1970 psig, manuar r Pressure and Steam L ection and Steam Line I Isolation signals by p ing:	ally BLOCK ine Pressure Pressure performing			
	5. It is refue "Remo Switc Surve and 3 subst	is planned to cool dou ling, then PERFORM 147 te Shutdown Panel Trans h And Control Circuit illance Test" Data She B in lieu of the follow eps,	wn for 10, sfer 18 Month ets 3A wing			
	b. VERIF PRZR illum	Y Block Permissive Stat LO PRESS SI BLOCK PERM inates,	tus Light Pll			
	c. BLOCK Safet PRZR Fands	the Low Pressurizer Pr y Injection signal usin PRESS SI BLOCK/RESET A witches HS-40012 and 40	ressure ng and B D013,			
	d. OBSER SI BL	VE Status Lights PRZR 1 OCKED illuminated,	TRAIN A/B			
	e. BLOCK Safet STM P hands	the Low Steam Line Pre y Injection signal usin RESS SI/SLI BLOCK RESE witches HS-40068 and 40	essure ng LOW 1 0069,	ad dente second second second		
	f. OBSFR TRAIN	VE Status Lights STMLIM A/B SI BLOCKED illumin	NE ISO hated.	-		
B4.2.6	CHECK that 20% and 46	Pressurizer level is 1 I.	between			
84.2.7	As RCS pre Letdown Or ADJUST PIC desired le	As RCS pressure lowers, OPEN additional Letdown Orifice Isolation Valves and ADJUST PIC-131 setpoint to maintain desired letdown flowrate.				
B4.2.8	During RCS RCP seal in and 13 gpm Header Flow	depressurization, MAI njection flow rates be by adjusting the Char w Controller HC-0182.	NTAIN all tween 8 ging			

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B4.2.9	At approxima Accumulator	ately 950 psig, ISOLATE ECCS s by performing the following:	
	a. REMOVE Accumu 489V Mo uni	TAG, UNLOCK and CLOSE the lator Discharge Isolation Valve CC Breakers on the applicable	
	UNIT 1 ACCUM-1 ACCUM-1 ACCUM-1 ACCUM-1	1 1ABE-19 2 1BBC-19 3 1ABC-19 4 1BBE-19	
	UNIT 2 ACCUM-1 ACCUM-2 ACCUM-3 ACCUM-4	2ABE-19 2BBC-19 32ABC-19 42BBE-19	
	b. CLOSE t	the Accumulator Isolation Valves	
	ACCUM-1 ACCUM-2 ACCUM-3 ACCUM-4	HV-8808A, HV-8808B, HV-8808C, HV-8808D.	
	c. OPEN, I Dischar Breaker	OCK and TAG the Accumulator ge Isolation Valves 486V MCC is on the applicable unit,	-
	UNIT 1 ACCUM-1	1ABE-19	
	ACCUM-2	2 1BBC-19	ĬV
	ACCUM-3	1ABC-19	īv
	ACCUM-4	1BBE-19	IV
			IV

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UNIT NO.					INITIALS
- 11 J.	UNIT 2				
	ACCUM-1	2ABE-19			
					IV
	ACCUM-2	2BBC-19			
					IV
	ACCUM-3	2ABC-19			-
					IV
	ACCUM-4	2BBE-19			
					IV
	d. OPEN and for the	TAG MCC Rel above MCC br	ay K2 Link eakers.	s	
B4.2.10	When steam pr than 550 psig the Steam Ger by the runnin Section E4.2	ion			
B4.2.11	Either OPERAT to maintain H parameter val Section C to 12002-C, "Uni Temperature a heatup.	TE unit system RCS within the lues or PROCE continue the lt Heatup to and Pressure"	ms as nece e followin ED to eith cooldown Normal Ope to commen	essary er or erating ice a	
	RCS temperatu RCS pressure Pressurizer 1	ire 375°F 540 p Level at pr	±10°F sig ±25 ps ogram leve	ig	
		END OF SECT	ION B		

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	686870N 2		
	SECTION C:	Cooldown to not le	ss than 205°F
		NOTE	
	Tł to wi fo	his section directs coo 225°F or any point be thout crossing the bou or Moda 5.	oldown etween undary
C4.1	PREPARATION	FOR CONTINUING UNIT CO	OOLDOWN.
			INITIALS
C4.1.1	If required and break co SECTION E of	to cooldown secondary ondenser vacuum, then 1 this procedure.	systems INITIATE
		CAUTION	
	Ma ca th	intain pressurizer col libration level greate an 177.	.d er
C4.1.2	If it is pla cold shutdow level to ris during the c than 80% col	nned to cool down to m, then ALLOW pressuri te to approximately 657 cooldown but not greate d calibrate.	zer
		CAUTION	
	To in ma th St Th be	reduce thermal strati the Pressurizer Surge intain the Delta-T bet e RCS and the Pressuri eam Space as low as pr e Delta-T of 320°F sho exceeded.	fication Line ween zer actical. uld not
C4.1.3	COMMENCE RCS	/Pressurizer pressure	and

temperature trending at 30 minutes intervals using Data Sheet 1 and ERF computer. (Technical Specification 4.4.9.1, 4.4.9.2)

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Plotting may be suspended during holds in the cooldown if the duration is expected to exceed one hour.

VEGP 12006-C 15 20 of UNIT NO INIT: C4.2 RGS COOLDOWN TO 225°F. NOTE It is recommended that the RCS tamperature be maintained 100°F #25°F below Pressurizer steam space temperature. (See Figure 1.) C4.2.1 COMMENCE the cooldown to 225°F and 250 psig at a recommended rate of approximately 50°F per hour by performing the following: a. CONTINUE the pressurizer cooldown and depressurizer Spray Valves, If necessary, selectively DE-ENERGIZE Pressurizer Backup Heaters by placing Control Switches to PULL-TO-LOCK, CAUTION RCS temperature and pressure shall be maintained within the acceptable operating region of Figure 1. b. Slowly ADJUST the Steam Dump Controller Setpoint or if applicable the Atmospheric Relief Valves to initiate RCS cooldown. C4.2.2 If it is planned to cool down for refueling, then prior to reaching 350°F, REQUEST confirmation from Engineering/Maintennee that actions have been taken to preclude Reactor Vessel Seismic Tie Rod Binding.	NOCEDORE NO.		REVISION	PAGE NO.	and the second se
 UNIT NO	VEGP	12006-C	15		20 of 4
 UNIT NO					
 C4.2 RCS COOLDOWN TO 225°F. NOTE It is recommended that the RCS tamperature be maintained 100°F ±25°F below Pressurizer steam space temperature. (See Figure 1.) C4.2.1 COMMENCE the cooldown to 225°F and 250 psig at a recommended rate of approximately 50°F per hour by performing the following: a. CONTINUE the pressurizer cooldown and depressurization by <u>slowly</u> opening the Pressurizer Spray Valves, If necessary, selectively DE-ENERGIZE Pressurizer Backup Heaters by placing Control Switches to PULL-TO-LOCK, CAUTION RCS temperature and pressure shall be maintained within the acceptable operating region of Figure 1. b. <u>Slowly</u> ADJUST the Steam Dump Controller Setpoint or if applicable the Atmospheric Relief Valves to initiate RCS cooldown. C4.2.2 If it is planned to cool down for refueling, then prior to reaching 350°F, REQUEST confirmation from Engineering/Maintenance that actions have been taken to preclude Reactor Vessel Seismic Tie Rod Binding. 	UNIT NO.	-		• •	INITIAL
NOTE It is recommended that the RCS tamperature be maintained 100°F ±25°F below Pressurizer steam space temperature. (See Figure 1.) C4.2.1 COMMENCE the cooldown to 225°F and 250 psig at a recommended rate of approximately 50°F per hour by performing the following: a. CONTINUE the pressurizer cooldown and depressurization by slowly opening the Pressurizer Spray Valves, If necessary, selectively DE-ENERGIZE Pressurizer Backup Heaters by placing Control Switches to PULL-TO-LOCK, CAUTION RCS temperature and pressure shall be maintained within the acceptable operating region of Figure 1. b. Slowly ADJUST the Steam Dump Controller Setpoint or if applicable the Atmospheric Relief Valves to initiate RCS cooldown. C4.2.2 If it is planned to cool down for refueling, then prior to reaching 350°F, REQUEST confirmation from Engineering/Maintenance that actions have been taken to preclude Reactor Vessel Seismic Tie Rod Binding.	C4.2	RCS COOLDON	WN TO 225°F.		
It is recommended that the RCS tamperature be maintained 100°F ±25°F below Pressurizer steam space temperature. (See Figure 1.) C4.2.1 COMMENCE the cooldown to 225°F and 250 psig at a recommended rate of approximately 50°F per hour by performing the following: a. CONTINUE the pressurizer cooldown and depressurization by slowly opening the Pressurizer Spray Valves. If necessary, selectively DE-ENERGIZE Pressurizer Backup Heaters by placing Control Switches to PULL-TO-LOCK. CAUTION RCS temperature and pressure shall be maintained within the acceptable operating region of Figure 1. b. Slowly ADJUST the Steam Dump Controller Setpoint or if applicable the Atmospheric Relief Valves to initiate RCS cooldown. C4.2.2 If it is planned to cool down for refueling, then prior to reaching 350°F, REQUEST confirmation from Engineering/Maintenance that actions have been taken to preclude Reactor Vessel Seismic Tie Rod Binding.			NOTE		
 C4.2.1 COMMENCE the cooldown to 225°F and 250 psig at a recommended rate of approximately 50°F per hour by performing the following: a. CONTINUE the pressurizer cooldown and depressurization by slowly opening the Pressurizer Spray Valves, If necessary, selectively DE-ENERGIZE Pressurizer Backup Heaters by placing Control Switches to PULL-TO-LOCK, CAUTION RCS temperature and pressure shall be maintained within the acceptable operating region of Figure 1. b. Slowly ADJUST the Steam Dump Controller Setpoint or if applicable the Atmospheric Relief Valves to initiate RCS cooldown. C4.2.2 If it is planned to cool down for refueling, then prior to reaching 350°F, REQUEST confirmation from Engineering/Maintenance that actions have been taken to preclude Reactor Vessel Seismic Tie Rod Binding.			It is recommended that t RCS temperature be maint 100°F ±25°F below Pressu steam space temperature. (See Figure 1.)	he ained rizer	
 a. CONTINUE the pressurizer cooldown and depressurization by slowly opening the Pressurizer Spray Valves, If necessary, selectively DE-ENERGIZE Pressurizer Backup Heaters by placing Control Switches to PULL-TO-LOCK, CAUTION RCS temperature and pressure shall be maintained within the acceptable operating region of Figure 1. b. <u>Slowly</u> ADJUST the Steam Dump Controller Setpoint or if applicable the Atmospheric Relief Valves to initiate RCS cooldown. C4.2.2 If it is planned to cool down for refueling, then prior to reaching 350°F, REQUEST confirmation from Engineering/Maintenance that actions have been taken to preclude Reactor Vessel Seismic Tie Rod Binding. 	C4.2.1	COMMENCE the psig at a t 50°F per he	he cooldown to 225°F and recommended rate of appr our by performing the fo	250 oximately llowing:	
If necessary, selectively DE-ENERGIZE Pressurizer Backup Heaters by placing Control Switches to PULL-TO-LOCK, CAUTION RCS temperature and pressure shall be maintained within the acceptable operating region of Figure 1. b. <u>Slowly</u> ADJUST the Steam Dump Controller Setpoint or if applicable the Atmospheric Relief Valves to initiate RCS cooldown. C4.2.2 If it is planned to cool down for refueling, then prior to reaching 350°F, REQUEST confirmation from Engineering/Maintenance that actions have been taken to preclude Reactor Vessel Seismic Tie Rod Binding.		a. CONTIL depre the P	NUE the pressurizer cool ssurization by <u>slowly</u> op ressurizer Spray Valves,	down and ening	60 00000 - Jacob Valence
CAUTION RCS temperature and pressure shall be maintained within the acceptable operating region of Figure 1. b. <u>Slowly ADJUST</u> the Steam Dump Controller Setpoint or if applicable the Atmospheric Relief Valves to initiate RCS cooldown. C4.2.2 If it is planned to cool down for refueling, then prior to reaching 350°F, REQUEST confirmation from Engineering/Maintenance that actions have been taken to preclude Reactor Vessel Seismic Tie Rod Binding.		If ne Press placin PULL-	cessary, selectively DE- urizer Backup Heaters by ng Control Switches to TO-LOCK,	ENERGIZE	
RCS temperature and pressure shall be maintained within the acceptable operating region of Figure 1. b. <u>Slowly</u> ADJUST the Steam Dump Controller Setpoint or if applicable the Atmospheric Relief Valves to initiate RCS cooldown. C4.2.2 If it is planned to cool down for refueling, then prior to reaching 350°F, REQUEST confirmation from Engineering/Maintenance that actions have been taken to preclude Reactor Vessel Seismic Tie Rod Binding.			CAUTION		
 b. <u>Slowly</u> ADJUST the Steam Dump Controller Setpoint or if applicable the Atmospheric Relief Valves to initiate RCS cooldown. C4.2.2 If it is planned to cool down for refueling, then prior to reaching 350°F, REQUEST confirmation from Engineering/Maintenance that actions have been taken to preclude Reactor Vessel Seismic Tie Rod Binding. 			RCS temperature and pres shall be maintained with the acceptable operating of Figure 1.	sure in region	
C4.2.2 If it is planned to cool down for refueling, then prior to reaching 350°F, REQUEST confirmation from Engineering/Maintenance that actions have been taken to preclude Reactor Vessel Seismic Tie Rod Binding.		b. <u>Slowl</u> Contr the A initi	y ADJUST the Steam Dump oller Setpoint or if app tmospheric Relief Valves ate RCS cooldown.	licable	
	C4.2.2	lf it is p refueling, 350°F, REQ Engineerin have been Vessel Sei	lanned to cool down for then prior to reaching UEST confirmation from g/Maintenance that actic taken to preclude Reacto smic Tie Rod Binding.	ons or	
C4.2.3 Prior to reaching 350°F, ISOLATE PERMS CVCS Letdown Monitor RE-48000.	C4.2.3	Prior to r CVCS Letdo	eaching 350°F, ISOLATE F wwn Monitor RE-48000.	PERMS	

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C4.2.4	Prior to re Overpressur operation b	eaching 350°F, PLACE th re Protection System (C by performing the follo	e Cold COPS) in wing:	
	a. If not three "PORV Test",	performed in the prev months, PERFORM 14860, Cold Shutdown Inservic	ious e	
	b. ARM th the PR OVERPR HS-800 positi	ne A and B COPS by plac AZR PORV BLOCK VLV COLD ESSURE CNTL handswitch OG and 8000H to the AR on,	ing es M	
	c. VERIFY alarme	the following annunci d upon arming COMS:	ators	
	A COLD FULL O	OP ACTU VLV HV-8000A PEN (ALB12 E06),	NOT	
	B COLD FULL O	OP ACTU VLV HV 8000B PEN (ALB12 F06),	NOT	
	d. ENSURE 1-PV-4 handsw	PRZR PORVs PV-455A an 56A are closed and the itches in AUTO,	d	
	e. ENSURE Valves	OPEN PRZR PORV BLOCK HV-8000A and 8000B,		
		NOTE		
	S S 4	tep f satisfies Techni pecification surveilla .4.9.3.1.c	cal nce	
	f. VERIFY reset:	the following annunci	ators	
	A COLD FULL O	OP ACTU VLV HV-8000A PEN (ALB12 E06),	NOT	
	B COLD FULL O	OP ACTU VLV HV-8000B PEN (ALB12 F06).	NOT	
C4.2.5	At 350°F, L Mode 4 in t	OG time and date of en he Unit Control Log Bo	try into ok.	
		dat	e/time	Report to a sub-state of the sub-

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UNTE NO				2	TNITTALC
UNIT NO.					INTITALD
C4.2.6	Within 4 ho prior to re following:	ours after en aching 325°1	ntering Mode F PERFORM the	4 and	
	a. RACK C Inject applic (Techn	UT and TAG t ion Pump Bre able unit, ical Specifi	both safety eakers on the lcation 4.5.3	3.2)	
	UNIT 1	SI PMP-A	1AA02-16		
		SI PMP-I	3 1BA03-17		
					IA
	UNIT 2	: SI PMP-A	2AA02-16		
					IA
		SI PMP-H	3 2BA03-17		
					IA

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									and we have a second of the second
UNIT NO.								관신는	INITIALS
				*	NOT	E			
			AFWA: Valve Valve activ fill: resul	S sho SG B1 es an es to vitie ing o lting vitie	uld owdo d MD acc s an pera in s.	be wn AFI om d/o tio	defeate Valves, V Pump D nodate M or SG dr ons with pacting	d to Sample ischarge FP aining/ out those	
	Ъ.	At the TAG the applie	e USS he fo cable	S's d ollow s uni	iscr ing t:	et: fui	ion, REM ses on t	OVE and he	
		UNIT	la .	Trai	n A		Aux Rela LACPAR6,	y Panel Fuse FU-2	
									IV
				Trai	n B	- /	Aux Rela BCPAR7,	y Panel Fuse FU-6	
									IV
		UNIT 2	2 1	Trai	n A	- /	Aux Rela ACPAR6,	y Panel Fuse FU-2	
									IV
				Trai	n B		Aux Rela 2BCPAR7,	y Panel Fuse FU-6	
									IV
	с.	PLACE in PUI	star LL-T(ndby 1 D-LOC	MDAF K,	WI	oumps ha	ndswitch	
	d.	If the utilis and 51	e TDA zed, 120.	CLOS	ump E HV	is -51	not bei 22, 512	ng 5, 5127	

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U	NIT NO.		~ 김 영영 가슴 가슴?		INITIALS
C	24.2.7	When the RC psig, and RC 340°F, PLAC operation po Removal Syst	S pressure is less than CS temperature is less t E at least one RHR Train er 13011, "Residual Heat tem".	365 han in	
		a. OFERATI HV-0600 FV-0610 tc_pera flow at 3000 gr	E RHR HX Outlet Valves 6(0607) and Bypass Valve 8(0619) to control RCS ature as necessary and R t a minimum total flow o pm,	s HR f	
		b. If app "ECCS (Inserv:	licable, PERFORM 14896, Check Valve Cold Shutdow ice Test",	n	
		c. ENSURE surveil shift p And Dat	RHR Suction Isolation llance is initiated each per 14000, "Shift ily Surveillance Logs".		
			CAUTION		
		Wi Co Tr st st	hile in Mode 5 with the bolant Loops filled, with rain inoperable, the sec ide water level of at le team Generators shall be reater than 17% WR.	Reactor h 1 RHR ondary ast two	
C	24.2.8	If desired, RCPs to one Pump Operat:	REDUCE the number of opper 13000, "Reactor Coo ion".	erating lant	
		Pump 4 is thensure best	ne preferred running pum spray capability.	p to	
C	24.2.9	When SG pres INITIATE als per 13601, ' Steam System set at 2 to	ssure falls to 25 psig igning Nitrogen to the S "Steam Generator And Main n Operation" with regula 5 psig.	G's n tors	
C	4.2.10	If it is int on the RAT's NOTIFY Main towards back Transformer And Unit Au To The 13.88	tended to perform mainters s during the outage, the tenance to initiate work kfeeding through the Main and UAT's per 13417, "M xiliary Transformer Back kV And 4160V Non-1E Buss	nance n ain feed es".	

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C4.2.11 Either OPERATE unit systems as necessary to maintain RCS within the following parameter values or PROCETD to either Section D to continue the cooldown or 12001-C, "Unit Heatup to Hot Shutdown" to commence a heatup.

CAUTION

Ensure running RCP seal differential pressure is maintained greater than 200 psid.

RCS	temperature	225	F ±10°F	
RCS	pressure	250	psig ±25	psig

END OF SECTION C

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	SECTION D:	Cooldown to Cold S (less than 200°F).	hutdown	
		NOTE		
		This section directs co to Mode 5 and maintains temperature between 130 80°F.	oldown °F and	
D4.1	PREPARATION	N FOR CONTINUING UNIT C	OOLDOWN	
				TNITIALS
D4.1.1	If required and break of Section E of	d to cool down secondar condenser vacuum, then of this procedure.	y systems INITIATE	
		CAUTION		
		To reduce thermal strat in the Pressurizer Surg maintain the Delta-T be the RCS and the Pressur Steam Space as low as p The Delta-T of 320°F sh be exceeded.	ification e Line tween izer ractical. ould not	
D4.1.2	COMMENCE RO temperature intervals u Computer. 4.4.9.1, 4.	CS/Pressurizer pressure trending at 30 minute sing Data Sheet 1 and (Technical Specificati .4.9.2)	and ERF on	
	Plotting ma in the cool expected to	ay be suspended during ldown if the duration i exceed one hour.	holds s	
D4.1.3	ENSURE RHR flow rate g	letdown is in operation greater than or equal to	n with o 75 gpm.	
D4.1.4	lf not prev Fressurizer	viously performed, RAIS c level to approximatle	E y 65%.	*****

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D4.2	RCS COOLDON	N TO BE	TWEEN 130°F a	nd 80°F	
D4,2,1	COMMENCE th of approxim performing	ne coold nately 5 the fol	own at a recc 0°F per hour lowing:	mmended ra by	ite
	a. Slowly HV-060 temper	ADJUST 06(0607) cature,	the RHR Outl to reduce RC	et Valves S	
			CAUTION		
	E D D 2	Ensure r Hifferen Maintain 200 psid	unning RCP se tial pressure ed greater th '	al is an	
	b. MAINTA psig, Pressu	IN Pres ±25 psi irizer B	surizer press g, by selecti ackup Heaters	ure at 250 ve use of	
D4.2.2	At 200°F, L into Mode 5	OG time in the	and date of Unit Control	entry Log Book.	
		*	time	/date	
D4.2.3	RACK OUT an pump breake	nd TAG there are a the the there are a there are a there are a there are a the	he Containmen he applicable	t Spray unit.	
	UNIT 1: C	S PMP-A	1AA02-14		
	C	S PMP-B	1BA03-14		
	UNIT 2: C	S PMP-A	2AA02-14		
	C	S PMP-B	2BA03-14		
D4.2.4	As directed Containment in operatio Purge Syste	by the Pre-acon per 1: m".	USS, PLACE t cess Purge Sy 3125, "Contai	he stem nment	
D4,2.5	To facilita egress, dur Maintenance Personnel L	ing colo to bypa ock Inte	onnel ingress i shutdown, N ass the Conta erlock System	and OTIFY inment	
	If desired Hatch Missi this time,	the Cont le Shiel	tainment Equi ld may be mov	pment ed at	
D4.2.6	NOTIFY Work and initiat Protection	Plannin e mode d Surveil	ng Group to s dependent Fir lances.	chedule e	

-C is intended 17% pressuri ST Engineerin uction Valves lock per 5484 emoval Instru rary Level In he Defeat Of al Suction Va lock". the RCS temper to 180°F and ke the RCS so ressurizer, the ving:	to drain the RC zer level, then g to defeat the Autoclosure 0, "Installation ctions For The I dication Tygon The Residual He lve Auto Closure rature is betwee if it is intend	s to n RCS Tube at e	28 of 45
is intended 172 pressuri ST Engineerin uction Valves lock per 5484 emoval Instru rary Level In he Defeat Of al Suction Va lock". the RCS temper to 180°F and ke the RCS so ressurizer, the ving:	to drain the RC zer level, then g to defeat the Autoclosure 0, "Installation ctions For The I dication Tygon " The Residual He lve Auto Closure rature is betwee if it is intend	s to RCS Tube at e	INITIALS
is intended 17% pressuri ST Engineerin uction Valves lock per 5484 emoval Instru rary Level In he Defeat Of al Suction Va lock". the RCS temper to 180°F and ke the RCS so ressurizer, the ving:	to drain the RC zer level, then g to defeat the Autoclosure 0, "Installation ctions For The I dication Tygon " The Residual Hea lve Auto Closure rature is betwee if it is intend	n RCS Tube at e	INITIALS
is intended 172 pressuri ST Engineerin uction Valves lock per 5484 emoval Instru rary Level In he Defeat Of al Suction Va lock". the RCS temper to 180°F and ke the RCS so ressurizer, the ving:	to drain the RC zer level, then g to defeat the Autoclosure 0, "Installation ctions For The I dication Tygon The Residual Hea lve Auto Closure rature is betwee if it is intend	n RCS Tube at e	
the RCS tempe to 180°F and ke the RCS so ressurizer, the wing:	rature is betwee if it is intend	en	
	hen PERFORM the	aea n	
ENERGIZE all 1 and maintain 1 250 psig ±25 p Pressurizer Sp	Pressurizer Heat RCS pressure at psig by use of pray Valves,	ters	
ENSURE all CVC are in operat:	CS Letdown Orif: ion,	ices	-
	CAUTION		
Expect ra pressure flow grea flow at t solid. I charging flow to p pressure	apid Pressurized rise with charg ater than letdow the point of gos Be prepared to a flow or raise 1 prevent extreme fluctuations.	r ging wn ing reduce letdown	
	NOTE		
During th monitor H and stear If liquid toward R the Press should be	ne filling proce Pressurizer liqu n space temperat d temperature lo CS temperature, surizer fill rat e reduced.	ess, uid ture. owers then te	
CAISE Pressure charging flow RHR letdown f	izer level by ra rate and/or low low -e at a ma of 30 spm,	aising wering aximum	
	toward R(the Press should be RAISE Pressure charging flow RHR letdown fl filling rate o	toward RCS temperature, the Pressurizer fill rat should be reduced. RAISE Pressurizer level by ra charging flow rate and/or low RHR letdown flow te at a ma filling rate of 30 spm,	toward RCS temperature, then the Pressurizer fill rate should be reduced. RAISE Pressurizer level by raising charging flow rate and/or lowering RHR letdown flow the at a maximum filling rate of 30 gpm,

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	d LTh	on the processi	nor in coli		
	d. wh in if fl	dicated by risi PIC+131 is in ow rate, then P	ng RCS pres AUTO rising PERFORM the	sure or letdown following:	
	(1) BALANCE char flow rates u PIC-131 to m at 250 psig	ging and le sing HV-012 maintain RCS ±25 psig,	tdown 8 and/or pressure	
		NO	TE		
		Charging flo than letdown coolant cont cooldown.	w may remai flow as a raction dur	n greater result of ing the	
	(2	Charging/RHR should be ad letdown puri maintained g to 75 gpm,	letdown fl justed so t fication fl reater than	ow rate hat RHR ow is or equal	
	e. COl se He spi	NTINUE the Pres lectively de-en aters while mai ray.	surizer coo ergizing Pr ntaining Pr	ldown by essurizer essurizer	
D4.2.9	When the 140°F, 1	e RCS temperatu PERFORM the fol	re is less lowing:	than	
	a. If Ban	withdrawn, INS nks to the full	ERT all Shu y inserted	tdown position,	
	b. OPI	EN the Reactor	Trip Breake	rs,	
	c. ST(th	OP the CRDM Coo e following han	ling Fans u dswitches:	sing	
	CRI CRI CRI CRI	DM UNIT - FAN 1 DM UNIT - FAN 2 DM UNIT - FAN 3 DM UNIT - FAN 4	HS-12273 HS-12274 HS-12275 HS-12276	A, A, A, A.	
	d. If shu the as per Ste	it is intended atdown for grea en PLACE the SG specified by C r 13601, "Steam eam System Oper	to remain ter than 4 's in wet 1 'hemistry De Generator 'ation''.	in cold days, ayup partment and Main	

COR.

UNIT NO.				INITIALS
		NOTE		
		The RCP(s) shall be run one or more hours after the desired RCS temperat plateau to enhance SG an temperature equalization	for reaching ture nd RCS n.	
D4.2.10	When RCS t the remain 13003, "Re	emperature is less than ing RCPs may be stopped actor Coolant Pump Opera	110°F, per ation".	
D4.2.11	CONTINUE t opening Pr Valve HV-8	he Pressurizer cooldown essurizer Auxiliary Spra 145.	by iy	
	a. INITI surve Condi (Tech	ATE AUX SPRAY/PRZR DELTA illance per 14915, "Spec tions Surveillance Logs" nical Specification 4.4.	-T ial 9.2),	
	b. If provide the second secon	essurizer auxiliary spra delta-T exceeds 320°F, he spray valve operation nit Control Log and NOTI ical Support to log the 3101-C, "Component Cycli ient Limits",	then in FY cycle c or	
	c. CLOSE Valve	the open Charging Isola HV-8146 or HV-8147,	tion	
	d. Contin Press until tempe	nue CHARGING through the urizer cuxiliary spray 1 pressurizer steam space rature is less than 190°	ine F.	
D4.2.12	MAINTAIN RO and 80°F us HV-0606(060	CS temperature between l sing RHR HX Outlet Valve 07).	30°F s	
	NOTIFY Tech unit coold Cyclic or 1	hnical Support to log th own per 83101-C, "Compon Fransient Limits",	e ent	

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UNIT NO.					INITIAL
			- CAUTION		
		Ens	sure all RCP's	are shutdown.	
D4,2.13	If it then H	is desi PERFORM	ired to depress the following:	urize the RCS	
	a. 1 6 1	INITIATE atmosphe on PI-40 letdown	E Lowering RCS eric (50 psig a 08, 418, 428 or pressure contr	pressure to s indicated 438) using ol PIC-131,	
	b. V 2 1	When RCS (150 psi 418, 428 Leakoff 3, C, D,	5 pressure reac ig as indicated 3, 438), CLOSE Isolation valv	hes 100 psig on PI-408, all RCP Seal es HV-8141A,	
	c. F	ENSURE H maintair	PRT nitrogen pr ned greater tha	essure is n 0.5 psig.	
			NOTE		
		SI Val ina the dep dra	Pmp Cold Leg I lves are closed advertent drain e RCS while the pressurized and ained.	solation to preclude ing of RWST to RCS is partially	D
D4.2.14	ISOLA perfor	TE the S rming th	Safety Injectio he following:	on Cold legs by	у
	a. (CLOSE S HV-8821/	I PMP-A TO COLD A,	LEG ISO VLV	
	b. (CLOSE S HV-88211	I PMP-B TO COLD B,	LEG ISO VLV	
	с.	OPEN an Leg Iso on the	d TAG the follo lation Valves M applicable unit	wing SI Cold MCC breakers	
		UNIT 1:	1-HV-8821A	1ABD-15	
			1-HV-8821B	1BBD-15	or being standing at the second
		UNIT 2:	2-HV-8821A	2ABD-15	
			2-HV-8821B	2BBD-15	
	d.	OPEN an for the	d TAG MCC Relay above MCC brea	y K2 Links akers.	

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UNIT NO.	C. Martine C		- INITIAL
		CAUTION	
	P t h a t	rior to opening any po he RCS to the atmosphe ydrogen concentration ffected portion must b o less than 5cc/kg.	rtion of re, the in the e reduced
D4.2.15	When requir performing	ed, INITIATF RCS drain the following:	ing by
	a. If it perfor SG's o RCS le into e	is intended to drain d m maintenance on React r RCP seals, then the vel controls shall be ffect:	own to or Head, following placed
	(1) D C a b o t t t V	ETERMINE closure statu ontainment Equipment H nd ENSURE hatch is cap eing closed within 57 r ENSURE hatch is clos o reducing RCS level b hree feet below the Re essel Flange (191 ft.	s of atch able of minutes ed prior elow actor el.),
	(2) A P P s d b a	review of all Contain enetrations addressed 4210, "Containment Bui enetrations - Refuelin hould be accomplished etermine those which h een opened by manual m nd an info LCO generat hose identified.	ment in lding g" to ave eans ed for
	(3) I i o a t p	f SG Nozzle Dams are t nstalled and no cold l pening is to be establ vent path is required he Reactor Vessel uppe lenum.	o be eg ished, from r
	T b	his vent path can be s y:	atisfied
	(a) Removing a pressur manway, or	izer
	(b) Removing a Steam G manway on a hot le will not be dammed	enerator g that , or
	(c) Removing three pre	ssurizer

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UNIT NO.			INITIAL
	(4)	If SG Nozzle Dams are to be installed and a cold leg opening is to be established, a vent path is required from the Reactor Vessel Upper Plenum by removing an SG manway on an HL that will not be dammed.	
	(5)	If it is intended to operate at one foot above mid-nozzle level, the preferred RHR configuration is one train operating with a flow of 3000 gpm,	
	(6)	If it is intended to operate below 191 ft. el., then:	
		(a) A minimum of two incore thermocouples shall be available during periods where the Reactor Head is installed,	
		(b) REQUEST I&C reset the designated ERF incore thermocouples alarm setpoint to alarm at 10°F above desired temperature per 00410-C, "Computer Software Control".	
	(7)	I&C should be notified to install temporary remote RCS level monitoring in the Control Room,	
	(8)	Tygon tube watch is required any time the RCS level is being changed while the RCS level is below 17% (approximately 207 feet elevation) pressurizer level,	
	(9)	Periodic comparison checks should be made every 4 hours between the Control Room Temporary RCS Level Monitors and the Tygon tube,	
	(10)	The Control Room Monitors should agree within 7 percent of scale with the Tygon tube.	

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UNIT NO.			INITIAL
	(11)	Two out of three Level Monitor must agree before draining R below the top of the hot leg (188 feet 3 inches),	ors CS
	(12)	If neither Control Room RCS Level Monitor is available, then a continuous Tygon tube watch should be established while RCS level is below 17% pressurizer level,	
	(13)	While operating with SG Nozz Dams installed, ENSURE one Safety Injection Pump is capa of being racked in and operat in the hot leg injection mode needed,	le able ted e if
	(14)	While level is in the region the hot legs, TREND RHR Pump parameters on ERF for early detection of possible RHR Pur degradation due to vortexing	of np
	(15)	Minimum RCS level is one foot above mid-nozzle (188 feet 0 inches elevation) except for Steam Generator burping durin initial drain down. For effective SG tube draining, H level should be lowered to 187 feet 6 inches. Upon completion of SG burping, RAI RCS level to 188 feet - 0 inc and MAINTAIN at this level thereafter,	r ng RCS ISE ches
	(16)	A minimum of 4 Containment Cooling Units will be operable and capable of being started required while RCS level is below 191 feet elevation.	le if

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UNIT NO.	And the second second second				INITIALS
			NOTE		
		Dose Equ De below Co-58 be to openi containm	ivalent Iodine a 0.1 uCi/gm, Xe- low 0.05 uCi/gm ng the RCS to the ent atmosphere.	should -133 and prior he	
	b. OBTAIN RCS ch drainn	N Chemis nemistry ing the	try concurrence is appropriate RCS.	that for	
	c. INITIA "React	ATE drait for Cool	ning the RCS per ant System Drain	r 13005, ning".	
D4.2.16	If it is in than 25% co then prior potential co the followi	ntended old cali to reac dilution ing:	to drain the RCS brate pressurize hing 25% ISOLATH flow paths by p	S to less er level, S performing	
	a. CLOSE, valves	LOCK and on the	nd TAG the follo applicable unit	owing ::	
	(1) t	JNIT 1:	CVCS ISOLATION RMW TO BA BLEN 1-1208-U4-175	₹ 1D,	
			CVCS ISOLATION RMW TO CVCS, 1-1208-U4-177	1	
	(2) U	NIT 2:	CVCS ISOLATION RMW TO CVCS, 2-1208-U4-177	ł	
			CVCS ISOLATION RMW TO BA BLEN 2-1208-U4-175	ID,	
	b. ENSURE follow unit:	CLOSED	, LOCKED and TAC ves on the appli	GED the cable	
	(1) U	INIT 1:	CVCS OUTLET CH MIXING TK, 1-1208-U4-181	IEM	
			CVCS SUPPLY RM TO CHEM MIXING 1-1208-U4-176	W , TK,	
			CVCS FLUSH RMW TO TRN A EMERC BORATION, 1-1208-U4-183		
			RMWST TO BTRS 1-1208-U6-226	ISO,	

UNIT NO.	(2)	UNIT 2:	CVCS SUPPLY RMW TO CHEM MIXING T 2-1208-U4-176	<u>INITIAL</u> K,
UNIT NO.	(2)	UNIT 2:	CVCS SUPPLY RMW TO CHEM MIXING T 2-1208-U4-176	<u>initial</u> K,
	(2)	UNIT 2:-	CVCS SUPPLY RMW TO CHEM MIXING T 2-1208-U4-176	К,
				Residence of the second s
			CVCS OUTLET CHEM MIXING TK, 2-1208-U4-181	
			CVCS FLUSH RMW TO TI `A EMERG BORATION, 2-1208-U4-183	
			RMWST TO BTRS IS 2-1108-06-226	0,
	c. Whe per	n necessar forming th	y, makeup to the V e following:	CT by
	(1)	OPEN RWS Valves L	T TO CCP A & B SUC V-0112D and LV-011	TION 2E,
	(2)	CLOSE VC LV-0112B	T OUTLET ISULATION and LV-0112C,	ς,
	(3)	ENSURE L Tank Val VCT posi	etdown to VCT or H ve LV-0112A is in tion,	old-up the
	(4)	When VCT to norma LV-0112C and LV-0	level has been re 1, OPEN LV-0112B and then CLOSE LV-011 112E.	turned nd 2D
D4.2.17	OPERATE maintain	unit syste the above	ms as necessary to conditions.	
	a. If vac E,	required t uum, then	o break condenser PROCEED to Section	
	b. If Mod "Re	it is inte e 6, then fueling En	nded to proceed to GO to 12007-C, try",	
	c. If hea Hea	it is inte t up, then tup to Hot	nded to commence u GO to 12001-C, "U Shutdown".	nit

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UNIT NO.			-
	SECTION E.	Secondary Plant Shu	tdown
		NOTE	
	T P s c	his section directs sec lant activities during hutdown and can be used onjunction with primary ooldown operations.	ondary unit in system
	T	he subsections of this	section are:
	E4.1 T: A	ransfer From Steam Dump tmospheric Relief valve	s to s.
	E4.2 F	eeding Steam Generators ondensate Pump.	With
	E4.3 B	reaking Condenser Vacuu	m .
	E4.4 S	econdary Systems activi	ties.
E4.1	TRANSFER FRO RELIEF VALVI	OM STEAM DUMPS TO ATMOSI ES	PHERIC
			INITIALS
E4.1.1	TRANSFER to by performin	the SG Atmospheric Rel: ng the following:	ief Valves
	a. <u>Slowly</u> relief steam o UI-507	OPEN each atmospheric while verifying a reduc dump demand signal on ,	ced
	b. VERIFY Control is in A in MAN Steam I while o relief	that the Steam Dump 1 Valves close if PIC-50 AUTO or if operating UAL, <u>slowly</u> CLOSE the Dump Control Valves opening each atmospheric ,	07 c
	c. When a Values	11 Steam Dump Control	

d. BALANCE the positions of each atmospheric relief while maintaining Tavg as desired.

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UNIT NO.					INITIALS
E4.2	FEED PUMP	ING STE	AM GENERATORS WITH	CONDENSAT	E
E4.2.1	At t feed runn the	he USS' ing Ste ing Con followi	s discretion, INIT am Generators with densate Pump by pe ng:	TIATE the erforming	
	a.	VERIFY 550 ps	SG pressure is le ig,	ess than	
	b	VERIFY the re Fearin indica	that lube oil preset MFP and MFP Tugs is 10 to 12 psitions,	essure to urbine .g by local	
	с.	OPEN t by pla OPEN-P Contro	he reset MFP Disch cing the Control S ULL-TO-LOCK at the l Panel QMCB:	arge Valve Witch in Main	
		SGFP A	HS-5208,		
		SGFP B	HS-5209.		
	d.	If not both t	previously perfor rains of Feedwater	med, RESET Isolation	.:
		(1) H	S-40049 for Train	Α,	
		(2) H	S-40050 for Train	В.	24-34 <u>-662-668</u>
	е.	OPEN a	ll BFIV's,		
	f.	CONTIN level	UE maintaining des utilizing the BFRV	ired SG	

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UNIT NO.			**	INITIALS
E4.3	BREAKING C	ONDENSER VACUUM		
E4.3.1	If necessa Steam Syst alternate 13761, "Au			
E4.3.2	TRANSFER t to the Aux "Turbine S			
E4.3.3	TRANSFER t Auxiliary "Condenser	he SJAE steam supply Steam Supply per 136 Air Ejection System	to the 20, ".	
E4.3.4	CLOSE the 1	MSIVs and Bypasses.		
		CAUTION		
		Breaking condenser v will result in a MFP Vac Trip. If AFWAS been defeated, then MFPs tripped will re a AFWAS initiation.	acuum T Low has not both sult in	
E4.3.5	PLACE the Handswitch	standby MDAFW Pump(s es in PULL-TO-LOCK.)	
E4.3.6	BREAK cond the Steam Condenser "Condenser	enser vacuum and SHU Jet Air Ejectors and Vacuum Pumps per 136 Air Ejection System	T DOWN the 20,	
E4.3.7	PERFORM the AFWAS sign	e following to reset al:	the	
	a. RESET MFPT 1 moment VAC TI RESET TRIP 1 RESET	the AFWAS by resett Low Vacuum Trip by tarily placing the M RIP BYPASS Handswitch position and MFPT A RESET HS-3169 (3170) position,	ing one FPT-A(B) h to (B) to the	
	b. If run THROT Valves flow t	nning a MDAFW Pump, TLE the AFW Flow Con s to the pre-initiat rate,	then trol ion	

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UNIT NO.				INITIALS
	c. If ap Blowd HV-76	oplicable, ENSURE the S down Isolation Valves 603A(B,C,D) open.	G	
E4.3.8	After the atmospheri Seal Syste Seal Syste			
E4.3.9	MAINTAIN t Turning Ge Operation" Feedwater	the main Turbine and MF ear per 13800, "Main Tu ' and 13615, "Condensat Systems".	PTs on Trbine e and	
E4.4	SECONDARY	SYSTEM ACTIVITIES		
E4.4.1	If condens not antici and feedwa than 200°F Feedwater And Feedwa	ate and feedwater clea pated, then when conde ter metal temperatures ', SHUT DOWN the Conden System per 13615, Cond ter Systems".	nup is nsate are less sate and ensate	
E4.4.2	NOTIFY Che Condensate per 13616, Deminerali			
E4.4.3	If the sec exceed 10 following:	ondary outage is plann days, then PERFORM the	ed to	
	a. When tempe 200°F PLACE layup	condensate and feedwat rature is between 90°F , COORDINATE with Chem the Feedwater Heaters	er metal 'and istry and in wet	
	b. When reach Turni Turbi	Turbine metal temperat ambient, REMOVE Turbi ng Gear per 13800, "Ma ne Operation",	ures ne from in	
	c. Durin PLACE for 4	ng the unit outage, ond the Turbine on Turnin to 6 hours.	e a week, g Gear	

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UNIT NO.						INITIALS
E4.4.4	If re on the Turbin	quired, I e MSRs pe ne Operat	PLACE a s er 13800, tion".	team blank ''Main	et	
E4.4.5	If re Circu SHUT per 1	quired, f lating Wa DOWN the 3724, "Ci	for Conden ater Syste Circulat Irculating	nser Water em mainten ing Water g Water Sy	box or ance, System stem".	
	If rec inspe of the 13724	quired fo ction, the Condens , "Circul	or mainten nen INITI ser Water lating Wat	nance or ATE draini boxes per ter System	ng '',	
E4.4.6	If ma: inspec purgin 13810	in genera ction is ng the ma , "Genera	itor main planned, in genera itor Gas S	tenance or then INIT ator per System".	IATE	
	If hydrony during hydrony than	drogen at ained, th g the out gen press 5 psig.	mosphere nen MINIM age by ro sure to no	is to be IZE usage educing ot less		
E4.4.7	SHUT I System	DOWN the n by peri	Isophase forming th	Bus Duct ne followi	Cooling ng:	
	а.	At 480V A Isophase on the ap	AC SWGR NI Bus Duct plicable	BO3, OPEN Heater Br unit:	eaker	
	1	JNIT 1:	1NB03-10	6,		
		JNIT 2:	2NB03-16	5.		
	b. /	At local running f Fan No. 1 Fan No. 2	Panel PL(an using and/or H	CB, STOP t HS-16550 HS-16551 f	he for or	
Completed		Signatu	ire	Da	te/Time	- 15
Reviewed		Signatu	ire	Da	te/Time	
Comments						

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5.1.3	12001-C,	"Unit Heatup To Hot Shutdown"
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5.1.5	12003-C,	"Reactor Startup"
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UNIT NO.				-DA	TE	1 1
	RCS/P	RZR TEMP	FRATURE AN	D PPECCII	DF	
		AVER A AMA AA	DIALOND AN	D TRESSU	KL.	
	Lowest	DAT	A SHEET 1			
	Channel of					
	TI-0423B					
	TI-0433B	DD 7 D	TEMP	PI-438	LR or	DD2D /DCC
TIME	RCS TEMP	TI-0454	TI-0453	PRZR P	RESS	DELTA T
				ten alle alle conservation d'annual formation		
an all the same of the second sector and	and the second statistics of the second states					
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and which it is a set of the second set of the	and the second se					
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Comments					-	
			name wanted and a state of the			