

Job Performance Measure

System: A.1-1: Conduct of Operations

JTA Task #: CPSES BANK: RO1803

Task Title: Perform QPTR Calculation

KSA Ref: 2.1.20 Executing Procedures

PEO: \_\_\_\_\_

RO: 3.9

SRO: 4.0

Operator-s Name: \_\_\_\_\_

Performance Environment: ADMIN CONTROL ROOM SIMULATOR

Performance Method: PERFORMED SIMULATED

DISCUSSED

Time to complete JPM: Estimated 30 min. Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**

**UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

References:

OPT-302

Tools, Equipment, Job Aids, etc:

Calculator

OPT-302-1 Instructor Copy (Key)

OPT-302-1 Working Copy

**Job Performance Measure**

**Job Performance Measure**

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

The Unit Supervisor assigns you to manually complete OPT-302, Calculating Power Tilt Ratio.

Terminating Conditions:

OPT-302 is ready for Shift Manager review and signature.

## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
*1	Operator reviews form OPT-302-1 with data already provided on the form	Review Form OPT-302-1		
*2	Operator completes the QPTR in OPT-302.  <b>CUE:</b> All necessary data is already provided on the form provided.  <b>TASK COMPLETE</b>	QPTR calculation within tolerance listed on the Examiner Data Sheet and all Acceptance Criteria satisfied.		

**Job Performance Measure**

**INITIATING CUE:** The Unit Supervisor assigns you to manually perform OPT-302, Calculating Power Tilt Ratio.

Job Performance Measure

**System:** A.1-2: Conduct of Operations

**JTA Task #:** ROA2 (NEW)

**Task Title:** Perform an RCS Inventory Balance

**KSA Ref:** 2.1.23 Integrated Plant Procedures

**PEO:** \_\_\_\_\_

**RO:** 2.8

**SRO:** 3.1

**Operator-s Name:** \_\_\_\_\_

**Performance Environment:**     ADMIN           CONTROL ROOM           SIMULATOR

**Performance Method:**     PERFORMED           SIMULATED

DISCUSSED

**Time to complete JPM:**   Estimated    30 min.           Actual    \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**

**UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

References:

OPT-303

Tools, Equipment, Job Aids, etc:

Calculator

Steam Tables

OPT-303-1 (with initial and final data pre-recorded)

Job Performance Measure

**Job Performance Measure**

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

The Unit Supervisor assigns you to manually complete OPT-303, RCS Water Inventory calculation. The data have already been collected over the previous two hours. Given OPT 303-1, perform steps 8.4.1.F,G,H, and I utilizing Steam Tables.

Terminating Conditions:

OPT-303 is ready for Shift Manager review and signature.



## Job Performance Measure

<b>STEP#</b> *Critical	<b>ELEMENT</b>	<b>STANDARD</b>	<b>NOTES</b>	<b>SAT/ UNSAT</b>
*1	Operator locates all required forms to perform OPT.	Form OPT-303-1 prepopulated with data.		
*2	Operator completes the calculations per the key.  <b>TASK COMPLETE</b>			

**Job Performance Measure**

**INITIATING CUE:** The Unit Supervisor assigns you to manually complete OPT-303, RCS Water Inventory calculation. The data have already been collected over the previous two hours. Given OPT 303-1, perform steps 8.4.1.F,G,H, and I utilizing Steam Tables.

UNIT 1 REACTOR COOLANT SYSTEM WATER INVENTORY  
DATA COLLECTION

8.2.1

8.3.2

PARAMETER	COMPUTER POINT	INST. NO.	INITIAL VALUE	FINAL VALUE	UNIT
TIME	N/A	N/A	2154	0000	HR:MIN
RC LOOP 1 TAVE	T0400A	1-TI-412	587.70	587.60	°F
RC LOOP 2 TAVE	T0420A	1-TI-422	590.70	590.60	°F
RC LOOP 3 TAVE	T0440A	1-TI-432	588.70	588.50	°F
RC LOOP 4 TAVE	T0460A	1-TI-442	590.10	590.00	°F
PRZR PRESS	P0481A	1-PI-456	2232.0	2231.0	PSIG
PRZR PRESS	P6480A	1-PI-455A	2233.0	2231.0	PSIG
PRZR PRESS	P0482A	1-PI-457	2235.0	2233.0	PSIG
PRZR PRESS	P6483A	1-PI-458	2234.0	2233.0	PSIG
PRZR LVL	L6481A	1-LI-460A	58.40	58.47	%
PRZR LVL	L6480A	1-LI-459A	59.99	60.03	%
PRZR LVL	L6482A	1-LI-461	59.24	59.32	%
VCT TEMP	T0140A	1-TI-116	97.80	97.60	°F
VCT PRESS	P0139A	1-PI-115	35.30	35.01	PSIG
VCT LVL	L6112A	1-LI-112A	49.80	48.95	%
PRT TEMP	T6485A	1-TI-468	88.2	88.3	°F
PRT PRESS	P6485A	1-PI-469	2.11	2.30	PSIG
PRT LVL	L6485A	1-LI-470	81.0	81.0	%
RCDT TEMP	N/A	1-TI-1058	79.5	79.5	°F
RCDT PRESS	N/A	1-PI-1004	3.21	3.18	PSIG
RCDT LVL	L1003A	1-LI-1003	31.2	32.1	%
RCDT FLOW TOT	N/A	1-QI-1014	0.0	0.0	GAL

Data Recorded By: Initial \_\_\_\_\_ Date \_\_\_\_\_

Final \_\_\_\_\_ Date \_\_\_\_\_

UNIT 1 REACTOR COOLANT SYSTEM WATER INVENTORY  
CALCULATION

8.4.1A, 8.4.1B

$\Delta$  MASS RCS

Initial RCS TAVE (Average of all values)	= 589.30 °F
Initial PRZR PRESS (Average of all values) (Avg PRZR PRESS + 14.7)	= 2248.2 psia
Initial RCS Specific Volume ( $V_i$ )	= 0.02270 ft <sup>3</sup> /lbm

Final RCS TAVE (Average of all values)	= 589.175 °F
Final PRZR PRESS (Average of all values) (Avg PRZR PRESS + 14.7)	= 2246.70 psia
Final RCS Specific Volume ( $V_f$ )	= 0.02269 ft <sup>3</sup> /lbm

$\Delta$  M RCS

$$\frac{11420 \text{ ft}^3}{V_i \text{ (ft}^3/\text{lbm)}} - \frac{11420 \text{ ft}^3}{V_f \text{ (ft}^3/\text{lbm)}} = -97.32 \text{ lbm}$$

8.4.1C, 8.4.1D, 8.4.1E

$\Delta$  MASS PRZR

Initial PRZR PRESS (Average of all values) (Avg PRZR PRESS + 14.7)	= 2248.20 psia
Initial PRZR Liquid Specific Volume ( $V_{iL}$ )	= 0.02697 ft <sup>3</sup> /lbm
Initial PRZR Vapor Specific Volume ( $V_{iV}$ )	= 0.15713 ft <sup>3</sup> /lbm
Initial PRZR Liquid Volume ( $Vol_i$ ) TDM-804A	= 8057.09 gal

M PRZR Initial

$$\frac{Vol_i \text{ (gal)}}{(V_{iL} \text{ (ft}^3/\text{lbm)}) (7.48 \text{ (gal/ft}^3))} + \frac{13464 \text{ (gal)} - Vol_i \text{ (gal)}}{(V_{iV} \text{ (ft}^3/\text{lbm)}) (7.48 \text{ (gal/ft}^3))} = 44545.67 \text{ lbm}$$

Final PRZR PRESS (Average of all values) (Avg PRZR PRESS + 14.7)	= 2246.70 psia
Final PRZR Liquid Specific Volume ( $V_{fL}$ )	= 0.02696 ft <sup>3</sup> /lbm
Final PRZR Vapor Specific Volume ( $V_{fV}$ )	= 0.15730 ft <sup>3</sup> /lbm
Final PRZR Liquid Volume ( $Vol_f$ ) TDM-804A	= 8065.02 gal

M PRZR Final

$$\frac{Vol_f \text{ (gal)}}{(V_{fL} \text{ (ft}^3/\text{lbm)}) (7.48 \text{ (gal/ft}^3))} + \frac{13464 \text{ (gal)} - Vol_f \text{ (gal)}}{(V_{fV} \text{ (ft}^3/\text{lbm)}) (7.48 \text{ (gal/ft}^3))} = 44586.08 \text{ lbm}$$

lbm

$\Delta M$  PRZR

- 40.41

M PRZR Initial - M PRZR Final

=

UNIT 1 REACTOR COOLANT SYSTEM WATER INVENTORY  
CALCULATION - KEY

8.4.1F, 8.4.1G, 8.4.1H

 $\Delta$  MASS VCT

Initial VCT TEMP = **97.80** °F

Initial VCT PRESS = **50.0** psia  
 (VCT PRESS + 14.7)

Initial VCT Specific Volume ( $V_i$ ) = **0.01612** ft<sup>3</sup>/lbm

Initial VCT Volume ( $Vol_i$ ) TDM-804A = **1481.42** gal

Final VCT TEMP = **97.60** °F

Final VCT PRESS = **49.710** psia  
 (VCT PRESS + 14.7)

Final VCT Specific Volume ( $V_f$ ) = **0.01612** ft<sup>3</sup>/lbm

Final VCT Volume ( $Vol_f$ ) TDM-804A = **1464.93** gal

 $\Delta M$  VCT

$Vol_i$ (gal)	$Vol_f$ (gal)	-	
		-	<b>136.28</b>
( $V_i$ (ft <sup>3</sup> /lbm)) (7.48 (gal/ft <sup>3</sup> ))	( $V_f$ (ft <sup>3</sup> /lbm)) (7.48 (gal/ft <sup>3</sup> ))		= lbm

8.4.1I

RCS TOTAL LEAKAGE

Elapsed Time = **126** min

Total RCS Leakage

$\Delta M$  RCS (lbm) +  $\Delta M$  PRZR (lbm) +  $\Delta M$  VCT (lbm) = **0.00** gpm

(Elapsed Time (min) (8.33 lbm/gal))

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**SOLUTION- KEY**

Determine VCT Specific Volumes with Steam Tables using the specific volume for saturated liquid at a temperature equal to 1-TI-116 (VCT OUT TEMP)

Specific Volume for 96.0 degrees 0.016117

Specific Volume for 98.0 degrees 0.016123

Initial = extrapolating 97.8 degrees - delta btwn 96.0 to 98.0 is 0.000006

97.8 degrees is = to 90% of the delta which equals 0.0000054

Adding the delta to the 96.0 degrees value yields **0.0161224 (97.8 degree initial value)**

Final = 97.6 degrees is = to 80% of the delta which equals 0.0000048

Adding the delta to the 96.0 degrees value yields **0.0161218 (97.6 degree final value)**

Using the TDM 804A

Volume (gallons) for 48% = 1446.5 gallons

Volume (gallons) for 51% = 1504.7 gallons

Extrapolating for 49.8% yields 60% of the delta(58.2) added to 1446.5

Using these values results in a **Initial VCT Volume of 1481.42 gallons**

Extrapolating for 48.95% yields 31.7% of the delta(58.2) added to 1446.5

Using these values results in a **Final VCT Volume of 1464.93 gallons**

Delta mass in VCT is equal to

**136.28596 LBM**

Elapsed time is equal to 2154 subtracted from mid night (2400) = **126 minutes**

Total RCS Leakage is

Delta Mass RCS = - 97.32 LBM (given)

Delta Mass PZR = - 40.41 LBM(given)

Delta Mass VCT = + **136.28596 LBM**



$$\Delta M_{RCS} \text{ (lbm)} + \Delta M_{PRZR} \text{ (lbm)} + \Delta M_{VCT} \text{ (lbm)}$$

\_\_\_\_\_ gpm

(Elapsed Time (min) (8.33 lbm/gal)



Job Performance Measure

**System:** A.2: Equipment Control

**JTA Task #:** ROA3 (NEW)

**Task Title:** Identify Errors in a Faulted Clearance (Tagout)

**KSA Ref:** 2.2.13 Tagging and Clearance Proc.

**PEO:** \_\_\_\_\_

**RO:** 3.6

**SRO:** 3.8

**Operator-s Name:** \_\_\_\_\_

**Performance Environment:** ADMIN CONTROL ROOM SIMULATOR

**Performance Method:** PERFORMED SIMULATED

DISCUSSED

**Time to complete JPM:** Estimated 15 min. Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**

**UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

References:  
STA-605, AClearance and Safety Tagging,  
Revision 14  
OWI-110, AOperations Department Work

Tools, Equipment, Job Aids, etc:

**Job Performance Measure**

Control and Clearance Guideline,@ Revision 11 Dwg M1-206, Sheet 1	
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## Job Performance Measure

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

The clearance was prepared by an Atrainee@ to replace 1AF-0143 and you have been asked by the Work Control Supervisor to review the prepared clearance as a qualified clearance preparer. Identify the three substantive errors associated with **this clearance**.

Terminating Conditions:

Finishes review of the clearance and identifies 3 errors.

Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
1	Provide candidate with completed copy of the initiating cue	Candidate should review Admin JPM and initiating cue		
2*	Identifies 3 errors	Candidate identifies the following 3 errors:  1. Either 1AF-0070 or 1AF-0068 (AFW pump discharge to CST) is REQUIRED to be tagged - not tagged 2. Service Water Suction Supply Valve - missing local tag for 1AF-0019 (also can be referred to as 1HV-2480) 3. A system drain valve (like 1AF-0192 or 1AF-0191) should be tagged open but is not.	Errors can be found in ANY order.  <b>3 of 3 errors must be identified for the JPM to be sat.</b>	
	<b>TASK COMPLETE</b>			

**Comanche Peak Steam Electric Station  
ILE-11/2002**

**Job Performance Measure**

**INITIATING CUE:** The clearance was prepared by an Atrainee@ to replace 1AF-0143 and you have been asked by the Work Control Supervisor to review the prepared clearance as a qualified clearance preparer. Identify the three substantive errors associated with **this clearance**.

Job Performance Measure: Questions

System: A.3: Radiation Control

JTA Task #: ROA4 (NEW)

Task Title: Interpret a Survey Map and Answer 2 Questions

KSA Ref: 2.3.10 Guard Against Pers. Exposure    PEO: \_\_\_\_\_    RO: 2.9    SRO: 3.3

Operator's Name: \_\_\_\_\_

Performance Environment:    ADMIN    CONTROL ROOM    SIMULATOR

Performance Method:    PERFORMED    SIMULATED  
DISCUSSED

Time to complete JPM:    Estimated    10 min.    Actual    \_\_\_\_\_

The operator's performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**                      **UNSATISFACTORY**

Reason, if unsatisfactory:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Job Performance Measure: Questions**

<p><u>References:</u> RPI-602 TS-5.7</p>	<p><u>Tools, Equipment, Job Aids, etc:</u> RPI-602-1 Completed Survey Map (key for examiner) RPI-602-1 Survey Map (handed to applicant)</p>
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Job Performance Measure: Questions

**KEY**

1. What is the maximum general area radiation level indicated on the survey map?

**150 mR/hr**

2. What is the maximum contamination level indicated on the survey map?

**21k cpm/100cm<sup>2</sup> (swipe #7)**





Job Performance Measure

System: A.4: Emergency Plan

JTA Task #: ROA5 (NEW)

Task Title: EP General Access Training Questions

KSA Ref: 2.4.39 RO-s EP Responsibilities

PEO: \_\_\_\_\_

RO: 3.3

SRO: 3.1

Operator-s Name: \_\_\_\_\_

Performance Environment: ADMIN CONTROL ROOM SIMULATOR

Performance Method: PERFORMED SIMULATED

DISCUSSED

Time to complete JPM: Estimated 10 min. Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**

**UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

**Job Performance Measure**

<p><u>References:</u> EP General Access Training Plan</p>	<p><u>Tools, Equipment, Job Aids, etc:</u> <i>Questions must be answered without references.</i></p>
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**Job Performance Measure**

***TO BE ANSWERED WITHOUT REFERENCES***

**QUESTION #1:** List 4 means of reporting emergencies to the Control Room:

**QUESTION #2:** List the two potential Relocation Centers to which personnel will be directed to proceed for monitoring in the event of a Site Evacuation:

Job Performance Measure

ANSWER KEY

**QUESTION #1:** List 4 means of reporting emergencies to the Control Room:  
(MUST GET 3 OUT OF 4 CORRECT)

1. TELEPHONE
2. GAI-TRONICS
3. TWO-WAY RADIOS
4. REPORTING DIRECTLY TO THE CONTROL ROOM

**QUESTION #2:** List the two potential Relocation Centers to which personnel will be directed to proceed for monitoring in the event of a Site Evacuation:

(MUST GET BOTH CORRECT)

- CLEBURNE  
STEPHENVILLE

Job Performance Measure

System: A.1-1: Conduct of Operations

JTA Task #: CPSES BANK: RO1010

Task Title: Perform Shutdown Margin Calculations

KSA Ref: 2.1.23 Integrated Plant Procedures

RO: 3.9

SRO: 4.0

Operator's Name: \_\_\_\_\_

Performance Environment: ADMIN CONTROL ROOM SIMULATOR

Performance Method: PERFORMED SIMULATED

DISCUSSED

Time to complete JPM: Estimated 30 min. Actual \_\_\_\_\_

The operator's performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**

**UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

References:  
OPT-301, AReactor Shutdown Margin  
Verification@  
Technical Specifications

Tools, Equipment, Job Aids, etc:  
OPT-301  
OPT-301-9  
SOR

**Job Performance Measure**

Startup and Operation Report Core Operating Limits Report	COLR
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## Job Performance Measure

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

It is now December 15 at 0700. Unit-1 tripped from 100% power, equilibrium conditions 7 hours ago. All rods are fully inserted, RCS Tave is 375°F and the boron concentration is 1250 ppm from a sample taken 6 hours after the trip. Core burnup is 8000 MWD/ MTU. The computer program is unavailable and you are to perform a manual Shutdown Margin Verification per OPT-301, A Reactor Shutdown Margin Verification@. Assume Core #9.

Terminating Conditions:

Shutdown Margin Verification has been completed per OPT-301 and OPT-301-9 filled out correctly.



## Job Performance Measure

<b>STEP#</b> *Critical	<b>ELEMENT</b>	<b>STANDARD</b>	<b>NOTES</b>	<b>SAT/ UNSAT</b>
1	Obtains OPT-301 and a working copy of form OPT-301-9	OPT-301 open for reference		
2	Completes top portion of OPT-301-9	Unit NO.; Cycle No: use current cycle; Mode: 3; Current date and time per cue.		
3	Enters the RCS boron concentration on line A.1 and sample time.	Enters 1250 ppm on line A.1		
4	Enters RCS Tave on line A.2	Enters 375°F on line A.2		
5	Enters core burnup on line A.3 and checks the appropriate box.	Enters 8000 and check MOL box.		
6	Enters number of stuck RCCAs on line A.4.	Enters 0 on line A.4 for no stuck RCCAs.		
7	Refers to COLR and determines SDM reactivity requirement for present MODE. Enters value in line A.5.	Enters 1300 on line A.5.	Candidate may know from memory the requirement of 1.3% $\bar{K}/K$ which is 1300 pcm.	
8	Determines the uncorrected minimum boron concentration from SOR table 5.13 and enters on line B.1.	Refers to SOR table 5.13 and enters correct value on line B.1.		
*9	Determines A.1 _ B.1 and credit must be taken for Xe and Sm.	A.1 _ B.1. Must take credit for Xe and Sm by performing section 8.1.4 and 8.1.5.		
10	Enters data for C.1 and C.2.	Data given in initiating cue.		
11	Determine Xe worth using SOR, table 5.21 and enters on line C.3 and checks box to indicate from SOR.	Enters value from SOR table 5.21 on line C.3.		
12	Determines Sm worth using	Enters value from SOR		

## Job Performance Measure

<b>STEP#</b> *Critical	<b>ELEMENT</b>	<b>STANDARD</b>	<b>NOTES</b>	<b>SAT/ UNSAT</b>
	SOR, table 5.24 and enters on line C.4 and checks box to indicate from SOR.	table 5.24 on line C.4.		
13	Determines the IBW using table 5.8 from SOR and enters value on line D.1.	Enters IBW from table 5.8 of SOR on line D.1		
14	Determines value for most reactive RCCA from table 5.16 of SOR and enters value on line D.2.	Enters value of most reactive RCCA from table 5.16 of SOR and enters on line D.2.		
15	Performs calculation of OPT-301-9, line D.3 to determine worth correction and enters value on line D.3.	Performs calculation of OPT-301-9, line D.3, using 0 for RCCAs and enters value on line D.3.		
16	Determines boron correction factor from Figure 5.36 of SOR and enters on line D.4.	Enters value for boron correction factor from Figure 5.36 of SOR on line D.4.		
17	Performs calculation of OPT-301-9, line D.5, to determine the IBW for minimum SDM and enters results on line D.5.	Performs calculation of line D.5 to determine IBW for minimum SDM and enters on line D.5		
*18	Determine if SDM requirements are met and completes line F.1.	Verifies boron concentration entered on line A.1 _ line D.6 and circles YES on line F.1.		
	<b>TASK COMPLETE</b>			

**Job Performance Measure**

**INITIATING CUE:**

It is now December 15 at 0700. Unit-1 tripped from 100% power, equilibrium conditions 7 hours ago. All rods are fully inserted, RCS Tave is 375°F and the boron concentration is 1250 ppm from a sample taken 6 hours after the trip. Core burnup is 8000 MWD/ MTU. The computer program is unavailable and you are to perform a manual Shutdown Margin Verification per OPT-301, A Reactor Shutdown Margin Verification@. Assume Core #9.

SHUTDOWN MARGIN KEY

Unit	Cycle	MODE	Date	Time
Unit <u>1</u>	Cycle <u>9</u>			
<b>1. PLANT CONDITIONS</b>				
A.2_	RCS Boron _____ ppm @ Date _____ Time	A.3	Burnup [ ] BOL [ ] MOL	MWD/MTU [ ] EOL
A.2	Tave _____ °F	A.4	No. of Stuck RCCAs	
A.5	COLR Shutdown Margin Requirement			_____ pcm
B.1	UNCORRECTED MIN BORON FOR SDM at A.2 and A.3			<b><u>1429</u></b> ppm
3.	XENON AND SAMARIUM WORTH			[ ] N/A
C.1	Shutdown: Date <u>15 Dec</u>	Time <u>0000</u>	Duration <u>7</u>	hours
C.2	[ ] Power	[X] Power at Trip	<u>100</u>	%RTP
C.3	Xenon Worth [X] SOR	[ ] PC	( - ) <u>4242</u>	pcm
C.4	Samarium Worth [X] SOR	[ ] PC	( - ) <u>923</u>	pcm
4.	SHUTDOWN MARGIN BORON CONCENTRATION			[ ] N/A
D.1	IBW at B.1	( - )	<u>13640.8</u>	pcm
D.2	Most Reactive RCCA Worth	( + )	<u>881</u>	pcm
D.3	Worth Correction [ C.3 + C.4 + (A.4 * D.2) ]	( - )	<u>5165</u>	pcm
D.4	Boron Correction Factor at C.3 + C.4		<u>0.974</u>	
D.5	IBW for Minimum SDM [ (D.1 - D.3) / D.4 ]	( - )	<u>8702</u>	pcm
D.6	SDM Boron Concentration at D.5 and A.2		<u>898.95</u>	ppm
5.	SUBCRITICAL MARGIN			[X] N/A
E.1	IBW at A.1 and A.2	( - )	_____	pcm
E.2	Total Worth [(E.1 * D.4) + C.3 + C.4 + (A.4 * D.2)]	( )	_____	pcm
E.3	Subcritical Margin (D.1 + A.5 - E.2)	( )	_____	pcm
6.	ACCEPTANCE CRITERIA	SATISFIED	INITIALS	
F.1	A.1 ≥ B.1 AND A.4=0 OR A.1 ≥ D.6	YES NO		

Comments: ASSUMPTIONS: Trip at 0000 on the 15th of Dec. Unit is 1 and Core # 9 (SOR)

And Subcritical Margin not performed(optional)

Performed By: \_\_\_\_\_

Date: \_\_\_\_\_

Reviewed By: \_\_\_\_\_ Date:

Shift Manager: \_\_\_\_\_ Date:

Operations Management: \_\_\_\_\_ Date:

## SHUTDOWN MARGIN

Unit	Cycle	MODE	Date	Time
<b>A PLANT CONDITIONS</b>				
A.1	RCS Boron _____ ppm @ Date _____ Time _____		A.3	Burnup _____ MWD/MTU [ ] BOL [ ] MOL [ ] EOL
A.2	Tave _____ °F		A.4	No. of Stuck RCCAs _____
A.5	COLR Shutdown Margin Requirement _____			pcm
B.1	UNCORRECTED MIN BORON FOR SDM at A.2 and A.3 _____			ppm
C.	XENON AND SAMARIUM WORTH _____			[ ] N/A
C.1	Shutdown: Date _____ Time _____		Duration _____	hours
C.2	[ ] Power [ ] Power at Trip		_____	%RTP
C.3	Xenon Worth [ ] SOR [ ] PC		( - ) _____	pcm
C.4	Samarium Worth [ ] SOR [ ] PC		( - ) _____	pcm
D.	SHUTDOWN MARGIN BORON CONCENTRATION _____			[ ] N/A
D.1	IBW at B.1		( - ) _____	pcm
D.2	Most Reactive RCCA Worth		( + ) _____	pcm
D.3	Worth Correction [ C.3 + C.4 + (A.4 * D.2) ]		( - ) _____	pcm
D.4	Boron Correction Factor at C.3 + C.4			
D.5	IBW for Minimum SDM [ (D.1 - D.3) / D.4 ]		( - ) _____	pcm
D.6	SDM Boron Concentration at D.5 and A.2 _____			ppm
E.	SUBCRITICAL MARGIN _____			[ ] N/A
E.1	IBW at A.1 and A.2		( - ) _____	pcm
E.2	Total Worth [(E.1 * D.4) + C.3 + C.4 + (A.4 * D.2)]		( ) _____	pcm
E.3	Subcritical Margin (D.1 + A.5 - E.2)		( ) _____	pcm
7.	ACCEPTANCE CRITERIA	SATISFIED		INITIALS
F.1	A.1 ≥ B.1 <u>AND</u> A.4=0 <u>OR</u> A.1 ≥ D.6	YES NO		

Comments:

Performed By: \_\_\_\_\_  
 Reviewed By: \_\_\_\_\_  
 Shift Manager: \_\_\_\_\_

Date: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Date: \_\_\_\_\_

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OPT-301-9  
 Page 1 of 1  
 R-3

Job Performance Measure

**System:** A.1-2: Conduct of Operations

**JTA Task #:** SROA2 (NEW)

**Task Title:** Review a Faulted Calorimetric

**KSA Ref:** 2.1.25 Obtain/Interp. Performance Data

**PEO:** \_\_\_\_\_

**RO:** 2.8

**SRO:** 3.1

**Operator-s Name:** \_\_\_\_\_

**Performance Environment:** ADMIN CONTROL ROOM SIMULATOR

**Performance Method:** PERFORMED SIMULATED

DISCUSSED

**Time to complete JPM:** Estimated 15 min. Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**

**UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

**Job Performance Measure**

<p><u>References:</u> OPT-309, AUnit Calorimetric®</p>	<p><u>Tools, Equipment, Job Aids, etc:</u> Completed (faulted) Form OPT-309-12 Calculator</p>
--	---



**Job Performance Measure**

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

A calorimetric has been performed. You are the shift manager, and the completed Form OPT-309-12 has been given to you for shift manager review. Review the form and identify the four errors.

Terminating Conditions:

Four errors in OPT-309-12 have been identified.

Job Performance Measure

<b>STEP#</b> *Critical	<b>ELEMENT</b>	<b>STANDARD</b>	<b>NOTES</b>	<b>SAT/ UNSAT</b>
1	Review the form and identify 4 errors (as indicated on the key)			
	<b>TASK COMPLETE</b>			

**Job Performance Measure**

**INITIATING CUE:** A calorimetric has been performed. You are the shift manager, and the completed Form OPT-309-12 has been given to you for shift manager review. Review the form and identify the four errors.

Job Performance Measure

**System:** A.2: Equipment Control

**JTA Task #:** SROA3 (NEW)

**Task Title:** Identify Errors in a Faulted Clearance (Tagout)

**KSA Ref:** 2.2.13 Tagging and Clearance Proc.

**PEO:** \_\_\_\_\_

**RO:** 3.6

**SRO:** 3.8

**Operator-s Name:** \_\_\_\_\_

**Performance Environment:** ADMIN CONTROL ROOM SIMULATOR

**Performance Method:** PERFORMED SIMULATED

DISCUSSED

**Time to complete JPM:** Estimated 15 min. Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**

**UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

References:  
STA-605, AClearance and Safety Tagging,@  
Revision 14  
OWI-110, AOperations Department Work

Tools, Equipment, Job Aids, etc:

**Job Performance Measure**

Control and Clearance Guideline,@ Revision 11 Dwg M1-206, Sheet 1	
--	--

Job Performance Measure

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

The clearance was prepared by an Atrainee@ to replace 1AF-0143 and you have been asked by the Work Control Supervisor to review the prepared clearance as a qualified clearance preparer. Identify the three substantive errors associated with **this clearance**.

Terminating Conditions:

Finishes review of the clearance and identifies 3 errors.

## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
1	Provide candidate with completed copy of the initiating cue	Candidate should review Admin JPM and initiating cue		
2*	Identifies 3 errors	Candidate identifies the following 3 errors:  1. Either 1AF-0070 or 1AF-0068 (AFW pump discharge to CST) is REQUIRED to be tagged - not tagged 2. Service Water Suction Supply Valve - missing local tag for 1AF-0019 (also can be referred to as 1HV-2480) 3. A system drain valve (like 1AF-0192 or 1AF-0191) should be tagged open but is not.	Errors can be found in ANY order.  <b>3 of 3 errors must be identified for the JPM to be sat.</b>	
	<b>TASK COMPLETE</b>			

**Job Performance Measure**

**INITIATING CUE:** The clearance was prepared by an Atrainee@ to replace 1AF-0143 and you have been asked by the Work Control Supervisor to review the prepared clearance as a qualified clearance preparer. Identify the three substantive errors associated with **this clearance**.



Job Performance Measure: Questions

System: A.3: Radiation Control

JTA Task #: SROA4 (NEW)

Task Title: Interpret a Survey Map and Answer 2 Questions

KSA Ref: 2.3.10 Guard Against Pers. Exposure PEO: \_\_\_\_\_ RO: 2.9 SRO: 3.3

Operator's Name: \_\_\_\_\_

Performance Environment: ADMIN CONTROL ROOM SIMULATOR

Performance Method: PERFORMED SIMULATED  
DISCUSSED

Time to complete JPM: Estimated 10 min. Actual \_\_\_\_\_

The operator's performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**                      **UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

**Job Performance Measure: Questions**

<p><u>References:</u> RPI-602 TS-5.7</p>	<p><u>Tools, Equipment, Job Aids, etc:</u> RPI-602-1 Completed Survey Map (key for examiner) RPI-602-1 Survey Map (handed to applicant)</p>
--	---

Job Performance Measure: Questions

**KEY**

1. What is the maximum general area radiation level indicated on the survey map?

**150 mR/hr**

2. What is the maximum contamination level indicated on the survey map?

**21k cpm/100cm<sup>2</sup> (swipe #7)**



Job Performance Measure

**System:** A.4: Emergency Plan

**JTA Task #:** SROA5.1 (MOD)

**Task Title:** Event Classification

**KSA Ref:** 2.4.41 EAL Classifications

**PEO:** \_\_\_\_\_

**RO:** 2.3

**SRO:** 4.1

**Operator-s Name:** \_\_\_\_\_

**Performance Environment:** ADMIN CONTROL ROOM SIMULATOR

**Performance Method:** PERFORMED SIMULATED  
DISCUSSED

**Time to complete JPM:** Estimated 10 min. Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**                      **UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

**Job Performance Measure**

<p><u>References:</u> Procedure EPP-201, Assessment of Emergency Action Levels, Emergency Classification and Plan Activation@</p>	<p><u>Tools, Equipment, Job Aids, etc:</u> Static simulator - following Scenario Run Day 1 (the scenario is actually Scenario 1)</p>
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## Job Performance Measure

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

**THIS NEEDS TO BE COMPLETED IN CONJUNCTION WITH SCENARIO 1. Scenario 1 should be run on Day 2 of simulator runs. Do this JPM after the scenario is completed with the simulator in Afreeze.@**

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

The simulator is in freeze. Based upon the current plant conditions and events during the scenario, determine the emergency classification and make applicable Protective Action Recommendations.

Terminating Conditions:

Event is classified as a SITE AREA EMERGENCY

## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
1	Provide candidate with completed copy of the initiating cue	Candidate should review Admin JPM and initiating cue		
2	Candidate determines emergency classification for Loss of Offsite Power	Candidate determines that the classification for Loss of Offsite Power would be a NOUE (EPP-201)	Candidate should evaluate both events and then based on the individual classifications determine the Aoverall@ classification	
3	Candidate determines emergency classification for loss of electrical power	Candidate determines that loss of electrical power would be classified as an: SAE  -5A True -5B True -5C True -5D False		
4*	Candidate determines the overall classification	Candidate determines that the overall classification would be: SAE		
	<b>TASK COMPLETE</b>			



**Job Performance Measure**

**INITIATING CUE:** The simulator is in freeze. Based upon the current plant conditions and events during the scenario, determine the emergency classification and make applicable Protective Action Recommendations.

Job Performance Measure

**System:** A.4: Emergency Plan

**JTA Task #:** SROA5.2 (MOD)

**Task Title:** Event Classification

**KSA Ref:** 2.4.41 EAL Classifications

**PEO:** \_\_\_\_\_

**RO:** 2.3

**SRO:** 4.1

**Operator-s Name:** \_\_\_\_\_

**Performance Environment:** ADMIN CONTROL ROOM SIMULATOR

**Performance Method:** PERFORMED SIMULATED

DISCUSSED

**Time to complete JPM:** Estimated 10 min. Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**

**UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

**Job Performance Measure**

<p><u>References:</u> Procedure EPP-201, Assessment of Emergency Action Levels, Emergency Classification and Plan Activation@</p>	<p><u>Tools, Equipment, Job Aids, etc:</u> Static simulator - following Scenario 2</p>
---	--

## Job Performance Measure

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

**THIS NEEDS TO BE COMPLETED IN CONJUNCTION WITH SCENARIO 2. Scenario 2 should be run on Day 1 of simulator runs. Do this JPM after the scenario is completed with the simulator in Afreeze.@**

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

The simulator is in freeze. Based upon the current plant conditions and events during the scenario, determine the emergency classification and make applicable Protective Action Recommendations.

Terminating Conditions:

Event is classified as a SITE AREA EMERGENCY

## Job Performance Measure

<b>STEP#</b> *Critical	<b>ELEMENT</b>	<b>STANDARD</b>	<b>NOTES</b>	<b>SAT/ UNSAT</b>
1	Provide candidate with completed copy of the initiating cue	Candidate should review Admin JPM and initiating cue		
2	Candidate determines emergency classification for ATWT	Candidate determines that the classification for ATWT would be a SITE AREA EMERGENCY  -6D True -6E True -6F False	Candidate should evaluate both events and then based on the individual classifications determine the Aoverall@ classification	
3	Candidate determines emergency classification for SGTR	Candidate determines that SGTR would be classified as an: ALERT		
4*	Candidate determines the overall classification	Candidate determines that the overall classification would be: SITE AREA EMERGENCY		
	<b>TASK COMPLETE</b>			

**Job Performance Measure**

**INITIATING CUE:** The simulator is in freeze. Based upon the current plant conditions and events during the scenario, determine the emergency classification and make applicable Protective Action Recommendations.

Job Performance Measure

**System:** Reactor Coolant

**JTA Task #:** CPSES BANK: RO1102

**Task Title:** Start/Stop RCP (ALTERNATE PATH)

**KSA Ref:** SF4.003.A4.06

**PEO:** \_\_\_\_\_

**RO:** 2.9

**SRO:** 2.9

**Operator-s Name:** \_\_\_\_\_

**Performance Environment:** PLANT CONTROL ROOM **SIMULATOR**

**Performance Method:** **PERFORMED** SIMULATED

DISCUSSED

**Time to complete JPM:** Estimated 20 min Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**

**UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

References:

SOP-108A(B), AReactor Coolant Pump®

Tools, Equipment, Job Aids, etc:

SOP-108A/B (Working Copy). Reset to Heatup IC.

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**Job Performance Measure**

	Rack in #3 RCP breaker using Remote Function RCR14. Override Ammeter for RCP #3 to max when pump is started and delete override when pump is stopped.
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Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to Manipulate any plant components.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

IPO-001, "Plant Heatup From Cold Shutdown to Hot Standby", has progressed to the point of starting the third Reactor Coolant Pump per SOP-108A. All prerequisites have been met and all steps have been completed through step 5.1.G in SOP-108A. All seal flows are within limits. You are directed to start #3 RCP continuing with step 5.1.H of SOP-108A.

Terminating Conditions:

The #3 RCP and its associated oil lift pump has been stopped.



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**Job Performance Measure**

<b>STEP#</b> *Critical	<b>ELEMENT</b>	<b>STANDARD</b>	<b>NOTES</b>	<b>SAT/ UNSAT</b>
1	Verify the alarms on ALB-5A are clear  <b>CUE:</b> Alarms clear.	The following alarms are checked clear:  1.2 ANY RCP SEAL 1 LKOFF FLO HI  1.6 ANY RCP SEAL WTR INJ FLOW LO  2.2 ANY RCP SEAL 1 _P LO  3.1 ANY RCP SEAL WTR STANDPIPE LVL HI  3.2 ANY RCP SEAL 2 LKOFF FLO HI  4.1 ANY RCP SEAL WTR STANDPIPE LVL LO  3.4 RCP 3 UP BRG L/O RESVR LVL HI/LO  3.5 RCP 3 LOW BRG L/O RESVR LVL HI/LO		

2	Verify proper cooling water flows.  <b>CUE:</b> <u>u</u> -FI-4683 indicates 175 gpm.  <b>CUE:</b> <u>u</u> -FI-4685 indicates 8 gpm.  <b>CUE:</b> <u>u</u> -FI-4684 indicates 355	The following parameters are checked within the specified limits:  RCP 3 UP BRG L/O CLR CCW RET FLO <u>u</u> -FI-4683 indicates 150-190 gpm      RCP	(CB-03)	
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**Job Performance Measure**

	<p>gpm. <b>CUE:</b> <u>FI-4686</u> indicates 40 gpm</p>	<p>3 LOW BRG L/O CLR CCW RET FLO <u>FI-4685</u> indicates 5 to 10 gpm</p> <p>RCP 3 MOTOR AIR CLR CCW RET FLO <u>fi-4684</u> indicates 340 to 380 gpm</p> <p>RCP 3 THBR CLR CCW RET FLO <u>FI-4686</u> indicates 35 to 55 gpm</p>		
3	<p>Initiate trending of data for the affected RCP if not previously done.</p> <p><b>CUE:</b> The Relief RO has initiated trending as required.</p>	<p>The plant computer is trending the points specified per SOP-108 Attachment 2</p>		
4	<p>Ensure the breaker for the #3 RCP is racked in.</p> <p><b>CUE:</b> The breaker was previously racked in.</p>	<p>The #3 RCP breaker is racked in (verified by dispatching a PEO to check RCP #3 breaker on <u>A3</u> LOCALLY).</p>		
5	<p>Ensure the overcurrent trip selector switch is in the ACOLD LOOP@ position</p> <p><b>CUE:</b> The selector switch was previously placed in this condition.</p>	<p>The #3 RCP Overcurrent Trip Selector switch is placed in the ACOLD LOOP@ position (verified by dispatching a PEO to check the switch is in the proper position at the RCP #3 Breaker on <u>A3</u> LOCALLY).</p>		
6	<p>Station personnel at #3 RCP to observe the pump.</p> <p><b>CUE:</b> The RCP is not accessible</p>	<p>Operator asks if the RCP is accessible.</p>		

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**Job Performance Measure**

*7	Start the #3 RCP oil lift pump  <b>CUE:</b> Green light OFF Red light ON.	1/ <u>PCPX3-LP</u> , RCP 3 OIL LIFT PMP, switch taken to the ASTART@ position B candidate verifies green light off and red light on and should mark time to verify pump runs for 2 minutes prior to starting #3 RCP.		
8	Check OIL PRESS permissive interlock (blue light) lit.  <b>CUE:</b> Blue light ON.	Candidate verifies Blue AOIL PRESS@ light lit.		
*9	Start the #3 RCP  <b>CUE:</b> Green light OFF Red light ON.	1/ <u>PCPX3</u> taken to the START _ 2 minutes after the oil lift pump start. Candidate verifies Green light off and Red light on.		
10	Verify Alarm 2.1 on ALB-5B clear.  <b>CUE:</b> Window 2.1 is DARK	ANY RCP FAIL TO START Alarm 2.1 on ALB-5B is clear.		
11	VERIFY #3 RCP undervoltage TSLB goes out.  <b>CUE:</b> White light not lit.	Candidate verifies TSLB-4, 3.2, RCP 3 BUS UNDERVOLT NOT lit.		
12	Verify #3 Loop flow increases within 10 seconds.  <b>CUE:</b> Loop flow is increasing	Candidate checks #3 loop flow on <u>FI-434/35/36</u> , RC LOOP 3 FLO	#3 RCP should be stopped if flow does not increase within 10 sec.	
13	Verify #3 RCP motor amps have decreased to less than or equal to 750 amp within one	Candidate checks #3 motor current on <u>II-RCP3</u> , RCP3 MOTOR	#3 RCP should be stopped if motor current does not	

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**Job Performance Measure**

	minute <b>CUE:</b> Meter for motor amps is pegged high.	CURRENT, and observes it does not decrease within 1 minute.	decrease to less than or equal to 750 amps in one minute.	
14	Inform the SRO of problem with motor amps. <b>CUE:</b> SRO acknowledges report.	SRO informed of problem.		
*15	Stop #3 RCP. <b>CUE:</b> Green light ON Red light OFF.	Candidate momentarily places 1/ <u>u</u> -PCPX1, #3 RCP to STOP.		
16	Stop the #3 RCP oil lift pump <b>CUE:</b> Blue and Red lights off. Green light on.  <b>TASK COMPLETE</b>	Candidate should take switch 1/ <u>u</u> -PCPX3-LP. RCP 3 OIL LIFT PUMP, to the stop position after RCP #3 has operated greater than 1 minute <u>OR</u> if #3 RCP has been stopped.		

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**Job Performance Measure**

**INITIATING CUE:**

IPO-001, "Plant Heatup From Cold Shutdown to Hot Standby", has progressed to the point of starting the third Reactor Coolant Pump per SOP-108A. All prerequisites have been met and all steps have been completed through step 5.1.G in SOP-108A. All seal flows are within limits. You are directed to start #3 RCP continuing with step 5.1.H of SOP-108A.

Job Performance Measure

**System:** Containment Cooling Systems

**JTA Task #:** CPSES BANK: RO1703

**Task Title:** Restore Containment Cooling

**KSA Ref:** SF5.022.A4.01

**PEO:** \_\_\_\_\_ **RO:** 3.6 **SRO:** 3.6

**Operator-s Name:** \_\_\_\_\_

**Performance Environment:** PLANT CONTROL ROOM **SIMULATOR**

**Performance Method:** **PERFORMED** SIMULATED  
DISCUSSED

**Time to complete JPM:** Estimated 20 min. Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY** **UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

References:  
EOP-0.0A, AReactor Trip or Safety Injection@,  
SOP-814, AVentilation Chilled Water System@,

Tools, Equipment, Job Aids, etc:  
Load an at Power IC, enter malfunction RP14A &  
RP14B then delete malfunction, wait two minutes,  
reset SI, sequencer and phase A. Enter EDR33 &

**Job Performance Measure**

	EDR 36 to CLOSE, ensure all pipe penetration fans off with green flags.
--	---

## Job Performance Measure

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

Unit 1 is recovering from a Safety Injection. The Unit Supervisor has directed you to restore Containment Cooling to service per EOP-0.0A, Attachment 9, step 4. SI has been reset and power restored to all MCCs. CCW non-safeguards loop is aligned. HVAC Centrifugal Chillers X-03 and X-04 are unavailable. Containment Phase A isolation has been reset.

Terminating Conditions:

Terminate, once at least one Reactor Coolant Pipe Penetration Ventilation Fan is started.



## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
1	Ensure 1-HS-4650, VENT CHLR CCW SPLY & RET LV is open.  <b>CUE:</b> 1-HS-4650 handswitch indication is red. The chilled water containment isolation valves were closed on Phase A isolation signal.	Operator visually verifies BHS_4650 to be open by red light indication on the handswitch at CB-3.	CUE: If asked inform operator: Vent Chillers X-05 & X-06 have CW aligned from Unit 1	
*2	Open 1-HS-6082, CH WTR RET ISOL VLV.  <b>CUE:</b> 1-HS-6082 handswitch indication is red.	Take handswitch 1-HS-6082 to the open position and verify red light indication on the handswitch on CB-3	Steps 2 through 4 may be done in any order.	
*3	Open 1-HS_6083 CH WTR RET ISOL VLV.  <b>CUE:</b> 1-HS-6083 handswitch indication is red.	Take handswitch 1-HS-6083 to the open position and verify red light indication on the handswitch on CB-3.		
*4	Open 1-HS-6084, CH WTR SPLY ISOL VLV.  <b>CUE:</b> 1-hs-6084 HANDSWITCH INDICATION IS RED. All chilled water Recirc pumps are tripped.	Take handswitch 1-HS_6084 to the open position and verify red light indication on the handswitch on CB-3.		
5	Ensure CH WTR RECIRC PMP 1 <u>OR</u> 3 running.  <b>CUE:</b> Depending on which pump was started: X-HS-6055 or X-HS-6057 handswitch indication is red. X-FI-6073 indicates 150 gpm.	Take handswitch X-HS-6055 (pump 1) <u>or</u> X-HS-6057 (pump 3) to the start position and verify red light indication on the handswitch. Flow may be verified on X-FI-6073.	Steps 5 and 6 may be done in any order. <b>Do not let applicant swap pumps incorrectly.</b>	
6	Ensure CH WTR RECIRC	Take handswitch X-		

## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
	PMP 2 <u>OR</u> 4 running.  <b>CUE:</b> Depending on which pump was started: X-HS-6056 or X-HS-6058 handswitch indication is red. X-FI-6073 indicates 2500 gpm.	HS-6056 (pump 2) <u>or</u> X-HS-6058 (pump 4) to the start position and verify red light indication on the handswitch. Flow may be verified on X-FI-6073.		
7	Place the remaining two CH WTR RECIRC PMPS to AUTO After Stop Position.  <b>CUE:</b> Depending on which pumps were taken to AUTO After Stop: X-HS-6055 X-HS-6056 X-HS-6057 X-HS-6058 Handswitch indication is green.	Take handswitches for the chiller pumps <u>not</u> started to the AUTO After Stop Position X-HS-6055 X-HS-6056 X-HS-6057 X-HS-6058 Verify green light indication on the handswitch.	Pumps in this step may be operated in any order.  <b>NOTE: If PEO asked status of CW Booster Pumps, report pumps X-12 &amp; X-13 running</b>	
8	Dispatch PEO to start HVAC CENTRIFUGAL WATER CHILLER X-01 and X-02.  <b>CUE:</b> HVAC chillers X-01 and X-02 are running.	Operator uses radio or Gaitronics to dispatch PEO to start HVAC CENTRIFUGAL CHILLERS X-01 and X-02.	Note: May only start one chiller.	
*9	Start CNTMT FN CLR FN1.  <b>CUE:</b> 1-HS-5405A handswitch indication is red.	Take handswitch 1-HS-5405A to the start position and verify red light indication on the handswitch	Note: Only 3 CNTMT Fan coolers need be started. May be done in any order.	
*10	Start CNTMT FN CLR 2.  <b>CUE:</b> 1-HS-5409A handswitch indication is red.	Take handswitch 1-HS-5409A to the start position and verify red light indication on the handswitch.		
*11	Start CNTMT FN CLR FN3.  <b>CUE:</b> 1-HS-5413A handswitch indication is red.	Take handswitch 1-HS-5413A to the start position and verify red light indication on the		

## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
		handswitch.		
*12	Start CNTMT FN CLR FN 4.  <b>CUE:</b> 1-HS-5417A handswitch indication is red.	Take handswitch 1-HS-5417A to the start position and verify red light indication on the handswitch.		
*13	Start CRDM VENT FN 1.  <b>CUE:</b> 1-HS-5421 handswitch indication is red.	Take handswitch 1-HS-5421 to the start position and verify red light indication on the handswitch.	Note: Only 1 CRDM Vent Fan need be started.	
*14	Start CRDM VENT FN 2.  <b>CUE:</b> 1-HS-5423 handswitch indication is red.	Take handswitch 1-HS-5423 to the start position and verify red light indication on the handswitch.		
*15	Start NEUT DET WELL FN CLR FN 9 & DMPR  <b>CUE:</b> 1-HS-5435 handswitch indication is red.	Take handswitch 1-HS-5435 to the start position and verify red light indication on the handswitch.	Note: Only 1 neutron detector well fan cooler need be started.	
*16	Start NEUT DET WELL FN CLR FN 10 & DMPR.  <b>CUE:</b> 1-HS-5440 handswitch indication is red.	Take handswitch 1-HS-5440 to the start position and verify red light indication on the handswitch.		
*17	Start RC PIPE PENET AREA VENT FN 1.  <b>CUE:</b> 1-HS-5461 handswitch indication is red.	Take handswitch 1-HS-5461 to the start position and verify red light indication on the handswitch.	Note: Must start 1 or 2 Vent Fan	
*18	Start RC PIPE PENET AREA VENT FN 2.  <b>CUE:</b> 1-HS-5463 handswitch indication is red.	Take handswitch 1-HS-5463 to the start position and verify red light indication on the handswitch	Note: Must start 1 or 2 Vent Fan	
*19	Start RC PIPE PENET AREA VENT FN 3.	Take handswitch 1-HS-5465 to the start	Note: Must start 3 or 4 Vent Fan	

Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
	<p><b>CUE:</b> 1-HS-5465 handswitch indication is red.</p>	<p>position and verify red light indication on the handswitch</p>		
*20	<p>Start RC PIPE PENET AREA VENT FN 4.</p> <p><b>CUE:</b> 1-HS-5467 handswitch indication is red.</p> <p><b>TASK COMPLETE</b></p>	<p>Take handswitch 1-HS-5467 to the start position and verify red light indication on the handswitch</p>	<p>Note: Must start 1 or 2 Vent Fans</p>	

**Job Performance Measure**

**INITIATING CUE:** Unit 1 is recovering from a Safety Injection. The Unit Supervisor has directed you to restore Containment Cooling to service per EOP-0.0A, Attachment 9, step 4. SI has been reset and power restored to all MCCs. CCW non-safeguards loop is aligned. HVAC Centrifugal Chillers X-03 and X-04 are unavailable. Containment Phase A isolation has been reset.

Job Performance Measure

System: CVCS

JTA Task #: CPSES BANK: RO1336

Task Title: Rx M/U Water Malfunction (ALTERNATE PATH)

KSA Ref: SF2.004.A4.07

PEO: \_\_\_\_\_

RO: 3.9

SRO: 3.7

Operator-s Name: \_\_\_\_\_

Performance Environment: PLANT CONTROL ROOM SIMULATOR

Performance Method: PERFORMED SIMULATED  
DISCUSSED

Time to complete JPM: Estimated 15 min. Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

SATISFACTORY UNSATISFACTORY

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

References:  
ABN-105 ACVCS Malfunctions@  
SOP-104A(B) ARx M/U & Chem. Cont. System@  
SOP-507A(B) Ademin. & RX M/U Water Syst.@

Tools, Equipment, Job Aids, etc:  
Simulator Setup: IC-15, enter CV01A, trip #1 Rx MU Pump, with RSCU code 1 when dilution started. IO alarm ALB-1, C.5 (ON) and ZL-5349AB (ON) when

**Job Performance Measure**

ALM-011A(B) ALM-061A(B) TDM-203A(B)	pump trips.
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**Job Performance Measure**

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

You have just relieved the shift and Reactor power is 50%. The Unit Supervisor directs you to perform a normal dilution of 50 gallons to prepare to raise power.

Terminating Conditions:

PEO dispatched to start Common RMUW pump.



## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
1	Place 1/ <u>LCV-112A</u> in HUT position  <b>CUE:</b> HUT Ared@ light on 1/ <u>LCV-112A</u>	1/ <u>LCV-112A</u> in HUT position and associated red light is lit.	only if deemed necessary per NOTE in SOP-104A Section 5.1.3.	
2	Monitor VCT level and pressure during dilution.  <b>CUE:</b> <u>L1-112A</u> indicates 48% and <u>P1-115</u> indicates 19 psig.	Monitor <u>L1-112A</u> and <u>P1-115</u> during dilution.		
3	Go to ASTOP@ 1/ <u>MU RCS MU MAN ACT</u>  <b>CUE:</b> 1/ <u>MU</u> green light on	1/ <u>MU RCS MU MAN ACT</u> in ASTOP@		
4	Place 43/ <u>MU RCS MU MODE SELECT</u> in ADILUTE@	43/ <u>MU RCS MU MODE SELECT</u> in ADILUTE@		
5	Set <u>FK-111</u> to desired flow.  <b>CUE:</b> RMUW Pot set to desired flow.	<u>FK-111</u> set as desired.		
6	Set <u>FY-111B ARCS MU BATCH FLO@</u> flow to 50 gallons.  <b>CUE:</b> <u>FY-111B</u> set to 50 gal	Set <u>FY-111B ARCS MU BATCH FLO@</u> to 50 gal		

7	Go to start on 1/ <u>MU, RCS MU MAN ACT</u>  <b>CUE:</b> The following alarms come in: RMUW LO PRESS, on ALB-1, 2.5 RMUW PMP 1/COMM	1/ <u>MU, RCS MU MAN ACT</u> IN ASTART@	Activate the following malfunctions: CV09A with MFA1  Activate IOs ALB-1, C/5 to	
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## Job Performance Measure

	OVRLOAD TRIP, on ALB-1, 3.5 RCS MU FLO DEV on ALB- 6A 3.7 <b>CUE: Tell the applicant that, even though he likely would not leave his station as RO to investigate the alarms, he should now, for the sake of this JPM, respond to the alarms as he were the BOP.</b>		CN ZL-5349AB to ON	
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<b>STEP#</b> *Critical	<b>ELEMENT</b>	<b>STANDARD</b>	<b>NOTES</b>	<b>SAT/ UNSAT</b>
8	Identify the affected pump on <u>u</u> -ZL-5349A RMUW PMP 1 and X-ZL-5350A COMM RMUW PMP.  <b>CUE:</b> Green and white light lit on <u>u</u> -ZL-5349A, green light on X-ZL-5350A.	Monitor status of lights <u>u</u> -ZL-5349A and x-ZL- 5350A.		
9	Go to stop on 1/ <u>u</u> -MU, RCS MU MAN ACT  <b>CUE:</b> 1/ <u>u</u> -MU, RCS MU MAN ACT IN ASTOP@	1/ <u>u</u> -MU, RCS MU MAN ACT IN ASTOP@	<b>Give Copy of ALM-0011A and ALM-0061A</b>	
10	Dispatch PEO to check for damage on RMUW PMP 1 per ALM-0011A (3.5)			
11	Refers to SOP-507A to start common RMUW PMP X-01		<b>Give Copy of SOP-507A</b>	
12	Ensures Pump Handswitch X- HS-5350, RMUW PUMP X- 01 is in STOP.		<b>CUE: PEO will execute procedure steps as directed by operator.</b>	
13	Verify 43/ <u>u</u> -MU, RCS MU MODE SELECT is NOT in ALTERNATE DILUTE or MANUAL Mode.			

Job Performance Measure

14	Isolate, or direct isolation of X-01 RMUW Pump from Unit 2 per Step D of SOP-507 5.3.1			
15	Align, or direct alignment of X-01 RMUW Pump to Unit 1 per Step E of SOP-507 5.3.1			
16	Close RMUW PMP X-01 DISCH VLV (XDD-0049)	Observe note to minimize time the pump is operated with the Discharge valve closed.		
17*	Place Pump X-01 in Auto and verify it starts, then slowly open the discharge valve.			
	<b>TASK COMPLETE</b>			

**Job Performance Measure**

**INITIATING CUE:** You have just relieved the shift and Reactor power is 50%. The Unit Supervisor directs you to perform a normal dilution of 50 gallons to prepare to raise power.

Job Performance Measure

**System:** Component Cooling Water System      **JTA Task #:** CPSES BANK (MOD): RO3608

**Task Title:** Shift CCW Pumps with CCW Pump Trip (ALTERNATE PATH)

**KSA Ref:** APE.026.AK3.04      **PEO:** \_\_\_\_\_      **RO:** 3.5      **SRO:** 3.7

**Operator-s Name:** \_\_\_\_\_

**Performance Environment:**      PLANT      CONTROL ROOM      **SIMULATOR**

**Performance Method:**      **PERFORMED**      SIMULATED  
  
DISCUSSED

**Time to complete JPM:**      Estimated      15 min.      Actual      \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**      **UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

References:  
SOP-502A, ACCW System@  
ABN-502, AComponent Cooling Water System Malfunction@

Tools, Equipment, Job Aids, etc:  
ABN-502, Simulator: 1) Load 50% IC-15  
2) Insert and activate MALF-CC03B

**Job Performance Measure**

	3) Insert and activate MALF-CC02B
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## Job Performance Measure

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to Manipulate any plant components.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

**NOTE to EXAMINER: during the CCWP shift, CCWP2 will trip off after CCWP1 has been secured. CCWP1 fails to autostart when CCWP2 trips, so the operator will have to manually restart CCWP1. The operator may attempt to trip the reactor based on loss of CCW instead of attempting to restart CCWP1; if he attempts a reactor trip, stop him and end the JPM (failure). The Reactor must not be tripped because it would interfere with another JPM being conducting concurrently.**

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

The Unit is operating at 50% power. The Unit Supervisor directs you to shift CCW pumps (start CCWP2, and secure CCWP1 per SOP-502) in preparation for maintenance.

Terminating Conditions:

CCWP1 Running again (after CCWP2 trips off)

## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
1	Ensure SSWP2 is running  CUE: SSWP2 indication is RED.	Operator visually verifies SSWP2 is running by verifying handswitch indication is RED.	<b>Give applicant a copy of SOP-502A</b>	
2	Ensure oil level in bearing housings for CCWP2 are normal.  <b>CUE: bearing housing oil levels are normal.</b>	Operator directs someone to verify oil level for CCWP2.		
*3	Start CCWP2  CUE: <u>u</u> -HS-4519A handswitch light indication is RED.	Take handswitch <u>u</u> -HS-4519A to the start position and verify red light indication on the handswitch.		
4	Ensure the following equipment are removed from service before securing CCWP1: RHR Pumps 1-01, CS Pumps 1-01/03/  CUE: Listed Pumps are removed from service.	Same as Element.	RHR and CS pumps that are loads supplied from the CCWP1 should be secured before securing the CCWP1.	
*5	Stop CCWP1  CUE: <u>u</u> -HS-4518A handswitch light indication is green. <b>(CCWP2 trips):</b> <u>u</u> -HS-4519A green light and white trip light	Operator holds the <u>u</u> -HS-4518A handswitch in STOP until flow and pressure stabilize and then releases handswitch.	<b>WARNING: Operator MAY attempt to trip RX (per section 6.0 of ABN-502A) Loss of all CCW Flow@</b>	



Job Performance Measure

	lit. <b>Annunciator Alarms:</b> CCWP 2 OVRLOAD/TRIP, CCW TRN A/B SFGD LOOP PRESS LO, CCW HX 2 OUT & RECIRC FLO LO, CCW HX 2 SPLY FLO LO		<b>when CCWP2          trips; BUT,          operator          SHOULD go to          section 2.0 of          ABN-502A          ACCW Pump          Trip<sup>o</sup> and          attempt to start          CCWP1;</b>  <b><u>DO NOT allow          operator to trip          RX</u> (it would          interfere with          JPMS3 running          concurrently).</b>	
6	Verify unaffected train CCW Pump B RUNNING.  NOTE: CCWP1 fails to auto start, and must be manually restarted.  CUE: <u>u</u> -HS-4518A handswitch light indication is green.	Operator recognizes that CCWP 1 is not running by noting <u>u</u> - HS-4518A handswitch indication is GREEN on CB-3	<b>If operator          attempts to trip          the RX, DO          NOT allow RX          trip, and          terminate the          JPM.</b>	
*7	Manually Start <u>u</u> -HS-4518A CCWP 1  CUE: <u>u</u> -HS-4518A RED light lit and flow restored.	Take handswitch <u>u</u> -HS- 4518A to the start position and verify red light indication on the handswitch and flow restored.	<b>Give applicant a          copy of ABN-          502 if he wishes          to refer to it.</b>	
	<b>TASK COMPLETE</b>			

**Job Performance Measure**

**INITIATING CUE:** The Unit is operating at 50% power. The Unit Supervisor directs you to shift CCW pumps (start CCWP2, and secure CCWP1 per SOP-502) in preparation for maintenance.

Comanche Peak Steam Electric Station  
ILE-11/2002

Job Performance Measure

**System:** Loss of IRNI

**JTA Task #:** CPSES BANK: RO1819

**Task Title:** Respond to IR NIS Malfunction (ALTERNATE PATH)

**KSA Ref:** APE.033.AK3.02

**AO:**      **RO:** 3.6 **SRO:** 3.9

**Operator-s Name:**

PLANT    CONTROL ROOM    SIMULATOR

PERFORMED    SIMULATED    DISCUSSED

Actual

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**

**UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_ Date:

Comments (list all steps not satisfactorily completed):

References:

ABN-702, AIntermediate Range Instrumentation@  
7247D05, Sh.3  
7247D05, Sh. 4

Tools, Equipment, Job Aids, etc:

For simulator setup, initialize ~50% power IC, and go to RUN. Enter malfunction NI02A @ 1E-3.

**Comanche Peak Steam Electric Station  
ILE-11/2002**

**Job Performance Measure**

<p><b><u>Safety Considerations:</u></b> If this JPM is to be performed in the plant/control room, the candidate is NOT to Manipulate any plant components.</p>
<p><b><u>Comments:</u></b> Cues for indications and controls need not be given if this JPM is performed on an operating simulator.</p>
<p><b><u>Instructions:</u></b> Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.</p>
<p><b><u>Initiating Cue:</u></b> You are the Reactor Operator. The plant is at ~ 50% power and reducing load for TS compliance. The IR NIS channel N35 failed high. Perform the actions required for the failed IR detector, as the shutdown continues. Tech Spec concerns will be addressed by the Unit Supervisor.</p>
<p><b><u>Terminating Conditions:</u></b> After P-6 status is verified.</p>

STEP # *Critical	ELEMENT	STANDARD	NOTES	SAT  UNSAT
1	Verify Reactor NOT tripped.  <b>CUE:</b> Reactor Shutdown in progress. Power level 50% and		Various indications of plant power could be used NI, N-16, Power L on PCS to verify power	

**Comanche Peak Steam Electric Station  
ILE-11/2002**

**Job Performance Measure**

STEP # *Critical	ELEMENT	STANDARD	NOTES	SAT  UNSAT
	decreasing as indicated on NI-41/44.		level	
2	Verify Reactor power >P-6 setpoint (1E-10 amps).  <b>CUE:</b> PCIP, 2.5, is LIT. NI-36 reads ( $\sim 1 \times 10^{-4}$ amps)	Permissive window PCIP, 2.5, SR RX TRIP BLK PERM P-6, checked. (should be LIT) NI-36 (u N-I-36B or N-36 meter at DR drawer) $\geq 1 \cdot 10^{-10}$ amps		
3	Verify power level greater than P-10 setpoint (10%).  <b>CUE:</b> Reactor Shutdown in progress. Power level 50% and decreasing as indicated on NI-41/44.	Checks power level on NI-41/44. (Could also check PCIP 1.6 Rx Window Lit and/or TSLB-s NC-41M, 42M, 43M, and 44 M lit.		
4	Verify Reactor power reduction NOT in progress or required.  <b>CUE: Reactor Shutdown in progress and required.</b>	Load decrease in progress, performing plant shutdown.		
*5	Bypass failed IR channel high flux trip prior to reducing power below P-10.  <b>CUE:</b> Switch is in BYPASS LEVEL TRIP BYPASS light and ALB-6D, 4.1, both LIT.  <b>CUE:</b> Power level is still above P-10.	N35 LEVEL TRIP switch on NIS cabinets taken to BYPASS (prior to reducing power below 10% as indicated on the PR NIS). The following are checked: LEVEL TRIP BYPASS light on Intermediate Range drawer N35. Annunciator window ALB-6D, 4.1, SR.IR TRIP BYP.	At NIS rack (cabinet)  On CB-07	
6	Verify P-6 interlock in required state.	Permissive window PCIP, 2.5, SR RX TRIP BLK PERM P-6, checked.		

**Comanche Peak Steam Electric Station  
ILE-11/2002****Job Performance Measure**

<b>STEP #</b> *Critical	<b>ELEMENT</b>	<b>STANDARD</b>	<b>NOTES</b>	<b>SAT</b> <b>UNSAT</b>
	<b>TASK COMPLETE</b>			

**Comanche Peak Steam Electric Station  
ILE-11/2002**

**Job Performance Measure**

**INITIATING CUE:**

You are the Reactor Operator.

The plant is at ~ 50% power and reducing load for TS compliance. The IR NIS channel N35 failed high. Perform the actions required for the failed IR detector, as the shutdown continues. Tech Spec concerns will be addressed by the Unit Supervisor.

Job Performance Measure

**System:** Emergency Core Cooling System      **JTA Task #:** CPSES BANK (MOD): RO1501

**Task Title:** Fill the Accumulators (ALTERNATE PATH)

**KSA Ref:** SF2.006.A1.13      **PEO:** \_\_\_\_\_ **RO:** 3.5      **SRO:** 3.7

**Operator=s Name:** \_\_\_\_\_

**Performance Environment:**      PLANT      CONTROL ROOM      **SIMULATOR**

**Performance Method:**      **PERFORMED**      SIMULATED  
DISCUSSED

**Time to complete JPM:**      Estimated      20 min      Actual      \_\_\_\_\_

The operator=s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**      **UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator=s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

**References:**  
SOP-202A(B), ASafety Injection Accumulators

**Tools, Equipment, Job Aids, etc:**  
Use malfunction SI02D to drain accumulator 4 to 45%;  
remove malfunction and clear associated containment



**Job Performance Measure**

SOP-201A(B), ASafety Injection System@	sump alarms; go to FREEZE; after initiating cue, go to run; after termination criteria met, go to freeze.
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Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to Manipulate any plant components.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

Accumulator #4 level is 45% and pressure is near the lower limit. The Unit Supervisor has directed you to refill the accumulator to 52%

Terminating Conditions:

Accumulator #4 level has been adjusted to ~52% and pressure is between 623 psig and 644 psig.

## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
1	Verify the RCS cold leg temperature is greater than 350°F.  <b>CUE:</b> All temperatures indicate greater than 350°F	Operator checks RCS cold leg temperature indication on CB-05.	<b>Give operator SOP-202A(B) section 5.4.1 ARaising Accum Level® and SOP-201A(B), 5.4.1, AStarting an SIP in Recirc®</b>	
2	Verify SIS is in standby.  <b>CUE: SIS in standby per SOP-201A(B) Section 5.1. All Prereq's in SOP-201A, Section 2.1 are met.</b>	Unit Supervisor informs operator SIS is in standby.		
3	Verify RCS pressure greater than 1700 psig.  <b>CUE:</b> RCS pressure indicates 2235 psig	Operator checks RCS pressure indication on CB-05		
4	Verify SIP recirculation flowpath.  <b>CUE:</b> When valve position is checked, each green light DARK, red light LIT.	The following valve positions are checked: <u>u</u> -8806 OPEN <u>u</u> -8814 A & B OPEN <u>u</u> -8813 OPEN		
5	Verify that lube oil level is normal, for pump being started.  <b>CUE: When PEO is called, state: lube oil level is normal.</b>	PEO called to check lube oil level for the pump to be started.	Operator may use PCS points listed in SOP-201A(B) to monitor the SIP being started.	
6	Verify that lube oil cooler SSW return flow is normal for pump being started.  <b>CUE:</b> SSW flow is normal			

## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
*7	Start the desired SIP.  <b>CUE:</b> The SIP red light LIT, pump disch. press. is normal	Handswitch for selected SIP taken to START and indication checked: 1/ <u>u</u> -APSI1 or 1/ <u>u</u> -APSI2		
8	Verify SIP recirculation flow of 38 to 50 gpm.  <b>CUE: WHEN PEO is called state: <u>u</u>-FI-968 reads 43 gpm.</b>	PEO called to read flow on <u>u</u> -FI-968.		
*9	Open 1/ <u>u</u> -8888, ACCUM FILL ISOL VLV.  <b>CUE:</b> Valve 1/ <u>u</u> -8888 red light LIT, green DARK	Handswitch for 1/ <u>u</u> -8888 held in OPEN position and position checked .		
*10	Open 1/ <u>u</u> -8871, SI TEST HDR RET ISOL VLV  <b>CUE:</b> Valve 1/ <u>u</u> -8871, red light LIT, green DARK.	Handswitch for 1/ <u>u</u> -8871 held in OPEN position and position checked.		
*11	Open 1/ <u>u</u> -8878D, ACCUM 4 FILL VLV.  <b>CUE:</b> Valve 1/ <u>u</u> -8878D red light LIT, green DARK	Handswitch for 1/ <u>u</u> -8878D placed in OPEN position and position checked.		
*12	Monitor accumulator 4 level  <b>CUE:</b> Accumulator 4 levels are _ 52%.	The following meters are checked: <u>u</u> -LI-956 <u>u</u> -LI-957	If done on SIM operator should wait until level is 50%- 54% before continuing.	
*13	Close 1/ <u>u</u> -8878D, ACCUM 4 FILL VLV.  <b>CUE:</b> Valve 1/ <u>u</u> -8878D green light LIT, red DARK. When independent verification is requested, then inform that it	Handswitch for 1/ <u>u</u> -8878D placed in closed position and position checked.	Independent verification is necessary for the completion of this step either now or at the completion	

## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
	has been done.		of this procedure.	
14	Ensure that accumulator 4 level is between 39% - 61% and record level.  <b>CUE:</b> Accumulator 4 level indicates 52%.	The following meters are checked:  u-LI-956 u-LI-957		
15	Close 1/u-8871 and 1/u-8888.  <b>CUE:</b> Both valves indicate green light LIT, red DARK.	The following valves are closed:  ____ 1/u-8871 ____ 1/u-8888		
16	Stop the SI Pump and place its handswitch in AUTO.  <b>CUE:</b> SI Pump handswitch in AUTO.	Pump switched off and handswitch placed in AUTO.		
17	Verify 1/1-8821A(B) SIP 1(2) XTIE VLV open.  <b>CUE:</b> Valves indicates red light LIT, green DARK.	Verify 1/1-8821A(B) SIP 1(2) XTIE VLV open.		
*18	Ensure Accumulator #4 pressure is 623-644psig.  <b>CUE:</b> 1-PI-966 and 1-PI-967 indicate 655 psig.	Check Accum. 4 pressure 623-644 psig:  ____ 1-PI-966 ____ 1-PI-967		
*19	Close 1/1-8880, SI/PORV ACCUM N2 ISOL VLV.  <b>CUE:</b> Valves indicates green light LIT, red DARK.	Close 1/1-8880, SI/PORV ACCUM N2 ISOL VLV.		
20	Cycle 1-HC-943, ACCUM 1-4 VENT CTRL, to vent N2 header.  <b>CUE:</b> Valve cycled.	Cycle 1-HC-943, ACCUM 1-4 VENT CTRL, to vent N2 header.		
*21	Open 1/1-8875D, ACCUM 4 N2 SPLY/VENT VLV.  <b>CUE:</b> Valves indicates red light LIT, green DARK.	Open 1/1-8875D, ACCUM 4 N2 SPLY/VENT VLV.		

Job Performance Measure

<p>*22</p>	<p>Throttle open 1-HC-943, ACCUM 1-4 VENT CTRL and shut when pressure 623-644 psig.  <b>CUE:</b> Valve cycled. 1-PI-966 and 1-PI-967 indicate 640 psig.</p>	<p>Throttle open 1-HC-943, ACCUM 1-4 VENT CTRL and shut when pressure 623-644 psig.        ____ 1-PI-966        ____ 1-PI-967</p>		
	<p><b>TASK COMPLETE</b></p>			

**Job Performance Measure**

**INITIATING CUE:** Accumulator #4 level is 45% and pressure is near the lower limit. The Unit Supervisor has directed you to refill the accumulator to 52%

Job Performance Measure

**System:** Reactor Protection System

**JTA Task #:** CPSES BANK: RO1601

**Task Title:** Place Failed Pressurizer Pressure Channel in Trip Condition

**KSA Ref:** SF7.012.A4.04

**PEO:** \_\_\_\_\_

**RO:** 3.3

**SRO:** 3.4

**Operator-s Name:** \_\_\_\_\_

**Performance Environment:** PLANT      CONTROL ROOM      SIMULATOR

**Performance Method:** PERFORMED      SIMULATED  
DISCUSSED

**Time to complete JPM:** Estimated 10 Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**      **UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

**Job Performance Measure**

<p><u>References:</u> ABN-705, APressurizer Pressure Instrumentation Malfunction@</p>	<p><u>Tools, Equipment, Job Aids, etc:</u> Working copy of ABN-705, Att 2,3,4</p>
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## Job Performance Measure

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

Cues for indications and controls need not be given if this JPM is performed on an operating simulator.

**NOTE to EXAMINER: Attached is a drawing of the Protection Cabinet 7300, in which a number of test switches will be manipulated; the examiner should inspect the panel (a mockup of which is in the simulator lab) prior to conducting the JPM to familiarize himself with the switch locations within the panel.**

Instructions:

Make or simulate all written and/or oral reports as if the evolution is actually being performed. You are expected to discuss the steps that you would take to include an identification of what switches/indications you would use.

Initiating Cue:

A failure low of Pressurizer pressure channel PT-455 has occurred during full power operation. The alternate channel has been selected for control and recording. You are directed to place the appropriate bistables in the tripped condition and verify the appropriate alarms and trip status lights.

Terminating Conditions:

The appropriate bistables have been placed in the tripped condition and verified utilizing the appropriate annunciator alarms and trip status lights.

## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
1	Locate the appropriate bistable test switches.	Protection set 1, card frame 8.		
*2	Place SW-1 on Card 72 in the CLOSED position.  <b>CUE:</b> SW-1 is in the CLOSED (DOWN) position.	SW-1 is on card 72; 1 <sup>st</sup> row and 7 <sup>th</sup> column from right of frame 8. Simulated placed in the CLOSED (DOWN) position.		
*3	Ensure BS-1 and BS-2 on card 21 in the NORM position.  <b>CUE:</b> The bistable switches are in the NORM (UP) position.	Top 2 bistable switches on card 21 (1 <sup>st</sup> row and 6 <sup>th</sup> column from right of frame 8) checked in the NORM (UP) position.		
*4	Ensure BS-1, BS-2, BS-3 and BS-4 on card in the NORM (UP) position.  <b>CUE:</b> The bistable switches are in the NORM (UP) position.	All bistable switches on card 22 (top row and 2 <sup>nd</sup> column from right of frame 8) checked in the NORM (UP) position.		
*5	Place SW-5 on card 74 in the CLOSED (DOWN) position.  <b>CUE:</b> The bistable switch is in the CLOSED (DOWN) position.	The switch is on card 74 (2 <sup>nd</sup> row and 7 <sup>th</sup> column from right of frame 8) simulated placed in the CLOSED (DOWN) position.		
6	Ensure BS-1, BS-2, BS-3 and BS-4 on card 46 are in the NORM (UP) position.  <b>CUE:</b> The bistable switches are in the NORM (UP) position.	All bistable switches on card 46 (2 <sup>nd</sup> row and 2 <sup>nd</sup> column from right of frame 8) checked in the NORM (UP) position.		

Job Performance Measure

7	<p>Verify appropriate annunciator alarms ON.</p> <p><b>CUE:</b> Annunciator windows ALB-5B, 3.4 and 4.4; ALB-5C, 1.5, 2.5, 2.6, 3.1 and 3.5 and ALB-6D, 2.13,3.10 and 3.14 are all lit.</p>	<p>The annunciator windows listed in ABN-705 (18 of 26) are checked:</p>		
8	<p>Verify appropriate trip status lights ON.</p> <p><b>CUE:</b> Trip status lights TSLB-1, 1.7, TSLB-3. 1.1, TSLB-5, 1.2, 1.3, 1.8 and 1.9 and TSLB-9, 1.3, 1.4, 1.5, and 1.9 are LIT.</p>	<p>The trip status lights listed in ABN-705 (19 of 26) are checked:</p>		
	<p><b>TASK COMPLETE.</b></p>			

**Job Performance Measure**

**INITIATING CUE:**

A failure low of Pressurizer pressure channel PT-455 has occurred during full power operation. The alternate channel has been selected for control and recording. You are directed to place the appropriate bistables in the tripped condition, and verify the appropriate annunciator alarms and trip status lights.

Job Performance Measure

System: Emergency Plant Evolutions

JTA Task #: CPSES BANK (M0D): AO5407A

Task Title: In Response to a Fire in the Control Room or Cable Spreading Room, Perform PEO #1  
Actions to Achieve Hot Shutdown (AB Actions Only) (\*\**TIME CRITICAL*\*\*)

KSA Ref: APE.068.AA1.22

PEO: X

RO: 4.0

SRO: 4.3

Operator-s Name: \_\_\_\_\_

Performance Environment: PLANT CONTROL ROOM SIMULATOR

Performance Method: PERFORMED SIMULATED  
DISCUSSED

Time to complete JPM: Estimated 15 minutes Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**                      **UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

## Job Performance Measure

<u>References:</u> ABN-803A(B), "Response to a Fire in the Control Room or Cable Spreading Room"	<u>Tools, Equipment, Job Aids, etc:</u> ABN-803A(B), Attachment 3 Gloves, flashlight, valve operator, radio
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Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

For JPMs which are to be APERFORMED®, cues for indications and controls need not be given.

**NOTE to EXAMINER: This is a TIME CRITICAL JPM; Since the Initiating Cue tells the applicant that he has already completed steps A through H, it can be assumed that the applicant would already be inside the Aux. Building prior to the commencement of this JPM. Therefore, hand the applicant his cue and procedure outside the RCA, but DO NOT START the CLOCK until you are inside the Auxiliary building. INFORM THE APPLICANT WHEN YOU START THE CLOCK.**

Instructions:

You may use any approved reference materials, including logs. Make or simulate all written/oral reports as if the evolution is actually being performed. You are expected to discuss all steps you would take, including identifying what switches/indications you would use.

Initiating Cue:

The Reactor has been tripped and the Control Room evacuated in response to a fire in the Cable Spreading Room, and ABN-803A(B), "Response to a Fire in the Control Room or Cable Spreading Room", has been initiated. As PEO No. 1, you have obtained your radio for communications and have completed Attachment 3, through step h. Place charging in service and control seal injection per Attachment 3. **THIS IS A TIME CRITICAL JPM, BUT THE CLOCK WILL NOT START UNTIL AFTER YOU HAVE MADE YOUR RCA ENTRY - THE EXAMINER WILL INFORM YOU WHEN THE CLOCK STARTS. FROM THAT TIME, YOU**

**Job Performance Measure**

WILL HAVE 19 MINUTES TO COMPLETE THE JPM.

Terminating Conditions:

The operator reports seal injection flow is established.

Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
*1	<p>Proceed to AB 810 outside the Charging Pump Valve Room and manually open u-LCV-112E, RWST to CVCS Suction.</p> <p><b>CUE: u-LCV-112E indicates in the OPEN position.</b></p>	<p>MANUALLY OPEN u-LCV-112E by DISENGAGING the Motor Clutch and rotating the Handwheel counter clockwise (left). Observe local position indication (open).</p>	<p>u-LCV-112E, RWST to CVCS Suction Valve is located in Aux. Bldg. 810' on the Southside (Northside) Corridor.</p> <p>The clutch disengage lever must be depressed until the LEVER is held in-place mechanically, after the handwheel has been rotated.</p>	
*2	<p>Proceed to AB 810, CCW PUMP u-01 Room to:</p> <p>Transfer CCWP AREA FAN COOLER 09 CONTROL TO LOCAL</p> <p>START CCWP AREA FAN COOLER 09</p> <p><b>CUE: When Transfer Switch, u-HS-5800B, is taken to Local, Green light is ON.</b></p> <p><b>CUE: When Control Switch, u-HS-5800C, is taken to CLOSE, Green light is OFF and Red light is ON.</b></p>	<p>Transfer CCWP AREA FAN COOLER 09 control to LOCAL and <u>START</u> CCWP AREA FAN COOLER 09, using TRANSFER SWITCH (u-HS-5800B) and CONTROL SWITCH (u-HS-5800C)</p>	<p>Transfer and start will be accomplished in the CCW PUMP u-01-ROOM located on AB 810'</p> <p>TRANSFER SWITCH is a 2-position maintain switch. LOCAL POSITION is to the right.</p> <p>U1 switch in CCW Pump 1-01 Room, U2 switch in hall outside CCW Pump 2-01 room.</p>	



## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
	<p><b>If performing this JPM on Unit 1 then perform Step 3, then go to Step 6.</b></p> <p><b>If performing this JPM on Unit 2 then go to Step 4 and Step 5, then Step 6</b></p>			
*3	<p><b>(Unit 1 only)</b></p> <p>Manually OPEN 1-8111 CCP 1 &amp; 2 MINI-FLOW VALVE</p> <p><b>CUE:</b> 1-8111 indicates in the OPEN position.</p>	Manually OPEN 1-8111 by disengaging the motor clutch and rotating the handwheel counter clock-wise (left). Observe local position indication.	1-8111 is located in the Charging Pump Valve Room.	
*4	<p><b>(Unit 2 only)</b></p> <p>Manually OPEN 2-8512B, CCP 2-01 ALT MINIFLOW DNSTRM ISOL VLV.</p> <p><b>CUE:</b> 2-8512B indicates in the OPEN position.</p>	Manually OPEN 2-8512B by disengaging the motor clutch and rotating the handwheel counter - clock-wise (left). Observe local position indication (OPEN).	2-8512B is located in the Unit 2 822 Blender Room.	
*5	<p><b>(Unit 2 only)</b></p> <p>Manually OPEN 2-8511A, CCP 2-01 ALT MINIFLO UPSTRM ISOL VLV.</p> <p><b>CUE:</b> 2-8511A indicates in the OPEN position.</p>	Manually OPEN 2-8511A by disengaging the motor clutch and rotating the hand-wheel counter clock-wise (left). Observe local position indication (OPEN).	2-8511A is located in the Unit 2 822 Blender Room.	
*6	<p><b>(Units 1 &amp; 2)</b></p> <p>Manually CLOSE <u>u</u>-LCV-112C, VCT OUTLET ISOLATION.</p> <p><b>CUE:</b> <u>u</u>-LCV-112C indicated in the CLOSED position.</p>	Manually CLOSE <u>u</u> -LCV-112C by disengaging the motor clutch and rotating the handwheel clock-wise (right). Observe local position indication (CLOSED).	<u>u</u> -LCV-112C is located in each respective Unit's Charging Pump Valve Room.	
*7	Manually CLOSE <u>u</u> -8483B-RO, CCP u-01/ u-02 CHRGR FLO CTRL VLV	CLOSE <u>u</u> -8483-R0 by rotating the handwheel	<u>u</u> -8483 can be operated locally in	

Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
	OUT VLV RMT OPER  CUE: <u>u-8483-R0</u> indicates in the CLOSED position.	clock-wise (right). Observe local position indication (CLOSED).	each respective unit's Charging Pump Valve Room or Remotely in each respective Unit's Blender Room.	
8	Contact the RO and inform him that the charging pump may be started.  CUE: Charging Pump has been started.  CUE: RO directs opening <u>u-8483B</u> , CCP <u>u-01/ u-02</u> CHRG FLO CTRL VLV OUT VLV RMT OPER, 2 full turns and report back.	The RO is contacted by either 2-way radio or gaitronics.	RO is located at the RSP.	
*9	Throttle OPEN <u>u-8483B-R0</u> , CCP <u>u-01/ u-02</u> CHRG FLO CTRL VLV OUT VLV RMT OPER, is 2 turns open. RO contacted.  CUE:RO understands <u>u-8483B</u> is 2 turns open.	Throttle OPEN <u>u-8483B</u> RO 2 full turns by rotating the handwheel or Remote Operator counter clock-wise (left) and reports back to the RO at the RSP.		
	<b>TASK COMPLETE</b>			

**Job Performance Measure**

**INITIATING CUE:** The Reactor has been tripped and the Control Room evacuated in response to a fire in the Cable Spreading Room, and ABN-803A(B), "Response to a Fire in the Control Room or Cable Spreading Room", has been initiated. As PEO No. 1, you have obtained your radio for communications and have completed Attachment 3, through step h. Place charging in service and control seal injection per Attachment 3. **THIS IS A TIME CRITICAL JPM, BUT THE CLOCK WILL NOT START UNTIL AFTER YOU HAVE MADE YOUR RCA ENTRY - THE EXAMINER WILL INFORM YOU WHEN THE CLOCK STARTS. FROM THAT TIME, YOU WILL HAVE 19 MINUTES TO COMPLETE THE JPM.**

Job Performance Measure

**System:** Steam Generator Tube Rupture

**JTA Task #:** CPSES BANK: AO3528

**Task Title:** Locally Isolate Ruptured S/G

**KSA Ref:** EPE.038.EA1.32

**PEO:** X

**RO:** 4.6

**SRO:** 4.7

**Operator-s Name:** \_\_\_\_\_

**Performance Environment:** PLANT CONTROL ROOM SIMULATOR

**Performance Method:** PERFORMED SIMULATED  
DISCUSSED

**Time to complete JPM:** Estimated 20 min. Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**                      **UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

**Job Performance Measure**

<p><u>References:</u> EOP-3.0A(B), Steam Generator Tube Rupture</p>	<p><u>Tools, Equipment, Job Aids, etc:</u> EOP-3.0A(B), Attachment 4</p>
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## Job Performance Measure

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

For JPMs which are to be ~~APERFORMED~~, cues for indications and controls need not be given.

Instructions:

You may use any approved reference materials, including logs. Make or simulate all written/oral reports as if the evolution is actually being performed. You are expected to discuss all steps you would take, including identifying what switches/indications you would use.

Initiating Cue:

Procedure EOP-3.0A(B), "Steam Generator Tube Rupture" is in progress. The Control Room has directed you to perform attachment 4 as part of Step 3 (Isolate Flow From Ruptured SG(s))

Terminating Conditions:

All valves that require local isolation as per attachment 4, have been closed.

Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
*1	<p><b>CUE: 1-HS-3228 will NOT close from Control Room.</b></p> <p>Locally close 1SA-0005, U1 MS to AUX STM ISOL VLV</p> <p><b>CUE: Valve closes.</b></p>	Valve closed	Located Unit 1 TB 778= NE Corner	
*2	<p><b>CUE: The Control Room attempted to close the Steam Dump Valves but the valves did NOT close.</b></p> <p>Locally close the following valves:</p> <p>1MS-0185, STM DMP TO CNDSR 1-A VLV 2369A UPSTRM ISOL VLV</p> <p>1MS-0186, STM DMP TO CNDSR 1-A VLV 2370B UPSTRM ISOL VLV</p> <p>1MS-0187, STM DMP TO CNDSR 1-A VLV 2370F UPSTRM ISOL VLV</p> <p>1MS-0188, STM DMP TO CNDSR 1-A VLV 2370G UPSTRM ISOL VLV</p> <p>1MS-0189, STM DMP TO CNDSR 1-A VLV 2369B UPSTRM ISOL VLV</p>	All valves closed.	All valves located in TB 803= South of Main Condenser	

Job Performance Measure

	<p>1MS-0190, STM DMP TO                  CNDSR 1-A VLV 2370D                  UPSTRM ISOL VLV                  1MS-0191, STM DMP TO                  CNDSR 1-B VLV 2369C                  UPSTRM ISOL VLV</p> <p>1MS-0192, STM DMP TO                  CNDSR 1-B VLV 2370C                  UPSTRM ISOL VLV</p> <p>1MS-0193, STM DMP TO                  CNDSR 1-B VLV 2370H                  UPSTRM ISOL VLV</p> <p>1MS-0194, STM DMP TO                  CNDSR 1-B VLV 2370J                  UPSTRM ISOL VLV</p> <p>1MS-0195, STM DMP TO                  CNDSR 1-B VLV 2370A                  UPSTRM ISOL VLV</p> <p>1MS-0196, STM DMP TO                  CNDSR 1-B VLV 2370E                  UPSTRM ISOL VLV</p> <p><b>CUE: All valves close.</b></p>			
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<p>*3</p>	<p>LOCALLY CLOSE THE                  FOLLOWING VALVES:</p> <p>1MS-0520, STM DMP STM                  TRAP 1-18 UPSTRM ISOL                  VLV</p> <p>1MS-0522, STM DMP STM                  TRAP 1-19 UPSTRM ISOL                  VLV</p>	<p>All valves closed.</p>	<p>All valves located                  in TB 803= South                  of Main                  Condenser</p>	
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Job Performance Measure

<p>1MS-0524, STM DMP STM          TRAP 1-20 UPSTRM ISOL          VLV</p>			
<p>1MS-0526, STM DMP STM          TRAP 1-21 UPSTRM ISOL          VLV</p>			
<p>1MS-0528, STM DMP STM          TRAP 1-22 UPSTRM ISOL          VLV</p>			
<p>1MS-0530, STM DMP STM          TRAP 1-23 UPSTRM ISOL          VLV</p>			
<p>1MS-0532, STM DMP STM          TRAP 1-24 UPSTRM ISOL          VLV</p>			
<p>1MS-0534, STM DMP STM          TRAP 1-25 UPSTRM ISOL          VLV</p>			
<p>1MS-0536, STM DMP STM          TRAP 1-26 UPSTRM ISOL          VLV</p>			
<p>1MS-0538, STM DMP STM          TRAP 1-27 UPSTRM ISOL          VLV</p>			
<p>1MS-0540, STM DMP STM          TRAP 1-28 UPSTRM ISOL          VLV</p>			
<p>1MS-0542, STM DMP STM          TRAP 1-29 UPSTRM ISOL          VLV</p>			
<p><b>CUE: All valves close.</b></p>			

Job Performance Measure

<p>*4</p>	<p><b>CUE: The Main Feedwater Pumps are NOT being used to supply the Steam Generators</b>On the North side of the MFW pump skids, close the following valves.</p> <p>1MS-0254, FWPT 1-A HP                  STM SPLY ISOL VLV                  1MS-0253, FWPT 1-B HP                  STM SPLY ISOL VLV</p> <p><b>JE: All valves closed</b></p>	<p>Both valves closed.</p>	<p>Valve located on North side of each FWP skid</p>	
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<p>*5</p>	<p>Locally close the following valves:</p> <p>1VD-0421, MS D/POT 1-03                  TO CNDSR 1-A DRN HDR A ISOL VLV</p> <p>1VD-0424, MS D/POT 1-04                  TO CNDSR 1-A DRN HDR A ISOL VLV</p> <p>1VD-0425, MS D/POT 1-09                  TO CNDSR 1-A DRN HDR A ISOL VLV</p> <p>1VD-0426, MS D/POT 1-02                  TO CNDSR 1-A DRN HDR A ISOL VLV</p> <p>1VD-0427, MS D/POT 1-28                  TO CNDSR 1-A DRN HDR A ISOL VLV</p> <p>1VD-0428, MS D/POT 1-10                  TO CNDSR 1-A DRN A ISOL VLV</p>	<p>All valve closed</p>	<p>All valves accessible from operating deck located in the Vent and Drain Valve Alley above the EHC Skid center section.</p>	
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Job Performance Measure

	<p>1VD-0429, MS D/POT 1-20          TO CNDSR 1-A DRN HDR A          ISOL VLV</p> <p>1VD-0430, MS D/POT TO          CNDSR 1-A DRN HDR A          ISOL VLV</p> <p>1VD-0431, MS D/POT 1-13          TO CNDSR 1-A DRN HDR A          ISOL VLV</p> <p>1VD-0432, MS D/POT 1-19          TO CNDSR 1-A DRN HDR A          ISOL VLV</p> <p>1VD-0433, MS D/POT 1-01          TO CNDSR 1-A DRN HDR A          ISOL VLV</p> <p>1VD-0436, MS D/POT 1-12          TO CNDSR 1-A DRN HDR A          ISOL VLV</p> <p>1VD-0437, MS D/POT 1-11          TO CNDSR 1-A DRN HDR A          ISOL VLV</p> <p><b>CUE: All valves close.</b></p>			
<p>*6</p>	<p>LOCALLY CLOSE THE          FOLLOWING VALVES:</p> <p>1MS-0028, SG 1-01 SMPL          VLV</p> <p>1MS-0065, SG 1-02 SMPL          VLV</p> <p>1MS-0136, SG 1-04 SMPL          VLV</p> <p>1MS-0291, SG 1-03 SMPL          VLV</p>	<p>All valves closed.</p>	<p>All 4 valves          located at Unit 1          TB 778= East          Wall behind Vent          chiller #5, 10 up</p>	

Job Performance Measure

	<b>CUE: All valves close.</b>			
	<b>TASK COMPLETE</b>			

**Job Performance Measure**

**INITIATING CUE:** Procedure EOP-3.0A(B), A Steam Generator Tube Rupture<sup>o</sup> is in progress. The Control Room has directed you to perform attachment 4 as part of Step 3 (Isolate Flow From Ruptured SG(s)).

Job Performance Measure

**System:** Emergency Diesel Generator

**JTA Task #:** CPSES BANK: AO6311A

**Task Title:** Perform a Local Emergency Start of a DG (RCA ENTRY REQUIRED)

**KSA Ref:** SF6.064.A4.01

**PEO:** X

**RO:** 4.0

**SRO:** 4.3

**Operator-s Name:** \_\_\_\_\_

**Performance Environment:** PLANT CONTROL ROOM SIMULATOR

**Performance Method:** PERFORMED SIMULATED  
DISCUSSED

**Time to complete JPM:** Estimated 15 min. Actual \_\_\_\_\_

The operator-s performance was evaluated against the standards contained in this JPM and was determined to be:

**SATISFACTORY**                      **UNSATISFACTORY**

Reason, if unsatisfactory:

Evaluator-s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments (list all steps not satisfactorily completed): \_\_\_\_\_

**Job Performance Measure**

<p><u>References:</u> SOP-609A(B), Diesel Generator System</p>	<p><u>Tools, Equipment, Job Aids, etc:</u> SOP-609A(B) Section 1 through 4 and Section 5.2 of SOP-609A(B).</p>
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## Job Performance Measure

Safety Considerations:

If this JPM is to be performed in the plant/control room, the candidate is NOT to manipulate any plant components unless he/she has permission from the Shift/Unit Supervisor.

Comments:

For JPMs which are to be ~~PERFORMED~~, cues for indications and controls need not be given.

NOTE: Step 9 (checking operating parameters) does NOT need to be performed for a RO and SRO because all are in spec. and no action is required.

Instructions:

You may use any approved reference materials, including logs. Make or simulate all written/oral reports as if the evolution is actually being performed. You are expected to discuss all steps you would take, including identifying what switches/indications you would use

Initiating Cue:

You have been directed to perform a Local Emergency Start of Train A(B) DG for testing. An Engine Water Roll Check, all prerequisites and all Maintenance Department pre-start activities have been performed. The Prompt Team and Chemistry have been informed. The ~~slow start~~ is NOT being performed. The DG is an auto-start status. This test does not meet the Surveillance Test requirements.

Terminating Conditions:

Train A(B) DG is running.



## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
1	Notify Control Room	Notify Control Room		
*2	<p>Start auxiliary lube oil pump by placing handswitch (<u>u</u>-HS-3411-1 Train A or <u>u</u>-HS-3412-1 Train B) in HAND.</p> <p><b>CUE:</b> Auxiliary lube oil pump RED (ON) light is LIT and GREEN (OFF and AUTO) lights are DARK. Pressure on lube oil pressure gauge (<u>u</u>-PI-3411B-1B Train A or <u>u</u>-PI-3412B Train B) is 56 psig.</p>	<p>Handswitch in HAND position and the lube oil pump running. Lube oil pressure should be 40-60 psig.</p>	<p>Do not run auxiliary lube oil pump in HAND for more than 1 minute per shift without running the DG.</p> <p>Auxiliary lube oil pump handswitch is located on the Local Engine Control Panel.</p>	
*3	<p>Stop auxiliary lube oil pump by placing handswitch (<u>u</u>-HS-3411-1 Train A or <u>u</u>-HS-3412-1 Train B) in OFF then AUTO.</p> <p><b>CUE:</b> Auxiliary lube oil pump RED (ON) light is DARK and GREEN (OFF and AUTO) lights are LIT.</p>	<p>Auxiliary lube oil pump NOT running and handswitch in AUTO position.</p>	<p>Diesel must be started within 60 seconds of stopping Aux. lube oil pump.</p> <p>If not started within 60 seconds must repeat above step of JPM.</p>	
*4	<p>Take local control of DG by placing the Master Switch (<u>u</u>-HS-3413-3b, RLMS Train A or <u>u</u>-HS-3414-3B, RLMS</p>	<p>The Master Switch in LOCAL position.</p>	<p>Master Switch is located on Local Generator Control Panel.</p>	

## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
	Train B) in LOCAL.  <b>CUE:</b> The Master Switch is in the LOCAL position.			
*5	Start the DG by placing the local emergency Stop-Start handswitch ( <u>u</u> -HS-3413-4B, LOC/EMER/MAN/START Train A or <u>u</u> -HS-3414-4B LOC/EMER/MAN/START Train B) in START.  <b>CUE:</b> Engine rpm is increasing.	Local emergency Stop-Start handswitch in START position and engine running.	Local emergency Stop-Start handswitch is located on the Local Generator Control Panel.	
6	Verify auxiliary lube oil pump handswitch ( <u>u</u> -HS-3411-1 Train A or <u>u</u> -HS-3412-1 Train B) in AUTO and pump not running.  <b>CUE:</b> Auxiliary lube oil pump RED (ON) light DARK and GREEN (OFF and AUTO) lights are LIT. Pump handswitch is in AUTO.	Auxiliary lube oil pump handswitch in AUTO position and pump NOT running.		
7	Stop Auxiliary jacket water pump by placing handswitch ( <u>u</u> -HS-3415-1 Train A or <u>u</u> -HS-3416-1 Train B) in OFF and then AUTO. Verify pump is not running.  <b>CUE:</b> Auxiliary jacket water pump RED (ON) light DARK and GREEN (OFF and AUTO) lights are LIT. Pump	Auxiliary jacket water pump handswitch in AUTO position and pump NOT running.	Auxiliary jacket water pump handswitch is located on the Local Engine Control Panel.	

## Job Performance Measure

STEP# *Critical	ELEMENT	STANDARD	NOTES	SAT/ UNSAT
	handswitch is in AUTO.			
8	Verify DG voltage is building and engine speed is normal.  <b>CUE:</b> DG voltage is increasing and engine speed is 450 rpm (60Hz). If Operator asks, voltage is 7000V.	DG voltage increasing and engine speed is between 440 and 475 RPM.	DG voltage is read on the Local Generator Control Panel.  Engine speed is read on the Local Engine Control Panel.	
9	Check operating parameters: Lube oil pressure Turbo oil pressure, left bank Turbo oil pressure, right bank Jacket water pressure Fuel oil pressure, black-engine driven pump Engine speed  <b>CUE:</b> L/O press = 53 psig T/O LF press = 28 psig T/O RF press = 27 psig (NOTE: procedure refers to T/O RF and LF as AT/O RB and LB@) JW press = 23 psig FO black press = 42 psig Engine speed = 450 rpm	Lube oil pressure Turbo oil pressure, left front Turbo oil pressure, right front Jacket water pressure Fuel oil pressure, black-engine driven pump Engine speed	RUNNING and READY TO LOAD lights are located on the Local Engine Control Panel.  <b>NOTE: TASK may be TERMINATED without having a Reactor Operator Log any of these values SINCE all will be in spec. and no action is required</b>	
	<b>TASK COMPLETE</b>			

Job Performance Measure

<b>STEP#</b> *Critical	<b>ELEMENT</b>	<b>STANDARD</b>	<b>NOTES</b>	<b>SAT/ UNSAT</b>

**Job Performance Measure**

**INITIATING CUE:**

You have been directed to perform a Local Emergency Start of Train A(B) DG for testing. An Engine Water Roll Check, all prerequisites and all Maintenance Department pre-start activities have been performed. The Prompt Team and Chemistry have been informed. The Aslow start@ is **NOT** being performed. The DG is an auto-start status. This test does not meet the Surveillance Test requirements.

**Revision 2**

Appendix D

Scenario Outline

Form ES-D-1

Facility:	<b>CPSES</b>	Scenario No.:	<b>1</b>	Op-Test No.:	<b>11/2002</b>
Examiners:	Howard Bundy	Operators:			
	Mike Murphy				
	Tom McKernon				
	Fred Sanchez				

Note: (NEW) **SRO Admin A.5-1, Emerg. Class. with this Scenario (SAE).**

Initial Conditions: Full power steady state; BOL; Equilibrium Xenon; EDG 1-01 is out of service for maintenance (12 hours into LCO).  
*(IC Info.: IC-15, EGR06 - DG1 out of service with sw. in Apull out@)*  
*(PRELOAD - MET Tower Data B> wind from 180)*

Turnover: The plant has been at 100% power for the last 15 days. Severe thunderstorm warning and high winds issued and ABN-907, Sec. 5 completed. Maintenance has been trouble shooting problems with the 1-01 HTR Drain Pump, and requests the pump be secured within the next 2 hours. Management has directed a power reduction to 70% at 15%/hour to support securing the 1-01 HTR Drain Pump. EDG 1-01 is out of service for maint., and OPT-215 was completed 1 hr ago.

Event No.	Malf. No.	Event Type*	Event Description
1 T=0		N (SRO) R (RO) N (BOP)	Reduce power to 70%
2 (Cue) T=12	RX05A	I (SRO) I (RO)	Pressurizer level transmitter LT-459 fails low [value=0, ramp over 1 min] <i>(NOTE: initiate Event 2 on Chief Examiner-s cue)</i>
3 T=22	TC05A	C (SRO) C (BOP)	#1 Main turbine control valve fails closed <i>(NOTE: initiate Event 3 prior to completion of actions for Event 2)</i>
4 T=32	ED06G	C (ALL)	Loss of 1D3 bus
5 (Cue) T=40  T=44	RC03D	C (RO) C (SRO)	RCP 4 vibration - initial severity @ 9 mils and ramp severity to 25 mils over 6 min. High vib. alarm on RCP 4 (shaft) alarms at 15 mils & increasing @ approx 3 mils/min. <i>(NOTE: must provide cue for vibration monitor readings - increasing at 3 mils/min - when applicant goes to look)</i>  Manual Rx Scram due to high RCP 1-04 vibrations, no SI. Enter EOP-0.0A and then transition to EOS-0.1A.
6 T=49	ED01	M (ALL)	Lighting strike in switchyard - loss of offsite power. EDG 1-02 starts and loads <i>(NOTE: E6 to be initiated 5 minutes after RX Trip)</i> <i>(NOTE to Simulator Operator: Call RO and report lighting strike in switchyard and high winds with wind speed of 105 mph (sustained))</i>
7 T=E6+3	EG07B	C (ALL)	EDG 1-02 trips (overspeed) - loss of all power. Transition to ECA-0.0A and possibly ABN-601.

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

**Revision 2**

Op-Test No: 11/2002 Scenario No: 1 Event No: 1 Page 1 of 1

Event Description: Reduce power to 70%

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Review IPO-003A, Power Operations
				Notifies the Dispatcher prior to reducing load
				Notifies Chemistry and Radiation Protection if power reduction will be greater than 15% in one hour
				Notifies Reactor Engineering of power reduction greater than 25%
				Calculates the amount of boration required
				Calculates the rate of boration
				Reviews AFD guidance
				Sets in the desired unloading rate on the LOAD GRADIENT device
				Initiates boration
				Lowers the LOAD REFERENCE device in incremental steps to control the power decrease
				Maintains AFD within the target band
				Maintains rods above the rod insertion limit
				Maintain Tavg within 1°F of Tref

**\*BOLD INDICATES CRITICAL STEP**

**Revision 2**

Op-Test No: 11/2002

Scenario No: 1

Event No: 2

Page 1 of 3

Event Description: Pressurizer level transmitter LT-459 fails low

Time	RO    BOP    SRO	Applicant's Actions or Behavior
		Recognizes indications that pressurizer level transmitter LT-459 failed low: LI459A, pressurizer level channel I, indicates low Letdown isolates Pressurizer low level heater cutoff PRZR LVL LO (5B-3.6) PRZR LVL DEV LO (5C-1.2)
		Informs SRO
		Refers to ABN-706, Pressurizer Level Instrumentation Malfunction, and directs operators
		Stops load decrease and Assists as directed
		<b>Transfers LS-459D, PRZR LVL CTRL CHAN SELECT, to an operable alternate control channel prior to RX trip</b>
		Verifies automatic control restoring pressurizer level to program
		Verifies instruments on common instrument line - NORMAL
		Ensures LS-4590E, LR-459 PRZR LVL SELECT selected to a valid channel
		Directs I&C to place bistable BS-1, Cab 01, Frame 08, Card 47, test switch in TEST and verify channel test status light ON

**\*BOLD INDICATES CRITICAL STEP**



**Revision 2**

Op-Test No: 11/2002 Scenario No: 1 Event No: 2 Page 2 of 3

Event Description: Pressurizer level transmitter LT-459 fails low

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Verifies trip status panel TSLB-5 indicator 1.1 ON and Notes verification in Unit Log
				Restores letdown:
				Ensures charging flow through regenerative heat exchanger
				Opens LCV-459 and LCV-460, letdown isolation valves
				Takes manual control of PK-131, LTDN HX OUT PRESS CTRL, and opens the valve to ~30% demand
				Opens the desired orifice isolation valve
				Adjusts PK-131, LTDN HX OUT PRESS CTRL, to obtain approximately 310 psig on PI-131, LTDN HX OUT PRESS, then places in automatic
				Adjusts TK-130, LTDN HX OUT TEMP CTRL to obtain approximately 95°F on TI 130, LTDN HX OUT TEMP, then places in automatic
				Recloses pressurizer heater group C feeder breaker by placing PRZR CTRL HTR GROUP C control switch in the ON position

**\*BOLD INDICATES CRITICAL STEP**





**Revision 2**

Op-Test No: 11/2002 Scenario No: 1 Event No: 3 Page 1 of 1

Event Description: #1 Main Turbine control valve fails closed

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Determines turbine/reactor power change - informs SRO
				Ensure rod control and steam dumps maintain RCS temperature
				Determines turbine control valve closed
				Directs and Implements ABN-401:
				1. Verifies S/G level control, PRZR level control, and PRZR pressure control working correctly
				2. Verify turbine load stable and match LOAD REFERENCE indication with existing load
				3. Reduce turbine load until all operable HP control valves indicate <100% open
				4. Check status of ALL main turbine stop and control valves
				Notify PSO, plant management, and prompt team
				<i>Note for simulator operator - If asked, as PEO, report no apparent reason for #1 CV closure</i>

**\*BOLD INDICATES CRITICAL STEP**

**Revision 2**

Op-Test No: 11/2002 Scenario No: 1 Event No: 4 Page 1 of 1

Event Description: Loss of 1D3 Bus

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Performs actions of ALM-0102
				<p>After performing a board walkdown, observes that 1D3 voltage is pegged low (1-CB-11) and announces loss of 1D3 bus</p> <p>Alarms Indications: 1ALB-10B (2.19) and (3.19)</p> <p><i>(this can be difficult to identify - will require some good analysis)</i></p>
				Send PEO to equipment to check <i>(PEO reports that he is unable to determine cause)</i>
				Determines that RCPs can not be tripped from control room
				Refers to T/S 3.3.1 and TRM 13.8.32A

**\*BOLD INDICATES CRITICAL STEP**

**Revision 2**

Op-Test No: 11/2002 Scenario No: 1 Event No: 5 Page 1 of 1

Event Description: High Vibration on RCP 1-04 (shaft)

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Directs and Implements ABN-101
				<b>Trip the reactor due to high rate of RCP vibration increase.</b> Make plant announcement
				Go to EOP-0.0A
				<b>Stop RCP 1-04 - locally</b> (call to have AO open breaker)
				<i>Note: <b>Trip the reactor due to high RCP vibration</b> - preventing a challenge to plant safety and a degradation of any barrier to fission product release (App D, Step D.1.a)</i>
				Directs and Implements EOP-0.0A
				Transitions to EOS-0.1A (since no SI has occurred)

**\*BOLD INDICATES CRITICAL STEP**

**Revision 2**

Op-Test No: 11/2002 Scenario No: 1 Event No: 6 Page 1 of 1

Event Description: Switchyard lighting strike - loss of offsite pwr (EDG 1-02 starts and loads)

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Direct and Implement ABN-601 Section 5
				Check 6.9 KV safeguard buses energized (Train B)
				Check 6.9 KV non-safeguard buses energized
				Check Blackout Sequencer
				Check switchyard buses - will be de-energized
				Perform Attachment 20
				Refer to EPP-201 B> classify as NOUE
				Verify numerous transformer/switchyard status
				Re-energize various buses (next event before this can be completed)
				Shift briefing, various announcements, contact distribution, and contact Prompt team
				<i>Note to Simulator Operator: Call RO and report lighting strike in switchyard and high winds. Load Met Tower with wind speed of 105 mph (sustained)</i>

**\*BOLD INDICATES CRITICAL STEP**

**Revision 2**

Op-Test No: 11/2002

Scenario No: 1

Event No: 7

Page 1 of 2

Event Description: EDG 1-02 trips on overspeed B> Loss of all power

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Direct and Implement ECA-0.0A
				Verify Rx trip
				Verify turbine trip
				Check RCS isolated
				Verify AFW flow > 460 gpm
				Power can not be restored to AC safeguards bus - go to ABN-601, Step 6
				Initiate DC bus load shedding - Control Room calls and has someone begin to load shed - local actions
				<b>Depressurize intact SGs to 270 psig</b>
				Send PEO to check on EDG trip (PEO reports that the trip was on overspeed)
				Direct and Implement ABN-601
				<i>Note: EDG will not be returned before the end of the scenario.</i>

**\*BOLD INDICATES CRITICAL STEP**





**Revision 2**

Appendix D

Scenario Outline

Form ES-D-1

Facility:	<b>CPSES</b>	Scenario No.:	<b>2</b>	Op-Test No.:	<b>11/2002</b>
Examiners:	Howard Bundy	Operators:			
	Mike Murphy				
	Tom McKernon				
	Fred Sanchez				

Note: (NEW) **SRO Admin A.5-2, Emerg. Class. with this Scenario (SAE).**

Initial Conditions: 75% power and steady; BOL.  
*(IC-14; RP01 - Failure of automatic RX trip; RP13C - Manual RX trip failure <both>; TC07C - Automatic main turbine trip failure <both>; Fault 1B4 to prevent manual RX trip by de-energizing the bus)*

Turnover: The previous shift just completed turbine valve testing and the shift has been directed to return to 100% (8%/hr< rate of increase <10%/hr). Diesel Generator 1 should be returned to service in about 2 hours. OPT-215 was completed on DG-1 1 hr ago.

Event No.	Malf. No.	Event Type*	Event Description
1 T=0		N (SRO) R (RO) N (BOP)	Increase reactor power back to 100%
2 (Cue) T=10	RX04C	I (SRO) I (RO)	S/G 3 Level Transmitter LT-553 fails low <i>(If RO or BOP goes to place bistables in trip, start E3)</i>
3 T=19	TP04A	C (SRO) C (RO)	Main Feedwater pump A TPCW blockage [value=100%, ramp over 5 min]
**4 T=27	FW03B RP01	C (ALL) M (ALL)	Feedwater pump B trips; failure of automatic and manual reactor trip; failure of automatic main turbine trip.
***5	SG01C	M (ALL)	S/G#4 tube rupture [value=750 gpm, insert when reactor is tripped]

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor  
 \*\* = insert in conjunction with S/D or trip of AA@ MFP  
 \*\*\* = insert when reactor is tripped.

**Revision 2**

Op-Test No: 11/2002 Scenario No: 2 Event No: 1 Page 1 of 1

Event Description: Increase reactor power to 100%

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Provide shift briefing
				Initiate RCS dilution using SOP-104A
				Set the desired loading rate on the LOAD GRADIENT device
				Slowly raise the LOAD REFERENCE device to 1150 MW while controlling the rate of turbine power increase
				Note to Simulator Operator: 4 minutes after Crew assumes the watch, call the control room and tell them that the National Weather Service has issued a severe thunderstorm warning with the possibility of high winds for Somervell County (next 4 hours)

**\*BOLD INDICATES CRITICAL STEP**

**Revision 2**

Op-Test No: 11/2002

Scenario No: 2

Event No: 2

Page 1 of 1

Event Description: S/G 3 Level Transmitter LT-553 fails low

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Direct and Implement the actions of ABN-710
				Verifies controlling level channel failed
				Manually controls feedwater to S/G 1-03, using 1-FK-530
				Select alternate 1-LS-539C for S/G 3
				Check stable level, and feed/steam flow matched, then place controller in auto and check for proper response
				Refers to: T/S 3.3.1, 3.3.2 B> within 6 hrs place channel in trip T/S 3.3.3-1 B> no action
				Contacts Prompt Team and Ops Management

**\*BOLD INDICATES CRITICAL STEP**



**Revision 2**

Op-Test No: 11/2002 Scenario No: 2 Event No: 3 Page 1 of 2

Event Description: Main Feedwater Pump A TPCM Blockage

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Recognizes indications of main feedwater pump A TPCW blockage: FWPT A/B L\O FILT OUT PRESS LO (7.B-2.10)
				Informs SRO
				Assists as directed
				Refer to ALB-7B 1.11, FWPT A/B L\O FILT OUT PRESS LO and directs annunciator response actions
				Determine if either feed pump is tripped
				Ensure FWPT A emergency oil pump is running (HS-3299)
				Monitor PI-3305, FWPT A HYD OIL SPLY PRESS
				Monitor PI-3307, FWPT A BRG L\O SPLY PRESS
				If hydraulic oil pressure is <175 psig or bearing oil pressure is <7 psig ensure the standby oil pump is in service (HS-3297, FWP A MOP A or HS-3298, FWPT A MOP B)
				Monitor FWPTA bearing and oil drain temperatures on the Plant Computer

**\*BOLD INDICATES CRITICAL STEP**



**Revision 2**

Op-Test No: 11/2002 Scenario No: 2 Event No: 4/5 Page 1 of 4

Event Description: Feedwater Pump B trips; failure of automatic and manual reactor trips; failure of automatic main turbine trip; SG-4 tube rupture

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Recognizes loss of main feedwater: Main Feedwater Pump B tripped Informs SRO
				Directs operators to manually trip the reactor
				Enters EOP-0.0A, Reactor Trip or Safety Injection, and directs operators
				Attempt to manually trip reactor from both trip switches
				Inform SRO reactor did not trip
				Transitions to FRS-0.1A, Response to Nuclear Power Generation/ATWT, Step 1, and directs operators
				Verifies control rods inserting at greater than 48 steps per minute OR manually insert control rods
				<b>Manually trips turbine</b>
				Verifies total AFW flow is greater than 860 gpm

**\*BOLD INDICATES CRITICAL STEP**



**Revision 2**

Op-Test No: 11/2002 Scenario No: 2 Event No: 4/5 Page 2 of 4

Event Description: Feedwater Pump B trips; failure of automatic and manual reactor trips; failure of automatic main turbine trip; SG-4 tube rupture

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Directs operator in performing FRS-0.1A subsequent actions
				Check if reactor tripped
				<b>Initiate Emergency Boration of RCS:</b> <b>Ensures at least one CCP running</b> <b>Verifies charging flow is greater than 30 gpm</b> <b>Starts available boric acid pump</b> <b>Opens Emergency Boration valve 1-8104</b> <b>Verifies emergency boration flow</b> <b>Checks PRZR pressure less than 2335 psig</b>
				Dispatch an operator to locally trip the reactor <i>(NOTE: Allow RX trip breakers to be opened after Emergency Boration begins)</i>
				Check if turbine tripped
				Verify reactor subcritical (may return to EOP-0.0 if reactor tripped)
				Check SG level

**\*BOLD INDICATES CRITICAL STEP**

**Revision 2**

Op-Test No: 11/2002 Scenario No: 2 Event No: 4/5 Page 3 of 4

Event Description: Feedwater Pump B trips; failure of automatic and manual reactor trips; failure of automatic main turbine trip; SG-4 tube rupture

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Ensure all dilution paths isolated
				Check for reactivity insertion from uncontrolled cooldown
				Check MSIVs and bypass valves closed
				Transitions to EOP-0.0A, Reactor Trip Or Safety Injection (when RX trip brkrs open), and directs operators
				-Verify RX trip, Turbine trip, & power to safeguards busses -Check SI Status (transition to EOS-0.1A if no SI required) -continue with either EOP-0.0A or EOS-0.1A until symptoms indicate Tube Rupture and transition to EOP-3.0A.
				Transitions to EOP-3.0A, Steam Generator Tube Rupture, and directs operators
				Check if RCP-s should be stopped
				Identify Ruptured SG
				At least one SG must remain available for RCS cooldown
				Adjust ruptured SG atmospheric controller setpoint to 1160 psig.
				Check Ruptured SG atmospheric - CLOSED

**\*BOLD INDICATES CRITICAL STEP**

**Revision 2**

Op-Test No: 11/2002 Scenario No: 2 Event No: 4/5 Page 4 of 4

Event Description: Feedwater Pump B trips; failure of automatic and manual reactor trips; failure of automatic main turbine trip; SG-4 tube rupture

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				<b>Close ruptured SG main steamline isolation and ensure bypass valve closed</b>
				Pull-Out steam supply valve handswitch from ruptured SG to TDAFW pump
				Verify Blowdown isolation valve(s) from ruptured SG - CLOSED
				Terminate scenario at completion of step 4 of EOP-3.0A (SG are isolated) or as directed of Chief Examiner.

**\*BOLD INDICATES CRITICAL STEP**

**Revision 2**

Appendix D

Scenario Outline

Form ES-D-1

Facility:	<b>CPSES</b>	Scenario No.:	<b>3</b>	Op-Test No.:	<b>11/2002</b>
Examiners:	Howard Bundy	Operators:			
	Mike Murphy				
	Tom McKernon				
	Fred Sanchez				

Note: (BANK) This scenario is an unused spare from the 2001 CPSES exam

Initial Conditions: 30% power and steady. (IC-11)

Turnover: No equipment is out of service. Train A equipment is in service. FWP repairs have been completed by the previous shift. You have been directed to return to 100% power @8%/hr not to exceed 10%/hr. Start at IPO-003A step 5.4.10 and SOP-308A step 5.1.20 for the power increase.

Event No.	Malf. No.	Event Type*	Event Description
1 T=0		N (SRO) N (BOP) R (RO)	Increase Reactor power back to 100%
2 (Cue) T=13	MS13A	I (RO) I (BOP) I (SRO)	MSL 1 Press Instrument PI-2325 fails high (100%)
3 T=16	RX08A	I (RO) I (SRO)	PZR press transmitter PT-455 fails at 2300# (ramps over 45 seconds)
4 T=16	RX15A	C (RO) C (SRO)	PZR spray flow control valve failure (PCV-455B) @ 70% severity. Failure occurs at the instant that the RO takes pressure control to manual. (Removing faulty card - PCV-455B CTRL (RXR96) - allows spray valve to go back to closed)
5 T=22	FW16	C (RO) C (BOP) C (SRO)	Lowering vacuum on main condenser due to loss of vacuum breaker water seal (5% severity)
6 T=35	TC06C MS07A MS10A1 @100%	M (ALL) M (ALL)	Main turbine spurious trip <u>and</u> MSIV #1 closes causing SG1 Safety MS-021 to fail open

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

**Revision 2**

Op-Test No: 11/2002 Scenario No: 3 Event No: 1 Page 1 of 1

Event Description: Increase Rx Power - approx 8%/hr

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Increase reactor power per IPO-003A
				Provide shift briefing
				Calc amount of dilution needed to raise power to 1145 MWe (Rx Eng data)
				Initiate dilution and outward rod motion
				Set desired loading rate on the LOAD GRADIENT device
				Raise the LIMIT LOAD device to >1180 MW
				Raise the LOAD REFERENCE device to increase turbine load
				Verify proper rod bank insertion, overlap, and sequencing

**\*BOLD INDICATES CRITICAL STEP**

**Revision 2**

Op-Test No: <u>11/2002</u>	Scenario No: <u>3</u>	Event No: <u>2</u>	Page <u>1</u> of <u>1</u>
Event Description: MSL #1 Press Instrument (PI-2325) Fails High			

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Refers to ALM-0064A and diagnosis ARV open by control board indications
				Directs and Implements ABN-709, Section 2.0
				Determines PI-2325 failed high and ZL-2325 indicates valve open
				Ensures SG 1 press <1125 psig and manually closes ARV
				Notifies Chemistry to determine if release permit is required
				Contacts Prompt Team and initiates repairs

**\*BOLD INDICATES CRITICAL STEP**

**Revision 2**

Op-Test No: 11/2002 Scenario No: 3 Event No: 3 Page 1 of 1

Event Description: PZR PT-455 Fails at 2300# (with a 45 sec ramp)

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Recognizes PT-455 failing at 2300# PRZR PRESS DEV HI alarm (5C-4.3)
				Directs response per ABN-705 Section 2.3
				Verify PORV closed
				Place 1-PK-455A, PRZR MASTER PRESS CTRL in MANUAL and adjust for current RCS pressure
				Transfer pressure control to alternate channel and return 1- PK-455A to AUTO
				Verify automatic control restoring PRZR press to 2235# <i>(NOTE: the Spray valve is now stuck open (Event 4), but the operator may not yet notice that pressure is not being restored until some time later when the effects of the stuck open spray valve become more noticeable)</i>

**\*BOLD INDICATES CRITICAL STEP**

**Revision 2**

Op-Test No: 11/2002 Scenario No: 3 Event No: 4 Page 1 of 1

Event Description: PZR Spray Valve PCV-455 fails to 70% open

Time	RO BOP SRO	Applicant's Actions or Behavior
		Determines PRZR Spray Valve RC Loop 1 is stuck open
		Directs Actions of ABN-705, Section 3.3
		Attempts to close Spray Valve PK-455B <i>(NOTE: will not close from control room)</i> <i>(NOTE: If operator perceives that pressure is decreasing in an uncontrolled manner, he will trip the RX rather than proceed with the following steps; if he trips the RX, then initiate Event 6)</i>
		Verifies load less than 40% per IPO-3A
		Ensures all PRZR heaters are on
		Directs I&C to de-energize Spray Valve PCV-455B by removing 1-PCY-0455B Driver Card
		<i>Note to Simulator Operator: After 1 minute, remove/pull PCV-455B Ctrl Drive Card and remove malfunction RX15A using remote function RXR96. Report back to control room that card has been removed.</i>
		Check PRZR pressure trending to normal
		Contact Plant Management and initiate repairs
		<b>Critical Task B&gt; Rx does not trip on low press</b>

**\*BOLD INDICATES CRITICAL STEP**



**Revision 2**

Op-Test No: <u>11/2002</u>	Scenario No: <u>3</u>	Event No: <u>5</u>	Page <u>1</u> of <u>1</u>
Event Description: Main Condenser Air In-leakage			

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Determines Condenser Vacuum Lowering
				Directs Actions of ABN-304, Section 3.0
				Starts all available condenser vacuum pumps
				Notifies Shift Manager and Load Dispatcher of imminent load reduction
				Reduces turbine load as necessary per IPO-3A <i>(NOTE: an aggressive load reduction at this low power may cause fluctuations in turbine control which may lead operator to trip the turbine; if they trip the turbine, then initiate Event 6)</i>
				Notifies Chemistry of excessive air in-leakage
				Dispatches personnel to check for leaks
				<i>Note to Simulator Operator: 2 minutes after being dispatched as PEO to check for leakage paths, remove Malf FW16 and report back that Amain condenser vacuum breaker loop seal was empty and has been refilled@</i>
				Stop unnecessary CEVs per SOP-309
				<b>Critical Task - Turbine/Rx trip does not occur as a result of the low condenser vacuum fault.</b>

**\*BOLD INDICATES CRITICAL STEP**



**Revision 2**

Op-Test No: <u>11/2002</u>	Scenario No: <u>3</u>	Event No: <u>6</u>	Page <u>1</u> of <u>2</u>
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Event Description: Turbine Spurious trip, MSIV #1 closure, Stm Line Safety Valve 1MS-0021 fails open

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Determines #1 MSIV closed and STM Safety is failed open MSIV 1 NOT OPEN alarm (7A-1.12)
				Refers to ALM-0071A (step 1.A directs RX trip)
				<b>Trips the reactor</b>
				Directs and implements EOP-0.0
				Verifies Rx trip and bypass brks open, all rod bottom lights on, neutron flux decreasing, and turbine tripped
				Verifies power to AC SFGD buses
				Verifies SI actuated or is required
				Determines SG1 is FAULTED and transitions to EOP-2.0
				Directs and Implements EOP-2.0
				Closes all MSIV-s and checks bypasses closed
				Isolates #1 S/G including #1 MSL supply to TDAFWP
				Checks for SGTR by verifying Secondary Rad levels -- normal

**\*BOLD INDICATES CRITICAL STEP**

**Revision 2**

Op-Test No: 11/2002

Scenario No: 3

Event No: 6

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Event Description: Turbine Spurious trip, MSIV #1 closure, Stm Line Safety Valve 1MS-0021 fails open

Time	RO	BOP	SRO	Applicant's Actions or Behavior
				Transitions to EOP-1.0
				Directs and Implements EOP-1.0
				Check if RCPs should be stopped
				Check for faulted S/Gs
				Check intact S/G levels and Secondary Rad levels
				Transition to EOS-1.1
				<i>Terminate scenario when Crew transitions to EOS-1.1 or at the discretion of the Chief Examiner</i>

**\*BOLD INDICATES CRITICAL STEP**