

FINAL SUBMITTAL

V. C. SUMMER NUCLEAR STATION

EXAM NO. 50-395/2000-301

AUGUST 7 - 11, 2000

NUREG-1021 - ES-501

ES-301-1 ADMIN TOPICS OUTLINE

**ES-301-2 CONTROL ROOM SYSTEMS
AND FACILITY WALK-THROUGH TEST
OUTLINE**

Facility: **Summer**

Date of Examination: _____

Examination Level (circle one): **RO** / SRO

Operating Test Number: _____

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct of Operations	Calculate RCS Leak Rate GEN 2.1.25 (2.8)
	Conduct of Operations	Prepare Tagout for B Charging Pump GEN 2.1.24 (2.8)
A.2	Equipment Control	Ability to Track LCOs GEN 2.2.23 (2.6)
A.3	Radiation Control	Evaluate Worker Exposure GEN 2.3.1 (2.6)
A.4	Emergency Plan	EP Question - Evacuation GEN 2.4.42 (3.3)
		EP Question - Non-essential personnel definition GEN 2.4.42 (3.3)

Facility: **Summer**

Date of Examination: _____

Examination Level (circle one): RO / **SRO**

Operating Test Number: _____

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct of Operations	Calculate RCS Leak Rate GEN 2.1.25 (3.1)
	Conduct of Operations	Review Tagout for B Charging Pump GEN 2.1.24 (3.1)
A.2	Equipment Control	Ability to Track LCOs GEN 2.2.23 (3.8)
A.3	Radiation Control	Evaluate Worker Exposure GEN 2.3.1 (3.0)
A.4	Emergency Plan	Emergency Plan Implementation GEN 2.4.41 (4.1)

Facility: **Summer**

Date of Examination: _____

Exam Level (circle one): **RO / SRO(I) / SRO(U)**

Operating Test No.: _____

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. JPS-11 Pressurizer Pressure Control Malfunction	M, A, S	Reactor Press. Cont.
b. JPSF-059 Alternate Isolation of Ruptured S/G	D, S, A	Core Heat Removal (S)
c. NRC-1 Perform FEP Actions	N, S	Plant Service Systems
d. JPS-082 Mid-Loop Operations	M, A, S, L	Core Heat Removal (P)
e. JPS-046 Transfer of In-Service Charging Pump	M, S, A	RCS Inv. Cont.
f. JPS-012 Dropped Rod Recovery	D, S	Reactivity
g. JPSF-066 Perform NIS Power Range Heat Balance	M, C	Inst.

B.2 Facility Walk-Through

a. JPP-108 Locally Shed Non-Essential DC Loads	D	Electrical
b. JPP-166 Establish Chilled Water Alternate Cooling to CHPP	D, R	RCS Inv. Cont.
c. NRC-3 Loss of SFPC	N, R	Plant Service Systems

* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA

Facility: **Summer**

Date of Examination: _____

Exam Level (circle one): RO / SRO(I) / **SRO(U)**

Operating Test No.: _____

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. JPS-11 Pressurizer Pressure Control Malfunction	M, A, S	Reactor Press. Cont.
b. JPSF-059 Alternate Isolation of Ruptured S/G	D, S, A	Core Heat Removal (S)
c. NRC-2 Perform FEP Actions	N, S	Plant Service Systems

B.2 Facility Walk-Through

a. JPP-108 Locally Shed Non-Essential DC Loads	D	Electrical
b. JPP-166 Establish Chilled Water Alternate Cooling to CHPP	D, R	RCS Inv. Cont.

* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA

FINAL SUBMITTAL

V. C. SUMMER NUCLEAR STATION

EXAM NO. 50-395/2000-301
AUGUST 7 - 11, 2000

NUREG-1021 - ES-501 - F.1.g

FINAL AS-GIVEN JPMS FOR EACH

WALK-THROUGH TEST

**V C Summer
JPM No. A.1.a
Calculate RCS Leak Rate**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.1.25 (2.8/3.1)
Examiner:	10 CFR 55.45 Ref: (a)13

Evaluation Method: <input type="checkbox"/> Performed <input checked="" type="checkbox"/> Simulated	Evaluation Location: <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	
Examiner Comments	

**V C Summer
JPM No. A.1.a
Calculate RCS Leak Rate**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.1.25 (2.8/3.1)
Examiner:	10 CFR 55.45 Ref: (a)13

Initial Conditions: 100% Steady state operations.

Assigned Task: Perform an operational leakage test in accordance with STP-114.002. The IPCS is not available. Steps 6.1 and 6.2 are complete.

**V C Summer
JPM No. A.1.a
Calculate RCS Leak Rate**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.1.25 (2.8/3.1)
Examiner:	10 CFR 55.45 Ref: (a)13

Initial Conditions: 100% Steady state operations.

Assigned Task: Perform an operational leakage test in accordance with STP-114.002. The IPCS is not available. Steps 6.1 and 6.2 are complete.

Task Standard: Obtain correct value for RCS leak rate given the following:

- Applicant should begin at step 6.5 of the subject procedure
- Cues should be provided as follows:

Parameter	Starting Value	Ending Value
Loop Tavg*	588	588.5
Pzr Level	58	58
VCT Level	48	28.5
PRT Level	70	72
RCDT Level	60	66
After recording initial data, cue applicant that 1 hr has passed.		
* applicant should pick an RCS loop as the common reference for temperature.		

Primary-to-secondary leakage .5 gpm

Applicant should correctly determine leak rate and determine that result does not satisfy acceptance criteria to be successful in this JPM; however, there are points

**V C Summer
JPM No. A.1.a
Calculate RCS Leak Rate**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.1.25 (2.8/3.1)
Examiner:	10 CFR 55.45 Ref: (a)13

to consider on the acceptable values for PRT and RCDT levels. If one assumes a readability error of the respective curves of ½ of a minimum subdivision, the potential outcomes are as follows:

Case	PRT Level (gal)			RCDT Level (gal)		
	Initial	Final	Delta	Initial	Final	Delta
Worst Case High Stackup	7000	7300	300	212.5	240	27.5
Worst Case Low Stackup	7100	7200	100	217.5	235	17.5

The numbers in bold are acceptable values based on the readability of the curve.

If the range of potential values are allowed to propagate through the calculation, one can obtain identified leakage values from 5.96 to 2.46 gpm (assuming a fixed primary-to-secondary leak rate of .5 gpm). When this spread is factored into the conditions defined in this JPM, unidentified leakage can range from -.72 gpm to 2.78 gpm (outside tech spec limit of 1 gpm).

If one performs an interpolation from the tabular values provided on the curves, more reasonable (and certainly more repeatable) values result. In the case of the PRT, the number is 190 gallons; for the RCDT, it's 21.76 gallons. Propagated through the calculation, this results in only one acceptable answer for identified leakage, 4.03 gpm (assuming, again, a fixed .5 gpm primary-to-secondary leak rate). The final unidentified leakage should then be 1.21 gpm.

The licensee's procedure calls for the operator to determine a "factor" to apply against the recorded change in tank level. The procedure doesn't describe how the value is to be arrived at, but the factor is to convert level, expressed in per cent to gallons, so the factor has to be the inverse of a linear approximation of the curves at points about the recorded data.

For the PRT, the level changes from 70 to 72 per cent, and so using tabular values of 70 and 80 per cent, one establishes the only technically defensible "factor" at 95 gallons/%. For the RCDT, the level varies from 60 to 66 per cent. The tabular values from the curve, taken at 60 and 70 per cent yield a factor of 3.60 gallons/%. Note that deriving the factor based on picking points off the curve isn't much better than just correlating level to volume off the curve. The same readability concerns exist as for the case above.

TEST DATA SHEET

PART 1	TIME	TAVG		PZR LEVEL		VCT LEVEL		PRT LEVEL		RCDT LEVEL	
		MCB	COMPUTER	MCB	COMPUTER	MCB	COMPUTER	MCB	COMPUTER	XPN-0007 IL01003	COMPUTER L1028
		TI-4120	T0488A/U0091	LI-457A	L0480A	LI-415	L0112A	LI-470	L0485A		
FINAL		588.5		587.		28.5		727.		667.	
INITIAL		588.0		587.		48.0		707.		607.	
CHANGE		0.5		0		-19.5		27.		67.	
FACTOR		83 (1)	(1)	56.7 (2)	(2)	-14.00 (3)	(3)	95 (4)	(4)	3.65 (5)	(5)
DEVIATION		41.5		0		273		190		21.9	

Notes: 1) Curve V-6 or V-7 2) -56.57 gal. @ 2250 psi / -87.6 @ 400 psi 3) -14.00 gal. 4) Tank Curve #21 5) Tank Curve #22

*Tavg decrease = negative gal./Tavg increase = positive gal. ** Pzr Lvl decrease = positive gal./Pzr Lvl increase = negative gal.

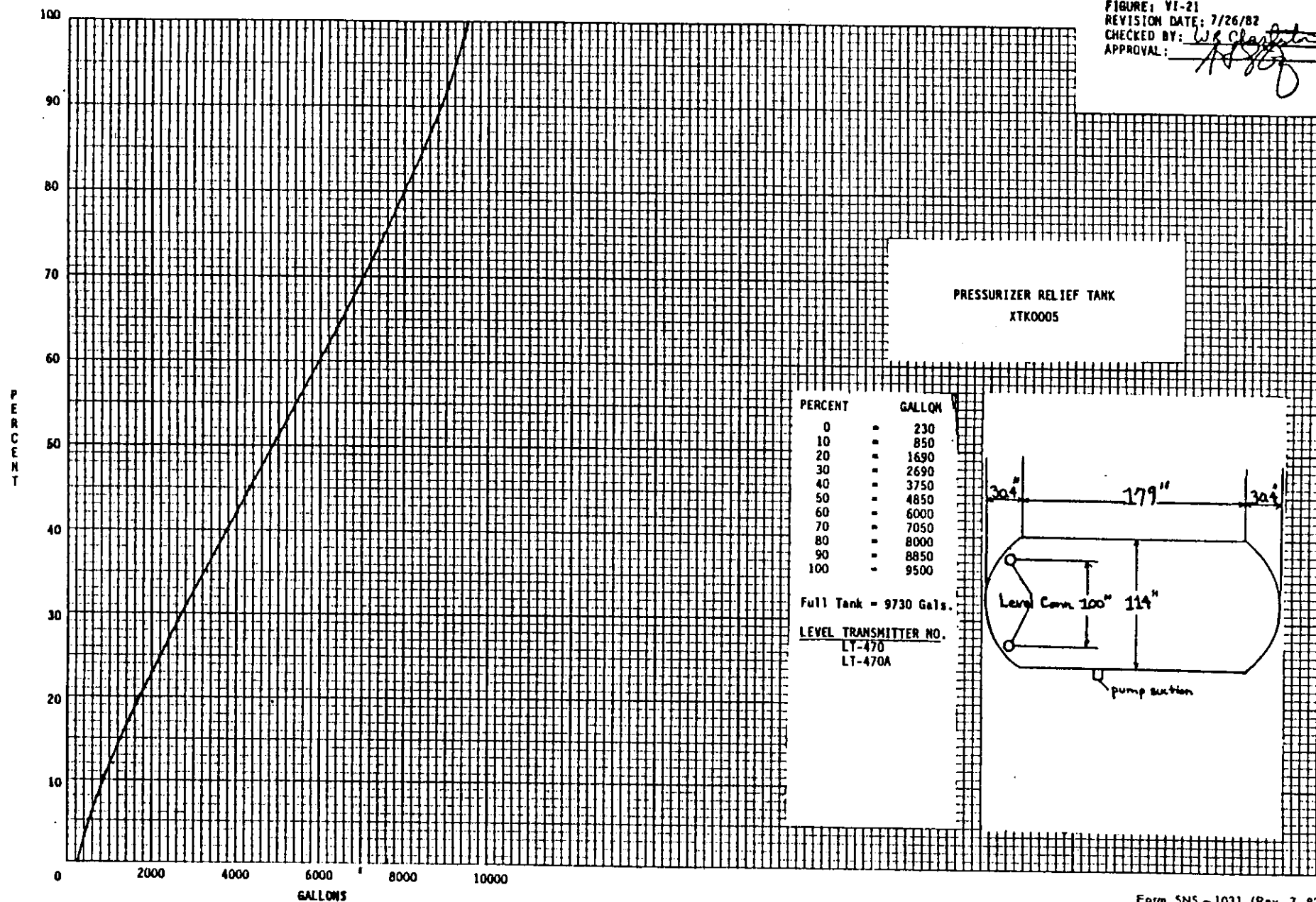
PART 2

2a: $\frac{41.5 \text{ gallons}}{(6.8.c, Tavg)} + \frac{0 \text{ gallons}}{(6.9.c, PZR Level)} + \frac{273 \text{ gallons}}{(6.10.b, VCT Level)} = \frac{314.5 \text{ gallons}}{(Test Time)} \div 60 \text{ minutes}$
 = $5.24 \text{ gallons/minute TOTAL LEAKAGE}$

2b: $\frac{190 \text{ gallons}}{(6.11.c, PRT Level)} + \frac{22 \text{ gallons}}{(6.12.c, RCDT Level)} = \frac{212 \text{ gallons}}{(Test Time)} \div 60 \text{ minutes}$
 = $3.533 \text{ gallons/minute} + \frac{0.5 \text{ gallons/minute}}{(6.13, Primary to Secondary leakage)} = 4.03 \text{ gallons/minute IDENTIFIED LEAKAGE}$

2c: $\frac{5.24 \text{ gallons/minute}}{(2a, Total Leakage)} - \frac{4.03 \text{ gallons/minute}}{(2b, Identified Leakage)} = \frac{1.21 \text{ gallons/minute}}{(Test Time)} \text{ UNIDENTIFIED LEAKAGE}$

FIGURE: VI-21
 REVISION DATE: 7/26/82
 CHECKED BY: *W. G. Glatfelter*
 APPROVAL: *AS*



REACTOR COOLANT DRAIN TANK

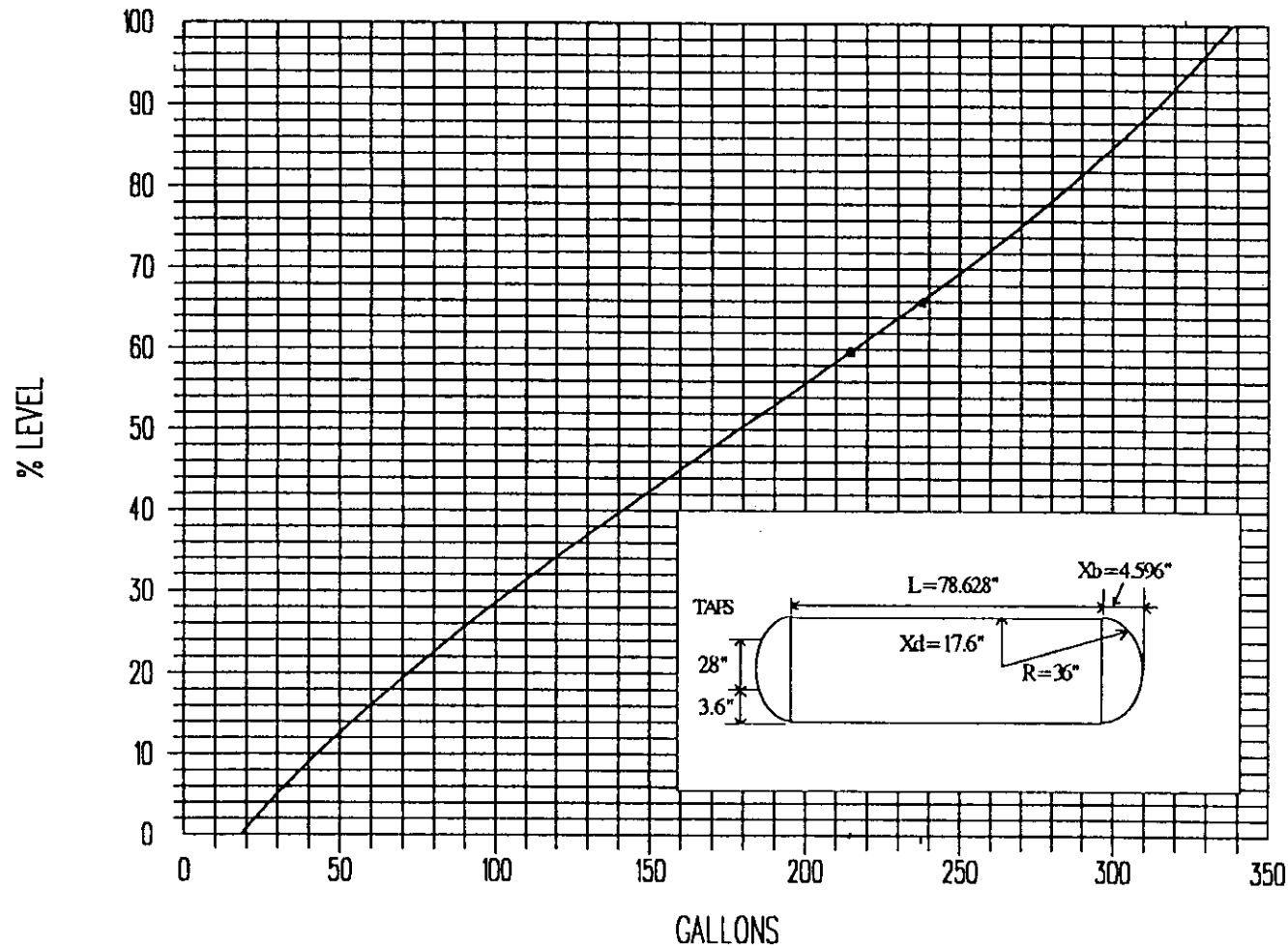


Figure VI-22

Revision Date: 4-21-92

Prepared By: W. W. Wood

Verified By: J. R. Carter

Approved By: W. L. Hall

% LEVEL	GALLONS	GALLONS/%
0	18.1	2.09
5	29.5	2.44
10	42.4	2.71
15	56.5	2.94
20	71.7	3.13
25	87.9	3.34
30	105	3.5
35	122.8	3.61
40	141	3.69
45	159.6	3.73
50	178.3	3.75
55	197	3.73
60	215.6	3.69
65	233.8	3.61
70	251.6	3.5
75	268.7	3.34
80	284.9	3.13
85	300.1	2.94
90	314.2	2.71
95	327.1	2.44
100	338.5	2.09

Applicant:	Evaluation Date:
Application Level: RO	K/A: GEN 2.1.24 (2.8)
Examiner:	10 CFR 55.45 Ref: (a)13

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V C Summer
JPM No. A.1.b
Prepare Tagout for "B" Charging Pump

Applicant:	Evaluation Date:
Application Level: RO	K/A: GEN 2.1.24 (2.8)
Examiner:	10 CFR 55.45 Ref: (a)13

Initial Conditions:	The unit is at 100% steady state power.
Assigned Task:	The B Charging Pump is to be taken out of service for maintenance. The Shift Supervisor has instructed you to prepare a danger tagout which will completely isolate the pump (including any auxiliaries directly associated with the pump). You are to identify the mechanical and electrical components necessary to affect the isolation of the pump, the necessary positions of the components and the order in which the components should be positioned, if such an order is necessary.

**V C Summer
JPM No. A.1.b
Prepare Tagout for "B" Charging Pump**

Applicant:	Evaluation Date:
Application Level: RO	K/A: GEN 2.1.24 (2.8)
Examiner:	10 CFR 55.45 Ref: (a)13

Initial Conditions:	The unit is at 100% steady state power.
Assigned Task:	The B Charging Pump is to be taken out of service for maintenance. The Shift Supervisor has instructed you to prepare a danger tagout which will completely isolate the pump (including any auxiliaries directly associated with the pump). You are to identify the mechanical and electrical components necessary to affect the isolation of the pump, the necessary positions of the components and the order in which the components should be positioned, if such an order is necessary.

Task Standard: Correctly identify components and positions/tagout order as shown on key. All component tags shown on key are considered critical except suction header vent valve (may be overlooked as being inside the boundary of the isolation for operation later) and closing and tripping control power breakers, which the applicant may choose to track on the "Component Realignment and Verification Log."

KEY

SHEET _____ OF _____

COMPONENT LOG

TAG		ISSUED TO				HOLD TAG INST	COMPONENT ID	PLANT LOG	REQ'D TAG POSIT	INST SEQ	INST BY	VER BY	HOLD TAG REM	REM SEQ	TAG REM BY	REQ'D OPER POSIT	COMP REST	
		E	M	I&C	OTHER												REST BY	VER BY
1	GROUP CLEAR		X				XSNIDB 15 CLP CLOSING CTRL PNR BKR - CHG/51 PP B XPP0043B-CS (RRP)		BKR OPEN	1				9		BKR CLOSED		
2	GROUP CLEAR		X				XSNIDB 15 TCP TRIPPING CTRL PNR BKR - CHG/51 PP B XPP0043B-CS (RRP)		BKR OPEN	2				8		BKR CLOSED		
3	GROUP CLEAR		X				XMCIDB2Y 10EG CHARGING/51 PUMP B AUX OIL PUMP ALOP C XPP0043B-CS		BKR OPEN	3				7		BKR CLOSED		
4	GROUP CLEAR		X			X	XSNIDB 15 CHARGING/51 PUMP B XPP0043B-CS	1B-436	PACKED OUT	4				6		PACKED OUT		
5	GROUP CLEAR		X			X	XMCIDB2Y 0BIL CHARGING/51 PUMP B MINIFLOW ISOL XVTB109-CS	AB-463	BKR OPEN	5				5		BKR CLOSED		
6	GROUP CLEAR		X				XV908485B-CS CHARGING/51 PUMP B DISCHARGE VALVE	AD-388	CLOSED	6				4		CLOSED 1-1/2 INCH OPN BACKSEAT		
7	GROUP CLEAR		X				XVT08109B-CS CHARGING/51 PUMP B MINIFLOW ISOL VAL B4THB	AD-388	CLOSED	7				3		OPEN		

KEY

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COMPONENT LOG

TAG	ISSUED TO					HOLD TAG INST	COMPONENT ID	PLANT LOC	REQ'D TAG POSIT	INST SEQ	INST BY	VER BY	HOLD TAG REM	REM SEQ	TAG REM BY	REQ'D OPER POSIT	COMP REST	
		E	M	I&C	OTHER												REST BY	VER BY
8	GROUP		X				XV08471B-LS CHARGE PUMP D SUCTION VALVE	AB-388	CLOSED	8				2		LOCKED OPEN		
	CLEAR																	
9	GROUP		X				XV08511-LS CHARGE/ISI PUMP B SUCTION HEADER VENT VALVE	AB-388	OPEN	9				1		CLOSED & LAPPED		
	CLEAR																	
	GROUP																	
	CLEAR																	
	GROUP																	
	CLEAR																	
	GROUP																	
	CLEAR																	
	GROUP																	
	CLEAR																	

Applicant:	Evaluation Date:
Application Level: SRO	K/A: GEN 2.1.24 (3.8)
Examiner:	10 CFR 55.45 Ref: a(13)

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**V C Summer
JPM No. A.1.b
Review Tagout for "B" Charging Pump**

Applicant:	Evaluation Date:
Application Level: SRO	K/A: GEN 2.1.24 (3.8)
Examiner:	10 CFR 55.45 Ref: a(13)

Initial Conditions: 100% steady state operations.

Assigned Task: The B Charging Pump is to be taken out of service for major maintenance. A danger tagout has been prepared which will completely isolate the pump (including any auxiliaries directly associated with the pump). You are to review the tagout component log for accuracy under SAP-201.

**V C Summer
JPM No. A.1.b
Review Tagout for "B" Charging Pump**

Applicant:	Evaluation Date:
Application Level: SRO	K/A: GEN 2.1.24 (3.8)
Examiner:	10 CFR 55.45 Ref: a(13)

Initial Conditions: 100% steady state operations.

Assigned Task:: The B Charging Pump is to be taken out of service for major maintenance. A danger tagout has been prepared which will completely isolate the pump (including any auxiliaries directly associated with the pump). You are to review the tagout component log for accuracy under SAP-201.

Required Items: SAP-201

Task Standard: Correctly identify components and positions/tagout order errors as shown on key. All component tags shown on key are considered critical except suction header vent valve (may be overlooked as being inside the boundary of the isolation for operation later) and closing and tripping control power breakers, which the applicant may choose to track on the "Component Realignment and Verification Log."

Errors:

1. XMC1DB2YG8IL, Charging Pump B minimflow isolation, XVT8109-CS, AB 463, Breaker open, not included.
2. Tag 6 - "open" should be "closed"
3. Tag 7 - "XVG 08471C-CS" should be "XVT 08471B-CS"
4. Tag 8 - "closed" should be "open"
5. Restoration order steps 3 and 4 should be reversed per SAP-201, Attachment IX.

EXAMINATION MATERIAL

SAP-201
ATTACHMENT IC
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COMPONENT LOG

TAG	ISSUED TO					HOLD TAG INST	COMPONENT ID	PLANT LOC	REQ'D TAG POSIT	INST SEQ	INST BY	VER BY	HOLD TAG REM	REM SEQ	TAG REM BY	REQ'D OPER POSIT	COMP REST	
		E	M	I&C	OTHER												REST BY	VER BY
1	GROUP		X				XSW IDB IS CCP CLOSING CNTRL PWR XPP0043B-CS (RFP)	DREWER OPEN	1					8				
	CLEAR																	
2	GROUP		X				XSW IDB IS TCP TRIPPING CNTRL PWR XPP0043B-CS (RRT)	DREWER OPEN	2					7				
	CLEAR																	
3	GROUP		X				XMC IDBZY IOEG CHARGING PUMP B AUX OIL PUMP ALOP Z XPP0043B-CS	DREWER OPEN	3					6				
	CLEAR																	
4	GROUP		X			X	XSW IDB IS CHARGING/INJ PUMP B XPP0043B-CS	PACKED OUT	4					5				
	CLEAR																	
5	GROUP		X				XVG0B4B5B-CS CHARGING/INJ PUMP B DISCHARGE VALVE	CLOSED	5					4				
	CLEAR																	
6	GROUP		X				XVT 0B109B-CS CHARGING/INJ PUMP B MINIFLOW ISOL VALVE	OPEN	6					3				
	CLEAR																	
7	GROUP		X				XVG0B471C-CS CHARGING/INJ PUMP B SUCTION VALVE	CLOSED	7					2				
	CLEAR																	

EXAMINATION MATERIAL

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COMPONENT LOG

TAG	ISSUED TO					HOLD TAG INST	COMPONENT ID	PLANT LOC	REQ'D TAG POSIT	INST SEQ	INST BY	VER BY	HOLD TAG REM	REM SEQ	TAG REM BY	REQ'D OPER POSIT	COMP REST	
		E	M	I&C	OTHER												REST BY	VER BY
B	GROUP		X				XVTOB311-CB CHARGING/LIN3 PUMP B SUCTION HEADER VENT VALVE	AB-388	CLOSED	8								
	CLEAR																	
	GROUP																	
	CLEAR																	
	GROUP																	
	CLEAR																	
	GROUP																	
	CLEAR																	
	GROUP																	
	CLEAR																	
	GROUP																	
	CLEAR																	
	GROUP																	
	CLEAR																	

Evaluate Equipment Out of Service Under Technical Specifications

Evaluation Method:	Evaluation Location:
<input type="checkbox"/> Performed <input type="checkbox"/> Simulated	<input type="checkbox"/> Simulator <input type="checkbox"/> Classroom <input type="checkbox"/> Plant
Overall JPM Evaluation	
<input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	
Examiner Comments	

**V C Summer
JPM No. A.2**

Evaluate Equipment Out of Service Under Technical Specifications

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.2.23 (2.6/3.8)
Examiner:	10 CFR 55.45 Ref: a(13)

Initial Conditions: The unit is at 100% steady state power.

Assigned Task: Perform a review of an R&R checksheet prior to approval.

**V C Summer
JPM No. A.2**

Evaluate Equipment Out of Service Under Technical Specifications

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.2.23 (2.6/3.8)
Examiner:	10 CFR 55.45 Ref: a(13)

Initial Conditions: The unit is at 100% steady state power.

Assigned Task: Perform a review of an R&R checksheet prior to approval.

Required Items: Technical Specifications

Task Standard: The applicant should identify that the inoperable valve places the unit in TS 3.0.3, as two independent ECCS trains are required which include the B RHR pump and the capability to automatically swap suction sources. The applicant may also identify that the work places the unit in a 2 hour action statement per TS 3.8.1.1 action b.3 (if one DG inop, the SSCs relying on the remaining DG must be operable); however, full credit is given to the identification of 3.0.3 applicability.

EXAM MATERIAL

SAP-205
ATTACHMENT I
PAGE 1 OF 1
REVISION 9

REMOVAL AND RESTORATION CHECKSHEET

<input checked="" type="checkbox"/> ACTION		<input type="checkbox"/> RESTRICTED SERVICE	
<input type="checkbox"/> TRACKING		<input checked="" type="checkbox"/> REMOVED FROM SERVICE	
R&R# <u>00-0080</u>			
DECLARED INOPERABLE:		DATE _____	TIME _____
SYSTEM: <u>SI</u>		EQUIPMENT NAME: <u>RHR DUMP A TO RHR A</u>	
REASON INOPERABLE: <u>POWER SUPPLY BREAKER XMC-1 DAILY OPM INOPERABLE</u>		ID#: <u>XV608211A-SI</u>	
3.0.4 APPLY? <u>YES/NO</u> RESTRAINING MODE: <u>3</u> MODE DISCOVERED: <u>1</u>			
TECH SPECS: <u>3.5.2</u> <u>3.5.3</u>			
REDUNDANT EQUIPMENT OPERABLE? <u>YES/NO/NA</u>			
SUPPORTING DOCUMENTATION: _____			
COMPENSATORY REQUIREMENTS:			
<input type="checkbox"/> NONE		REQ'D BY DATE/TIME	COMPLETED BY DATE/TIME
1. TRIP/BYPASS BISTABLES?		/	/
2. BACKUP FIRE SUPPRESS?		/	/
3. 1 HOUR ROVING WATCH?		/	/
4. CONTINUOUS FIREWATCH?		/	/
5. ALTERNATE RAD MONITOR?		/	/
6. SMOKE DETECTOR OPER.?		/	/
7. GTP-702, ATT. VI		/	/
8. OTHER: _____		/	/
DOWNGRADED FROM ACTION TO TRACKING:			
SS AUTHORIZATION: _____		DATE: _____	
RESTORATION REQUIREMENTS AND PLANT RESTRICTIONS:		<input type="checkbox"/> NONE	
DECLARED INOPERABLE DATE/TIME	TIME LIMIT TO DECLARE OPERABLE	RESTORATION REQUIRED DATE/TIME	
/ (+)		(=) /	
SS AUTHORIZATION: _____		OATC CONCURRENCE: _____	
RESTORATION SECTION:			
OPERABLE STP#	STTS#	DATE/TIME	MRF OPERABILITY FORM
_____	_____	/	<u>YES/NO/NA</u>
_____	_____	/	
DATE/TIME OPERABLE	DATE/TIME INOPERABLE	TOTAL TIME INOPERABLE	
/ (-)	/	(=)	
ALL IDENTIFIED COMPENSATORY REQUIREMENTS RESTORED OR TERMINATED? <u>YES/NO/NA</u>			
COMMENTS: _____			
SS AUTHORIZATION: _____		OATC CONCURRENCE: _____	

EXAM MATERIAL

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ATTACHMENT II
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REVISION 9

REMOVAL AND RESTORATION INDEX

[illegible]

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.3.1 (2.6/3.0)
Examiner:	10 CFR 55.45 Ref: (a)10

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**V C Summer
JPM No. A.3
Evaluate Worker Exposure**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.3.1 (2.6/3.0)
Examiner:	10 CFR 55.45 Ref: (a)10

Initial Conditions: The Unit is at 100% steady state power

Assigned Task:: Given the following conditions:

- Radiation surveys in the Auxiliary Building indicate the following:
 - C charging pump room = 45 mrem/hr
- The C charging pump is out of service for pump shaft replacement
- The work activity is expected to take 3 individuals 12 hours to complete
- Doses (present quarter) for the individuals are as follows:
 - Worker A = 480 mrem
 - Worker B = 580 mrem
 - Worker C = 1480 mrem

Assuming all three individuals will spend the entire 12 hours in the charging pump room, determine their exposures and any administrative requirements that would have to be satisfied.

**V C Summer
JPM No. A.3
Evaluate Worker Exposure**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.3.1 (2.6/3.0)
Examiner:	10 CFR 55.45 Ref: (a)10

Initial Conditions: The Unit is at 100% steady state power

Assigned Task:: Given the following conditions:

- Radiation surveys in the Auxiliary Building indicate the following:
 - C charging pump room = 45 mrem/hr
- The C charging pump is out of service for pump shaft replacement
- The work activity is expected to take 3 individuals 12 hours to complete
- Doses (present quarter) for the individuals are as follows:
 - Worker A = 480 mrem
 - Worker B = 580 mrem
 - Worker C = 1480 mrem

Assuming all three individuals will spend the entire 12 hours in the charging pump room, determine their exposures and any administrative requirements that would have to be satisfied.

Required Items: HPP-153

Task Standard: Calculate the following results:

1. Worker A - 1020 mrem - needs extension approved by his supervisor and the manager of HP
2. Worker B - 1120 mrem - needs extension approved by his supervisor and the manager of HP
3. Worker C - 2020 mrem - needs extension approved by his supervisor, the manager of HP, his manager, and the general manager, nuclear plant operations.

Applicant:	Evaluation Date:
Application Level: SRO	K/A: 2.4.40 (4.0)
Examiner:	10 CFR 55.45 Ref: a(11)

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**V C Summer
JPM No. A.4
Emergency Plan Implementation**

Applicant:	Evaluation Date:
Application Level: SRO	K/A: 2.4.40 (4.0)
Examiner:	10 CFR 55.45 Ref: a(11)

Initial Conditions: The plant has declared a General Emergency based on the loss of two of three fission product barriers with the potential for loss of the third.

Assigned Task: Answer the following questions.

Question 1 (Closed Reference)

What are your minimum Protective Action Recommendations?

**V C Summer
JPM No. A.4
Emergency Plan Implementation**

Applicant:	Evaluation Date:
Application Level: SRO	K/A: 2.4.40 (4.0)
Examiner:	10 CFR 55.45 Ref: a(11)

Initial Conditions: The plant has declared a General Emergency based on the loss of two of three fission product barriers with the potential for loss of the third.

Assigned Task: Answer the following questions.

Question 2 (Open Reference):

Twenty minutes after the initial General Emergency declaration, you receive an emergency warning message information sheet from the count room (attached). What are your updated Protective Action Recommendations?

**V C Summer
JPM No. A.4
Emergency Plan Implementation**

Applicant:	Evaluation Date:
Application Level: SRO	K/A: 2.4.40 (4.0)
Examiner:	10 CFR 55.45 Ref: a(11)

Initial Conditions: The plant has declared a General Emergency based on the loss of two of three fission product barriers with the potential for loss of the third.

Assigned Task: Answer the following questions.

Required Items: EPP-1.0,

Task Standard:

Question 1:

Evacuate zone A-0 (or 2 mile radius) and the 5 mile zones downwind and shelter remainder of the 10 mile radius (EPP-001.4, Attachment II)

Question 2:

Evacuate zone A-0 (or 2 mile radius) and EPZs E-1 and E-2 (Epp-005, Attachment I).

Applicant:	Evaluation Date:
Application Level: RO	K/A: 2.4.42 (3.3)
Examiner:	10 CFR 55.45 Ref: (a) 11

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**V C Summer
JPM No. A.4
Emergency Plan Knowledge Questions**

Applicant:	Evaluation Date:
Application Level: RO	K/A: 2.4.42 (3.3)
Examiner:	10 CFR 55.45 Ref: (a) 11

Initial Conditions: N/A
Assigned Task: Answer the following question.

Question 1 (no references):

What do you do if you are working in the RCA and an evacuation is announced?

**V C Summer
JPM No. A.4
Emergency Plan Knowledge Questions**

Applicant:	Evaluation Date:
Application Level: RO	K/A: 2.4.42 (3.3)
Examiner:	10 CFR 55.45 Ref: (a) 11

Initial Conditions: N/A

Assigned Task: Answer the following question.

QUESTION 2: (Reference allowed)

An event is in progress and the emergency plan calls for the evacuation of all non-essential staff. Who are the personnel that do not evacuate?

**V C Summer
JPM No. A.4
Emergency Plan Knowledge Questions**

Applicant:	Evaluation Date:
Application Level:RO	K/A: 2.4.42 (3.3)
Examiner:	10 CFR 55.45 Ref: (a) 11

Initial Conditions: N/A

Assigned Task: Answer the following question.

Required Items: EPP-23

Task Standard:

ANSWER 1:

Personnel who have evacuated affected areas within the RCA shall remain at the 412 Control Building until monitored for contamination or directed otherwise by HP personnel. (Personnel decontamination as per EPP-010, will be performed as required.)
REFERENCE: EPP-12, Revision 11, page 3, step 5.1.5

ANSWER 2:

Essential Staff - Personnel required by the Emergency Plan Procedures to fill all the positions, for one shift of the Emergency Response Organization.

REFERENCE: EPP-23, Revision 11, page 1, step 3.1.2

VC Summer
JPM No. B.1.a/JPSF-011

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 027AA2.15 (3.7/4.0)
Examiner:	10 CFR 55.45 Ref: (a)3

Evaluation Method: <input checked="" type="checkbox"/> Performed <input type="checkbox"/> Simulated	Evaluation Location: <input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Classroom <input type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	
Examiner Comments	

**VC Summer
JPM No. B.1.a/JPSF-011**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 027AA2.15 (3.7/4.0)
Examiner:	10 CFR 55.45 Ref: (a)3

Initial Conditions: The Unit is at 75% steady state power.

Assigned Task: Maintain plant conditions

**VC Summer
JPM No. B.1.a/JPSF-011**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 027AA2.15 (3.7/4.0)
Examiner:	10 CFR 55.45 Ref: (a)3

Initial Conditions: The Unit is at 75% steady state power.

Assigned Task: Maintain plant conditions

Required Items:

Task Standard: Respond to pressurizer pressure control instrument malfunction. One spray valve will remain stuck open. Terminate JPM when operator has identified the stuck open spray valve and has recommended action to the CRS.

V.C. SUMMER NUCLEAR STATION

NRC JOB PERFORMANCE MEASURE

JPSF-011

PRESSURIZER PRESSURE CONTROL MALFUNCTION (NRC)

Revision No. 0

Faulted JPM

JPM NOT APPROVED FOR EXAM USE. FOR INFORMATION ONLY.

PRESSURIZER PRESSURE CONTROL MALFUNCTION (NRC)

TRAINEE _____ **EVALUATOR** _____

EVALUATOR SIGNATURE _____ **DATE** _____

EVALUATION METHOD: PERFORM
EVALUATION LOCATION: SIMULATOR

ESTIMATED TIME: 10.0 MINUTES **TIME STARTED:** _____

10CFR55.45 (a) 3 IDENTIFY ANNUNCIATORS AND
 CONDITION-INDICATING SIGNALS AND PERFORM
 APPROPRIATE REMEDIAL ACTIONS WHERE
 APPROPRIATE

TIME CRITICAL: No **FAULTED JPM:** Yes

TRAINEE PERFORMANCE: SATISFACTORY _____ UNSATISFACTORY _____

READ TO OPERATOR:
 WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE
 INITIATING CUES. I WILL DESCRIBE GENERAL CONDITIONS UNDER WHICH THIS TASK
 IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS
 TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS
 TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES.
 WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS
 JOB PERFORMANCE MEASURE WILL BE SATISFIED.

INITIAL CONDITIONS:

1. Plant is at 75% power, stable plant conditions.

TOOLS AND EQUIPMENT NEEDED:

NONE

REFERENCED DOCUMENTS:

REV DATE

1. AOP*401.5 PRESSURIZER PRESSURE CONTROL
 CHANNEL FAILURE

06/22/99

TASK STANDARDS:

1. PCV-444B indicates closed.
2. PCV-444D indicates closed.
3. Recognizes PCV-444C is not full closed.

PAGE 2

PRESSURIZER PRESSURE CONTROL MALFUNCTION (NRC)**TASK STANDARDS:**

4. Recommends to CRS that plant should be tripped or power reduced to <38% to secure 'C' RCP.

INITIATING CUES:

1. Respond as NROATC to developing plant conditions.

TERMINATING CUES:

1. Course of action recommended to the CRS.

SAFETY CONSIDERATIONS:

NONE

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 3

(S) DENOTES SEQUENCED ELEMENT

(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:SAT. UNSAT.STEPSTANDARD

1. Identifies PT-444 failure.

Compares failed channel to protection channels PI-455, 456 and 457.

STEPSTANDARD

*2. Closes PCV-444B.

PCV-444B indicates red light ON, green light OFF.

COMMENTS: _____

2 SHOULD IT BE
RED OFF/GREEN ON?STEPSTANDARD

*3. Closes PCV-444 C and D.

Places PCV-444C & D, PZR SPRAY, controller in MAN and reduces output to 0%; PCV-444D indicates red light OFF, green light ON, PCV-444C indicates red light ON, green light ON (stuck open).

COMMENTS: _____

STEPSTANDARD

4. Control Pressurizer Master Controller in manual.

Places PZR Press Master Control in MAN.

STEPSTANDARD

*5. Maintain RCS pressure between 2220 psig and 2250 psig.

Recognizes RCS pressure is still decreasing and PCV-444C indicates red light ON, green light ON. Informs CRS.

COMMENTS: _____

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 4

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

STEP

STANDARD

6. Closes PORV block valve,
MVG-8000B.

MVG-8000B, RELIEF 444R ISOL, indicates
red light OFF, green light ON.

NOTE 7. If student does not give recommended action or tries to take actions
on MCB, cue student "What action would you recommend to the CRS?"

STEP

STANDARD

*7. Recommends course of action to
CRS.

Recommends to CRS that power must be
decreased below 38% to secure 'C' RCP or
that plant should be tripped prior to
reaching low pressure reactor trip
setpoint.

COMMENTS:

Examiner Stops JPM At This Point

TIME STOPPED: _____

GENERAL COMMENTS:

PAGE 5

PRESSURIZER PRESSURE CONTROL MALFUNCTION (NRC)
--

NRC KA REFERENCES:

<u>KA NUMBER</u>		<u>IMPORTANCE</u>	<u>FACTOR</u>
		<u>RO</u>	<u>SRO</u>
000027.EA2.15	Ability to determine actions to be taken if PZR pressure instrument fails high.	<u>3.7</u>	<u>4.0</u>

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 038EA2.01 (4.1/4.7)
Examiner:	10 CFR 55.45 Ref: (a)6

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V C Summer
JPM No. B.1.b/JPSF-059
Alternate Isolation of Ruptured Steam Generator

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 038EA2.01 (4.1/4.7)
Examiner:	10 CFR 55.45 Ref: (a)6

Initial Conditions: The "C" S/G has experienced a tube rupture. The crew has taken actions up to and including step 2 of EOP-4.0.

Assigned Task: The CRS has directed you to isolate the "C" S/G per EOP-4.0, step 3.

V C Summer
JPM No. B.1.b/JPSF-059
Alternate Isolation of Ruptured Steam Generator

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 038EA2.01 (4.1/4.7)
Examiner:	10 CFR 55.45 Ref: (a)6

Initial Conditions: The "C" S/G has experienced a tube rupture. The crew has taken actions up to and including step 2 of EOP-4.0.

Assigned Task: The CRS has directed you to isolate the "C" S/G per EOP-4.0, step 3.

Required Items:

Task Standard: The "C" S/G is completely isolated from the "A" and "B" S/Gs per EOP-4.0, step 3.a-3.h and step 3i alternate actions .

V.C. SUMMER NUCLEAR STATION

NRC JOB PERFORMANCE MEASURE

JPSF-059

ALTERNATE ISOLATION OF RUPTURED S/G (NRC)

Revision No. 3

Faulted JPM

JPM NOT APPROVED FOR EXAM USE. FOR INFORMATION ONLY.

PAGE 1

ALTERNATE ISOLATION OF RUPTURED S/G (NRC)

TRAINEE _____ **EVALUATOR** _____

EVALUATOR SIGNATURE _____ **DATE** _____

EVALUATION METHOD: PERFORM
EVALUATION LOCATION: SIMULATOR

ESTIMATED TIME: 10.0 MINUTES **TIME STARTED:** _____

10CFR55.45 (A) 6

TIME CRITICAL: No **FAULTED JPM:** Yes

TRAINEE PERFORMANCE: SATISFACTORY _____ UNSATISFACTORY _____

READ TO OPERATOR:

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES.

WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

INITIAL CONDITIONS:

1. The 'C' Steam Generator has experienced a tube rupture.
2. The crew has taken actions up to and including step 2 of EOP-4.0.

TOOLS AND EQUIPMENT NEEDED:

NONE

REFERENCED DOCUMENTS:

1. EOP*4.0 STEAM GENERATOR TUBE RUPTURE

REV DATE

12/15/99

TASK STANDARDS:

1. The 'C' S/G is completely isolated from the 'A' and 'B' S/G's per EOP-4.0, step 3.a-3.h and step 3.i alternate actions.

PAGE 2

ALTERNATE ISOLATION OF RUPTURED S/G (NRC)**INITIATING CUES:**

1. The CRS has directed the isolation of the RUPTURED S/G per EOP-4.0, step 3.

TERMINATING CUES:

1. EOP-4.0, step 3 complete.

SAFETY CONSIDERATIONS:

NONE

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 3

(S) DENOTES SEQUENCED ELEMENT

(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:SAT. UNSAT.STEPSTANDARDS*1. Place 'C' Steamline power
relief in manual and closed.'C' Steamline PWR RELIEF SETPT
controller indicates manual and 0.COMMENTS: _____
_____STEPSTANDARDS*2. Adjust 'C' steamline power
relief setpoint controller to
8.85.'C' Steamline PWR RELIEF SETPT
controller indicates 8.85 (1150 psig).COMMENTS: _____
_____STEPSTANDARDS*3. Align 'C' steamline power
relief for power relief
operation.'C' Steamline Power Relief mode switch
indicates PWR REL and the setpoint
controller indicates AUTO.COMMENTS: _____
_____STEPSTANDARD*4. Place both steam dump
interlock switches to bypass
interlock.Both STM DUMP INTERLOCK switches
indicate BYP INTLK when RCS Tavg <552°F.COMMENTS: _____

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 4

(S) DENOTES SEQUENCED ELEMENT

(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:SAT. UNSAT.STEPSTANDARD

5. Verify the 'C' steamline power relief indicates closed.

PCV-2020 indicates red light OFF, green light ON.

STEPSTANDARD

- *6. Isolate the TDEFP steam supply from 'C' S/G.

MVG-2602B indicates red light OFF, green light ON.

COMMENTS: _____

NOTE 7: Step is only critical if MVG-2602B reopens after closure.

STEPSTANDARD

- *7. Directs IB Operator to deenergize MVG-2602B.

MVG-2602B indicates deenergized.

COMMENTS: _____

STEPSTANDARD

8. Isolate blowdown from the ruptured S/G.

PVG-503C indicates red light OFF, green light ON.

STEPSTANDARD

- *9. Isolates main steam drains from 'C' S/G.

PVT-2643C and PVT-2877B indicate red light OFF, green light ON.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 5

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENTPERFORMANCE CHECKLIST:SAT. UNSAT.COMMENTS: _____
_____STEPSTANDARD

10. Attempts to close PVM-2801C.

Notes MSIV 'C' still indicates red light
ON, green light OFF.

STEPSTANDARD*11. Close MSIVs for
'A' and 'B' S/O'sPVM-2801A&B, MS ISOLATION VALVE,
indicates red light OFF and green light
ON.

COMMENTS: _____
_____STEPSTANDARD12. Verify MS Isolation Bypass
valves closedVerifies PVM-2869A(B) (C) have red closed
indication off and green light lit.

STEPSTANDARD*13. Isolate main steam to aux
steam.Closes PCV-2058, MS TO AUX STM,
indicates red light OFF and green light
ON.

COMMENTS: _____

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 6

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

STEP

STANDARD

*14. Isolate scaling steam.

Closes MVG-1701, STEAM SEAL FEED VLV,
indicates red light OFF and green light
ON

COMMENTS: _____

STEP

STANDARD

*15. Close main turbine stop valve
before seat drains.

Closes MVG-2896A-D, SV-1(2,3,4) ESD,
indicates red light OFF and green light
ON.

COMMENTS: _____

STEP

STANDARD

*16. Isolate steam to deaerator.

Places IPV-2231, MS/PEGGING STM TO
DEAERATOR, controller in MAN and output
at 0%.

COMMENTS: _____

STEP

STANDARD

17. Isolate steam to MSR's.

At MSR DCS, MVG-2811 and XVG-2807
indicate closed.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 7

(S) DENOTES SEQUENCED ELEMENT

(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

STEP

STANDARD

S*18. Ensure steam dumps closed.

Places STM DUMP CNTRL controller in MAN and output of 0% and STM DUMP MODE SELECT switch to STM PRESS.

COMMENTS:

STEP

STANDARD

S*19. Ensure main steam drains are closed.

The following valve switches are in AUTO with red light OFF and green light ON:
PVT-2870, TO MSR A&B DRN, PVT-2851A-D,
MS LINES TO TURB DRN, PVT-2713A-D, STEAM
DUMP DRN BYD, PVT-2838A,B, HDR DRNG.
Notes PVT-2875, To MSR A&B DRN indicates mid-position.

COMMENTS:

NOTE 20: Booth operator acknowledges as TB operator, to perform Attachment 1 of EOP-4.0 including alternate isolation for PVT-2875 if directed..

STEP

STANDARD

S*20. Direct Turbine Building operator to complete Attachment 1, including alternate isolation for PVT-2875.

Turbine Building operator acknowledges and completes Attachment 1, including local valve XVT-2872.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 8

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT**PERFORMANCE CHECKLIST:****SAT. UNSAT.****COMMENTS:** _____

Examiner Stops JPM At This Point

TIME STOPPED: _____**GENERAL COMMENTS:**_____

_____**NRC KA REFERENCES:**

<u>KA NUMBER</u>		<u>IMPORTANCE</u>	<u>FACTOR</u>
		<u>RO</u>	<u>SRO</u>
000038.EA2.12	Ability to determine status of MSIV activating system.	<u>3.9*</u>	<u>4.2</u>

STEAM GENERATOR TUBE RUPTURE

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<div data-bbox="299 320 1481 481" style="border: 1px solid black; padding: 10px; text-align: center;"> <p>CAUTION - Step 3</p> <p>At least <u>one</u> SG must be maintained available for RCS cooldown.</p> </div> <p>3 Isolate flow from <u>each</u> RUPTURED SG:</p> <ul style="list-style-type: none"> a. Place the Steamline PWR RELIEF A(B)(C) SETPT Controller(s) in MAN and closed. <input type="checkbox"/> b. Adjust the PWR RELIEF A(B)(C) SETPT Controller(s) to 8.85 (1150 psig). <input type="checkbox"/> c. Place the Steamline Power Relief A(B)(C) Mode Switch(s) in PWR RLF. <input type="checkbox"/> d. Place the PWR RELIEF A(B)(C) SETPT Controller(s) in AUTO. <input type="checkbox"/> e. <u>WHEN</u> RCS T_{avg} is LESS THAN P-12 (552°F), <u>THEN</u> place <u>both</u> STM DUMP INTERLOCK Switches to BYP INTLK. <input type="checkbox"/> f. Verify the Steamline PORV closed. <input type="checkbox"/> <p>(Step 3 continued on next page)</p>	
	<ul style="list-style-type: none"> f. <u>WHEN</u> RUPTURED SG pressure is LESS THAN 1150 psig, <u>THEN</u> verify the associated Steamline PORV is closed. <input type="checkbox"/> <u>IF any</u> RUPTURED SG Steamline PORV is open with pressure LESS THAN 1150 psig, <u>THEN</u> close the PORV. <input type="checkbox"/> <p>(Step 3 continued on next page)</p>

STEAM GENERATOR TUBE RUPTURE

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
(Step 3 continued)	(Step 3 continued)
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>CAUTION - Step 3.g</p> <p>If the TD EFW Pump is the only available source of feed flow, the steam supply to the TD EFW Pump must be maintained from at least <u>one</u> SG, to maintain a secondary heat sink.</p> </div>	
<p>g. Close and locally deenergize the appropriate valve if SG B <u>OR</u> SG C is RUPTURED:</p> <ul style="list-style-type: none"> • For SG B: <ul style="list-style-type: none"> 1) Close MVG-2802A, MS LOOP B TO TD EFP. <input type="checkbox"/> 2) Open XMC1DA2X 05EH, EF PUMP MAIN STEAM BLOCK VLV XVG2802A-MS (IB-463). <input type="checkbox"/> • For SG C: <ul style="list-style-type: none"> 1) Close MVG-2802B, MS LOOP C TO TD EFP. <input type="checkbox"/> 2) Open XMC1DB2Y 05EH, EMERG FEEDWATER PUMP MAIN STEAM BLOCK XVG2802B-MS (AB-463). <input type="checkbox"/> <p>h. Close the following valves for <u>each</u> RUPTURED SG:</p> <ul style="list-style-type: none"> • SG Blowdown, PVG-503A(B)(C). <input type="checkbox"/> • MS Drain Isolation, PVT-2843A(B)(C). <input type="checkbox"/> • MS Drain Isolation, PVT-2877A for SG A PVT-2877B for SG C. <input type="checkbox"/> <p>(Step 3 continued on next page)</p>	<p>g. Locally deenergize and close the appropriate valve:</p> <ul style="list-style-type: none"> • For SG B: <ul style="list-style-type: none"> 1) Open XMC1DA2X 05EH, EF PUMP MAIN STEAM BLOCK VLV XVG2802A-MS (IB-463). <input type="checkbox"/> 2) Close XVG02802A-MS, MS HEADER B EF PUMP TURBINE SUPPLY VLV (IB-436 East Pen). <input type="checkbox"/> • For SG C: <ul style="list-style-type: none"> 1) Open XMC1DB2Y 05EH, EMERG FEEDWATER PUMP MAIN STEAM BLOCK XVG2802B-MS (AB-463). <input type="checkbox"/> 2) Close XVG02802B-MS, MS HEADER C EF PUMP TURBINE SUPPLY VLV (IB-436 East Pen). <input type="checkbox"/> <p>(Step 3 continued on next page)</p>

STEAM GENERATOR TUBE RUPTURE

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>(Step 3 continued)</p> <p>i. Close the following for <u>each</u> RUPTURED SG:</p> <ul style="list-style-type: none"> • MS Isolation Valve, PVM-2801A(B)(C). <input type="checkbox"/> • MS Isolation Bypass Valve, PVM-2869A(B)(C). <input type="checkbox"/> 	<p>(Step 3 continued)</p> <p>i. Perform the following:</p> <p>1) Close the following:</p> <ul style="list-style-type: none"> • <u>All</u> remaining MS Isolation <input type="checkbox"/> AND MS Isolation Bypass Valves. • PCV-2058, MS TO AUX STM. <input type="checkbox"/> • MVG-1701, STEAM SEAL FEED VLV. <input type="checkbox"/> • MVG-2896A, SV-1 BSD. <input type="checkbox"/> • MVG-2896B, SV-2 BSD. <input type="checkbox"/> • MVG-2896C, SV-3 BSD. <input type="checkbox"/> • MVG-2896D, SV-4 BSD. <input type="checkbox"/> • IPV-2231, MS/PEGGING STM TO DEAERATOR. <input type="checkbox"/> <p>2) At the Digital Control Station for the MSRs, ensure the following are closed:</p> <ul style="list-style-type: none"> • MVG-2811. <input type="checkbox"/> • XVG-2807. <input type="checkbox"/> <p>3) Place the STM DUMP CNTRL Controller in MAN and closed. <input type="checkbox"/></p> <p>4) Place the STM DUMP MODE SELECT Switch in STM PRESS. <input type="checkbox"/></p>
<p>(Step 3 continued on next page)</p>	<p>(Step 3 continued on next page)</p>

STEAM GENERATOR TUBE RUPTURE

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
(Step 3 continued)	<p>(Step 3 continued)</p> <p>5) Place the following in AUTO and ensure the valves are closed (REFER TO Attachment 1 if necessary to locally isolate valves):</p> <ul style="list-style-type: none"> • PVT-2870, TO MSR A & B DRN. <input type="checkbox"/> • PVT-2875, TO MSR A & B DRN. <input type="checkbox"/> • PVT-2851A,B,C,D., MS LINES TO TURB DRN. <input type="checkbox"/> • PVT-2713A,B,C,D., STM DUMP DRN BYP. <input type="checkbox"/> • PVT-2838A,B, HDR DRNS. <input type="checkbox"/> <p>6) Direct the Turbine Building Operator to complete Attachment 1, ALTERNATIVE ISOLATION OF RUPTURED STEAM GENERATORS. <input type="checkbox"/></p> <p>7) Use INTACT SG(s) Steamline PORV(s) as needed in subsequent steps to dump steam. <input type="checkbox"/></p> <p>IF any RUPTURED SG can NOT be isolated from at least one INTACT SG, THEN GO TO EOP-4.2, SGTR WITH LOSS OF REACTOR COOLANT: SUBCOOLED RECOVERY DESIRED, Step 1. <input type="checkbox"/></p>

**V C Summer
JPM No. B.1.c/NRC-1
Perform FEP Actions**

Applicant:	Evaluation Date:
Application Level: RO	K/A: 067AA2.17 (3.5/4.3)
Examiner:	10 CFR 55.45 Ref: (a)8

Evaluation Method:	Evaluation Location:
[] Performed [XX] Simulated	[] Simulator [] Classroom [XX] Plant
Overall JPM Evaluation	
[] SAT [] UNSAT	
Examiner Comments	

**V C Summer
JPM No. B.1.c/NRC-1
Perform FEP Actions**

Applicant:	Evaluation Date:
Application Level: RO	K/A: 067AA2.17 (3.5/4.3)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions: The unit is operating at 100% power.

Assigned Task: A fire is reported in the intermediate building in fire zone IB-25.1.2. The CRS has directed you to perform FEP-2.0, Attachment III, as modified by Part Numbers 40, 43, and 44.

**V C Summer
JPM No. B.1.c/NRC-1
Perform FEP Actions**

Applicant:	Evaluation Date:
Application Level: RO	K/A: 067AA2.17 (3.5/4.3)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions: The unit is operating at 100% power.

Assigned Task: A fire is reported in the intermediate building in fire zone IB-25.1.2. The CRS has directed you to perform FEP-2.0, Attachment III, as modified by Part Numbers 40, 43, and 44.

Required Items:

Task Standard: Perform steps of FEP-2.0, making appropriate substitutions. All steps are considered critical.

**V C Summer
JPM No. B.1.c/NRC-1
Perform FEP Actions**

Applicant:	Evaluation Date:
Application Level: RO	K/A: 067AA2.17 (3.5/4.3)
Examiner:	10 CFR 55.45 Ref: (a)8

XX Performance step: 1

Standard: **Perform the actions of Part ARO-40:**

- ☐ **Open disconnect switches DS-10 and DS-11 in XCP-6113, sub-panel 19B.**

Comment:

XX Performance step: 2

Standard: **Perform the actions of Part ARO-43:**

- ☐ **Open disconnect switches DS-5 and DS-6 in XCP-6112, sub-panel 19A.**
- ☐ **Open disconnect switches DS-8 and DS-9 in XCP-6113, sub-panel 19B.**

Comment:

XX Performance step: 3

Standard: **Perform the actions of Part ARO-44:**

- ☐ **Open disconnect switches DS-3 and DS-4 in XCP-6112, sub-panel 19A.**
- ☐ **Open disconnect switches DS-7 and DS-12 in XCP-6113, sub-panel 19B.**

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

XX Performance step: 4

Standard: **Perform actions of FEP-2.0, Attachment III, step 1:**

- ☐ **Select PWR RLF and close PCV-2000, 2010, and 2020**

Comment:

XX Performance step: 5

Standard: **Perform actions of FEP-2.0, Attachment III, step 2:**

- ☐ **Open disconnect switches DS-32 and DS-33 in XCP-6112, sub panel-19A**
- ☐ **Open disconnect switches DS-31 and DS-13 in XCP-6113, sub panel-19B**

Comment:

XX Performance step: 6

Standard: **Perform actions of FEP-2.0, Attachment III, step 3:**

- ☐ **Establish Train A CCW using CCW Pump A or C**

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

XX Performance step: 7

Standard: **Perform actions of FEP-2.0, Attachment III, step 4:**

- ☐ **Establish Train A charging using Charging Pump A or C**
 - ☐ **Open LCV-115B**
 - ☐ **Open LCV-115D**
 - ☐ **Open MVT-8109A(C)**
 - ☐ **Ensure MVG-8106 open**
 - ☐ **Open MVG-8130A**
 - ☐ **Open MVG-8130B**
 - ☐ **Start pump A or C**
 - ☐ **Close LCV-115E**

Comment:

XX Performance step: 8

Standard: **Perform actions of FEP-2.0, Attachment III, step 5:**

- ☐ **On integrated Fire Service Panel, select POWER SELECT to Bus A**

Comment:

Performance step: 9

Standard: **Perform actions of FEP-2.0, Attachment III, step 6:**

- ☐ **Remove power from Bus 1DB**
 - ☐ **Verify BUS 1DB DG FEED breaker is open**
 - ☐ **Verify the IB Operator has reported DG B is disabled (cue: DG B is disabled)**
 - ☐ **Open Bus 1DB NORM FEED breaker**
 - ☐ **Open BUS 1DB ALT FEED breaker**

Comment:

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PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

XX Performance step: 10

Standard: **Perform actions of FEP-2.0, Attachment III, step 7:**

- ☐ **Establish power to Bus 1DA from DG A**
 - ☐ **Start DG A by pressing EMERG START**
 - ☐ **Verify normal voltage and frequency indications**
 - ☐ **Verify BUS 1DA ALT FEED breaker is open**
 - ☐ **Open BUS 1DA NORM FEED breaker**
 - ☐ **Verify BUS 1DA DG FEED breaker is closed**

Comment:

XX Performance step: 11

Standard: **Perform actions of FEP-2.0, Attachment III, step 8:**

- ☐ **Ensure Train A loads start**
 - ☐ **charging pump**
 - ☐ **RHR Pump**
 - ☐ **SW Pump**
 - ☐ **HVAC Chilled Water pump**
 - ☐ **CCW Pump**
 - ☐ **Motor Driven EFW pump**
 - ☐ **RBCU 64A and 65A (slow speed)**
 - ☐ **FHB Exhaust Fan**
 - ☐ **SWBP**
 - ☐ **HVAC chiller**
 - ☐ **XFN-32A, 36A, 38A, 39A, 50, 80A, 106A-81A, 132**

Comment:

_____ Performance step: 12

Standard: **Perform actions of FEP-2.0, Attachment III, step 9:**

- ☐ **Ensure ventilation aligned**
 - ☐ **XFN-46A running**

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PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

-
- | | |
|--------------------------|--|
| <input type="checkbox"/> | XFN-47 if C charging pump is the Train A pump |
| <input type="checkbox"/> | XDP-113A open |

Comment:

Terminating cue: Terminate JPM at this point

**V C Summer
JPM No. B.1.c/NRC-2
Perform FEP Actions**

Applicant:	Evaluation Date:
Application Level: SRO	K/A: 067AA2.17 (3.5/4.3)
Examiner:	10 CFR 55.45 Ref: (a)8

Evaluation Method: <input checked="" type="checkbox"/> Performed <input type="checkbox"/> Simulated	Evaluation Location: <input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Classroom <input type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	
Examiner Comments <div style="height: 400px;"></div>	

**V C Summer
JPM No. B.1.c/NRC-2
Perform FEP Actions**

Applicant:	Evaluation Date:
Application Level: SRO	K/A: 067AA2.17 (3.5/4.3)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions: You are the Control Room Supervisor. The control room is informed that a large fire is in progress in the reactor building, 412' elevation, near the "A" steam generator compartment fan. The fire zone designation is unknown to the operators reporting the fire.

Assigned Task: The Shift Supervisor has assigned you to execute the FEPs while he performs EP actions.

**V C Summer
JPM No. B.1.c/NRC-2
Perform FEP Actions**

Applicant:	Evaluation Date:
Application Level: SRO	K/A: 067AA2.17 (3.5/4.3)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions: You are the Control Room Supervisor. The control room is informed that a large fire is in progress in the reactor building, 412' elevation, near the "A" steam generator compartment fan. The fire zone designation is unknown to the operators reporting the fire.

Assigned Task: The Shift Supervisor has assigned you to execute the FEPs while he performs EP actions.

Required Items:

Task Standard: Perform steps of FEP-2.0 and directs activities of watchstanders, identifying correct fire zone, pulling appropriate modifying part numbers and verifying plant conditions with alternate instrumentation specified in FEP-1.0.

Note to Examiner:

JPM to be performed in simulator with surrogate to perform board actions. Objective is to evaluate the SRO's ability to direct the actions of the FEPs with an emphasis on highlighting instrumentation changes to the board operator. If the SRO does not direct the instrumentation changes, it is assumed that the surrogate will report readings from normally used (as opposed to the procedurally dictated replacement) instruments.

**V C Summer
JPM No. B.1.c/NRC-2
Perform FEP Actions**

Applicant:	Evaluation Date:
Application Level: SRO	K/A: 067AA2.17 (3.5/4.3)
Examiner:	10 CFR 55.45 Ref: (a)8

XX Performance step: 1

Standard: Upon receiving the notification, the S/S refers to FEP-1.0 and the E-023-000 series drawings. He determines the fire to be in fire zone RB-1.1.1 from drawing E-023-000-005, 016. [FEP-1.0, Steps 3.1, 3.2, 3.3, 3.4]

Comment:

Start Time: _____

XX Performance step: 2

Standard: The S/S transitions to FEP-2.0 and directs the following:

- ☐ Control Room Supervisor is to implement Attachment I of the procedure, as modified by part number 21 [FEP-1.0, 3.4 and FEP 2.0 Step 3.2]
- ☐ NROTC is to implement Attachment II of the procedure.
- ☐ "A" RO is to implement Attachment III of the procedure [FEP 2.0 Step 3.4], as modified by part number 40 [FEP-1.0, 3.4 and FEP 2.0 Step 3.3].
- ☐ IB Operator is to implement Attachment IV of the procedure [FEP 2.0 Step 3.5]
- ☐ AB Operator Upper is to implement Attachment V of the procedure, as modified by part number 54 [FEP-1.0, 3.4 and FEP 2.0 Step 3.6]
- ☐ Electrical Maintenance personnel are to implement Attachment VI of the procedure [FEP 2.0 Step 3.7]

Comment:

___ Performance step: 3

Standard: S/S directs that steam generator pressure be maintained between 1000 psig and 1100 psig by throttling PCV-2000, 2010, and 2020 [FEP 2.0 Step 3.8]

**V C Summer
JPM No. B.1.c/NRC-2
Perform FEP Actions**

Applicant:	Evaluation Date:
Application Level: SRO	K/A: 067AA2.17 (3.5/4.3)
Examiner:	10 CFR 55.45 Ref: (a)8

Comment:

XX Performance step: 4

Standard: **Direct operators to verify natural circulation by:**

- ☐ **RCS subcooling > 30°F as determined from PI-402 (note - this is a *departure* from FEP-2.0; a modification *directed by FEP-1.0*), TI-423, and steam tables.**
- ☐ **Steam generator pressure stable or decreasing as indicated on PI-484 and PI-2010.**
- ☐ **RCS Coolant system Th stable or decreasing as indicated on TI-423**
- ☐ **RCS Tc at saturation temp for SG pressure as indicated on PI-484 via steam tables (note - this is a *departure* from FEP-2.0; a modification *directed by FEP-1.0*).**

[FEP 2.0 Step 3.7]

Comment:

Terminating cue: Terminate JPM when applicant completes step 3.7 of FEP-2.0.

**V C Summer
JPM No. B.1.d/JPSF-062
Mid-Loop Operations**

Applicant:	Evaluation Date:
Application Level: RO/SRO(I)	K/A: 025AA2.07 (3.4/3.7)
Examiner:	10 CFR 55.45 Ref: (a)8

Evaluation Method: <input checked="" type="checkbox"/> Performed <input type="checkbox"/> Simulated	Evaluation Location: <input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Classroom <input type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	
Examiner Comments	

V C Summer
JPM No. B.1.d/JPSF-062
Mid-Loop Operations

Applicant:	Evaluation Date:
Application Level: RO/SRO(I)	K/A: 025AA2.07 (3.4/3.7)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions: The plant is in MODE 5 with the RCS at mid-loop conditions
The "A" RHR loop is in service

Assigned Task: Maintain plant conditions

V C Summer
JPM No. B.1.d/JPSF-062
Mid-Loop Operations

Applicant:	Evaluation Date:
Application Level: RO/SRO(I)	K/A: 025AA2.07 (3.4/3.7)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions: The plant is in MODE 5 with the RCS at mid-loop conditions
The "A" RHR loop is in service

Assigned Task: Maintain plant conditions

Required Items:

Task Standard: Respond to RHR vortexing/cavitation per AOP-115.1. Trip RHR pump when throttling is ineffective in ceasing the cavitation. HCV-603A closed, flow throttled on FCV-605A. Transition to AOP-115.5 recommended.

Note to Examiner:

A 500 gpm leak will be inserted to create the vortexing condition. Depending upon the operator's speed, he may close the RHR throttle valve quickly enough to stop the vortexing condition before flow drops to below 500 gpm (pump trip criteria). If so, the leak should reduce level to less than 14", an alternative tripping criterion.

V.C. SUMMER NUCLEAR STATION

NRC JOB PERFORMANCE MEASURE

JPSF-062

RESPOND TO RHR PUMP VORTEXING (NRC)

Revision No. 0

JPM NOT APPROVED FOR EXAM USE. FOR INFORMATION ONLY.

PAGE 0

RESPOND TO RHR PUMP VORTEXING (NRC)

TRAINEE _____ **EVALUATOR** _____

EVALUATOR SIGNATURE _____ **DATE** _____

EVALUATION METHOD: **PERFORM**

EVALUATION LOCATION: **SIMULATOR**

ESTIMATED TIME: **10.0 MINUTES** **TIME STARTED:** _____

10CFR55.41(b)10 **ADMINISTRATIVE, NORMAL, ABNORMAL, AND**
 EMERGENCY OPERATING PROCEDURES FOR THE
 FACILITY

TIME CRITICAL: **No** **FAULTED JPM:** **No**

TRAINEE PERFORMANCE: **SATISFACTORY** _____ **UNSATISFACTORY** _____

READ TO OPERATOR:

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES.

WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

INITIAL CONDITIONS:

1. The plant is in Mode 5 with the RCS at mid-loop conditions.
2. The 'A' RHR loop is in service.

TOOLS AND EQUIPMENT NEEDED:

NONE

REFERENCED DOCUMENTS:**REV DATE**

1. AOP*115.1 RHR PUMP VORTEXING

11/20/97

TASK STANDARDS:

1. HCV-603A closed.
2. Flow throttled on FCV-605A.
3. 'A' RHR pump secured when RHR flow <500 gpm.
4. Transition to AOP-115.5 recommended.

PAGE 1

RESPOND TO RHR PUMP VORTEXING (NRC)

TASK STANDARDS:**INITIATING CUES:**

1. Respond as NROATC to changing plant conditions.

TERMINATING CUES:

1. 'A' RHR pump secured.
2. Transition to AOP-115.5 recommended.

SAFETY CONSIDERATIONS:

NONE

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 2

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:SAT. UNSAT.STEPSTANDARD

S*1. Close RHR outlet valve.

FCV-603A controller setpoint indicates
0.COMMENTS: _____

NOTE 2: The student should attempt to reduce RHR flow until vortexing
indications stop. Because of the size of the leak, RHR flow will be
<500 gpm if/when the vortexing is stopped.

STEPSTANDARDS 2. Throttle FCV-605A to stabilize
RHR flow.FCV-605A controller taken to manual and
reduced until RHR pump amps and flow are
stable.STEPSTANDARDS 3. Determines 'A' loop RHR flow
<500 gpm.

FI 605A indicates <500 gpm.

NOTE 4: If the 'A' RHR pump trips due to excessive air binding, this
constitutes failure.

STEPSTANDARD

S*4. Secures 'A' RHR pump.

'A' RHR pump indicates red light OFF,
green light ON.COMMENTS: _____
_____STEPSTANDARD

S*5. Transitions to AOP-115.5.

Recommends/transitions to AOP-115.5,
LOSS OF RHR WITH THE RCS INTACT.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 3

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

COMMENTS: _____

Examiner Stops JPM At This Point

TIME STOPPED: _____

GENERAL COMMENTS:

NRC KA REFERENCES:

<u>KA NUMBER</u>		<u>IMPORTANCE FACTOR</u>	
		<u>RO</u>	<u>SRO</u>
000025.GEN.11	Ability to recognize abnormal indications for system operating parameters which are entry level conditions for emergency and abnormal operating procedures.	<u>3.6</u>	<u>3.9</u>

RHR PUMP VORTEXING

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<u>OPERATOR ACTIONS</u>	
<p style="text-align: center;"><u>NOTE</u></p> <p>If at <u>any</u> time it is determined that a total loss of RHR condition exists, AOP-115.5, LOSS OF RHR WITH THE RCS NOT INTACT (MODE 5), should be performed.</p>	
<p style="text-align: center;"><u>CAUTION - Step 1</u></p> <ul style="list-style-type: none"> • RHR Pump flow should <u>NOT</u> be reduced to LESS THAN 500 gpm, to prevent RHR Pump damage. • RHR Pump run time with flow LESS THAN 1000 gpm should be limited to LESS THAN 30 minutes. 	
<p>① Reduce RHR Loop A(B) flow:</p> <p>a. Close HCV-603A(B), A(B) OUTLET. <input type="checkbox"/></p> <p>b. Throttle FCV-605A(B), A(B) BYP. <input type="checkbox"/> as necessary to stabilize RHR flow.</p> <p>c. Monitor the following:</p> <ul style="list-style-type: none"> • FI-605A(B), PUMP A(B) FLOW GPM. <input type="checkbox"/> • RHR PUMP A(B) AMPS. <input type="checkbox"/> • RCS heatup rate. <input type="checkbox"/> <p>d. Throttle flow as necessary to stabilize RHR Pump amps with flow GREATER THAN 500 gpm. <input type="checkbox"/></p>	<p>d. <u>IF</u> RHR Pump flow and amps are still unstable at 500 gpm, <u>THEN</u> perform the following:</p> <p>1) Stop the operating RHR Pump. <input type="checkbox"/></p> <p>2) GO TO AOP-115.5, LOSS OF RHR WITH THE RCS NOT INTACT (MODE 5). <input type="checkbox"/></p>

RHR PUMP VORTEXING

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>* 2 Monitor RCS heatup:</p> <ul style="list-style-type: none"> • Monitor TR-413, HOT LEG °F WIDE RNG. <input type="checkbox"/> • Implement STP-103.001, REACTOR COOLANT SYSTEM AND PRESSURIZER HEATUP/COOLDOWN SURVEILLANCE. <input type="checkbox"/> <p>* 3 Verify RCS Hot Leg level is GREATER THAN <u>OR</u> EQUAL TO 14.0 inches:</p> <ul style="list-style-type: none"> • LR-1330, LP A LVL INCHES (L-1330). <input type="checkbox"/> • LR-1331, LP C LVL INCHES (L-1331). <input type="checkbox"/> • Sight Glass (local). <input type="checkbox"/> • Video monitor. <input type="checkbox"/> <p>4 Control Charging and Letdown flow to restore RCS Hot Leg level to GREATER THAN 15.5 inches. <input type="checkbox"/></p> <p>5 Increase RCS Hot Leg level to between 18.5 inches and 22.5 inches:</p> <p>a. Monitor RCS Hot Leg level:</p> <ul style="list-style-type: none"> • LR-1330, LP A LVL INCHES (L-1330). <input type="checkbox"/> • LR-1331, LP C LVL INCHES (L-1331). <input type="checkbox"/> • Sight Glass (local). <input type="checkbox"/> • Video monitor. <input type="checkbox"/> <p>b. Control Charging and Letdown via the operating RHR loop to restore RCS Hot Leg level. <input type="checkbox"/></p>	<p>* 3 Perform the following:</p> <p>a) Stop the operating RHR Pump. <input type="checkbox"/></p> <p>b) GO TO AOP-115.5, LOSS OF RHR WITH THE RCS NOT INTACT (MODE 5). <input type="checkbox"/></p> <p>4 IF RCS Hot Leg level can <u>NOT</u> be restored to GREATER THAN 15.5 inches, <u>THEN</u> GO TO Step 10. <input type="checkbox"/></p> <p>5 GO TO Step 10. <input type="checkbox"/></p>

RHR PUMP VORTEXING

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>6 Restore operating RHR loop flow to the pre-event value:</p> <p>a. Throttle open HCV-603A(B). A(B) OUTLET. <input type="checkbox"/></p> <p>b. Maintain RHR Pump flow within the limits of Attachment 1. <input type="checkbox"/></p> <p>c. Throttle FCV-605A(B), A(B) BYP, as necessary to obtain the desired flow. <input type="checkbox"/></p> <p>d. Verify RHR Pump flow equals the pre-event value, as indicated on FI-605A(B), PUMP A(B) FLOW GPM. <input type="checkbox"/></p> <p>7 Vent the operating RHR loop. REFER TO STP-105.006, SAFETY INJECTION/RESIDUAL HEAT REMOVAL MONTHLY FLOWPATH VERIFICATION TEST. <input type="checkbox"/></p> <p>8 Verify the operating RHR Pump flow is normal:</p> <ul style="list-style-type: none"> • RHR Pump flow is stable. <input type="checkbox"/> • RHR Pump amps are stable. <input type="checkbox"/> • RHR LOOP A(B) FLO LO (XCP-610 1-2(2-2)), annunciator is <u>NOT</u> lit. <input type="checkbox"/> <p>9 RETURN TO the Procedure and Step in effect. <input type="checkbox"/></p>	<p>8 RETURN TO Step 1. Observe the CAUTION prior to Step 1. <input type="checkbox"/></p>

RHR PUMP VORTEXING

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>10 Align idle RHR Loop A to the RWST:</p> <p>a. Verify RHR Pump A is shutdown. <input type="checkbox"/></p> <p>b. Close MVG-8887B, RHR LP B TO HOT LEGS. <input type="checkbox"/></p> <p>c. Adjust FCV-605A, A BYP, to 20%. <input type="checkbox"/></p> <p>d. Close HCV-603A, A OUTLET. <input type="checkbox"/></p> <p>e. Close <u>both</u> RCS LP A TO PUMP A Valves:</p> <ul style="list-style-type: none"> • MVG-8701A. <input type="checkbox"/> • MVG-8702A. <input type="checkbox"/> <p>f. Ensure MVG-602A, PUMP A MINI FLOW, is open. <input type="checkbox"/></p> <p>g. Place TRN A PWR LCKOUT to ON. <input type="checkbox"/></p> <p>h. Open MVG-8889, RHR LP A&B TO HOT LEGS. <input type="checkbox"/></p> <p>i. Place TRN A PWR LCKOUT to OFF. <input type="checkbox"/></p>	<p>a. <u>IF</u> RHR Loop A is operating, <input type="checkbox"/> <u>THEN CONTINUE WITH Step 11</u> to align RHR Loop B.</p>
<div data-bbox="330 1227 1455 1384" style="border: 1px solid black; padding: 5px; text-align: center;"> <p><u>NOTE - Step 10.i</u></p> <p>Opening MVG-8809A, RWST TO RHR PP A, may add up to 300 gpm to the RCS.</p> </div> <p>j. Open MVG-8809A, RWST TO RHR PP A. <input type="checkbox"/></p> <p>k. GO TO Step 12. <input type="checkbox"/></p>	

RHR PUMP VORTEXING

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>11 Align idle RHR Loop B to the RWST:</p> <ul style="list-style-type: none"> a. Close MVG-8887A, RHR LP A TO HOT LEGS. <input type="checkbox"/> b. Adjust FCV-605B, B BYP, to 20%. <input type="checkbox"/> c. Close HCV-603B, B OUTLET. <input type="checkbox"/> d. Close <u>both</u> RCS LP C TO PUMP B Valves: <ul style="list-style-type: none"> • MVG-8701B. <input type="checkbox"/> • MVG-8702B. <input type="checkbox"/> e. Ensure MVG-602B, PUMP B-MINI FLOW, is open. <input type="checkbox"/> f. Place TRN A PWR LCKOUT to ON. <input type="checkbox"/> g. Open MVG-8889, RHR LP A&B TO HOT LEGS. <input type="checkbox"/> h. Place TRN A PWR LCKOUT to OFF. <input type="checkbox"/> 	
<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p><u>NOTE - Step 11.i</u></p> <p>Opening MVG-8809B, RWST TO RHR PP B, may add up to 300 gpm to the RCS.</p> </div>	
<ul style="list-style-type: none"> i. Open MVG-8809B, RWST TO RHR PP B. <input type="checkbox"/> 	

RHR PUMP VORTEXING

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>12 Verify RCS level is increasing. <input type="checkbox"/></p>	<p>12 Start the idle RHR Pump to increase RCS level:</p> <ul style="list-style-type: none"> • Using RHR Loop A: <ul style="list-style-type: none"> a) Ensure CCW Train A is running. <input type="checkbox"/> b) Start XPP-0031A. PUMP A. <input type="checkbox"/> c) Throttle open HCV-603A, A OUTLET, as necessary to increase RCS level. <input type="checkbox"/> <li style="text-align: center;"><u>OR</u> • Using RHR Loop B: <ul style="list-style-type: none"> a) Ensure CCW Train B is running. <input type="checkbox"/> b) Start XPP-0031B. PUMP B. <input type="checkbox"/> c) Throttle open HCV-603B, B OUTLET, as necessary to increase RCS level. <input type="checkbox"/>
<p>13 Verify RCS level is between 18.5 inches and 22.5 inches. <input type="checkbox"/></p>	<p>13 RETURN TO Step 12. <input type="checkbox"/></p>
<p>14 Restore operating RHR loop flow:</p> <ul style="list-style-type: none"> a. Throttle open HCV-603A(B), A(B) OUTLET. <input type="checkbox"/> b. Maintain RHR Pump flow within the limits of Attachment 1. <input type="checkbox"/> c. Throttle FCV-605A(B), A(B) BYP, as necessary to obtain the desired flow. <input type="checkbox"/> 	

Applicant:	Evaluation Date:
Application Level: RO/SRO(I)	K/A: 004A4.08 (3.8/3.4)
Examiner:	10 CFR 55.45 Ref: (a)8

C:\WINDOWS\Profiles\msm\Desktop\Summer\New JPM Files\rob1e.wpd

V C Summer
JPM No. B.1.e/JPSF-046
Transfer of In-Service Charging Pump

Applicant:	Evaluation Date:
Application Level: RO/SRO(I)	K/A: 004A4.08 (3.8/3.4)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions: The unit is operating at 100% power.

Assigned Task: Align the "C" charging pump to the "A" train.

V C Summer
JPM No. B.1.e/JPSF-046
Transfer of In-Service Charging Pump

Applicant:	Evaluation Date:
Application Level: RO/SRO(I)	K/A: 004A4.08 (3.8/3.4)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions: The unit is operating at 100% power.

Assigned Task: Align the "C" charging pump to the "A" train.

Required Items:

Task Standard: The "C" Charging pump is started in accordance with SOP-102, and is tripped within 1 minute of start because water supply valve to the pump has not opened.

V.C. SUMMER NUCLEAR STATION

NRC JOB PERFORMANCE MEASURE

JPSF-046

TRANSFER IN-SERVICE CHARGING PUMP (NRC)

Revision No. 0

Faulted JPM

JPM NOT APPROVED FOR EXAM USE. FOR INFORMATION ONLY.

PAGE C

TRANSFER IN-SERVICE CHARGING PUMP (NRC)

TRAINEE _____ EVALUATOR _____

EVALUATOR SIGNATURE _____ DATE _____

EVALUATION METHOD: PERFORM
EVALUATION LOCATION: SIMULATOR

ESTIMATED TIME: 10.0 MINUTES TIME STARTED: _____

10CFR55.45 (a) 8 SAFELY OPERATE THE FACILITIES AUXILIARY AND
EMERGENCY SYSTEMS, INCLUDING OPERATION OF
THOSE CONTROLS ASSOCIATED WITH PLANT
EQUIPMENT THAT COULD AFFECT REACTIVITY OR
THE RELEASE OF RADIOACTIVE MATERIALS TO THE
ENVIRONMENT

TIME CRITICAL: No FAULTED JPM: Yes

TRAINEE PERFORMANCE: SATISFACTORY _____ UNSATISFACTORY _____

READ TO OPERATOR:

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES.

WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

INITIAL CONDITIONS:

1. The plant is operating at 100% power. It is necessary to start "C" charging pump on "A" Train in order to equalize run time.

TOOLS AND EQUIPMENT NEEDED:

NONE

REFERENCED DOCUMENTS:**REV DATE**

1. SOP*102 CHEMICAL AND VOLUME CONTROL SYSTEM 02/16/00

PAGE 1

TRANSFER IN-SERVICE CHARGING PUMP (NRC)
--

TASK STANDARDS:

1. 'A' Charging pump running.
2. 'C' Charging pump secured within one minute of receiving the CCW TO CHG PP C VLV NOT FULL OPEN annunciator.

INITIATING CUES:

1. CRS directs NROATC to place 'C' charging pump in service on 'A' train and remove 'A' charging pump, per SOP-102, Section III.

TERMINATING CUES:

1. 'C' Charging pump secured.
2. CRS informed.

SAFETY CONSIDERATIONS:

NONE

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 2

(S) DENOTES SEQUENCED ELEMENT

(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:SAT. UNSAT.STEPSTANDARD

- S 1. Verify MCB lineup for aligning charging pump "C" to "A" Train. Complete applicable (MCB) portions of SOP-102 Att. VA.

NOTE 2: Booth operator cues examine that local lineup for aligning charging pump 'C' to 'A' train per Attachment VA is complete with exception of charging pump breakers.

STEPSTANDARD

- S 2. Verify local lineup for aligning charging pump "C" to "A" Train. AS operator reports Attachment VA of SOP-102 complete with the exception of charging pump breakers.

STEPSTANDARD

- S*3. Directs IB operator to rack up "C" charging pump on "A" train. IB operator reports "C" charging pump racked up on "A" train.

COMMENTS:

STEPSTANDARD

- S 4. Start the Charging pump 'C' Auxiliary Oil pump. Verifies XPP-43C-PP1, CHG PP C AUX OIL PP, switch in AUTO and red light ON.

STEPSTANDARD

- S 5. Ensure 'A' Train CCW is operating per SOP-118. Verifies that 'A' CCW pp is running via red light ON and amp indication.

STEPSTANDARD

- S 6. Ensure 'A' Train chill water is running. Verifies that 'A' Train Chill Water is running via red light ON on 'A' Train Chiller and Chill Water PP, and green light OFF.

Does this still apply?

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 3

(S) DENOTES SEQUENCED ELEMENT

(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:SAT. UNSAT.STEPSTANDARD

S*7. Start 'C' charging pump.

"C" charging pump (Train A) indicates red light ON, green light OFF, and normal running amps.

COMMENTS:

STEPSTANDARD

8. Verify XPP-43C-PP1 stops automatically when charging pump comes up to full speed.

Verifies green OFF light is lit and red AUTO light is deenergized.

STEPSTANDARD

9. Monitor current and discharge pressure for proper pump operation.

Ensures current between 30 and 50 amps and ensures PI-121, CHG PRESS PSIG, is between 2650 and 2850 psig.

STEPSTANDARD

S 10. Verifies CCW flow to 'C' charging pump.

XVG-9694C, CCW TO CHG PP C indicates red light OFF, green light ON. CCW TO CHG PP C VLV NOT FULL OPEN annunciator in alarm.

STEPSTANDARD

S*11. Stops "C" charging pump.

Takes "C" charging pump switch to STOP position. Verifies green light ON for DKR OPEN indication on "C" charging pump.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 4

(S) DENOTES SEQUENCED ELEMENT

(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

COMMENTS: _____

STEP

STANDARD

12. Informs CRS of failure on 'C' charging pump.

Informs CRS of failure of CCW valve to 'C' charging pump (XVG-9684C) to open.

Examiner Stops JPM At This Point.

TIME STOPPED: _____

GENERAL COMMENTS:

NRC KA REFERENCES:

KA NUMBER

004010.A4.04

Ability to manually operate/monitor charging.

IMPORTANCE FACTOR

RO
3.8

SRO
3.4

**V C Summer
JPM No. B.1.f/JPS-012
Dropped Rod Recovery**

Applicant:	Evaluation Date:
Application Level: RO/SRO(I)	K/A: 003AA1.02 (3.6)
Examiner:	10 CFR 55.45 Ref: (a)6

Evaluation Method: <input checked="" type="checkbox"/> Performed <input type="checkbox"/> Simulated	Evaluation Location: <input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Classroom <input type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	
Examiner Comments	

**V C Summer
JPM No. B.1.f/JPS-012
Dropped Rod Recovery**

Applicant:	Evaluation Date:
Application Level: RO/SRO(I)	K/A: 003AA1.02 (3.6)
Examiner:	10 CFR 55.45 Ref: (a)6

Initial Conditions:	The plant was operating at 75% power with all controls in automatic when control rod "F2" dropped due to a blown fuse. The blown fuse was replaced in the 1AC power cabinet. Actions of AOP-403.6 have been completed through step 10.
----------------------------	--

Assigned Task:	The CRS has directed you to recover control rod "F-2" per AOP-403.6, starting with step 11.
-----------------------	---

**V C Summer
JPM No. B.1.f/JPS-012
Dropped Rod Recovery**

Applicant:	Evaluation Date:
Application Level: RO/SRO(I)	K/A: 003AA1.02 (3.6)
Examiner:	10 CFR 55.45 Ref: (a)6

Initial Conditions:	The plant was operating at 75% power with all controls in automatic when control rod "F2" dropped due to a blown fuse. The blown fuse was replaced in the 1AC power cabinet. Actions of AOP-403.6 have been completed through step 10.
----------------------------	--

Assigned Task:	The CRS has directed you to recover control rod "F-2" per AOP-403.6, starting with step 11.
-----------------------	---

Required Items: AOP-403.6

Task Standard: Rod F-2 has been recovered without causing a reactor trip and no violation of technical specifications has occurred.

V.C. SUMMER NUCLEAR STATION

NRC JOB PERFORMANCE MEASURE

JPS-012

DROPPED ROD RECOVERY

Revision No. 3

DROPPED ROD RECOVERY

TRAINEE _____ EVALUATOR _____

EVALUATOR SIGNATURE _____ DATE _____

EVALUATION METHOD: PERFORM
EVALUATION LOCATION: SIMULATOR

ESTIMATED TIME: 15.0 MINUTES TIME STARTED: _____

10CFR55.45 (A) 5

TIME CRITICAL: No FAULTED JPM: No

TRAINEE PERFORMANCE: SATISFACTORY _____ UNSATISFACTORY _____

READ TO OPERATOR:

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

INITIAL CONDITIONS:

1. Plant was operating at 75% power with all controls in automatic when control rod "F2" dropped due to a blown fuse. The blown fuse was replaced in the 1AC power cabinet. Actions of AOP-403.6 have been completed through Step 10.

TOOLS AND EQUIPMENT NEEDED:

1. AOP-403.6 (TO RECORD AFFECTED BANK HEIGHTS)

REFERENCED DOCUMENTS:

1. AOP*403.6 DROPPED CONTROL ROD

REV DATE

10/10/97

TASK STANDARDS:

1. Rod "F-2" has been recovered without causing a reactor trip and no violation of Technical Specifications has occurred.

DROPPED ROD RECOVERY

INITIATING CUES:

1. CRS has directed NROATC to recover control rod "F-2" per AOP-403.6, starting with Step 11.

TERMINATING CUES:

1. Rod Control System In Manual.
2. Dropped rod realigned with bank.

SAFETY CONSIDERATIONS:

NONE

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 2

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

STEP

STANDARD

1. Record Step Counter readings for both groups of the affected bank.

Step counter reading for both groups in Control Bank "A" have been recorded.

NOTE 2: Booth operator gives examinee P/A converter reading of 228 steps.

STEP

STANDARD

2. Record P to A Converter Reading.

P to A converter reading has been recorded.

STEP

STANDARD

- *3. Rotate ROD CNTRL BANK SEL switch clockwise to the affected bank position.

ROD CNTRL BANK SEL Switch has been rotated clockwise to the CBA position.

COMMENTS: _____

STEP

STANDARD

4. Manually reset Demand Step Counter for the affected group to zero.

The step counter for Bank A GROUP 1 has been reset to zero.

NOTE 5: As the CRS, examiner should prompt the examinee to disconnect the affected bank. Explain that the BOP operator will watch the MCB while he accomplishes this task.

STEP

STANDARD

- *5. Place all Lift Coil Disconnect Switches for the affected bank, except switches for the dropped rod, to the ROD DISCONNECTED position.

All lift coil disconnect switches for Control Bank "A" rods, except Rod "F-2", have been placed in the ROD DISCONNECTED position.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 3

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

COMMENTS: _____

NOTE 6: Rod Control System Fail Urgent Alarm will alarm. If examinee asks whether to depress the ROD CNTRL ALARM RESET switch, as the CRS, direct him to depress the switch after the rod has been realigned.

STEP

STANDARD

6. Withdraw the dropped rod:
drive the affected bank out.

Move Rod Control switch to the OUT position. Rod F2 moves in the OUT direction.

STEP

STANDARD

7. Verify dropped rod movement on the digital rod position indicator.

DRPI indicator for rod "F-2" in Bank "A" is verified to be moving out in 6 step increments.

STEP

STANDARD

8. When dropped rod moves 6 steps, then verify ONE ROD ON BOTTOM annunciator clears.

ONE ROD ON BOTTOM annunciator is observed to be flashing (in the reset condition).

NOTE 9: No turbine manipulations are required since TAVG will remain within $\pm 2^\circ\text{F}$ of TREF.

STEP

STANDARD

9. Adjust turbine load to maintain Tavg within $\pm 5^\circ\text{F}$ of Tref.

Tavg - Tref within $\pm 5^\circ\text{F}$.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 4

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

NOTE 10: Cue operator that there is no limit to the rate of recovery of the dropped rod when asked.

STEP

STANDARD

*10. Withdraw the dropped rod until the demand position recorded in Step 11.a is reached.

Rod F2 is withdrawn to the 228 step position.

COMMENTS: _____

STEP

STANDARD

11. Reset P/A converter to reading recorded in step 11.C.

Directs IB operator to reset P/A converter reading to 228 steps.

STEP

STANDARD

*12. Place all Lift Coil Disconnect Switches for the affected bank to the ROD CONNECTED position.

All lift coil disconnect switches for bank "A" are in the ROD CONNECTED position.

COMMENTS: _____

STEP

STANDARD

*13. Rotate ROD CNTRL BANK SEL Switch counter-clockwise to MAN.

ROD CNTRL BANK SEL switch is rotated counter-clockwise to the MAN position.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 5

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

COMMENTS: _____

STEP

STANDARD

14. Depress ROD CNTRL ALARM RESET
Pushbutton.

ROD CNTRL ALARM RESET pushbutton is
reset and operator verifies that ROD
CONTROL SYS FAIL URGENT annunciator
clears.

Examiner Stops JPM At This Point

TIME STOPPED: _____

GENERAL COMMENTS:

NRC KA REFERENCES:

KA NUMBER

000003.EA1.02

Ability to operate controls
and components necessary to
recover a dropped rod.

IMPORTANCE FACTOR
RO SRO
3.6 3.4

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

NUCLEAR OPERATIONS

FOR INFORMATION ONLY

ABNORMAL OPERATING PROCEDURE

AOP-403.6

DROPPED CONTROL ROD

REVISION 2

SAFETY RELATED

Donald T. Lindler
DISCIPLINE SUPERVISOR

9-11-95
DATE

Ray C. Williams
APPROVAL AUTHORITY

9-13-95
DATE

RECORD OF CHANGES

CHANGE LETTER	TYPE CHANGE	APPROVAL DATE	CANCELLED DATE	CHANGE LETTER	TYPE CHANGE	APPROVAL DATE	CANCELLED DATE
A	P	5/7/96					
B	P	10-10-97					

CONTINUOUS USE

Continuous Use of Procedure Required.
Read Each Step Prior to Performing.

NUCLEAR OPERATIONS

COPY NO. 1SAP-139
ATTACHMENT IV
PAGE 1 OF 3
REVISION 17

PROCEDURE DEVELOPMENT FORM - A

SAB 6-3-97

I. DATE: <u>6-12-97</u> PROC. # <u>AOP-403.6</u> REV. # <u>2</u> CHG. <u>AB</u> COMM. # <u> </u>	
TITLE: <u>Dropped Central Rod</u>	
NEW PROC <u> </u>	CHANGE <u>X</u> PERMANENT <u>X</u>
REVISION <u> </u>	RESTRICTED <u> </u> FROM <u> </u> TO <u> </u>
SAFETY RELATED <u>X</u>	
QUALITY RELATED <u> </u>	
NON-SAFETY RELATED <u> </u>	
II. DESCRIPTION: <u>SPECIFIES THE INFORMATION PROVIDED TO AND FROM OPERATIONS AND REACTOR ENGINEERING</u>	
REASON FOR CHANGE: <u>PROCEDURE FEEDBACK</u>	
Originator <u>E. Warden</u> Sign/Print <u>E. WARDEN</u>	
III. WILL THIS REVISION/CHANGE/NEW PROCEDURE:	
1. Result in significant increased personnel radiation exposure? (ALARA review) <u> </u> YES <u> </u> NO <u> </u> N/A	
2. Result in a release of effluents to the Environment? <u> </u> YES <u> </u> NO <u> </u> N/A	
3. Degrade the effectiveness of the Radiation Emergency Plan? <u> </u> YES <u> </u> NO <u> </u> N/A	
4. Degrade the safeguards effectiveness of the Physical Security, Safeguards Contingency or Training and Qualification Plans? <u> </u> YES <u> </u> NO <u> </u> N/A	
* If any question 1 through 4 is answered "YES", refer to appropriate section of procedure for direction.	
REQUIRED REVIEW AND COMMENT:	
MOR (<u>OK</u>) () NL&OE () CHS () GMNPO () <u> </u>	
OPS (<u>SE</u>) () MNTS () HPS () GMES () <u> </u>	
QA () NPS () SCE () GMNSS () <u> </u>	
() QC () TU () DE () <u> </u>	
REQUESTED REVIEWS:	
<u>B. H. Herwig</u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>	
Discipline Supervisor <u> </u> Date <u>6/16/97</u>	
IV. 10CFR50.59 SCREENING REVIEW/SAFETY EVALUATION	
<input checked="" type="checkbox"/> REQUIRED <input type="checkbox"/> EXEMPT <input type="checkbox"/> PSRC SUPPORTING DOCUMENT: <u> </u>	
Discipline Supervisor concurrence <u>DAC</u>	
V. TEMPORARY APPROVAL:	
QUALIFIED REVIEWER <u> </u> DATE <u> </u>	QA REVIEW <u> </u> DATE <u> </u>
TELECON BY <u> </u>	TELECON BY <u> </u>
SHIFT SUPERVISOR <u> </u> DATE <u> </u>	FINAL APPROVAL REQUIRED BY: DATE <u> </u>
VI. DISCIPLINE SUPERVISOR FINAL REVIEW:	
PSRC REVIEW PRIOR TO IMPLEMENTATION? YES <u> </u> NO <u>✓</u>	
TRAINING REQUIRED? YES <u> </u> NO <u>✓</u>	
IF YES, PRIOR TO PROCEDURE IMPLEMENTATION? YES <u> </u> NO <u> </u>	
P/CAP AFFECTED? YES <u> </u> NO <u>✓</u>	
COMMENTS RESOLVED: <u>DAC</u> <u>10-10-97</u>	
Discipline Supervisor <u> </u> Date <u> </u>	
TRAINING COMPLETED: <u>N/A</u>	
Discipline Supervisor <u> </u> Date <u> </u>	
VII. P/CAP ACCEPTABLE?	
C. YES <u> </u> NO <u>✓</u> NL&OE <u> </u> Date <u> </u>	
N. YES <u> </u> NO <u>✓</u> RESP. MGR. <u> </u> Date <u> </u>	
VIII. FINAL QA REVIEW (As Applicable)	
<u>A. Kunkle</u> <u>10/10/97</u>	
QA Concurrence <u> </u> Date <u> </u>	
IX. APPROVAL AUTHORITY:	
<u>R. M. Smith</u> <u>10/10/97</u>	
Approval/Concurrence <u> </u> Date <u> </u>	
X. PSRC REVIEW:	
A. REVIEWED BY:	
PSRC Chairman <u> </u> Date <u> </u>	
COMMENTS: YES <u> </u> NO <u> </u>	
B. PSRC COMMENTS RESOLVED:	
Responsible Manager <u> </u> Date <u> </u>	
PSRC Chairman <u> </u> Date <u> </u>	

NUCLEAR OPERATIONS

COPY NO. 1

PROCEDURE DEVELOPMENT FORM - A

SAP-139
ATTACHMENT IV
PAGE 1 OF 3
REVISION 16
CHANGE F

I. DATE: <u>3/18/96</u> PROC. # <u>AOP-403.6</u> REV. # <u>2</u> CHG. <u>A</u> COMM. # <u> </u>																																									
TITLE: <u>DROPPED CONTROL ROD</u>																																									
NEW PROC <u> </u> CHANGE <u>X</u> PERMANENT <u>X</u>	SAFETY RELATED <u>X</u>																																								
REVISION <u> </u> RESTRICTED <u> </u> FROM <u> </u> TO <u> </u>	QUALITY RELATED <u> </u>																																								
	NON-SAFETY RELATED <u> </u>																																								
II. DESCRIPTION: <u>Changed symptom which refers to the full rod withdrawal light to a status light. Deleted the symptom.</u>																																									
REASON FOR CHANGE: <u>MRF 22769C changed the alarm to a status light and light not as indicative of failure as other alarms,</u>																																									
<u>F. J. J.</u> Originator																																									
III. WILL THIS REVISION/CHANGE/NEW PROCEDURE: <table style="width:100%; border: none;"> <tr> <td></td> <td>* YES</td> <td>NO</td> <td>N/A</td> </tr> <tr> <td>1. Result in significant increased personnel radiation exposure? (ALARA review)</td> <td><u> </u></td> <td><u>X</u></td> <td><u> </u></td> </tr> <tr> <td>2. Result in a release of effluents to the Environment?</td> <td><u> </u></td> <td><u>X</u></td> <td><u> </u></td> </tr> <tr> <td>3. Degrade the effectiveness of the Radiation Emergency Plan?</td> <td><u> </u></td> <td><u> </u></td> <td><u>X</u></td> </tr> <tr> <td>4. Degrade the safeguards effectiveness of the Physical Security, Safeguards Contingency or Training and Qualification Plans?</td> <td><u> </u></td> <td><u> </u></td> <td><u>X</u></td> </tr> </table> <p>* If any question 1 through 4 is answered "YES", refer to appropriate section of procedure for direction.</p> <p>REQUIRED REVIEW AND COMMENT:</p> <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> OPS</td> <td><input type="checkbox"/> NL&OE</td> <td><input type="checkbox"/> CHS</td> <td><input type="checkbox"/> GMNPO</td> <td><input type="checkbox"/> SE</td> </tr> <tr> <td><input type="checkbox"/> MNTS</td> <td><input type="checkbox"/> P&S</td> <td><input type="checkbox"/> HPS</td> <td><input type="checkbox"/> GMES</td> <td><input type="checkbox"/> _____</td> </tr> <tr> <td><input checked="" type="checkbox"/> QA</td> <td><input type="checkbox"/> NPS</td> <td><input type="checkbox"/> MNT</td> <td><input type="checkbox"/> GMNSS</td> <td><input type="checkbox"/> _____</td> </tr> <tr> <td><input type="checkbox"/> QC</td> <td><input type="checkbox"/> TS</td> <td><input type="checkbox"/> DE</td> <td><input checked="" type="checkbox"/> QR</td> <td><input checked="" type="checkbox"/> OPS</td> </tr> </table> <p style="text-align: right;"><u>L. J. J.</u> 4-11-96 Discipline Supervisor</p>			* YES	NO	N/A	1. Result in significant increased personnel radiation exposure? (ALARA review)	<u> </u>	<u>X</u>	<u> </u>	2. Result in a release of effluents to the Environment?	<u> </u>	<u>X</u>	<u> </u>	3. Degrade the effectiveness of the Radiation Emergency Plan?	<u> </u>	<u> </u>	<u>X</u>	4. Degrade the safeguards effectiveness of the Physical Security, Safeguards Contingency or Training and Qualification Plans?	<u> </u>	<u> </u>	<u>X</u>	<input type="checkbox"/> OPS	<input type="checkbox"/> NL&OE	<input type="checkbox"/> CHS	<input type="checkbox"/> GMNPO	<input type="checkbox"/> SE	<input type="checkbox"/> MNTS	<input type="checkbox"/> P&S	<input type="checkbox"/> HPS	<input type="checkbox"/> GMES	<input type="checkbox"/> _____	<input checked="" type="checkbox"/> QA	<input type="checkbox"/> NPS	<input type="checkbox"/> MNT	<input type="checkbox"/> GMNSS	<input type="checkbox"/> _____	<input type="checkbox"/> QC	<input type="checkbox"/> TS	<input type="checkbox"/> DE	<input checked="" type="checkbox"/> QR	<input checked="" type="checkbox"/> OPS
	* YES	NO	N/A																																						
1. Result in significant increased personnel radiation exposure? (ALARA review)	<u> </u>	<u>X</u>	<u> </u>																																						
2. Result in a release of effluents to the Environment?	<u> </u>	<u>X</u>	<u> </u>																																						
3. Degrade the effectiveness of the Radiation Emergency Plan?	<u> </u>	<u> </u>	<u>X</u>																																						
4. Degrade the safeguards effectiveness of the Physical Security, Safeguards Contingency or Training and Qualification Plans?	<u> </u>	<u> </u>	<u>X</u>																																						
<input type="checkbox"/> OPS	<input type="checkbox"/> NL&OE	<input type="checkbox"/> CHS	<input type="checkbox"/> GMNPO	<input type="checkbox"/> SE																																					
<input type="checkbox"/> MNTS	<input type="checkbox"/> P&S	<input type="checkbox"/> HPS	<input type="checkbox"/> GMES	<input type="checkbox"/> _____																																					
<input checked="" type="checkbox"/> QA	<input type="checkbox"/> NPS	<input type="checkbox"/> MNT	<input type="checkbox"/> GMNSS	<input type="checkbox"/> _____																																					
<input type="checkbox"/> QC	<input type="checkbox"/> TS	<input type="checkbox"/> DE	<input checked="" type="checkbox"/> QR	<input checked="" type="checkbox"/> OPS																																					
IV. 10CFR50.59 SCREENING REVIEW/SAFETY EVALUATION <input checked="" type="checkbox"/> REQUIRED <input type="checkbox"/> EXEMPT <input checked="" type="checkbox"/> PSRC SUPPORTING DOCUMENT: <u>MRF22769C</u>																																									
V. TEMPORARY APPROVAL: QUALIFIED REVIEWER _____ DATE _____ TELECON BY _____ SHIFT SUPERVISOR _____ DATE _____																																									
VI. DISCIPLINE SUPERVISOR FINAL REVIEW: TRAINING REQUIRED? YES <u>✓</u> NO <u> </u> IF YES, PRIOR TO PROCEDURE IMPLEMENTATION? YES <u>✓</u> NO <u> </u> P/CAP AFFECTED? YES <u> </u> NO <u>✓</u> COMMENTS RESOLVED <u>L. J. J.</u> <div style="display: flex; justify-content: space-between;"> Discipline Supervisor Date </div>																																									
VII. P/CAP ACCEPTABLE? C. YES <u> </u> NO <u> </u> NL&OE <u>N/A</u> Date <u> </u> N. YES <u> </u> NO <u> </u> RESP. MGR. <u> </u> Date <u> </u>																																									
VIII. FINAL QA REVIEW (As Applicable) <u>S. Cook</u> 4-24-96 QA Concurrence Date																																									
IX. APPROVAL AUTHORITY: <u>Ray E. Will</u> 5/7/96 Approval/Concurrence Date																																									
X. PSRC REVIEW: A. REVIEWED BY: PSRC Chairman _____ Date _____ COMMENTS: YES <u> </u> NO <u> </u>																																									
B. PSRC COMMENTS RESOLVED: Responsible Manager _____ Date _____ PSRC Chairman _____ Date _____																																									

DROPPED CONTROL ROD

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
PURPOSE	1
SYMPTOMS/ENTRY CONDITIONS	1
OPERATOR ACTIONS	2

DROPPED CONTROL ROD

REFERENCES

1. Tech Specs 3.1.1.1, 3.1.3.1, 3.1.3.5, 3.1.3.6, and 3.2.4.
2. FSAR 7.7.1.1 through 7.7.1.4, and 7.7.2.
3. DBD, Reactor Protection System.
4. SOP-403, Rod Control And Position Indicating System.
5. 108D837, Sheet 9.
6. 108D932, Sheet 20.

COMMITMENTS

1. C01 SOER 840002: Steps 6 through 13.

REVISION SUMMARY

Converted procedure to two-column format, incorporating contingency actions. Added notification of Rod Control System Engineer as requested.

Change A deleted full rod withdrawal light from symptoms.

Change B added steps to specify information provided to and from Operations and Reactor Engineering prior to recovering a dropped rod.

DROPPED CONTROL ROD

PURPOSE

This procedure provides instructions for responding to and recovering a dropped Control Rod.

SYMPTOMS/ENTRY CONDITIONS

1. Digital Rod Position Indication RB light(s) illuminated.
2. Any of the following Main Control Board annunciators in alarm:
 - ONE ROD ON BOTTOM (XCP-621 3-1).
 - RODS ON BOTTOM (XCP-621 3-2).
 - PR CHAN DEV (XCP-620 1-4).
 - CMPTR NIS PR TILTS (XCP-620 2-3).
 - CMPTR ROD DEV (XCP-620 2-5).
 - RCS TAVG-TREF DEV HI/LO (XCP-615 2-5).
 - PZR PCS LO BU HTRS ON (XCP-616 3-6).
3. Reactor power decreasing as indicated on NR-45.

DROPPED CONTROL ROD

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p style="text-align: center;"><u>OPERATOR ACTIONS</u></p> <p>① Verify only <u>one</u> rod has dropped. <input type="checkbox"/></p> <p>② Place ROD CNTRL BANK SEL Switch in MAN. <input type="checkbox"/></p> <p>3 Stabilize the plant:</p> <p>a. Decrease Main Turbine load to maintain Tavg within 5°F of Tref. <input type="checkbox"/></p> <p>b. Verify PZR level is stable at <u>OR</u> trending to program level. <input type="checkbox"/></p> <p>c. Verify PZR pressure is stable at <u>OR</u> trending to 2235 psig (2220 psig to 2250 psig). <input type="checkbox"/></p> <p>4 Check if Reactor power is LESS THAN 75%. <input type="checkbox"/></p> <p>5 Initiate GTP-702, Attachments IV.A and IV.B. <input type="checkbox"/></p> <p>6 Notify the following plant personnel prior to moving rods:</p> <ul style="list-style-type: none"> • Management Duty Supervisor. <input type="checkbox"/> • Rod Control System Engineer. <input type="checkbox"/> 	
<p>1 Perform the following:</p> <p>a) Trip the Reactor. <input type="checkbox"/></p> <p>b) GO TO EOP-1.0, REACTOR TRIP/SAFETY INJECTION ACTUATION. <input type="checkbox"/></p> <p>b. Control Charging and Letdown flow to restore PZR level to program level. <input type="checkbox"/></p> <p>c. Control PZR Spray and Heaters to maintain normal PZR pressure. <input type="checkbox"/></p> <p>4 Perform the following:</p> <p>a) Adjust Main Turbine load to reduce Reactor power to LESS THAN 75%. <input type="checkbox"/></p> <p>b) Borate as necessary to maintain Tavg within 5°F of Tref. REFER TO SOP-106, REACTOR MAKEUP WATER SYSTEM. <input type="checkbox"/></p>	

DROPPED CONTROL ROD

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>7 Provide Reactor Engineering with the following information: <input type="checkbox"/></p> <p>Time rod dropped: _____.</p> <p>Dropped rod location: _____.</p> <p>Initial Reactor power level: _____.</p> <p>Current Reactor power level: _____.</p> <p>Current QPTR: _____.</p> <p>8 Determine and correct the cause of the failure. <input type="checkbox"/></p>	
<p style="text-align: center;"><u>NOTE - Step 9</u></p> <p style="text-align: center;">This Step must be completed before continuing with Step 10.</p>	
<p>9 Obtain the following information from Reactor Engineering: <input type="checkbox"/></p> <p>Power level at which recovery is to be performed: _____.</p> <p>Rate of control rod movement during recovery: _____.</p> <p>10 If necessary, reduce Reactor power to the power level determined in Step 9. REFER TO GOP-4, POWER OPERATION (MODE 1). <input type="checkbox"/></p>	

DROPPED CONTROL ROD

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<div data-bbox="346 360 1467 566" style="border: 1px solid black; padding: 10px; margin: 10px;"> <p style="text-align: center;"><u>NOTE - Steps 11 through 15</u></p> <p>Throughout the following steps, "AFFECTED" refers to <u>any</u> Control Rod bank which contains a dropped Control Rod.</p> </div> <div data-bbox="274 600 838 633"> <p>11 Record the AFFECTED bank readings:</p> </div> <div data-bbox="330 658 885 694"> <p>a. Group Step Counter demands: <input type="checkbox"/></p> </div> <div data-bbox="398 716 820 808"> <p>AFFECTED Bank: _____ Group 1 reading: _____ Group 2 reading: _____</p> </div> <div data-bbox="330 833 885 956"> <p>b. Dispatch an operator with Key #91, Rod Control Cabinets, to the Rod Control Cabinet room (IB-463). <input type="checkbox"/></p> </div> <div data-bbox="330 981 885 1131"> <p>c. Locally at XCA4-CR, P/A CONVERTER CABINET (IB-463), record the P/A CONVERTER reading for the AFFECTED bank: <input type="checkbox"/> _____</p> </div> <div data-bbox="271 1187 885 1279"> <p>12 Rotate ROD CNTRL BANK SEL Switch clockwise to the AFFECTED bank position. <input type="checkbox"/></p> </div>	

BT TELECON

CUE 228 STEPS

DROPPED CONTROL ROD

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>13 Withdraw the dropped Control Rod:</p> <p>a. Reset the Step Counter for the AFFECTED group to <u>zero</u>. <input type="checkbox"/></p> <p>b. At the CONTROL ROD DISCONNECT SWITCH BOX inside the MCB, place <u>all</u> Lift Coil Disconnect Switches for the AFFECTED bank, except the switch for the dropped Control Rod, to the ROD DISCONNECTED position. <input type="checkbox"/></p>	
<p style="text-align: center;">NOTE - Step 13.c</p> <p>ROD CNTRL SYS FAIL URGENT (XCP-620 5-1), annunciator will alarm when the dropped rod is moved in this step.</p>	
<p>c. Move the dropped Control Rod at least <u>six</u> steps out. <input type="checkbox"/></p> <p>d. Verify dropped rod movement on the associated Digital Rod Position Indicator. <input type="checkbox"/></p> <p>e. Verify ONE ROD ON BOTTOM (XCP-621 3-1), annunciator clears. <input type="checkbox"/></p> <p>f. Adjust Main Turbine load to maintain Tavg within 5°F of Tref. <input type="checkbox"/></p> <p>g. Using the rate of control rod movement determined in Step 9, continue withdrawal of the dropped rod until the demand position recorded in Step 11.a is reached. <input type="checkbox"/></p> <p>h. Verify DRPI indicates the dropped rod at the same position as the other Control Rods within the bank. <input type="checkbox"/></p>	<p>d. Shut down the plant as directed by Plant Management. <input type="checkbox"/></p> <p><i>MAY GET CRB LO; LO-LO INSERTION LIMIT ANNUNCIATOR L P/A CONVERTER ROLLBACK AT 400. SHOWS ROD LOWER THAN IT IS</i></p> <p>h. Notify the I&C Department and proceed per Shift Supervisor direction. <input type="checkbox"/></p>

DROPPED CONTROL ROD

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>14 Locally at XCA4-CR, P/A CONVERTER CABINET (IB-463), reset the P/A CONVERTER as follows:</p> <ul style="list-style-type: none"> a. Ensure the Bank Position Display Switch is in the AFFECTED bank position. <input type="checkbox"/> b. Place MANUAL/AUTOMATIC Switch in MANUAL. <input type="checkbox"/> c. Depress the DOWN Pushbutton to reset the P/A CONVERTER to the reading recorded in Step 11.c. <input type="checkbox"/> d. Place MANUAL/AUTOMATIC Switch in AUTOMATIC. <input type="checkbox"/> e. Place the Bank Position Display Switch in DISPLAY OFF. <input type="checkbox"/> <p>15 Restore the Rod Control System to normal alignment:</p> <ul style="list-style-type: none"> a. Place <u>all</u> Lift Coil Disconnect Switches for the AFFECTED bank to the ROD CONNECTED position. <input type="checkbox"/> b. Rotate ROD CNTRL BANK SEL Switch counter-clockwise to MAN. <input type="checkbox"/> c. Depress the ROD CNTRL ALARM RESET Pushbutton. <input type="checkbox"/> d. COMPLETE STP-106.001, MOVEABLE ROD INSERTION TEST. <input type="checkbox"/> <p>16 Verify PZR level is stable at <u>OR</u> trending to program level. <input type="checkbox"/></p> <p>17 Verify PZR pressure is stable at <u>OR</u> trending to 2235 psig (2220 psig to 2250 psig). <input type="checkbox"/></p>	<div style="border-left: 2px solid black; padding-left: 10px; margin-left: 20px;"> <p>REMOTE EVOLUTION - DONE PER TELECON.</p> </div> <p>16 Control Charging and Letdown flow to restore PZR level to program level. <input type="checkbox"/></p> <p>17 Control PZR Spray and Heaters to maintain normal PZR pressure. <input type="checkbox"/></p>

DROPPED CONTROL ROD

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<div data-bbox="333 360 1455 533" style="border: 1px solid black; padding: 10px; text-align: center;"> <p><u>NOTE - Step 18</u></p> <p>Rod control should be maintained in MAN pending results of the event analysis.</p> </div>	
<p>*18 Adjust Control Rods as necessary to maintain T_{avg} within 1.0°F of T_{ref}. <input type="checkbox"/></p> <p>19 RETURN TO the Procedure and Step in effect. <input type="checkbox"/></p>	
<div data-bbox="686 831 1172 891" style="border: 1px dashed black; padding: 5px; text-align: center;"> <p>End of AOP-403.6</p> </div>	

V C Summer
JPM No. JPSF-066
Perform NIS Power Range Heat Balance

Applicant:	Evaluation Date:
Application Level: RO/SRO(I)	K/A: 015A3.03
Examiner:	10 CFR 55.45 Ref: (a)8

Evaluation Method: <input checked="" type="checkbox"/> Performed <input type="checkbox"/> Simulated	Evaluation Location: <input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Classroom <input type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	
Examiner Comments	

V C Summer
JPM No. JPSF-066
Perform NIS Power Range Heat Balance

Applicant:	Evaluation Date:
Application Level: RO/SRO(I)	K/A: 015A3.03
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions:	The plant is at 100% power Initial conditions for performance of STP-102.002 have been met.
----------------------------	--

Assigned Task:	The CRS has directed that you perform a power range heat balance per STP-102.002, 6.1.
-----------------------	--

V C Summer
JPM No. JPSF-066
Perform NIS Power Range Heat Balance

Applicant:	Evaluation Date:
Application Level: RO/SRO(I)	K/A: 015A3.03
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions:	The plant is at 100% power Initial conditions for performance of STP-102.002 have been met.
Assigned Task:	The CRS has directed that you perform a power range heat balance per STP-102.002, 6.1.

Required Items:

Task Standard: Determine that N42 is out of tolerance and makes proper gain adjustments to all PRNIs.

V.C. SUMMER NUCLEAR STATION

NRC JOB PERFORMANCE MEASURE

JPSF-066

PERFORM NIS POWER RANGE HEAT BALANCE

Revision No. 1

PERFORM NIS POWER RANGE HEAT BALANCE

TRAINEE _____ EVALUATOR SIGNATURE _____ EVALUATION METHOD: PERFORM EVALUATION LOCATION: SIMULATOR ESTIMATED TIME: 20.0 MINUTES 10CFR55.41(b)2 TIME CRITICAL: No TRAINEE PERFORMANCE: SATISFACTORY _____	EVALUATOR _____ DATE _____ TIME STARTED: _____ GENERAL DESIGN FEATURES OF THE CORE, INCLUDING CORE STRUCTURE, FUEL ELEMENTS, CONTROL RODS, CORE INSTRUMENTATION, AND COOLANT FLOW FAULTED JPM: No UNSATISFACTORY _____
--	--

READ TO OPERATOR: WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.
--

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. Initial conditions for performance of STP-102.002 have been met.

TOOLS AND EQUIPMENT NEEDED:

1. STP-102.002

REFERENCED DOCUMENTS:

1. STP*102.002 NIS POWER RANGE HEAT BALANCE

REV DATE

11/09/98

PERFORM NIS POWER RANGE HEAT BALANCE

TASK STANDARDS:

1. The examinee determines that N42 is out of tolerance and makes proper gain adjustments to all PRNI's.

INITIATING CUES:

1. The CRS directs the NROATC to perform a Power Range Heat Balance per STP-102.002, Section 6.1.

TERMINATING CUES:

1. Gain adjustments made to PRNI's and recorded on Attachment I.

SAFETY CONSIDERATIONS:

NONE

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 2

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

NOTE 1: The examiner will give the operator a copy of STP-102.002 when examinee explains where he would locate the procedure.

STEP

STANDARD

S 1. Obtain a copy of STP-102.002, Attachment I.

Copy of STP-102.002, Attachment I obtained.

NOTE 2: **FOR JPM GIVEN ON SIMULATOR ONLY** Prompt student that QCORE1 is 99.9% after they demonstrate that they know how to obtain the value.

STEP

STANDARD

*2. Record average of QCORE1 on Attachment I.

Most current average of QCORE1 obtained on IPCS (CALM, Subfunction 7) and recorded on Attachment I, Line 1.

COMMENTS: _____

NOTE 3: Give students attachment with IPCS indications for the Power Range NIs after they demonstrate they know how to obtain the readings.

STEP

STANDARD

*3. Record reactor power from PRNI drawers on Attachment I.

Reactor power for N41A-N44A obtained and recorded on Attachment I, Line 2.

COMMENTS: _____

STEP

STANDARD

S*4. Determines meter correction factor.

Meter correction factors calculated and recorded on Attachment I, Line 3.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 3

(S) DENOTES SEQUENCED ELEMENT

(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

COMMENTS: _____

NOTE 5: If operator determines that a gain adjustment is not required either by miscalculation and/or misinterpretation, prompt them as to what steps they would take if gains needed to be adjusted. Attaching a copy of PRINT CALORIMETRIC not required. Checking off ADJUSTED block on Attachment I is not critical.

STEP

STANDARD

S*5. Determines if PRNI gain adjustment required.

Adjustment of gains on N42 is required due to correction factors from line 3 are $>1\frac{1}{2}$ (+1.2). Checks ADJUSTED block on Line 4.

COMMENTS: _____

STEP

STANDARD

5. Place rod control in manual.

ROD CNTRL BANK SEL switch in MAN position.

COMMENTS: _____

NOTE 7: Prompt student after properly simulating adjusting each PRNI channel by their meter correction factor that indicated power is the value of Q

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 4

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

STEP

STANDARD

S*7. Adjusts N41-N44 gains.

Gains on N41-N44 adjusted per meter corrections obtained on Line 3. Present indication, meter correction, and corrected power recorded in table for step 4. Final indications are within 1% of QCORE1 values.

COMMENTS: _____

Examiner Stops JPM At This Point

TIME STOPPED: _____

GENERAL COMMENTS:

NRC KA REFERENCES:

KA NUMBER

015000.A1.01

Ability to perform an NIS calibration by heat balance.

IMPORTANCE	FACTOR
RO	SRO
3.5	3.8*

NOTE 6.0

The preferred method for calculating the heat balance is by use of the IPCS per Step 6.1.

6.0 PROCEDURE

6.1 Perform a heat balance utilizing the Integrated Plant Computer System as follows:

- a. Type CALM and depress the RETURN button.
- b. Select subfunction 7, DISPLAY HISTORY OF FIVCALs AND NIS POWERS, and depress the RETURN button.

NOTE 6.1.c

The display provides the most current average of QCORE1 and reactor power by quadrant.

- c. Record the average of QCORE1 on Attachment I.
- d. Record the indicated reactor power from N41A through N44A on Attachment I.
- e. Use Attachment I to determine the meter correction factor and document any adjustments, if required.
- f. Attach a printout of subfunction 2, PRINT CALORIMETRIC, to the STTS package identifying the STP number and STTS number in the upper right hand corner.

6.2 Perform a heat balance using Main Control Board readings as follows:

- a. Record the Main Control Board indications required on Attachment II. If blowdown flow is not isolated, its flow is read on the Integrated Plant Computer System or the Blowdown Panel (XPN0029).
- b. Calculate the averages where redundant indication is used.

- c. Calculate reactor thermal power using Attachment III and the steam tables.
- d. Use Attachment I to determine the meter correction factor and document any adjustments, if required.

7.0 DATA REQUIREMENTS

- 7.1 Data obtained in the performance of this test shall be recorded on the appropriate Attachments and computer outputs should be attached to the STTS sheet.

8.0 ACCEPTANCE CRITERIA

- 8.1 Each Nuclear Instrumentation System Power Range channel shall be within $\pm 1\%$ of the reactor power level calculated via Step 6.1 of this procedure.
- 8.2 Each Nuclear Instrumentation System Power Range channel shall be within $\pm 2\%$ of the reactor power level calculated via Step 6.2 of this procedure.

9.0 REFERENCES

- 9.1 V.C. Summer Technical Specifications.
- 9.2 V.C. Summer Station Curve Book.

10.0 ENCLOSURES

- 10.1 NIS Meter Coarse Level Correction.

NIS METER COARSE LEVEL CORRECTION

1.0 INITIAL CONDITIONS

- 1.1 This enclosure is used when the Gain Potentiometer on the front of the NIS Power Range drawer is out of range for adjustment during an NIS Power Range Heat Balance.
- 1.2 No other Reactor Trip System instrumentation testing should be in progress while Power Range adjustments are being made.
- 1.3 All power range bistables must be in their normal state for the present power level.
- 1.4 The Rod Control System must be in manual prior to adjustment of NI-44.

2.0 PROCEDURE

NOTE 2.1

Power range level can be changed $\pm 6\%$ by adjusting the GAIN potentiometers on the front of the NIS Power Range drawers.

- 2.1 Perform NIS METER COARSE LEVEL CORRECTION as follows:
 - a. Slowly adjust the GAIN potentiometer on the front of the affected NIS Power Range drawer to 5.0.

CAUTION 2.1.b

Rate trip bistables may actuate while adjusting R-312, COARSE LEVEL ADJ.

- b. Have I&C slowly open the NIS Power Range drawer and adjust R-312, COARSE LEVEL ADJ, inside the Power Range NIS drawer to the present power level.
 - c. Close the NIS Power Range drawer.
 - d. If any rate trip has actuated, momentarily place the RATE MODE Switch to RESET.

- 2.2 Complete the NIS METER CORRECTION adjustments per Attachment I for the remaining Power Range channels.
- 2.3 Return the Rod Control System to Automatic when NIS METER CORRECTION is complete.
- 2.4 Forward copies of the completed data sheets and STTS to the following:
 - a. Reactor Engineering.
 - b. The Nuclear Instrumentation System Engineer.

NIS METER CORRECTION

CALCULATION METHOD (☒) Step 6.1 - FIVCALs Method
(CHECK ONE) () Step 6.2 - MCB Meter Method

1. CALCULATED REACTOR POWER = QCORE1 = 99.8 %

2. INDICATED REACTOR POWER

N-41A	N-42A	N-43A	N-44A
<u>99.9</u> %	<u>97.5</u> %	<u>98.9</u> %	<u>100.0</u> %

3. METER CORRECTION FACTOR (Step 1 minus Step 2)
(INSERT + or - IN PARENTHESIS)

N-41A	N-42A	N-43A	N-44A
(-) <u>0.1</u> %	(-) <u>2.3</u> %	(-) <u>0.9</u> %	(+) <u>0.2</u> %

NOTE 4

- a. The ROD CONTROL BANK SEL Switch should be placed in MAN prior to adjustment of N-44 channel gain.
- b. If NIS METER CORRECTION can not be adjusted with the GAIN potentiometers on the front of the NIS power range drawers, Enclosure 10.1 should be used for Coarse Level Correction of affected power range channels.

4. ADJUSTMENT OF INDICATED REACTOR POWER IS REQUIRED IF ANY ABSOLUTE VALUE OF (Step 3) ABOVE IS GREATER THAN 1% for method 6.1 or 2% for method 6.2

GAIN POTENTIOMETERS (☒) ADJUSTED
(CHECK ONE) () NOT ADJUSTED

If adjustment is required, adjust all four channels by their individual Meter Correction Factor.

	N-41A	N-42A	N-43A	N-44A
PRESENT INDICATION	<u>99.9</u> %	<u>97.5</u> %	<u>98.9</u> %	<u>100</u> %
METER CORRECTION	+ (-) <u>0.1</u> %	+ (-) <u>2.3</u> %	+ (-) <u>0.9</u> %	+ (+) <u>0.2</u> %
CORRECTED POWER	= <u>99.8</u> %	= <u>99.8</u> %	= <u>99.8</u> %	= <u>99.9</u> %

DATA SHEET

1. NIS POWER RANGE INDICATION

N-41A	N-42A	N-43A	N-44A	Median Tavg
%	%	%	%	°F

2. STEAM PRESSURE

CH II	PI-474	psig	PI-484	psig	PI-494	psig
CH III	PI-475	psig	PI-485	psig	PI-495	psig
CH IV	PI-476	psig	PI-486	psig	PI-496	psig
AVG		psig		psig		psig
	+15		+15		+15	
	psia		psia		psia	

3. FEEDWATER TEMPERATURE

TI-3322	TI-3332	TI-3342
°F	°F	°F

4. FEEDWATER FLOW

	SG A	SG B	SG C
CH III	x 10 ⁶ LBM/HR	x 10 ⁶ LBM/HR	x 10 ⁶ LBM/HR
CH IV	x 10 ⁶ LBM/HR	x 10 ⁶ LBM/HR	x 10 ⁶ LBM/HR
AVG	x 10 ⁶ LBM/HR	x 10 ⁶ LBM/HR	x 10 ⁶ LBM/HR

5. STEAM GENERATOR BLOWDOWN FLOW

(Integrated Plant Computer System or XPN0029)

(F0407A or FI-4702A)	(F0427A or FI-4702B)	(F0447A or FI-4702C)
gpm	gpm	gpm

POWER CALCULATION

1. MAIN STEAM HEAT RATE

MS HEAT RATE = (MS FLOW) (MS ENTHALPY - FW ENTHALPY)

MS FLOW = FW FLOW - BD FLOW

SG MS HEAT RATE = (FW FLOW-BD FLOW) (MS ENTHALPY-FW ENTHALPY)

A SG MS HEAT RATE =

$$((\text{ } \times 10^6 \text{ LBM/HR}) - (\text{ } \text{gpm}) (3.71 \times 10^{-4} \text{ MLBM/HR/gpm})) (\text{ } \text{BTU/LBM} - \text{ } \text{BTU/LBM}) = \text{ } \times 10^6 \text{ BTU/hr}$$

B SG MS HEAT RATE=

$$((\text{ } \times 10^6 \text{ LBM/HR}) - (\text{ } \text{gpm}) (3.71 \times 10^{-4} \text{ MLBM/HR/gpm})) (\text{ } \text{BTU/LBM} - \text{ } \text{BTU/LBM}) = \text{ } \times 10^6 \text{ BTU/hr}$$

C SG MS HEAT RATE=

$$((\text{ } \times 10^6 \text{ LBM/HR}) - (\text{ } \text{gpm}) (3.71 \times 10^{-4} \text{ MLBM/HR/gpm})) (\text{ } \text{BTU/LBM} - \text{ } \text{BTU/LBM}) = \text{ } \times 10^6 \text{ BTU/hr}$$

MS HEAT RATE = A SG MS HEAT RATE + B SG MS HEAT RATE +C SG MS HEAT RATE

$$= \text{ } \times 10^6 \text{ BTU/HR}$$

2. BLOWDOWN HEAT RATE

BD HEAT RATE = (BD FLOW) (BD ENTHALPY - FW ENTHALPY)

A SG BD HEAT RATE =

$$= (\text{ } \text{gpm}) (3.71 \times 10^{-4} \text{ MLBM/HR/gpm})) (\text{ } \text{BTU/LBM} - \text{ } \text{BTU/LBM}) = \text{ } \times 10^6 \text{ BTU/hr}$$

B SG BD HEAT RATE =

$$= (\text{ } \text{gpm}) (3.71 \times 10^{-4} \text{ MLBM/HR/gpm})) (\text{ } \text{BTU/LBM} - \text{ } \text{BTU/LBM}) = \text{ } \times 10^6 \text{ BTU/hr}$$

C SG BD HEAT RATE =

$$= (\text{ } \text{gpm}) (3.71 \times 10^{-4} \text{ MLBM/HR/gpm})) (\text{ } \text{BTU/LBM} - \text{ } \text{BTU/LBM}) = \text{ } \times 10^6 \text{ BTU/hr}$$

BD HEAT RATE = A SG BD HEAT RATE + B SG BD HEAT RATE + C SG BD HEAT RATE

$$= \text{ } \times 10^6 \text{ BTU/HR}$$

3. REACTOR HEAT RATE

REACTOR HEAT RATE = (MS HEAT RATE) + (BD HEAT RATE) - (RCP HEAT RATE)

$$= (\text{ } \times 10^6 \text{ BTU/HR}) + (\text{ } \times 10^6 \text{ BTU/HR}) - (31.0 \times 10^6 \text{ BTU/HR}) = \text{ } \times 10^6 \text{ BTU/HR}$$

4. REACTOR POWER

REACTOR POWER = (REACTOR HEAT RATE) (0.293 MWT/10⁶ BTU/HR) (100%/2900 MWT)

$$= (\text{ } \times 10^6 \text{ BTU/HR}) (1.0103 \times 10^{-8} \%/\text{BTU/HR}) = \text{ } \%$$

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 055EK3.02 (4.3/4.6)
Examiner:	10 CFR 55.45 Ref: (a)8

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V C Summer
JPM No. B.2.a/JPP-108
Locally Shed Non-Essential DC Loads

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 055EK3.02 (4.3/4.6)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions:	The plant is at 100% power when a station blackout occurs, with subsequent entry into EOP-6.0.
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Assigned Task:	The CRS has directed that you strip nonessential DC loads per EOP-6.0, Attachment 2.
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**V C Summer
JPM No. B.2.a/JPP-108
Locally Shed Non-Essential DC Loads**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 055EK3.02 (4.3/4.6)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions:	The plant is at 100% power when a station blackout occurs, with subsequent entry into EOP-6.0.
Assigned Task:	The CRS has directed that you strip nonessential DC loads per EOP-6.0, Attachment 2.

Required Items: EOP-6.0, Attachment 2

Task Standard: Perform steps of EOP-6.0, Attachment 2.

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>1 Vent Main Generator pressure (TB-412):</p> <ul style="list-style-type: none"> a. Close XVT12225-HY, GEN GAS PURGING SYS HYDROGEN SUPPLY VLV. <input type="checkbox"/> b. Open XVT12218-HY, HYDROGEN-CARBON DIOXIDE XCONN VALVE. <input type="checkbox"/> c. Open XVT10556-CD, CARBON DIOXIDE VENT HEADER ISOL VALVE. <input type="checkbox"/> <p>2 Open XVB00101-AR, MAIN CONDENSER A & B VACUUM BREAKER (TB-436). <input type="checkbox"/></p> <p>3 Monitor the following:</p> <ul style="list-style-type: none"> • Check if the Main Feedwater Pumps have stopped (TB-436). <input type="checkbox"/> • Check if the Main Turbine has stopped (TB-463). <input type="checkbox"/> • Check if IPI05130, MACHINE HYDROGEN GAS PRESSURE INDICATOR, indicates LESS THAN 5 psig (TB-412). <input type="checkbox"/> <p>4 <u>WHEN</u> the conditions of Step 3 are met, <u>THEN</u> secure the associated Emergency Oil Pumps (TB-412):</p> <ul style="list-style-type: none"> • <u>WHEN</u> the associated Main Feedwater Pump has stopped, <u>THEN</u> open DPN-2X 01(02)(03), BREAKER FOR FWP-A(B)(C) EBOP (XSX0002A(B)(C)). <input type="checkbox"/> • <u>WHEN</u> Machine Gas Pressure is LESS THAN 5 psig, <u>THEN</u> open DPN-2X 04, EMERGENCY SEAL OIL PUMP XPT0001-PP3. <input type="checkbox"/> • <u>WHEN</u> the Main Turbine has stopped, <u>THEN</u> open DPN-2X 05, BREAKER FOR EBOP (XSX0003). <input type="checkbox"/> 	

LOCALLY DEENERGIZING DC LOADS

EOP-6.0
REVISION 14
ATTACHMENT 2
PAGE 1 OF 1

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>1 Vent Main Generator pressure (TB-412):</p> <ul style="list-style-type: none"> a. Close XVT12225-HY, GEN GAS PURGING SYS HYDROGEN SUPPLY VLV. <input type="checkbox"/> b. Open XVT12218-HY, HYDROGEN-CARBON DIOXIDE XCONN VALVE. <input type="checkbox"/> c. Open XVT10556-CD, CARBON DIOXIDE VENT HEADER ISOL VALVE. <input type="checkbox"/> <p>2 Open XVB00101-AR, MAIN CONDENSER A & B VACUUM BREAKER (TB-436). <input type="checkbox"/></p> <p>3 Monitor the following:</p> <ul style="list-style-type: none"> • Check if the Main Feedwater Pumps have stopped (TB-436). <input type="checkbox"/> • Check if the Main Turbine has stopped (TB-463). <input type="checkbox"/> • Check if IPI05130, MACHINE HYDROGEN GAS PRESSURE INDICATOR, indicates LESS THAN 5 psig (TB-412). <input type="checkbox"/> <p>4 <u>WHEN</u> the conditions of Step 3 are met, <u>THEN</u> secure the associated Emergency Oil Pumps (TB-412):</p> <ul style="list-style-type: none"> • <u>WHEN</u> the associated Main Feedwater Pump has stopped, <u>THEN</u> open DPN-2X 01(02)(03), BREAKER FOR FWP-A(B)(C) EBOP (XSX0002A(B)(C)). <input type="checkbox"/> • <u>WHEN</u> Machine Gas Pressure is LESS THAN 5 psig, <u>THEN</u> open DPN-2X 04, EMERGENCY SEAL OIL PUMP XPT0001-PP3. <input type="checkbox"/> • <u>WHEN</u> the Main Turbine has stopped, <u>THEN</u> open DPN-2X 05, BREAKER FOR EBOP (XSX0003). <input type="checkbox"/> 	

LOCALLY FILLING THE CST

EOP-6.0
REVISION 14
ATTACHMENT 3
PAGE 1 OF 2

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>1 Verify Demineralized Water Storage Tank level is GREATER THAN 28.5 ft (on Demin Water Storage Tank, Yard-436). <input type="checkbox"/></p> <p>2 Open XVG05534-DW, DW TO AUX BOILER FEEDWATER ISOL VALVE (Demin Water Pump House), to gravity drain Demin Water to the CST. <input type="checkbox"/></p>	<p>1 GO TO Step 4. <input type="checkbox"/></p>
<p style="text-align: center;"><u>NOTE - Step 3</u></p> <p>This procedure should <u>NOT</u> be continued unless CST level is decreasing.</p>	
<p>3 <u>WHEN</u> gravity drain will <u>NOT</u> maintain CST level, <u>THEN</u> close XVG05534-DW, DW TO AUX BOILER FEEDWATER ISOL VALVE (Demin Water Pump House) <input type="checkbox"/></p> <p>4 Close the following (BH-436):</p> <ul style="list-style-type: none"> • XVG00254A-AS, AUX BOILER FW XFER PUMP A SUCTION VALVE. <input type="checkbox"/> • XVG00259B-AS, AUX BOILER FW XFER PUMP B DISCHARGE VLV. <input type="checkbox"/> • IPI02452-HR-AS, HIGH ROOT TO IPI2452. <input type="checkbox"/> 	

V C Summer
JPM No. B.2.a/JPP-108
Locally Shed Non-Essential DC Loads

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 055EK3.02 (4.3/4.6)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions:	The plant is at 100% power when a station blackout occurs, with subsequent entry into EOP-6.0.
Assigned Task:	The CRS has directed that you strip nonessential DC loads per EOP-6.0, Attachment 2.

Required Items: EOP-6.0, Attachment 2

Task Standard: Perform steps of EOP-6.0, Attachment 2.

V.C. SUMMER NUCLEAR STATION

NRC JOB PERFORMANCE MEASURE

JPP-108

LOCALLY SHED NON-ESSENTIAL DC LOADS

Revision No. 5

LOCALLY SHED NON-ESSENTIAL DC LOADS

TRAINEE _____ EVALUATOR _____

EVALUATOR SIGNATURE _____ DATE _____

EVALUATION METHOD: SIMULATE

EVALUATION LOCATION: PLANT

ESTIMATED TIME: 15.0 MINUTES TIME STARTED: _____

10CFR55.45(a)8 SAFELY OPERATE THE FACILITIES AUXILIARY AND
EMERGENCY SYSTEMS, INCLUDING OPERATION OF
THOSE CONTROLS ASSOCIATED WITH PLANT
EQUIPMENT THAT COULD AFFECT REACTIVITY OR
THE RELEASE OF RADIOACTIVE MATERIALS TO THE
ENVIRONMENT

TIME CRITICAL: No FAULTED JPM: No

TRAINEE PERFORMANCE: SATISFACTORY _____ UNSATISFACTORY _____

READ TO OPERATOR:

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE
INITIATING CUES. I WILL DESCRIBE GENERAL CONDITIONS UNDER WHICH THIS TASK
IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS
TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS
TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES.
WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS
JOB PERFORMANCE MEASURE WILL BE SATISFIED.

INITIAL CONDITIONS:

1. The plant is at 100% power when a station blackout occurs,
with subsequent entry into EOP-6.0.

TOOLS AND EQUIPMENT NEEDED:

1. EOP-6.0
2. RADIO HEADSETS IF AVAILABLE

REFERENCED DOCUMENTS:

1. EOP*6.0 LOSS OF ALL ESF AC POWER

REV DATE

06/30/97

LOCALLY SHED NON-ESSENTIAL DC LOADS

TASK STANDARDS:

1. Nonessential DC loads have been shed per EOP-6.0 Attachment 2.

INITIATING CUES:

1. Control Room Supervisor directs stripping nonessential DC loads per EOP-6.0 Attachment 2

TERMINATING CUES:

1. Nonessential DC loads are shed per EOP-6.0, Att. 2 or examinee has returned EOP-6.0, Att. 2 to examiner.

SAFETY CONSIDERATIONS:

1. HIGH NOISE AREA

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 2

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

STEP

STANDARD

S*1. Close GEN GAS PURGING SYS
HYDROGEN SUPPLY valve (TB-412)

Operator closes GEN GAS PURGING SYS
HYDROGEN SUPPLY VLV (XVT12225-HY) by
turning valve handwheel in the clockwise
direction until the valve is closed.

COMMENTS: _____

STEP

STANDARD

S*2. Open HYDROGEN-CARBON DIOXIDE
XCONN VALVE (TB-412)

Operator opens HYDROGEN-CARBON DIOXIDE
XCONN VALVE (XVT-12218-HY) by turning
the handwheel in the counter-clockwise
direction until the valve is open.

COMMENTS: _____

STEP

STANDARD

S*3. Open CARBON DIOXIDE VENT
HEADER ISOL VALVE (TB-412)

Operator opens CARBON DIOXIDE VENT
HEADER ISOL VALVE (XVT10556-CD) by
turning the valve handwheel in the
counter-clockwise direction until the
valve is open

COMMENTS: _____

NOTE 4: Valve position indicator is not calibrated and therefore not required
for this step.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 3

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

STEP

STANDARD

S*4. Open MAIN CONDENSER A & B
VACUUM BREAKER (TB-436)

Operator opens MAIN CONDENSER A&B VACUUM
BREAKER (XVB00101-AR) operating the
Declutch mechanism and turning the
handwheel CCW until handwheel stops.

COMMENTS: _____

NOTE 5: When requested inform the examinee that each MFW pump shaft is stopped

STEP

STANDARD

*5. Check if the MFW pumps have
stopped. (TB-436)

Operator verifies that the shafts of the
MFW pumps are stopped

COMMENTS: _____

NOTE 6: When requested inform the examinee that Main Turbine speed indicates
"zero"

STEP

STANDARD

*6. Check if the Main Turbine has
stopped. (TB-463)

Operator verifies that the main turbine
is at "zero" speed

COMMENTS: _____

NOTE 7: Cue examinee that 20 mins has elapsed and hydrogen pressure indicates
"zero" after XVT10556 is opened.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 4

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

STEP

STANDARD

*7. Check that IPI-5130, MACHINE
HYDROGEN GAS PRESSURE
INDICATOR, indicates less than
5 psig. (TB-412)

Operator verifies that IPI-5130
indicates less than 5 psig on the
Hydrogen Seal Oil panel (TB-412)

COMMENTS: _____

NOTE 8: If requested inform the examinee that each MFW pump shaft is stopped

STEP

STANDARD

S*8. De-energize TPP0022A, (B), (C)
- FWPT EMERGENCY BEARING OIL
PP (TB-412)

Operator opens breaker for FWPA(B)(C) -
FWP EBOP (XSX0002A(B)(C)) from Panel
DPN-2X 01(02)(03) after FW pumps stop

COMMENTS: _____

NOTE 9: If requested, after XVT10556 is opened, inform examinee hydrogen
pressure indicates "zero".

STEP

STANDARD

S*9. De-energize EMERGENCY SEAL OIL
PUMP, XPT0001-PP3 (TB-412)

Operator has verified H2 press, IPI-5130
(TB-412) indicates <5 psig, then
de-energizes XTP0001-PP3 EMERGENCY SEAL
OIL PUMP from panel DPN-2X by opening
breaker #4.

COMMENTS: _____

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 5

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

NOTE 10: If requested inform examinee that Main Turbine is at "zero" speed

STEP

STANDARD

S*10. De-energize breaker for EBOP
(XSX0003) (TB-412)

Operator deenergizes MAIN TURB. EMERG.
BEARING OIL PP, (XOR001), by opening
breaker 05 (XSX0003) on DPN-2X, after
the Main Turbine has stopped

COMMENTS:

Examiner Stops JPM At This Point

TIME STOPPED: _____

GENERAL COMMENTS:

NRC KA REFERENCES:

KA NUMBER
000068.EA1.10

Ability to operate and monitor
AC and DC power distribution.

IMPORTANCE	FACTOR
RO	SRO
3.7*	3.9

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 004K1.18 (2.9/3.2)
Examiner:	10 CFR 55.45 Ref: (a)6

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V C Summer
JPM No.B.2.b/JPP-166
Establish Chilled Water Alternate Cooling to Charging Pumps

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 004K1.18 (2.9/3.2)
Examiner:	10 CFR 55.45 Ref: (a)6

Initial Conditions:A total loss of component cooling water has occurred. The CRS has implemented AOP-118.1.

Assigned Task: The CRS has directed you, the ABLL, to establish alternate cooling to the "B" charging pump from the chilled water system per AOP-118.1, attachment 1 and 1B.

**V C Summer
JPM No.B.2.b/JPP-166**

Establish Chilled Water Alternate Cooling to Charging Pumps

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 004K1.18 (2.9/3.2)
Examiner:	10 CFR 55.45 Ref: (a)6

Initial Conditions:A total loss of component cooling water has occurred. The CRS has implemented AOP-118.1.

Assigned Task: The CRS has directed you, the ABLL, to establish alternate cooling to the "B" charging pump from the chilled water system per AOP-118.1, attachment 1 and 1B.

Required Items: AOP-118.1, Attachment 1 and 1B

Task Standard: Align chilled water to the "B" charging pump in accordance with the AOP.

V.C. SUMMER NUCLEAR STATION

NRC JOB PERFORMANCE MEASURE

JPP-166

**ESTABLISH CHILLED WATER ALTERNATE COOLING TO CHARGING
PUMPS**

Revision No. 3

ESTABLISH CHILLED WATER ALTERNATE COOLING TO CHARGING PUMPS

TRAINEE _____		EVALUATOR _____	
EVALUATOR SIGNATURE _____		DATE _____	
EVALUATION METHOD:	SIMULATE		
EVALUATION LOCATION:	PLANT		
ESTIMATED TIME:	20.0 MINUTES	TIME STARTED:	_____
10CFR55.45(a)6	PERFORM CONTROL MANIPULATIONS REQUIRED TO OBTAIN DESIRED OPERATING RESULTS DURING NORMAL, ABNORMAL, AND EMERGENCY SITUATIONS		
TIME CRITICAL:	No	FAULTED JPM:	No
TRAINEE PERFORMANCE:	SATISFACTORY _____		UNSATISFACTORY _____

<p>READ TO OPERATOR: WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.</p>

INITIAL CONDITIONS:

1. A total loss of Component Cooling Water has occurred. CRS has implemented AOP-118.1.

TOOLS AND EQUIPMENT NEEDED:

1. AOP-118.1 ATTACHMENT 1 AND 1B

REFERENCED DOCUMENTS:

1. AOP*118.1 TOTAL LOSS OF COMPONENT COOLING WATER

REV DATE

08/17/98

TASK STANDARDS:

1. Chilled Water alternate cooling is provided to the "B" Charging Pump per AOP-118.1.

ESTABLISH CHILLED WATER ALTERNATE COOLING TO CHARGING PUMPS

INITIATING CUES:

1. The CRS directs you, the ABL, to establish alternate cooling to the "B" Charging Pump from the Chilled Water System per AOP-118.1 ATT. 1 and 1B.

TERMINATING CUES:

1. Chilled Water alternate cooling provided to 'B' Charging Pump per AOP-118.1 or when examinee returns procedure to examiner.

SAFETY CONSIDERATIONS:

1. CLIMBING

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 2

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

NOTE 1: HAVE OPERATOR POINT OUT THE HOSES AND DISCUSS HOW THE LINES WOULD BE CONNECTED, VERSUS REMOVING THE EQUIPMENT OUT OF THE GANG BOX.

STEP

STANDARD

*1. Obtain alternate cooling
supply hoses and fittings.

Hoses and fittings obtained from
Dedicated Gang Box (AB-400)

COMMENTS: _____

STEP

STANDARD

*2. Connect the supply hose.

Hose connected using Chicago fittings to
IPX09062B-HR-VU, HIGH ROOT TO IPX9062B,
AND XVT19647B-CC, CHG PP B OIL CLR ALT
CLG WTR SUPPLY VLV.

COMMENTS: _____

STEP

STANDARD

*3. Connect the return hose.

Hose connected using Chicago fittings to
IPX09098B-HR-VU, HIGH ROOT TO IPX9098B,
AND XVT19648B-CC, CHG PP B OIL CLR ALT
CLG WTR RETURN VLV.

COMMENTS: _____

NOTE 4: Steps 4-21 involve valves that are standard Gate valves. Prompt
examinee that XVG09657B-CC turns freely in the clockwise direction.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 3

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

STEP

STANDARD

4. Check XVG09657B-CC (AB-400) valve position and record "AS FOUND" on attachment.

Removes the locking device, attempts to turn XVG09657B-CC in the clockwise direction and records valve position on the attachment.

STEP

STANDARD

- *5. Close XVG09657B-CC.

Closes XVG09657B-CC, CHG PP B OIL CLR CCW INLET VLV, by rotating the valve handwheel fully in the clockwise direction.

COMMENTS:

NOTE 6: Prompt examinee that XVT19647B-CC does not move in the clockwise direction.

STEP

STANDARD

6. Check XVT19647B-CC (AB-400) valve position and record "AS FOUND" on attachment.

Attempts to turn XVT19647B-CC in the clockwise direction and records valve position on the attachment.

STEP

STANDARD

- *7. Open XVT19647B-CC.

Opens XVT19647B-CC, CHG PP B OIL CLR ALT CLG WTR SUPPLY VLV, by rotating the valve handwheel fully in the counter-clockwise direction.

COMMENTS:

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 4

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

NOTE 8: Prompt examinee that XVT09685B-CC turns freely in the clockwise direction. Student may choose to determine throttled position of the valve. 3.0 turns open.

STEP

STANDARD

8. Check XVT09685B-CC (AB-400) valve position and record "AS FOUND" on attachment.

Removes the locking device and attempts to turn XVT09685B-CC in the clockwise direction.

STEP

STANDARD

- *9. Close XVT09685B-CC.

Closes XVT09685B-CC, CHG PP B OIL CLR CCW OUTLET VALVE, by rotating the valve handwheel fully in the clockwise direction.

COMMENTS: _____

NOTE 10: Prompt examinee that XVT19648B-CC does not move in the clockwise direction.

STEP

STANDARD

10. Check XVT19648B-CC (AB-400) valve position and record "AS FOUND" on attachment.

Attempts to turn XVT19648B-CC in the clockwise direction.

STEP

STANDARD

- *11. Open XVT19648B-CC.

Opens XVT19648B-CC, CHG PP B OIL CLR ALT CLG WTR RETURN VLV, by rotating the valve handwheel in the fully counter-clockwise direction.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 5

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

COMMENTS: _____

NOTE 12: Prompt examinee that IPX09062B-HR-VU does not move in the clockwise direction.

STEP

STANDARD

12. Check IPX09062B-HR-VU (AB-400) valve position and record "AS FOUND" on attachment.

Attempts to turn IPX09062B-HR-VU in the clockwise direction.

STEP

STANDARD

*13. Open IPX09062B-HR-VU, (AB-400).

Opens IPX09062B-HR-VU, HIGH ROOT TO IPX9062B, by rotating the valve handwheel in the fully counter-clockwise direction.

COMMENTS: _____

NOTE 14: Prompt examinee that IPX09098B-HR-VU does not move in the clockwise direction.

STEP

STANDARD

14. Check IPX09098B-HR-VU (AB-400) valve position and record "AS FOUND" on attachment.

Attempts to turn IPX09098B-HR-VU, HIGH ROOT TO IPX9062B, in the clockwise direction.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 6

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

STEP

STANDARD

15. Open IPX09098B-HR-VU (AB-400)

Opens IPX09098B-HR-VU, by rotating the valve handwheel in the fully counter-clockwise direction.

NOTE 16: Prompt examinee that XVT09530B-CC turns freely in the clockwise direction.

STEP

STANDARD

16. Check XVT09530B-CC (AB-388) valve position and record "AS FOUND" on attachment.

Removes the locking device and attempts to turn XVT09530B-CC in the clockwise direction.

STEP

STANDARD

*17. Close XVT09530B-CC.

Closes XVT09530B-CC, CCW SPLY TO CHG PP B OIL CLR BYP VALVE, by rotating the valve handwheel in the fully clockwise direction.

COMMENTS: _____

NOTE 18: Prompt examinee that XVT19654B-CC turns freely in the clockwise direction. Student may choose to determine throttled position of the valve. 2.25 turns open.

STEP

STANDARD

18. Check XVT19654B-CC (AB-388) valve position and record on attachment.

Removes the locking device and attempts to turn XVT19654B-CC in the clockwise direction.

JOB PERFORMANCE MEASURE CHECKLIST

PAGE 7

(S) DENOTES SEQUENCED ELEMENT
(*) DENOTES CRITICAL ELEMENT

PERFORMANCE CHECKLIST:

SAT. UNSAT.

STEP

STANDARD

*19. Open XVT19654B-CC.

Opens XVT19654B-CC, CHG/SI PUMP B OIL
CLR CLG WTR INLET VLV, by rotating the
valve handwheel in the fully
counter-clockwise direction.

COMMENTS: _____

NOTE 20: Prompt examinee that XVT19655B-CC turns freely in the clockwise
direction. Student may choose to determine "AS FOUND" throttled
position. 2.0 turns open.

STEP

STANDARD

20. Check XVT19655B-CC (AB-388)
valve position and record "AS
FOUND" on attachment.

Removes the locking device and attempts
to turn XVT19655B-CC in the clockwise
direction.

STEP

STANDARD

*21. Open XVT19655B-CC.

Opens XVT19655B-CC, CHG/SI PUMP B GB OIL
CLR CLG WTR IN VLV, by rotating the
valve handwheel fully in the
counter-clockwise direction.

COMMENTS: _____

Examiner Stops JPM At This Point

TIME STOPPED: _____

ESTABLISH CHILLED WATER ALTERNATE COOLING TO CHARGING PUMPS

GENERAL COMMENTS:

NRC KA REFERENCES:

KA NUMBER		IMPORTANCE FACTOR	
		RO	SRO
004GEN.15	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	<u>3.8</u>	<u>3.9</u>

V C Summer
JPM No. B.2.c/NRC-3
Respond to Loss of SFPC

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 033AA2.02 (2.7/3.0)
Examiner:	10 CFR 55.45 Ref: (a)8

Evaluation Method: <input type="checkbox"/> Performed <input checked="" type="checkbox"/> Simulated	Evaluation Location: <input type="checkbox"/> Simulator <input type="checkbox"/> Classroom <input checked="" type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	
Examiner Comments	

V C Summer
JPM No. B.2.c/NRC-3
Respond to Loss of SFPC

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 033AA2.02 (2.7/3.0)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions: The A SFP Cooling Pump tripped on overload
XCP-608 1-4, "SF HXB FLO LO" is LIT
XCP-603 2-5, "SF HX FLO LO TEMP HI" is LIT
The B SFP Cooling pump has been started in accordance with SOP-123

Assigned Task: The shift supervisor directs you to perform the local actions of AOP-123.4, Loss of Spent Fuel Cooling.

**V C Summer
JPM No. B.2.c/NRC-3
Respond to Loss of SFPC**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 033AA2.02 (2.7/3.0)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions: The A SFP Cooling Pump tripped on overload
XCP-608 1-4, "SF HXB FLO LO" is LIT
XCP-603 2-5, "SF HX FLO LO TEMP HI" is LIT
The B SFP Cooling pump has been started in accordance with SOP-123

Assigned Task: The shift supervisor directs you to perform the local actions of AOP-123.4, Loss of Spent Fuel Cooling.

Required Items: AOP-123.4, Revision 1, Loss of Spent Fuel Cooling.

Task Standard: Establish 1800 gpm coling flow through the B SFPC heat exchanger and line up CCW cooling to the B SFPC heat exchanger.

**V C Summer
JPM No. B.2.c/NRC-3
Respond to Loss of SFPC**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 033AA2.02 (2.7/3.0)
Examiner:	10 CFR 55.45 Ref: (a)8

_____ Performance step:

[step 1.b] Verify the SF HX A(B) FLO LO (xcp-608(609) 1-4), annunciator is NOT LIT.

Standard: Determine from initial conditions that Alternative Action 1.b is applicable

Comment:

_____ Performance step:

[step AA 1.b] Locally adjust each in-service Spent Fuel Heat Exchanger Outlet Valve as necessary to establish 1800 gpm cooling flow

Standard:

Locate and open XTVT06659-SF, SPENT FUEL HEAT EXCHANGER B OUTLET VALVE. (AB-388)
Contact control room to determine flow rate

EXAMINER CUE: SF heat exchange B flow is 1800 gpm

Comment:

**V C Summer
JPM No. B.2.c/NRC-3
Respond to Loss of SFPC**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 033AA2.02 (2.7/3.0)
Examiner:	10 CFR 55.45 Ref: (a)8

_____ Performance step:

[step 2] Verify SF HX FLO LO TEMP HI (XCP-603 2-5), annunciator is NOT lit.

Standard:

Determine from initial conditions that Alternative Action 2 is applicable

Comment:

_____ Performance step:

[step AA 2(a)] Locally ensure Component Cooling Water is supplied to each in-service Spent Fuel Heat Exchanger (AB-388). Ensure the Component Cooling Water Inlet Isolation Valve is open:

* XVB09624B-CC, SPENT FUEL HT EXCH B CC WTR INLET VALVE

Standard:

Locate and open XVB09624B-CC, SPENT FUEL HT EXCH B CC WTR INLET VALVE (AB-388)

Comment:

**V C Summer
JPM No. B.2.c/NRC-3
Respond to Loss of SFPC**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 033AA2.02 (2.7/3.0)
Examiner:	10 CFR 55.45 Ref: (a)8

_____ Performance step:

[step AA 2(b)] Ensure the Component Cooling Water Outlet Isolation Valve is throttled open:

* XVB09628B-CC, SPENT FUEL HT EXCH B CC WTR OUTLET VALVE

Standard:

Locate and open XVB09628B-CC, SPENT FUEL HT EXCH B CC WTR OUTLET VALVE

Comment:

Terminating cue: The control room will complete the rest of the procedure. Terminate JPM at this point

V C Summer
JPM No. B.2.c/NRC-3
Respond to loss of SFPC

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 033AA2.02 (2.7/3.0)
Examiner:	10 CFR 55.45 Ref: (a)8

Evaluation Method:	Evaluation Location:
[] Performed [XX] Simulated	[] Simulator [] Classroom [XX] Plant
Overall JPM Evaluation	
[] SAT [] UNSAT	
Examiner Comments	

V C Summer
JPM No. B.2.c/NRC-3
Respond to loss of SFPC

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 033AA2.02 (2.7/3.0)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions: The A SFP Cooling Pump tripped on overload
XCP-608 1-4, "SF HXB FLO LO" is LIT
XCP-603 2-5, "SF HX FLO LO TEMP HI" is LIT
The B SFP Cooling pump has been started in accordance with SOP-123

Assigned Task: The shift supervisor directs you to perform the local actions of AOP-123.4, Loss of Spent Fuel Cooling.

**V C Summer
JPM No. B.2.c/NRC-3
Respond to loss of SFPC**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 033AA2.02 (2.7/3.0)
Examiner:	10 CFR 55.45 Ref: (a)8

Initial Conditions: The A SFP Cooling Pump tripped on overload
XCP-608 1-4, "SF HXB FLO LO" is LIT
XCP-603 2-5, "SF HX FLO LO TEMP HI" is LIT
The B SFP Cooling pump has been started in accordance with SOP-123

Assigned Task: The shift supervisor directs you to perform the local actions of AOP-123.4, Loss of Spent Fuel Cooling.

Required Items: AOP-123.4, Revision 1, Loss of Spent Fuel Cooling.

Task Standard: Establish 1800 gpm coling flow through the B SFPC heat exchanger and line up CCW cooling to the B SFPC heat exchanger.

**V C Summer
JPM No. B.2.c/NRC-3
Respond to loss of SFPC**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 033AA2.02 (2.7/3.0)
Examiner:	10 CFR 55.45 Ref: (a)8

_____ Performance step:

[step 1.b] Verify the SF HX A(B) FLO LO (xcp-608(609) 1-4), annunciator is NOT LIT.

Standard: Determine from initial conditions that Alternative Action 1.b is applicable

Comment:

_____ Performance step:

[step AA 1.b] Locally adjust each in-service Spent Fuel Heat Exchanger Outlet Valve as necessary to establish 1800 gpm cooling flow

Standard:

Locate and open XTVT06659-SF, SPENT FUEL HEAT EXCHANGER B OUTLET VALVE. (AB-388)
Contact control room to determine flow rate

EXAMINER CUE: SF heat exchange B flow is 1800 gpm

Comment:

**V C Summer
JPM No. B.2.c/NRC-3
Respond to loss of SFPC**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 033AA2.02 (2.7/3.0)
Examiner:	10 CFR 55.45 Ref: (a)8

_____ Performance step:

[step 2] Verify SF HX FLO LO TEMP HI (XCP-603 2-5), annunciator is NOT lit.

Standard:

Determine from initial conditions that Alternative Action 2 is applicable

Comment:

_____ Performance step:

[step AA 2(a)] Locally ensure Component Cooling Water is supplied to each in-service Spent Fuel Heat Exchanger (AB-388). Ensure the Component Cooling Water Inlet Isolation Valve is open:

* XVB09624B-CC, SPENT FUEL HT EXCH B CC WTR INLET VALVE

Standard:

Locate and open XVB09624B-CC, SPENT FUEL HT EXCH B CC WTR INLET VALVE (AB-388)

Comment:

**V C Summer
JPM No. B.2.c/NRC-3
Respond to loss of SFPC**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 033AA2.02 (2.7/3.0)
Examiner:	10 CFR 55.45 Ref: (a)8

_____ Performance step:

[step AA 2(b)] Ensure the Component Cooling Water Outlet Isolation Valve is throttled open:

* XVB09628B-CC, SPENT FUEL HT EXCH B CC WTR OUTLET VALVE

Standard:

Locate and open XVB09628B-CC, SPENT FUEL HT EXCH B CC WTR OUTLET VALVE

Comment:

Terminating cue: The control room will complete the rest of the procedure. Terminate JPM at this point