LICENSEE POST-EXAM COMMENTS

ST. LUCIE EXAM 2000-301 50-335/2000-301 & 50-389/2000-301

FEBRUARY 7 - 11, 2000

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Florida Power & Light Company, 6351 S. Ocean Drive, Jensen Beach, FL 34957



February 17, 2000

L-2000-044 10 CFR 55.5

Regional Administrator, Region II U. S. Nuclear Regulatory Commission Attn: Mr. Harold O. Christensen Chief, Operator Licensing and Human Performance Branch Atlanta, GA 30303

Re: St. Lucie Units 1 and 2 Docket Nos. 50-335 and 50-389 Operator License Examination Comments February 2000

During the week of February 7, 2000, the NRC administered Reactor Operator (RO) and Senior Reactor Operator (SRO) Examinations at St. Lucie Plant. An analysis was performed after administration of the written portion of the examinations; the attached comments on the RO/SRO written examinations are submitted for consideration by the NRC. These comments affect questions 30 and 45 on the RO examination and questions 31, 43, and 47 on the SRO examination. Questions 31 and 47 on the SRO examination are the same as questions 30 and 45 on the RO examination are the same as questions 30 and 45 on the RO examination.

Please contact Doug Lauterbur at (561) 467-7107 with any questions regarding this matter.

Very truly yours,

Pajus. Undalle

Rajiv S. Kundalkar Vice President St. Lucie Plant

RSK/spt

Attachments



St. Lucie Plant post written examination comments. Examination administered 2/10/00

SRO Question 31, RO Question 30

Operators have implemented 1-EOP-03 'Loss of Coolant Accident' with the following conditions:

- RCS pressure: 440 psia lowering
- Pressurizer level: 12% rising
- Core exit CET's: 398 °F
- Containment pressure: 1.5 psig slowly going down
- Containment Temperature: 110 °F and lowering

Which of the following describes the correct Operator response?

- A. Restart RCP's.
- B. Throttle HPSI pumps.
- C. Terminate Containment Spray.
- D. Isolate the Safety Injection Tanks.

Comment:

Stem of question never states Containment Spray initially actuated. To answer question correctly (terminate containment spray, choice C) you had to assume it has actuated. The stem states the operators have implemented EOP-03 LOCA, but this could be a small break, in which Containment Spray may not actuate.

Recommendation:

Retain question and add to stem of question 'all ESFAS signals have actuated'

NOTE: No candidate missed this question, but numerous questions during exam resulted in Proctor writing on board 'SIAS, CIAS and CSAS' has actuated.

SRO only Question 43

Unit 1 is experiencing a dual event with the following conditions:

- All Charging Pumps are inoperable
- RCS Temperature: 520 °F
- RCS Pressure: 980 psia
- Pressurizer Level: 25%
- Safety Injection flow: meeting Figure 2
- Both S/G's are at 40% Wide Range Level and are steaming and feeding

Which of the following Success Paths will be implemented to meet the RCS Pressure Control Safety Function in accordance with 1-EOP-15 'Functional Recovery?'

- A. Heaters and Spray
- B. Safety Injection
- C. Steam Generator Heat Removal
- D. PORVs

Comment:

Correct answer should be 'B'. Steam Generator Heat removal is used to control a high pressure condition only. The subcooling of the RCS is 20-200°F so there is no high pressure condition. Additionally, two RCP's may be operating, enabling the use of the main spray valves for pressure control. Although all charging pumps are inoperable, the safety function acceptance criteria states 'all available' operating. Considering none are available, this portion of the safety function is met.

Recommendation:

Current answer states 'C' Steam Generator Heat Removal. Change key to 'B' Safety Injection

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REVIS		10.: 8	PROCEDURE TITLE: FU	NCTIONAL	_ REC	OVERY	PAGE 7	: 9 of 265
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		INST	RUCTIONS				GENCY DNS	
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	2.	ENSUF are OF Pressur (mainta cooling depress	E Pressurizer he F and ALLOW rizer level to lowe ining 10% to 70% down to aid in th surization.	aters er 6) while 1e				
*	3.	<u>If</u> no Re VERIFY in at lea the follo A. Loo T-co pow	CPs are running, γ natural circulation ast one loop by μ pwing: p ΔT (T-hot minu- pld) is less than for per ΔT (50°F).	Then on flow ILL of s	3.	<u>If</u> natural circu observed, <u>The</u> proper control and steaming inventory and	ulation flow is <u>en</u> ENSURE I of S/G feedin , and RCS pressure.	NOT
		B. T-co deci	old constant or reasing.					
		C. T-ho dec	ot constant or reasing.					
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SRO QUES 43

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		APF	
		SAFETY FUNCTION RCS PRESSURE C	STATUS CHECK SHEET ONTROL - SECTION 5.5
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4.	STEAM GE HEAT REM	NERATOR OVAL	SUCCESS PATH IN SERVICE
	Pressurizer Pressure	Being maintained or restored within limits of Figure 1, "RCS Pressure Tempe curve.	rature"
5.	PORV'S		SUCCESS PATH IN SERVICE
	Pressurizer Pressure	Less than 2340 psia and constar or decreasing.	ot AND
		Being maintained <u>or</u> restored within limits of Figure 1, "RCS Pressure Tempe curve.	rature"

SRO Question 47, RO Question 45

Unit 1 has shut down the plant due to a Steam Generator tube leak on the 1B S/G. ONP 1-0830030 'Steam Generator Tube Leak' is being implemented. Given the following conditions:

- One RCP in each loop is stopped
- RCS pressure: 2230 psia
- Tave: 530 ° F

Which of the following statements explains why one RCP in each loop was stopped?

- A. To prevent fuel uplift.
- B. To reduce heat input into the RCS.
- C. To allow a greater cooldown rate.
- D. To minimize leak flow into the affected S/G.

Comment:

Question asked why two RCP's are tripped during implementation of Steam Generator Tube leak Off-Normal. Off-Normal procedure 1-0830030 'Steam Generator Tube Leak' has been revised. No RCP's are tripped in the new revision of the procedure.

Recommendation:

Current answer states 'B' To reduce heat input into the RCS. Because the current procedure does not direct tripping any RCP, recommend delete Question.



ST. LUCIE UNIT 1 OFF-NORMAL OPERATING PROCEDURE

Procedure No. 1-0830030

Current Rev. No. **18A**

SAFETY RELATED

Effective Date: 02/08/00

Title:

STEAM GENERATOR TUBE LEAK

Responsible Department:

OPERATIONS

Revision Summary

Revision 18A - Minor change to correct step number references. (J. Napier, 02/07/00)

Revision 18 - Isolated Nitrogen flow to the Condenser during SGTL conditions and deleted RCP "Trip 2/Leave 2" instruction in Step 2.T.1 and 3.N. (Ron Pennenga, 11/04/99)

Revision 17B - Changed OP 1-0110056 to 1-NOP-100.04. (C. Simpkins, 10/25/99)

Revision 17A - Corrected step references. (Art Singer, 08/23/99)

Revision 17 - Provide additional guidance for estimating primary to secondary leakage based on Daily Chemistry Summary Report. (Steve Willett, 2/19/99)

Revision	FRG Review Date	Approved By	Approval Date	S <u>1</u> OPS
0	12/23/85	D. A. Sager Plant General Manager	12/23/85	DATE DOCT_ <u>PROCEDURE</u> DOCN_1-0830030
Revision	FRG Review Date	Approved By	Approval Date	SYS COMP_COMPLETED
<u>18A</u>	11/04/99	R. G. West Plant General Manager	11/04/99	ITM <u>18A</u>
		<u>A. Scales</u> Designated Approver	02/07/00	

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	18A			STEAM GENERATOR TUBE LEAK				
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1.0	TITI	<u>E</u> :						
	STE	AM	GEN	NERATOR TUBE LEAK				
2.0	PUF	RPO	<u>SE:</u>					
	This a st Safe	e pro eam ety ir	cedu gen nject	ure provides operator actions to be accomplished in the erator tube leak less than the capacity of the charging ions would NOT be actuated during this condition.	e event of pumps.			
3.0	REF	ERE	ENC	<u>ES</u> :				
	1.	On	e or	more of the following symbols may be used in this pro-	ocedure.			
		A.	§	indicates a Regulatory commitment made by technica specifications, condition of license, audit, LER, bulleti should NOT be revised without Facility Review Group	al n, etc. and o approval.			
		B.	¶	indicates a management directive, vendor recommen plant practice or other non-regulatory commitment tha NOT be revised without consultation with the plant st	dation, at should aff.			
		C.	Ψ	indicates a step that requires a sign off on a data she	eet.			
	2.	St.	Luci	ie Unit 1 UFSAR, Section 10.4.2 and 15.				
	3.	NO	P 1-	1-0030125, "Turbine Shutdown, Full Load to Zero Load."				
	4. NC		NOP 1-0030128, "Reactor Shutdown."					
	5. NOP 1-0030127, "Reactor Plant Cooldown - Hot Standby To Shutdown."				Cold			
	6.	OP Coo	1-00 plant	010125A, "Surveillance Data Sheets," Data Sheet 1 (F t System Water Inventory Balance).	leactor			
	7.	Eba	asco	P&ID 8770-G-080 Sheet 3 of 4.				
	8.	Eba	8. Ebasco P&ID 8770-G-079 Sheet 1 of 6 and Sheet 5 of 6					

18A STEAM GENERATOR TUBE LEAK 3 of 40 Deceptione No:: 3 of 40 1-0830030 ST.LUCIE UNIT 1 0 REFERENCES: (continued) 10. EPRI TR-104788, PWR Primary-To-Secondary Leak Guidelines 11. COP-06.05, High Activity in a Steam Generator 12. COP-07.05, Process Monitor Setpoints 0 RECORDS REQUIRED: 1. Normal log entries. 0 ENTRY CONDITIONS: Plant conditions indicate that a steam generator tube leak has occurred. Any one or more of the following symptoms may be present: 1. Condenser air ejector radiation monitor alarm or increasing trend. 2. Steam generator blowdown radiation monitor alarm or increasing trend. 3. Main steamline radiation monitor alarm or increasing trend. 4. High activity in steam generator level. 5. Increasing steam generator level. 6. Steam generator blowdown and sample valves closed due to high radiation. 7. Charging flow versus letdown plus RCP controlled bleedoff flow mismatch.	REVIS	ION NC).:	PROCEDURE TITLE:	PAGE						
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1-0830030	ST. LUCIE UNIT 1							
6.0 <u>EXIT CO</u>	NDITIONS:							
1. Any Low NOT	 Any of the Safety Function Status Check Acceptance Criteria Low Mode Off-Normal Procedure for the current plant condition NOT met. 							
	OR							
2. Leal	Leakage is in excess of charging pump capacity.							
	OR							
3. The	affected steam generator has been isolated.							
	OR							
4. Prim	ary to secondary leakage is less than or equal to 30 gpd.							

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	1-0830030 ST. LUCIE UNIT 1								
7.0 <u>OPE</u>	ERATU	R ACTIONS:							
7.1	Imme	diate Operator Actions:							
	1. N	lone							
7.2	Subse	equent Operator Actions:							
	INS	STRUCTIONS	CONTINGENCY ACTIONS	,					
1.	<u>lf</u> in M 6 and <u>Then</u>	Aode 3 through Mode SIAS is blocked, go to step 7.2.3.							
2.	<u>lf</u> in M 3 (SIA <u>Then</u> :	Node 1 through Mode AS NOT Blocked),							
	A. <u>If</u> le ca pi le m	at any time RCS eakage exceeds the apacity of the charging umps and pressurizer evel cannot be laintained, <u>Then</u> :							
	1.	<u>If</u> in Modes 1 and 2, <u>Then</u> trip the reactor and turbine and implement 1-EOP-01, "Standard Post Trip Actions."							
	2.	<u>If</u> in Mode 3 (SIAS NOT Blocked), <u>Then</u> implement 1-EOP-04, "Steam Generator Tube Rupture."							

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1-08	830030	ST		1	
7.0 <u>C</u>	OPERA	TOR ACTIONS: (continue	ed)	<u> </u>	_1
7	7.2 (cc	ontinued)	,		
	I	NSTRUCTIONS		CONTINGENCY ACTIONS	r
2	2. (cc	ontinued)	2. (cc	ontinued)	
	effecte exposu plannin should briefing conditio	d S/G will minimize secon ire. Even before confirma ig and preparation for unit commence, by performing is, and ensuring resources ons.	dary contamin tion of a tube shutdown an g notifications s are available	nation and radiation leak has been estand mitigating the affe , procedure reviews e to tend to the unit	blished, ects , crew
_	B.	Ensure sufficient charging pumps are operating and maintaining pressurizer level.	В.	If pressurizer level being maintained, isolate letdown to a maintaining pressu	is NOT <u>Then</u> assist in rizer level.
	C.	Ensure steam generator blowdown and sample valves from the affected steam generator have closed on high radiation.	C.	Manually close the blowdown and sam from the affected si generator.	S/G ple valves team
	D.	Notify Health Physics of present plant conditions and to conduct secondary area radiation surveys.			
	E.	CLOSE V29372, N2 Gas to Cndsr Hotwell Isol, to isolate Nitrogen to the Condenser.	;		/R18

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	18A	١	STEAM GENER	RATOR T	UBE LEAK		
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1-	0830	030	ST III		- 1		
7.0	OPE	RATO	R ACTIONS: (continued)				
	7.2	(conti	nued)				
		INS	STRUCTIONS		CONTINGE ACTION	INCY IS	
	2.	(conti	nued)	2. (c	continued)		
		G. <u>If</u> s c p 1	 Air Ejector monitor hows step rise or ontinuous rise, <u>Then</u> erform the following: DIRECT Chemistry to implement COP-06.05, High Activity in a Steam Generator. ESTIMATE primary to secondary leakage by comparing Air 	G			
			Ejector monitor reading with Daily Chemistry Report.	<u>IOTE</u>			
					////		
		3.	VERIFY estimated primary to secondary leakage is less than 150 gpd in any one		3. GO TO St	ep 7.2.2.O.	/R18

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18A	STEAM GENE	ERATOR TUBE LEAK					
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1 000000	o .						
1-0830030	SI.L	UCIE UNIT 1					
7.0 OPERATO	RACTIONS: (continued	d)					
7.2 (conti	nued)						
INS	STRUCTIONS	CONTINGENCY ACTIONS	,				
2. (conti	nued)	2. (continued)					
G. (0	continued)	G. (continued)					
The follow the leak. Example:	<u>NOTE</u> The following step is used to estimate the rate of change (acceleration) of the leak. Example: Initially estimated leak rate is 40 gpd. 10 minutes later estimated leak rate is 50 gpd. 50 gpd - 40 gpd = 10 gpd increase in 10 minutes, which is an acceleration of 60 gpd/hr.						
4	VERIFY estimated primary to secondary leakage acceleration is less than 60 gpd/hr.	4. GO TO Step 7.	2 .2.0 . /R18A				
5	VERIFY estimated primary to secondary leakage is less than or equal to 30 gpd.	5. PERFORM the	following:				
		a. ESTIMATE secondary le comparing A monitor reac Daily Chemi Report every 15 minutes.	orimary to bakage by ir Ejector ling with stry /				
		b. CONTINUE procedure.	with this				

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7.0 OPERAT	OB ACTIONS: (contir		
		lueuj	
7.2 (coi	ntinued)		
IN		CONTINCENC	N/
			, T
		Achielle	
2. (cor	ntinued)		
	otonia onalusia of staar	NOTE	
an hour	. If an expeditious indi	cation of gross activity is required	ke up to a frisk in
the Sec	ondary Lab or a gamm	a analysis in the Hot Lab, will yield	d the
necessa	ary information to detern	mine the gross magnitude and sou	urce of the
leak.			
Ц	Notify Chamiatry of		
п.	present plant condition	IS	
	and to sample both		
	steam generators for		
	activity. If a CIAS or h	high	
	closed the steam		
	generator sample valve	es,	
	Then they may be		
	opened to permit		
	oumpling as lollows.		
	1. Place control switc	2h	
	for FCV-23-7/9 to	-	
	position and then	E	
	take switch to OPE	ΞN	
	position.		

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1-0830030		T. LUCIE UNIT 1	· · · · · · · · · · · · · · · · · · ·	
U <u>OPERATO</u>	<u>DR ACTIONS</u> : (conti	nued)		
7.2 (cont	tinued)			
	,			
IN	STRUCTIONS	CONTINGE	NCY	
		ACTION	S	
2. (cont	inued)			
2. (0011				
1		NOTE		
A prompt	determination of the	e leak rate takes precedence over	er fulfilling the	
2 hour tir	ne requirement of Da	ata Sheet 1.	, and the second s	
		NOTE		
Figure 2,	"Operator Action Flo	w Chart," identifies actions requ	uired to	
manage	Primary to Secondary	y Steam Generator leaks.		
5 [(Data Sheet 1, "Reacted Dolant System Wate nventory Balance."	or ar		
		NOTE]	
<u>If</u> total tub Hot Stand	be leakage is greater dby within 6 hours, a	than 1 GPM, <u>Then</u> the reactor	must be in	
hours. R	eference Daily Chem	histry Report for projected Conde	enser Air	
Ejector R	eading (CPM) with a	1 GPM Primary/Secondary Lea	k.	
		NOTE		
A prompt	expeditious shutdow	n is desired, however a controll	ed shutdown	
with minir	nal pressure transier	its takes precedence over a sho	ort duration to	
snutdown	•			
I N				
J. N N	Anagement of noten	tial		
p	lant shutdown.	inter -		
•				

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	18A	۱	STEAM GENERA	TOR TUBE LEAK	
PROC	EDURE	NO :	-		
1.	0830	030	ST. LUC	IE UNIT 1	
7.0	<u>OPE</u>	RAT	OR ACTIONS: (continued)		
	7.2	(cor	ntinued)		
		IN	ISTRUCTIONS	CONTINGENCY ACTIONS	,
	2.	(cor	ntinued)	2. (continued)	
		K.	REVIEW procedures needed for plant shutdown.		
		L.	CONDUCT a shift brief.		
		М.	VERIFY RCS water inventory balance <u>and</u> Chemistry samples indicate primary to secondary leak rate is less than or equal to 30 gpd.	M. RETURN TO Step	7.2.2.F . /R18A
		N.	EXIT this procedure.		
		Ο.	If RCS inventory balance or Chemistry confirms primary to secondary leakage exceeds Tech Spec or Chemistry limits, <u>Then</u> COMMENCE a turbine shutdown at less than 5%/min in accordance with ONE of the following:		
			 NOP-1-0030125, Turbine Shutdown - Full Load to Zero Load 		
			 1-ONP-22.01, Rapid Downpower 		

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18,	A	STEAM GENERATO	R TUBE LEAK	
ROCEDURE	E NO.:	-		12 of 40
1-083(0030	ST. LUCIE I	JNIT 1	
'.0 <u>OP</u>	ERAT	OR ACTIONS: (continued)		- I
7.2	(cor	tinued)		
	ÍN	STRUCTIONS	CONTINGENCY ACTIONS	(
2.	(cor	tinued)		
	P.	Initiate the emergency plan, if necessary.		
	Q.	Ensure condenser air ejector is aligned to the plant vent.		
	R.	Locally isolate auxiliary steam to auxiliary priming ejectors by closing V08245.		
	S.	If the Condensate Polisher Filter Demineralizer system is in service to Unit 1, <u>Then</u> shut down and isolate the system from Unit 1 per OP 0700026, 'Condensate Polisher Filter Demineralizer Operation."		
		,		

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18	A	STEAM GENERA	ATOR TUBE LEAK	
ROCEDUR	E NO.:			13 of 40
1-083	0030	ST. LUC	IE UNIT 1	
7.0 <u>OP</u>	ERATO	R ACTIONS: (continued)		
7.2	(conti	nued)		
	INS	STRUCTIONS	CONTINGENCY ACTIONS	(
2.	(conti	nued)	2. (continued)	
	T. <u>V</u> tr N sl	<u>Vhen</u> the turbine is ipped <u>and</u> the reactor is IOT shutdown, <u>Then</u> hutdown the reactor as bllows:	T. <u>If</u> the reactor is shu <u>Then</u> go to step 7.2	utdown, 2.2.T.
	1	Depress the MANUAL SEQUENTIAL (MS) pushbutton of the CEDS and insert the Regulating Groups into the core until nuclear power indicates less than or equal to 10 ⁻¹ %.		
	2.	<u>When</u> nuclear power is less than or equal to 10 ⁻¹ %, <u>Then</u> Open the Reactor Trip Circuit Breakers (TCBs).		
	3.	Verify core mimic display indicates dropped rods for all CEAs.		

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18	8A		STEAM GENERA	TOR TUB	ΒE	LEAK		
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1-089	20030							
7.0 OF	PFRA		ACTIONS: (continued)					
			The field of the f					
7.2	2 (co	ontir	nued)					
	1		TRUCTIONS		~~			
	ſ	119		C		ACTIONS		
2.	(cc	ontir	nued)	2. (con	tin	ued)		
	Τ.	(c	ontinued)	Т. (co	ntinued)		
		4.	Verify that shutdown margin is greater than or equal to 3600 PCM per 1-NOP-100.04, "Surveillance Requirements for Shutdown Margin, Modes 2, 3, 4, and 5 Subcritical."					
	U.	<u>W</u> sh PE fol	<u>hen</u> the reactor is utdown, <u>Then</u> ERFORM BOTH of the lowing:					/R18
		1.	COMMENCE an RCS cooldown until hot leg temperature is less than 525°F using the SBCS.	1	•	If the SBCS is N available, <u>Then</u> s atmosphere usin atmospheric stea valves and reeva E-Plan classificat	OT steam to g the im dump luate the ion.	/R18
		2.	DEPRESSURIZE the RCS and maintain 20°F to 50°F subcooling per Figure 1, "RCS Pressure/ Temperature."					/R18

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1-0830030 ST. LUCIE UNIT 1	
7.0 <u>OPERATOR ACTIONS</u> : (continued)	
7.2 (continued)	
INSTRUCTIONS CONTINGENCY ACTIONS	
2. (continued)	
 V. If RCS pressure and level are being controlled, <u>Then</u> when RCS pressure reaches 1700 psia and annunciator R-6 SIAS Channel Block Permissive alarms, perform the following: 1. Block channels A and B of SIAS by 	
turning the SIAS block key switches (Key 61) on RTGB 106 to the block position.	
 Verify annunciators R-7 and R-8 SIAS Actuation Channel A (B) Blocked have annunciated. 	
 W. <u>If</u> continued use of SBCS is desired, <u>Then</u> block automatic initiation of MSIS at 700 psia (annunciators Q-18, Q-20), as follows: 	

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1.	-083003	30	ST. LUCII	E UNIT 1	
7.0	OPER	ATO	R ACTIONS: (continued)		- L
	7.2 (conti	nued)		
	(oonnii	1404)		
		INS	TRUCTIONS	CONTINGENC ACTIONS	Y
	2. (conti	nued)		
	V	W. (c	ontinued)		
		1.	Block MSIS by turning MSIS block key switches (Key 61) on RTGB 106 to the block position.		
		2.	Ensure annunciators Q8 and (Q-10) MSIS Actuation Channel A (B) Blocked alarm when blocked.		
	To re pump used unfau turbin	educe o exha . If th ulted o ne dri	<u>CAUT</u> the release of potentially ra aust, motor driven auxiliary on the motor driven pumps are N for least affected steam gene wen auxiliary feed pump.	TON dioactive steam from turbin or main feedwater pumps s NOT available, steam from erator should be used to dri	e driven hould be the ve the
	Х	i. Ma lev ba ra au sy	aintain steam generator vel in the operating nd (60% - 70% narrow nge) using main or xiliary feedwater stem.		

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7.0 <u>OPERA</u>	FOR AC	TIONS: (continued)		
72 (co	ntinued)		
7.2 (00	minucu)		
II	NSTRI	JCTIONS	CONTINGENC	Y
			ACTIONS	
2. (co	ntinued)		
				······································
If both	steam o	Nenerators are faulted	<u>IOTE</u> USE the least affected steam	
generat	or for h	eat removal.	, doe the least affected stear	
Υ.	Detern	nine which steam		
	leak by	/ the following:		
	4 LI:	ab activity ar		
	inc	creasing radiation		
	tre	nds on one of the		
	fol	lowing:		
	a.	Steam generator		
		liquid sample.		
	b.	Main steam line		
		radiation		
		monitors.		
	C.	Steam generator		
		blowdown radiation		
		monitors.		
	2 Inc	reasing stoom		
	ge	nerator water		
	lev	el.		

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18	18A STEAM GE		STEAM GENER	ERATOR TUBE I FAK			
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1-085	30030		ST LUC				
'.0 <u>O</u> F	PERA	TOR /	ACTIONS: (continued)				
7 (
1.2	2 (00	nunu	ed)				
	11	NST	RUCTIONS		С	ONTINGENCY ACTIONS	
2.	(co	ntinue	ed)	2. (cor	ntir	nued)	
			CAL	JTION			
	St	eam	restle area may have hi	gher than	no	rmal radiation lev	els.
	AA.	affec by p Appo Gen Ensu gene chec	r, <u>men</u> isolate the sted steam generator erforming endix A, "Steam erator Isolation." ure the correct steam erator is isolated by king the following: Steam generator iquid samples for activity or secondary area radiation surveys.	AA. <u>I</u> v t i S	<u>f</u> th vas ha sol ger	he wrong steam g s isolated, <u>Then</u> t steam generato late the affected herator. <u>If</u> both steam ge are affected, <u>Th</u> steam generator	generator unisolate r and steam enerators <u>en</u> the r with the
		2.	Possible steam generator level			nighest activity s isolated.	should be

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18A	ATOR TUBE LEAK		
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1-0830030	ST. LUC	IE UNIT 1	
7.0 <u>OPERATO</u>	R ACTIONS: (continued)		
7.2 (contir	nued)		
INS	STRUCTIONS	CONTINGENC ACTIONS	Y
2. (conti	nued)	2. (continued)	
AB. M s ie ra th th g	Maintain the isolated team generator level ass than 100% (wide ange) by depressurizing the RCS 0 to 50 psi less than the isolated steam enerator pressure.	 AB. <u>If</u> maintaining isolat generator level by to RCS is NOT de <u>Then</u>: 1. Ensure sufficient is available in the storage tanks a blowdown cool is operable. 2. Locally close widdrag valves on (V31189 on Un V31190 on Un V31190 on Un V31190 on Un V31190 on Un Signal has closs steam generated blowdown contrisolation valve, may be opened follows: a. 1A steam generated blows: a. 1A steam generated blows: 	ated backflow sired, ent capacity the monitor and ling system acuum both units nit 1 and it 2). radiation ed the or ainment <u>Then</u> it d as generator: ol switch -3 to ERRIDE en OPEN. FCV-23-4.

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1 0000000	A		
	SI. LU	CIE UNIT 1	
7.0 OPERATO	RACTIONS: (continued)		
7.2 (contir	nued)		
INS	STRUCTIONS	CONTINGENC ACTIONS	Y
2. (conti	nued)	2. (continued)	
		AB. (continued)	
		3. (continued)	
		b. 1B steam g Place contr for FCV-23 CLOSE/OV position, the Now open l	jenerator: ol switch -5 to ERRIDE en OPEN. FCV-23-6.
		 Ensure combin blowdown flow to less than 30 	ed unit is limited 0 gpm.
AC. C D th ra th R D m in fre sa	ontact the Chemistry epartment to sample e condensate for idioactivity and to report e results to the Control oom. The Chemistry epartment Supervisor ay determine an creased sampling equency and additional ample points.		

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0 OPERATC	R ACTIONS: (continued)		
7.2 (conti	nued)		
INS	STRUCTIONS	CONTINGENC	Y
		ACTIONS	
2. (conti	nued)		
	<u>CAL</u>	JTION	
when co	oling down and depressuriz	ing using only one steam ge	nerator,
	to the operable steam ger	erator may be isolated by th	e AFAS
	the energy should be an	a this occur, manual initiatior	n of
AFA5, 10	the operable steam genera	ator, will be necessary.	
o m 1	 Feed and bleed using main or auxiliary feedwater and blowdown to the MST(s). 		
2	Steaming the isolated steam generator to the main condenser.		
. 3.	Ambient cooling (takes approximately 24 hours).		
4.	Steaming the isolated steam generator to atmosphere.		

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7.0 <u>OPERATO</u>	<u>DR ACTIONS</u> : (continued	d)	
7.2 (conti	nued)		
IN	STRUCTIONS	CONTINGENCY ACTIONS	,
2. (cont	inued)		
AE. (t (1 F S	Continue cooldown using he non-affected steam generator per Normal Dperating Procedure 1-0030127, "Reactor Plant Cooldown - Hot Standby To Cold Shutdown."		
3. Actio throu block	ns when in Mode 3 gh Mode 6 with SIAS ed.	3.	
<u>lf</u> conditio stabilizing (LMONP)	ons continue to degrade o plant conditions, <u>Then</u> t for the current plant con	<u>NOTE</u> or this procedure is NOT succeed he Low Mode Off-Normal Proced dition should be implemented.	ding in dure
A.F s M F fo	Perform safety function tatus check per Low Mode Off-Normal Procedure, Appendix A, or the current plant ondition.		
B.E c o m le	insure sufficient harging pumps are perating and naintaining pressurizer evel.	B. Isolate letdown i in maintaining p level.	to assist ressurizer

STEAM GENER ST. LU ST. LU TOR ACTIONS: (continued) ntinued) NSTRUCTIONS ntinued) NSTRUCTIONS ntinued) NSTRUCTIONS	AATOR TUBE LEAK 23 CIE UNIT 1 23 CIE UNIT 1 23 CONTINGENCY ACTIONS 3. (continued) 20 20 20 20 20 20 20 20 20 20 20 20 20	of 40
ST. LU TOR ACTIONS: (continued) Intinued) NSTRUCTIONS Intinued) Magnosis of a tube leak and a S/G will minimize secondar re. Even before confirmation g and preparation for stoppir commence, by performing ne s, and ensuring resources at ns. Ensure steam generator blowdown and sample valves from the affected steam generator have closed on high radiation.	CIE UNIT 1 CONTINGENCY ACTIONS 3. (continued) 3. (continued) NOTE subsequent rapid isolation of the ry contamination and radiation n of a tube leak has been established, ng the leak and mitigating its affects otifications, procedure reviews, crew re available to tend to the unit C. Manually close the S/G blowdown and sample valve from the affected steam generator.	of 40
ST. LU TOR ACTIONS: (continued) Intinued) NSTRUCTIONS Intinued) Magnosis of a tube leak and a S/G will minimize secondar re. Even before confirmation g and preparation for stoppir commence, by performing ne s, and ensuring resources and ns. Ensure steam generator blowdown and sample valves from the affected steam generator have closed on high radiation.	CIE UNIT 1 CONTINGENCY ACTIONS 3. (continued) NOTE subsequent rapid isolation of the ry contamination and radiation n of a tube leak has been established, ng the leak and mitigating its affects otifications, procedure reviews, crew re available to tend to the unit C. Manually close the S/G blowdown and sample valve from the affected steam generator.	es
TOR ACTIONS: (continued) Intinued) NSTRUCTIONS Itinued) Itiagnosis of a tube leak and a S/G will minimize secondar re. Even before confirmation g and preparation for stoppir commence, by performing ne s, and ensuring resources at ns. Ensure steam generator blowdown and sample valves from the affected steam generator have closed on high radiation.	Continued Continued) Solution of the subsequent rapid isolation of the ry contamination and radiation in of a tube leak has been established, ing the leak and mitigating its affects otifications, procedure reviews, crew re available to tend to the unit C. Manually close the S/G blowdown and sample valve from the affected steam generator.	es
ntinued) NSTRUCTIONS Intinued) Itiagnosis of a tube leak and S/G will minimize secondar re. Even before confirmation g and preparation for stoppir commence, by performing ne s, and ensuring resources at ns. Ensure steam generator blowdown and sample valves from the affected steam generator have closed on high radiation.	Continued: Subsequent rapid isolation of the ry contamination and radiation n of a tube leak has been established, ng the leak and mitigating its affects otifications, procedure reviews, crew re available to tend to the unit C. Manually close the S/G blowdown and sample valve from the affected steam generator.	es
NSTRUCTIONS Itinued) Magnosis of a tube leak and S/G will minimize secondar re. Even before confirmation g and preparation for stoppir commence, by performing ne s, and ensuring resources at ns. Ensure steam generator blowdown and sample valves from the affected steam generator have closed on high radiation.	Continued)	es
NSTRUCTIONS Intinued) Magnosis of a tube leak and d S/G will minimize secondar re. Even before confirmation g and preparation for stoppir commence, by performing ne s, and ensuring resources at ns. Ensure steam generator blowdown and sample valves from the affected steam generator have closed on high radiation.	Solution of the reviews, crew re available to tend to the unit content of the unit content of the tend to the unit content of tend tend to the unit content of tend tend tend tend tend tend tend tend	es
ntinued) Iiagnosis of a tube leak and d S/G will minimize secondar re. Even before confirmation g and preparation for stoppir commence, by performing ne s, and ensuring resources at ns. Ensure steam generator blowdown and sample valves from the affected steam generator have closed on high radiation.	3. (continued) <u>NOTE</u> subsequent rapid isolation of the ry contamination and radiation n of a tube leak has been established, ng the leak and mitigating its affects otifications, procedure reviews, crew re available to tend to the unit C. Manually close the S/G blowdown and sample valve from the affected steam generator.	es
<u>N</u> liagnosis of a tube leak and d S/G will minimize secondar re. Even before confirmation g and preparation for stoppir commence, by performing ne s, and ensuring resources at ns. Ensure steam generator blowdown and sample valves from the affected steam generator have closed on high radiation.	NOTE subsequent rapid isolation of the ry contamination and radiation n of a tube leak has been established, ng the leak and mitigating its affects otifications, procedure reviews, crew re available to tend to the unit C. Manually close the S/G blowdown and sample valve from the affected steam generator.	es
<u>N</u> liagnosis of a tube leak and d S/G will minimize secondar re. Even before confirmation g and preparation for stoppir commence, by performing ne s, and ensuring resources at ns. Ensure steam generator blowdown and sample valves from the affected steam generator have closed on high radiation.	<u>NOTE</u> subsequent rapid isolation of the ry contamination and radiation n of a tube leak has been established, ng the leak and mitigating its affects otifications, procedure reviews, crew re available to tend to the unit C. Manually close the S/G blowdown and sample valve from the affected steam generator.	es
Ensure steam generator blowdown and sample valves from the affected steam generator have closed on high radiation.	C. Manually close the S/G blowdown and sample valve from the affected steam generator.	es
Notify Health Physics of present plant conditions and to conduct secondary area radiation surveys.		
CLOSE V29372, N2 Gas to Cndsr Hotwell Isol, to isolate Nitrogen to the Condenser.		/R1
CHECK Air Ejector monitor reading.		
	CLOSE V29372, N2 Gas to Cndsr Hotwell Isol, to isolate Nitrogen to the Condenser. CHECK Air Ejector monitor reading.	CLOSE V29372, N2 Gas to Cndsr Hotwell Isol, to isolate Nitrogen to the Condenser. CHECK Air Ejector monitor reading.

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	7.2	(con	tinued)			
		IN	STRUCTIONS		CONTINGENCY	,
-					ACTIONS	
:	3.	(con	linued)	3.	(continued)	
		G. <u> </u>	<u>f</u> Air Ejector monitor shows step rise or continuous rise, <u>Then</u> perform the following:		G.	
			 DIRECT Chemistry to implement COP-06.05, High Activity in a Steam Generator. 			
			 ESTIMATE primary to secondary leakage by comparing Air Ejector monitor reading with Daily Chemistry Report. 			
			<u>N</u> 150 gpc	<u>IOTE</u> 1 = 0.1	gpm	
		3	 VERIFY estimated primary to secondary leakage is less than 150 gpd in any one S/G. 		3. GO TO Step 7.	2.3.N . /R18A

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	_							
1-	0830	030	ST. L	UCIE UNIT 1				
7.0	OPE	RATO	<u>R ACTIONS</u> : (continue	d)				
	7.2	(contii	nued)					
		INS	TRUCTIONS	C	ON A	TINGENCY CTIONS		
	3.	(contir	nued)	3. (contir	nue	(b		
		G. (c	continued)	G. (cc	ontir	nued)		
	The the Exa	e follow leak. ample:	ing step is used to estir Initially estimated leak estimated leak rate is increase in 10 minute	<u>NOTE</u> mate the rate of rate is 40 gpd. 50 gpd. 50 gpd s, which is an a	cha 1(d - 4 cce	ange (accelera) minutes later 40 gpd = 10 g leration of 60	ition) of pd gpd/hr.	
		4.	VERIFY estimated primary to secondary leakage acceleration is less than 60 gpd/hr.	4.	G	D TO Step 7.2	2.3.N. /R18	8A
		5.	VERIFY estimated primary to secondary leakage is less than or equal to 30 gpd.	5.	PE	RFORM the f	ollowing:	
					a.	ESTIMATE p secondary le comparing Ai monitor readi Daily Chemis Report every 15 minutes.	primary to akage by ir Ejector ing with stry	
					b.	CONTINUE v procedure.	vith this	

LEVISION NO .:	PROCEDURE TITLE:	······································	PAGE:
18A	STEAM GENER	ATOR TUBE LEAK	
ROCEDURE NO.:			26 of 40
4 0000000			
1-0830030	ST. LUC	CIE UNIT 1	
0 OPERATO	<u>R ACTIONS</u> : (continued)		
72 (conti	nued)		
INS	STRUCTIONS	CONTINGENCY ACTIONS	,
3. (contii	nued)		
H. N pr ar st ac ra cl ge <u>Th</u> op sa 1.	otify Chemistry of resent plant conditions nd to sample both eam generators for ctivity. <u>If</u> a CIAS or high idiation signal has osed the steam enerator sample valves, <u>nen</u> they may be bened to permit ampling as follows: Place control switch for FCV-23-7/9 to CLOSE/OVERRIDE position and then take switch to OPEN position.		
 Refere Readir A prom the 2 h Figure manag I. <u>If</u> de se Da Co Inv 	<u>N(</u> nce Daily Chemistry Repor- ng (CPM) with a 1 GPM Pr opt determination of the lea our time requirement of Da 2, "Operator Action Flow (e Primary to Secondary St possible, <u>Then</u> termine the primary to condary leak rate, per ate Sheet 1, "Reactor polant System Water ventory Balance "	<u>DTE</u> t for projected Condenser Air imary/Secondary Leak. uk rate takes precedence over ata Sheet 1. Chart," identifies actions requir eam Generator leaks.	Ejector fulfilling ed to

	IO.:	PROCEDURE TITLE:		PAGE:
18	A	STEAM GENE	RATOR TUBE LEAK	
ROCEDUR	E NO.:	_		27 of 40
1-083	0030	ST U	ICIE LINIT 1	
7.0 <u>OP</u>	ERA	OR ACTIONS: (continued)	
70	(00	ntinued)	, ,	
1.2	(00)	nunueu)		
	11	NSTRUCTIONS	CONTINGENC ACTIONS	Y
3.	(co	ntinued)	3. (continued)	
	J.	NOTIFY Plant Management of plant status.		
	K.	CONDUCT a shift brief.		
	L.	VERIFY RCS water inventory balance <u>and</u> Chemistry samples indicate primary to secondary leak rate is less than or equal to 30 gpd.	L. RETURN TO Step	9 7.2.3.F . /R184
	M.	EXIT this procedure.		
	N.	Initiate the emergency plan, if necessary.		
Tc pu us un tui	o redu Imp e Sed. I Ifaulte rbine	<u>CA</u> ice the release of potentially xhaust, motor driven auxilia f the motor driven pumps a ed or least affected steam g driven auxiliary feed pump.	AUTION y radioactive steam from turbin try or main feedwater pumps s re NOT available, steam from enerator should be used to dri	e driven hould be the ve the
	О.	Ensure condenser air		/R18

18A STEAM GENERATOR TUBE LEAK 28 of 40 PROCEDURE NO:: 1-0830030 ST. LUCIE UNIT 1 28 of 40 7.0 OPERATOR ACTIONS: (continued) 1 7.2 (continued) 1 7.2 (continued) INSTRUCTIONS CONTINGENCY ACTIONS: 3. (continued) 3. (continued) P. Locally isolate auxiliary steam to auxiliary priming ejectors by closing V08245. 3. (continued) P. Locally isolate auxiliary priming ejectors by closing V08245. 0. If the Condensate Polisher Filter Demineralizer system is in service to Unit 1, Then shut down and isolate the system from Unit 1 per OP 0700026, "Condensate Polisher Filter Demineralizer Operation." R. Cool down the RCS until hot leg temperature is less than 525°F using the SBCS. R. If the SBCS is NOT available, Then steam to atmosphere using the atmosphere using the atmosphere is steam dump valves and revaluate the E-Plan classification. S. Depressurize the RCS and maintain 20°F to 50°E subcolling or reverted at the set of the set of the reverted or	REVISION NO .:	PROCEDURE TITLE:		PAGE:
PROCEDURE NO:: 28 of 40 1-0830030 ST. LUCIE UNIT 1 7.0 OPERATOR ACTIONS: (continued) 7.2 (continued) INSTRUCTIONS INSTRUCTIONS CONTINGENCY ACTIONS 3. (continued) 3. (continued) P. Locally isolate auxiliary steam to auxiliary priming ejectors by closing V08245. 3. (continued) Q. If the Condensate Polisher Filter Demineralizer system is in service to Unit 1, Then shut down and isolate the system from Unit 1 per OP 0700026, "Condensate Polisher Filter Demineralizer Operation." R. If the SBCS is NOT autilable, Then steam to atmospheric steam dump valves and revaluate the E-Plan classification. S. Depressurize the RCS and maintain 20°F to 50°E subcooling per	18A	STEAM GENER	ATOR TUBE LEAK	
1-0830030 ST. LUCIE UNIT 1 7.0 OPERATOR ACTIONS: (continued) 7.2 (continued) INSTRUCTIONS CONTINGENCY ACTIONS 3. (continued) 9. Locally isolate auxiliary steam to auxiliary priming ejectors by closing V08245. 0. If the Condensate Polisher Filter Demineralizer system is in service to Unit 1, Then shut down and isolate the system from Unit 1 per OP 0700026, "Condensate Polisher Filter Demineralizer Operation." R. Cool down the RCS until hot leg temperature is less than 525°F using the SBCS. S. Depressurize the RCS and maintain 20°F to 50°E subcooling per to 50°E subcoolin	PROCEDURE NO.:			28 of 40
7.0 OPERATOR ACTIONS: (continued) 7.2 (continued) INSTRUCTIONS CONTINGENCY ACTIONS 3. (continued) 9. Locally isolate auxiliary steam to auxiliary priming ejectors by closing V08245. 3. (continued) 9. Locally isolate auxiliary steam to auxiliary priming ejectors by closing V08245. 3. (continued) 9. Locally isolate auxiliary steam to auxiliary priming ejectors by closing V08245. 5. 0. If the Condensate Polisher Filter Demineralizer system is in service to Unit 1, Then shut down and isolate the system from Unit 1 per OP 0700026, "Condensate Polisher Filter Demineralizer Operation." R. If the SBCS is NOT available, Then steam to atmosphere using the atmosphere using the atmospheric steam dump valves and revaluate the E-Plan classification. 8. Depressurize the RCS and maintain 20°F to 50°E subcooling nor	1-0830030	ST LU		
7.2 (continued) INSTRUCTIONS CONTINGENCY ACTIONS 3. (continued) 3. (continued) P. Locally isolate auxiliary steam to auxiliary priming ejectors by closing V08245. 3. (continued) Q. If the Condensate Polisher Filter Demineralizer system is in service to Unit 1, Then shut down and isolate the system from Unit 1 per OP 0700026, "Condensate Polisher Filter Demineralizer Operation." R. If the SBCS is NOT available, Then steam to atmosphere using the atmosphere using the atmospheric steam dump valves and revaluate the E-Plan classification. S. Depressurize the RCS and maintain 20°F to 50°E subcooling nor R. If the second content of the second con	7.0 OPERA	TOB ACTIONS: (continued)		
 7.2 (continued) INSTRUCTIONS CONTINGENCY ACTIONS 3. (continued) 9. Locally isolate auxiliary steam to auxiliary priming ejectors by closing V08245. Q. If the Condensate Polisher Filter Demineralizer system is in service to Unit 1, <u>Then</u> shut down and isolate the system from Unit 1 per OP 0700026, "Condensate Polisher Filter Demineralizer Operation." R. Cool down the RCS until hot leg temperature is less than 525°F using the SBCS. R. If the SBCS is NOT available, <u>Then</u> steam to atmosphere using the atmosphere using the atmospheric steam dump valves and revaluate the E-Plan classification. 	<u></u>			
INSTRUCTIONS CONTINGENCY ACTIONS 3. (continued) 3. (continued) 9. Locally isolate auxiliary steam to auxiliary priming ejectors by closing V08245. 3. (continued) Q. If the Condensate Polisher Filter Demineralizer system is in service to Unit 1, <u>Then</u> shut down and isolate the system from Unit 1 per OP 0700026, "Condensate Polisher Filter Demineralizer Operation." R. If the SBCS is NOT available, <u>Then</u> steam to atmosphere using the sBCS. R. Cool down the RCS until hot leg temperature is less than 525°F using the SBCS. R. If the SBCS is NOT available, <u>Then</u> steam to atmosphere using the atmosphere u	7.2 (cc	ontinued)		
 3. (continued) 3. (continued) P. Locally isolate auxiliary steam to auxiliary priming ejectors by closing V08245. Q. If the Condensate Polisher Filter Demineralizer system is in service to Unit 1, <u>Then</u> shut down and isolate the system from Unit 1 per OP 0700026, "Condensate Polisher Filter Demineralizer Operation." R. Cool down the RCS until hot leg temperature is less than 525°F using the SBCS. R. Depressurize the RCS and maintain 20°F to 50°E subcooling near 	I	NSTRUCTIONS	CONTINGENCY ACTIONS	
 P. Locally isolate auxiliary steam to auxiliary priming ejectors by closing V08245. Q. If the Condensate Polisher Filter Demineralizer system is in service to Unit 1, <u>Then</u> shut down and isolate the system from Unit 1 per OP 0700026, "Condensate Polisher Filter Demineralizer Operation." R. Cool down the RCS until hot leg temperature is less than 525°F using the SBCS. R. M. Cool down the RCS and maintain 20°F to 50°E subcooling ner 	3. (cc	ontinued)	3. (continued)	
 Q. If the Condensate Polisher Filter Demineralizer system is in service to Unit 1, <u>Then</u> shut down and isolate the system from Unit 1 per OP 0700026, "Condensate Polisher Filter Demineralizer Operation." R. Cool down the RCS until hot leg temperature is less than 525°F using the SBCS. R. If the SBCS is NOT available, <u>Then</u> steam to atmosphere using the atmosphere using the atmospheric steam dump valves and revaluate the E-Plan classification. 	P.	Locally isolate auxiliary steam to auxiliary priming ejectors by closing V08245.		
 R. Cool down the RCS until hot leg temperature is less than 525°F using the SBCS. S. Depressurize the RCS and maintain 20°F to 50°E subcooling per R. If the SBCS is NOT available, <u>Then</u> steam to atmosphere using the atmosphere using the E-Plan classification. 	Q.	If the Condensate Polisher Filter Demineralizer system is in service to Unit 1, <u>Then</u> shut down and isolate the system from Unit 1 per OP 0700026, "Condensate Polisher Filter Demineralizer Operation."		
S. Depressurize the RCS and maintain 20°F to 50°F subcooling per	R.	Cool down the RCS until hot leg temperature is less than 525°F using the SBCS.	R. <u>If</u> the SBCS is NOT available, <u>Then</u> stear atmosphere using the atmospheric steam d valves and revaluate E-Plan classification.	n to e ump the
Figure 1, "RCS Pressure/ Temperature."	S.	Depressurize the RCS and maintain 20°F to 50°F subcooling per Figure 1, "RCS Pressure/ Temperature."		

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18	3A	STE	EAM GENERATO)R TUBE I FAK	
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1-0830030					
7.0 OF	PERAT	OR ACTIONS:	(continued)		<u></u>
			(
7.2	2 (co	ntinued)			
	H	ISTRUCTION	IS	CONTINGENCY ACTIONS	,
3.	(co	ntinued)			
	T.	 <u>If</u> continued use is desired, <u>Ther</u> automatic initial MSIS at 700 ps (annunciators C Q-20), as follow 1. Block MSIS turning MSI key switche 61) on RTC the block pc 2. Ensure ann Q-8 and (Q MSIS Actua Channel A Blocked ala blocked. 	e of SBCS <u>n</u> block tion of sia Q-18, ys: S by IS block es (Key SB 106 to osition. nunciators (B) trm when		
	U.	Maintain steam level in the oper band (60% - 70 range) using ma auxiliary feedwa system.	generator rating % narrow ain or ater		

				1
18A		STEAM GENER		PAGE:
ROCEDURE NO			INTION TODE LEAN	30 of 40
1 000000		AT		
1-083003		SI.LU	CIE UNIT 1	
7.2 (c	ontin	ued)		
	INS	TRUCTIONS	CONTINGENCY	,
			ACTIONS	
3 (0	ontin	ued)		
0. (0	Onum	ueu		
		N	IOTE	
If both	stea	m generators are faulted	, use the least affected steam	
genera				
V.	De	termine which steam		
	gei	nerator has the tube		
	lea	ik by the following:		
	1.	High activity or		
		increasing radiation		
		following:		
		a Stoom concretor		
		liquid sample.		
		h Main ataaw lina		
		radiation		
		monitors.		
		c. Steam generator		
		blowdown		
		radiation		
	2.	Increasing steam		
		level.		

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18A	STEAM GENER	ATOR TUBE LEAK	
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1-0830030	ST. LUC	CIE UNIT 1	
7.0 <u>OPERA</u>	TOR ACTIONS: (continued)		
72 (0	ontinued)		
(0.			
I	NSTRUCTIONS	CONTINGENCY ACTIONS	
3. (co	ontinued)	3. (continued)	
	CAL	UTION	
S	eam trestle area may have h	igher than normal radiation lev	vels.
х.	 temperature is less than 525°F, <u>Then</u> isolate the affected steam generator by performing Appendix A, "Steam Generator Isolation." Ensure the correct steam generator is isolated by checking the following: 1. Steam generator liquid samples for activity or secondary area radiation surveys. 2. Possible steam generator level increases. 	 X. <u>If</u> the wrong steam was isolated, <u>Then</u> that steam generated isolate the affected generator. 1. <u>If</u> both steam generator. 1. <u>If</u> both steam generato highest activity sisolated. 	generator unisolate or and steam enerators <u>en</u> the r with the should be
Y.	Maintain the isolated steam generator level less than 100% (wide range) by depressurizing the RCS 0 to 50 psi less than the isolated steam generator pressure.	Y. <u>If</u> maintaining isolate generator level by b to RCS is NOT desi <u>Then</u> :	ed ackflow ired,

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18A	STEAM GENER	ATOR T	UBF	IFAK	
PROCEDURE NO .				, , , ,	32 of 40
1-0830030	ST. LUC	CIE UNI	T 1	····	
7.0 <u>OPERATC</u>	<u>OR ACTIONS</u> : (continued)				
7.2 (cont	inued)				
INS	STRUCTIONS		C	ONTINGENCY ACTIONS	,
		3. (contir	nued)	
		Y	′. (cc	ontinued)	
			1.	Ensure sufficier is available in the storage tanks a blowdown coolin is operable.	nt capacity ne monitor nd ng system
			2.	Locally close va drag valves on (V31189 on Uni V31190 on Unit	icuum both units t 1 and 2).
			3.	If CIAS or high signal has close steam generato blowdown conta isolation valve, may be opened follows:	radiation ed the r inment <u>Then</u> it as
				a. 1A steam ge Place contro for FCV-23-3 CLOSE/OVE position, the Now open F	enerator: I switch 3 to ERRIDE n OPEN. CV-23-4.
				b. 1B steam ge Place contro for FCV-23-5 CLOSE/OVE position, the Now open F	enerator: I switch 5 to :RRIDE n OPEN. CV-23-6.

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	18A	4	STEAM GEI	NERATOF	י דנ	IBE	LEAK	
ROCE	EDURE	NO.:						33 of 40
1_	იგვი	030	ст		шт	4		
7.0	OPE	BATO	B ACTIONS: (continu			I	······	
	<u></u>							
	7.2	(conti	nued)					
		INS	STRUCTIONS			C	ONTINGENC ACTIONS	Ŷ
	3.	(conti	nued)	3.	(cc	ontir	nued)	
					Y.	(cc	ontinued)	
						4.	Ensure combined blowdown flow to less than 30	ned unit v is limited 00 gpm.
		R D m in fr sa	oom. The Chemistry epartment Supervisor lay determine an creased sampling equency and additiona ample points.	l				
	Wh AF rup AF	nen coc W flow bture id AS, to	ling down and depress to the operable steam entification circuitry. S the operable steam ge	CAUTION surizing us generato hould this enerator, w	sing r ma occ rill b	onl ay b sur, e n	y one steam ge le isolated by th manual initiatio ecessary.	enerator, ne AFAS n of
		AA. C th ge cc or m	ool and depressurize e isolated steam enerator as the boldown proceeds by ne of the following ethods:					

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18A		STEAM GENERAT	OR TUBE LEAK	
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1-0830030		ST. LUCIF	UNIT 1	
7.0 <u>OPE</u> F	RATO	R ACTIONS: (continued)		
70 ('contin	auod)		
1.2 (COLU	lueu)		
	CONTINGENCY ACTIONS	1		
3.	(contir	nued)		
Þ	4A. (c	continued)		
	1.	Feed and bleed using main or auxiliary feedwater and blowdown to the MST(s).		
	2.	Steaming the isolated steam generator to the main condenser.		
	3.	Ambient cooling (takes approximately 24 hours).		
	4.	Steaming the isolated steam generator to atmosphere.		
A	AB. Co th ge Oj 1- Pl St St	ontinue cooldown using e non-affected steam enerator per Normal perating Procedure 0030127, "Reactor ant Cooldown - Hot andby To Cold nutdown."		

PRO	PROCEDURE NO .:			35 of 4
1	1-0830030		ST. LUCIE UNIT 1	
			APPENDIX A STEAM GENERATOR ISOLATION (Page 1 of 4)	
		The st	<u>CAUTION</u> eam trestle area may have higher than normal radiatio	n levels.
1.	<u>To</u>	isolate 1	the 1A Steam Generator:	
	A.	Close	HCV-08-1A, Main Steam Hdr. A Isolation Valve (MSIV	/).
	В.	Close	or verify closed MV-08-1A, MSIV Header A Bypass Va	alve.
	C.	Close	MV-09-7, Main Feedwater Isolation Valve to S/G 1A.	
	D.	Close Blowd	or verify closed FCV-23-3 and FCV-23-4, 1A Steam G own Isolation Valves.	enerator
	E.	Verify	closed PIC-08-1A, S/G 1A Atmospheric Dump Valve.	
		1. <u>If</u> be	PIC-08-1A, S/G 1A Atmospheric Dump Isolation Valve e closed, <u>Then</u> locally close V08114, ADV Isolation Va	e can NOT Ilve.
	F.	Stop fe 1A AF	eedwater flow to the 1A Steam Generator from RTGB W pump control switch to OFF.	and place
	G.	Locally 1A S/C	/ close V09120 and V09152, 1A and 1C AFW Pump Is 3.	solations to
	H.	Isolate follows	1C AFW Pump steam supply from the 1A Steam Ger	nerator as
		1. <u>If</u>	access to AFW Area is available, <u>Then</u> :	
		a.	Place 1C AFW pump control switch Start-Stop-Start START position for the 1B Steam Generator.	t to the

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18A	STEAM GENERATOR TUBE LEAK		
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1-0830030	ST. LUCIE UNIT 1		
		I	
	STEAM GENERATOR ISOLATION		
	(Page 2 of 4)		
1. (continued)			
H. (contin	ued)		
1. (cc	ontinued)		
с	 Close MV-08-13, S/G 1A Steam to AFW Pump 1C, us pushbutton. (located approximately 4 feet east of 1C pump.) 	sing local AFW	
	OR		
 d. <u>If</u> MV-08-13, S/G 1A Steam to AFW Pump 1C, can NOT be closed manually, <u>Then</u> locally close V08113, MV-08-13 Upstream Isolation. 			
e	. Locally close V08387, MV-08-13 Bypass Valve.		
2. <u>lf</u>	the AFW Area is inaccessible, Then:		
This s	CAUTION tep will terminate auxiliary feed flow from the 1C AFW p	ump.	
a	Position AFAS AB Bypass Keyswitch to BYPASS (clo steam supply valves and MV-08-3 trip and throttle val	ses both ve).	
b	Place 1C AFW pump control switch Start-Stop-Start to STOP position.	o the	
C.	After AFW pump coastdown, place 1C AFW pump conswitch to START for the B S/G and restore 1C AFW f desired.	ntrol Iow if	
d.	<u>When</u> AFW area is accessible, <u>Then</u> close V08387, N Bypass Valve.	IV-08-13	

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			l.			
				STEAM GENERATOR ISOLATION		
				(Page 3 of 4)		
2.	<u>To</u>	isolat	<u>e t</u> l	ne 1B Steam Generator:		
	Α.	Clos	se	HCV-08-1B, Main Steam Hdr. B Isolation Valve (MSIV).		
	В.	Clos	se (or verify closed MV-08-1B, MSIV Header B Bypass Valv	/e.	
	C.	Clos	se l	MV-09-8, Main Feedwater Isolation Valve to S/G 1B.		
	D.	Close or verify closed FCV-23-5 and FCV-23-6, 1B Steam Generator Blowdown Isolation Valves.				
	E.	Veri	fy d	closed PIC-08-1B, Atmospheric Dump Valve.		
		 If PIC-08-1B, S/G 1B Atmospheric Dump Isolation Valve can NOT be closed, <u>Then</u> locally close V08145, ADV Isolation Valve. 				
	F.	Stop feedwater flow to the 1B Steam Generator from RTGB and place 1B AFW pump control switch to OFF.				
	G.	Locally close V09136 and V09158, 1B and 1C AFW Pump Isolations to 1B S/G.				
	H.	Isolate 1C AFW pump steam supply from the 1B Steam Generator as follows:				
		1.	<u>lf</u> a	access to AFW area is available, <u>Then</u> :		
			a.	Place 1C AFW pump control switch Start-Stop-Start to START position for the 1A Steam Generator.	o the	
			b.	Place AFAS AB Bypass Keyswitch to BYPASS.		
			c.	Close MV-08-14, S/G 1B Steam to AFW Pump 1C us pushbutton. (Located approximately 5 feet northeast AFW pump.)	ing local of 1A	
	OR					
					į	

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18A		STEAM GENERATOR TUBE LEAK	
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1_0220020			
1-003003	<u> </u>		
		STEAM GENERATOR ISOLATION	
		(Page 4 of 4)	
2. (continue	ed)		
``````````````````````````````````````	,		
Н. (со	ntinu	led)	
1.	(co	ntinued)	
	d.	<u>If</u> MV-08-14, S/G 1B Steam to AFW Pump 1C, can I closed manually, <u>Then</u> locally close V08144, MV-08- Upstream Isolation.	NOT be 14
	e.	Locally close V08384, MV-08-14 Bypass Valve.	
2	lf	the AFW/ Area is increased blo. Then	
۷.	<u></u>	The AFW Area is maccessible, <u>Them</u> .	
		CAUTION	
	Thi	s step terminates auxiliary feed flow from 1C AFW pun	np.
	a.	Position AFAS AB Bypass Keyswitch to BYPASS (cl steam supply valves and MV-08-3 trip and throttle va	oses both alve).
	b.	Place 1C AFW pump control switch Start-Stop-Start STOP position.	to the
	C.	If desire, <u>Then</u> after AFW pump coastdown, place 10 pump control switch to START for the 1A S/G in services to a service 1C AFW flow.	C AFW vice and
	d.	<u>When</u> AFW area is accessible, <u>Then</u> close V08384, Bypass Valve.	MV-08-14

### END OF APPENDIX A



