

Facility: Turkey Point Nuclear (PTN) – Units 3 and 4		Scenario No.: 1		Op Test No.: 2016-301	
Examiners: _____		Operators: _____		(SRO)	
_____		_____		(RCO)	
_____		_____		(BOP)	
Initial Conditions:		The plant is at 75% power (MOL). Online risk is green. B train is protected on both units.			
Turnover:		The 3A RHR pump and 3A1 Circulating Water pump are OOS.			
Event	Malf. No.	Event Type*	Event Description		
1	TFH1TU59	I-RCO I-SRO (TS)	LT-3-459, PZR Level Transmitter, Fails High		
2	TAKPXA2 TAKPXB1 TAKPXB2	R-RCO R-SRO N-BOP	3A2 Intake Screen Blockage (Load reduction required)		
3	TVS1MWED	I-BOP I-SRO (TS)	FT-3-474, 3A S/G Steam Flow Transmitter, Drifts High		
4	TFH1TV44	I-RCO I-SRO	PT-3-444, PZR Pressure Transmitter, Fails Low		
5	TFFVP6A	C-BOP C-SRO	3A Condensate Pump Sheared Shaft		
6	TVHHCLB	M-RCO M-BOP M-SRO	Large Break LOCA		
7	TFQ6A2BF	P-RCO	3B RHR Pump Fails To Auto Start		
8	TFCVVS05 TFCVOSV6	P-BOP	CV-3-2826/2819, Containment Isolation IA Bleed Valves, Fail To Auto Close		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (P)ost Trip					

Scenario Summary**Event 1**

Shortly after taking the watch, LT-3-459, PZR Level Control Transmitter, fails high causing charging flow to reduce to the minimum and Pressurizer level to start trending down. The US will enter 3-ONOP-041.6, Pressurizer Level Control Malfunction, and direct the RCO to place Pressurizer Level Control Transfer Switch to position 3, CH.2&3. Once Pressurizer level is stabilized the US will enter 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels. The RCO will verify the Pressurizer Level Control Transfer Switch has been switched to position 3 and Pressurize level control is in automatic.

Event 2

After the US evaluates Tech Specs for LT-3-459, the Intake Screen differential level will start rising on all running Circulating Water Pumps. The US will enter 3-ONOP-011, Screen Wash System/Intake Malfunction. The screen differential level on the 3A2 screen will require the 3A2 Circulating Water Pump be secured. Prior to securing the 3A2 CWP Circulating Water Pump Reactor power must be reduced to less than 60%. The crew will reduce power to less than 60% using 3-GOP-100, Fast Load Reduction, and then secure the 3A2 Circulating Water Pump.

Event 3

After the crew stops the 3A2 Circulating Water Pump FT-3-474, 3A S/G Steam Flow Transmitter, will drift high. The BOP will take manual control of the 3A S/G level and restore the 3A S/G level to normal. The US will enter 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, direct the BOP to select an operable channel, and restore 3A S/G level control to automatic.

Event 4

Once the US completes the Tech Spec evaluation for FT-3-474, Pressurizer Pressure Control Transmitter PT-3-444 fails low. The PZR Sprays will close and all PZR Heaters will turn on causing Pressurizer pressure to rise. The US will enter 3-ONOP-041.5, PZR Press Control Malfunction. The RCO will take manual control of PC-3-444J, PZR Press Controller, and restore PZR pressure to normal.

Event 5

After the crew restores Pressurizer Pressure the crew will start the 3C Condensate pump and secure the 3A Condensate pump due to a sheared shaft on the 3A Condensate Pump.

Event 6

Once the crew completes swapping condensate pumps a Large Break LOCA will occur. The crew will manually trip the Reactor and enter 3-EOP-0, Reactor Trip Or Safety Injection. When RCP Trip Criteria are met the RCO will trip the RCPs.

Event 7

When SI actuates the 3B RHR pump fails to auto start. The RCO will start the 3B RHR pump following the Immediate Operator Actions of 3-EOP-E-0.

Event 8

When Phase A actuates, CV-3-2826 and CV-3-2819, IA Bleed Valves, fail to auto close. While performing 3-EOP-E-0 Attachment 3, Prompt Action Verifications the BOP manually closes CV-3-2826 however CV-3-2819 is failed open and will not close in auto or manual.

Scenario Summary

The crew will transition from 3-EOP-0 to 3-EOP-E-1, Loss of Reactor or Secondary Coolant. During or shortly after the transition to 3-EOP-E-1 the crew will be required to go to 3-EOP-FR-P.1, Response to Imminent Pressurized Thermal Shock Condition due to a RED path on the Integrity Status Tree. They will verify RHR flow greater than 1100 gpm, and then return to 3-EOP-E-1.

The scenario may be terminated after the crew transitions from 3-EOP-FR-P.1 to 3-EOP-1 at the Lead Evaluator's discretion once all Critical Tasks have been evaluated.

Event		<u>Critical Tasks</u>
6/8	CT1	<p><u>Start 3B RHR Pump</u></p> <p>During a Large Break LOCA start at least one RHR pump to provide core cooling to avoid transition to 3-EOP-ECA-1.1, Loss of Emergency Coolant Recirculation.</p> <p><i>Safety Significance</i> -- Failure to manually start at least one low-head ECCS pump prior to the transition to a contingency procedure constitutes misoperation or incorrect crew performance in which the crew does not prevent degraded emergency core cooling system capacity that may lead to or prolong core uncover.</p>
6/7	CT2	<p><u>Close CV-3-2826</u></p> <p>During a Large Break LOCA close containment isolation valves such that at least one valve is closed on each critical Phase A penetration before whichever of the following occurs first:</p> <ul style="list-style-type: none">• The completion of 3-EOP-0 Attachment 3.• Within 60 minutes of the Phase A actuation signal. <p><i>Safety Significance</i> -- Failure to perform the critical task leads to an unnecessary release of fission products to the auxiliary building, increasing the potential for release to the environment and reducing accessibility to vital equipment within the auxiliary building. High radiation in the auxiliary building can lead to increased doses to personnel.</p>

Site:	Turkey Point Units 3 and 4 (PTN)	
Title:	L-16-1 NRC EXAM SCENARIO 1	
LMS #:	NRC 21	
LMS Rev Date:	6/6/16	Rev #: 0
SEG Type:	<input type="checkbox"/> Training <input checked="" type="checkbox"/> Evaluation	
Program:	<input type="checkbox"/> LOCT <input checked="" type="checkbox"/> LOIT <input type="checkbox"/> Other	
Duration:	120 minutes	
Developed by:	Tim Hodge / Luis Sagion _____ Instructor/Developer	8/4/16 _____ Date
Reviewed by:	Brian Clark _____ <i>Instructor (Instructional Review)</i>	8/4/16 _____ Date
Validated by :	Sean Bloom _____ <i>SME (Technical Review)</i>	8/5/16 _____ Date
Approved by:	Mark Wilson _____ <i>Training Supervision</i>	8/5/16 _____ Date
Approved by:	Sean Bloom _____ <i>Training Program Owner (Line)</i>	8/5/16 _____ Date

SCENARIO REFERENCES

DOC NO.	TITLE	REV
	PTN TECHNICAL SPECIFICATIONS	300
3-EOP-E-0	REACTOR TRIP OR SAFETY INJECTION	12
3-EOP-E-1	LOSS OF REACTOR OR SECONDARY COOLANT	8A
3-EOP-FR-P.1	RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION	3
3-GOP-100	FAST LOAD REDUCTION	12A
3-ONOP-011	SCREEN WASH SYSTEM/INTAKE MALFUNCTION	7
3-ONOP-041.5	PRESSURIZER PRESSURE CONTROL MALFUNCTION	1
3-ONOP-041.6	PRESSURIZER LEVEL CONTROL MALFUNCTION	2
3-ONOP-049.1	DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION CHANNEL	4

SIMULATOR EXERCISE GUIDE REQUIREMENTS

Terminal Objective	Given this simulator scenario and resources normally found in the Control Room, the operating crew will perform Control Room operations IAW approved plant procedures in order to maintain the integrity of the plant and the health and safety of the public.
Enabling Objectives:	<p>Given this simulator scenario and resources normally found in the Control Room, operate in accordance with approved plant procedures, Operations Department Instructions, and management expectations:</p> <ol style="list-style-type: none"> 1. (ALL) Demonstrate personnel SAFETY awareness in interactions with plant staff and outside agencies. 2. (ALL) Demonstrate ALARA awareness in interactions with plant staff and outside agencies. 3. (ALL) Exchange correct information using 3-point communication/Repeat-backs with Control Room personnel and other plant staff. 4. (ALL) Inform plant personnel and System of plant conditions, as needed. 5. (US) Employ timely and concise crew briefs where appropriate. 6. (ALL) Maintain awareness of plant status and control board indication. 7. (ALL) Correctly diagnose plant situations. 8. (ALL) Solve operational problems as they arise. 9. (RCO/BOP) Manipulate plant controls properly and safely. 10. (ALL) Demonstrate self-checking using STAR and peer checks(when required) 11. (US) Demonstrate command and control of the crew. 12. (US) Coordinate the input of crew members and other plant staff. 13. (US) Utilize the input of crew members and other plant staff. 14. (ALL) Demonstrate conservative decision making. 15. (ALL) Demonstrate teamwork. 16. (ALL) Respond to plant events using procedural guidance (OPs/ONOPs/EOPs) as applicable in accordance with rules of usage. 17. (RCO/BOP) Implement any applicable procedural immediate operator actions without use of references. 18. (SRO) Maintain compliance with Tech Specs. 19. (ALL) Identify/enter applicable Tech Spec action statements. 20. (ALL) Respond to annunciators using ARPs (time permitting). 21. (ALL) Maintain written communication, logs, and documentation as needed to permit post-event reconstruction. <p>Continued on the next page:</p>

SIMULATOR EXERCISE GUIDE REQUIREMENTS

	<p>While addressing the following events:</p> <ol style="list-style-type: none"> 1. LT-3-459, PZR Level Transmitter, Fails High 2. 3A2 Intake Screen Blockage (Load reduction required) 3. FT-3-474, 3A S/G Steam Flow Transmitter, Drifts High 4. PT-3-444, PZR Pressure Transmitter, Fails Low 5. 3A Condensate Pump Sheared Shaft 6. Large Break LOCA 7. 3B RHR Pump Fails To Auto Start 8. CV-3-2826/19, Containment Isolation IA Bleed Valves, Fail To Auto Close
Prerequisites:	None
Training Resources:	PTN Unit 3 Plant Simulator
Development References:	<ul style="list-style-type: none"> • TR-AA-220-1003, Initial NRC and Audit Exam Process • TR-AA-230-1003, SAT Development • TR-AA-230-1007, Conduct of Simulator Training and Evaluation • 0-ADM-232, Time Critical Action Program • OP-AA-100-1000, Conduct Of Operations • OP-AA-103-1000, Reactivity Management • 0-ADM-200, Operations Management Manual • 0-ADM-211, Emergency and Off-Normal Operating Procedure Usage • WCAP-17711-NP, Pressurized Water Reactor Owners Group Westinghouse Emergency Response Guideline Revision 2-Based Critical Tasks
Protected Content:	N/A
Evaluation Method:	Performance Mode
Operating Experience:	None
Risk Significant Operator Actions:	

TASKS ASSOCIATED WITH SIMULATOR EXERCISE GUIDE

SRO TASK #	TASK TITLE
02009002300	INVESTIGATE SCREEN D/P ALARM
02028033500	AUTHORIZE UNIT TRIP
02041057300	RESPOND TO PRESSURIZER LEVEL CONTROL CHANNEL MALFUNCTION
02063008500	VERIFY SI OPERATION
02073030300	INVESTIGATE CONDENSATE SYSTEM ALARMS
02089026300	AUTHORIZE FAST LOAD REDUCTION
02200021500	RESPOND TO A LOSS OF COOLANT ACCIDENT
02200044500	RESPOND TO STEAM GENERATOR HIGH LEVEL

RO TASK	TASK TITLE
01009002300	INVESTIGATE SCREEN D/P ALARM
01010005100	SHUTDOWN CIRCULATING WATER PUMPS
01028015100	ADJUST POWER LEVEL
01041027100	ADJUST PRESSURIZER PRESSURE MANUALLY USING THE MASTER CONTROLLER (444J)
01041057300	RESPOND TO PRESSURIZER LEVEL CONTROL CHANNEL MALFUNCTION
01046007100	BORATE THE RCS VIA THE BLENDER
01063008500	VERIFY SAFETY INJECTION OPERATION
01073030300	INVESTIGATE CONDENSATE SYSTEM ALARMS
01074011300	CONTROL STEAM GENERATOR LEVEL MANUALLY WITH MAIN FEED REGULATING VALVES
01089026300	RESPOND TO/ADJUST TURBINE DURING FAST LOAD REDUCTION
01200001500	RESPOND TO UNIT TRIP
01200021500	RESPOND TO A LOSS OF COOLANT ACCIDENT
01200044500	RESPOND TO STEAM GENERATOR HIGH LEVEL

UPDATE LOG:

NOTES:

Place this form with the working copies of lesson plans and/or other materials to document changes made between formal revisions. For fleet-wide training materials, keep electronic file of this form in same folder as approved materials. Refer to TR-AA-230-1003 SAT Development for specific directions regarding how and when this form shall be used.

Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER	DATE
				REVIEWER	DATE
0-0	Initial Revision	Revised for L-16-1 NRC Exam	2108338	Note 5	Note 5
				Note 5	Note 5
0-1					
0-2					
0-3					
0-4					
0-5					

1. Individual updating lesson plan or training material shall complete the appropriate blocks on the Update Log.
2. Describe the change to the lesson plan or training materials.
3. State the reason for the change (e.g., reference has changed, typographical error, etc.)
4. Preparer enters name/date on the Update Log and obtains Training Supervisor approval.
5. Initial dates and site approval on cover page.

SCENARIO SUMMARY

Initial Conditions

The plant is at 75% power (MOL). Online risk is green. B train is protected on both units.

Equipment OOS

The 3A RHR pump and 3A1 Circulating Water pump are OOS.

Event 1

Shortly after taking the watch, LT-3-459, PZR Level Control Transmitter, fails high causing charging flow to reduce to the minimum and Pressurizer level to start trending down. The US will enter 3-ONOP-041.6, Pressurizer Level Control Malfunction, and direct the RCO to place Pressurizer Level Control Transfer Switch to position 3, CH.2&3. Once Pressurizer level is stabilized the US will enter 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels. The RCO will verify the Pressurizer Level Control Transfer Switch has been switched to position 3 and Pressurize level control is in automatic.

Event 2

After the US evaluates Tech Specs for LT-3-459, the Intake Screen differential level will start rising on all running Circulating Water Pumps. The US will enter 3-ONOP-011, Screen Wash System/Intake Malfunction. The screen differential level on the 3A2 screen will require the 3A2 Circulating Water Pump be secured. Prior to securing the 3A2 CWP Circulating Water Pump, Reactor power must be reduced to less than 60%. The crew will reduce power to less than 60% using 3-GOP-100, Fast Load Reduction, and then secure the 3A2 Circulating Water Pump.

Event 3

After the crew stops the 3A2 Circulating Water Pump, FT-3-474, 3A S/G Steam Flow Transmitter, will drift high. The BOP will take manual control of the 3A S/G level and restore the 3A S/G level to normal. The US will enter 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, direct the BOP to select an operable channel, and restore 3A S/G level control to automatic.

Event 4

Once the US completes the Tech Spec evaluation for FT-3-474, Pressurizer Pressure Control Transmitter, PT-3-444 fails low. The PZR Sprays will close and all PZR Heaters will turn on causing Pressurizer pressure to rise. The US will enter 3-ONOP-041.5, PZR Press Control Malfunction. The RCO will take manual control of PC-3-444J, PZR Press Controller, and restore PZR pressure to normal.

Event 5

After the crew restores Pressurizer Pressure, the crew will start the 3C Condensate pump and secure the 3A Condensate pump due to a sheared shaft on the 3A Condensate Pump.

Event 6

Once the crew completes swapping condensate pumps, a Large Break LOCA will occur. The crew will manually trip the Reactor and enter 3-EOP-E-0, Reactor Trip Or Safety Injection. When RCP Trip Criteria are met, the RCO will trip the RCPs.

SCENARIO SUMMARY

Event 7

When SI actuates, the 3B RHR pump fails to auto start. The RCO will start the 3B RHR pump following the Immediate Operator Actions of 3-EOP-E-0.

Event 8

When Phase A actuates, CV-3-2826 and CV-3-2819, IA Bleed Valves, fail to auto close. While performing 3-EOP-E-0 Attachment 3, Prompt Action Verifications the BOP manually closes CV-3-2826 however 3-CV-3-2819 is failed open and will not close in auto or manual.

The crew will transition from 3-EOP-E-0 to 3-EOP-E-1, Loss of Reactor or Secondary Coolant. During or shortly after the transition to 3-EOP-E-1, the crew will be required to go to 3-EOP-FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, due to a RED path on the Integrity Status Tree. They will verify RHR flow greater than 1100 gpm, and then return to 3-EOP-E-1.

The scenario may be terminated after the crew transitions from 3-EOP-FR-P.1 to 3-EOP-E-1, or at the Lead Evaluator's discretion once all Critical Tasks have been evaluated.

CRITICAL TASKS		
Event #		Description
6/7	CT1	<p><u>Start 3B RHR Pump</u></p> <p>During a Large Break LOCA start at least one RHR pump to provide core cooling to avoid transition to 3-EOP-ECA-1.1, Loss of Emergency Coolant Recirculation.</p> <p><i>Safety Significance</i> -- Failure to manually start at least one low-head ECCS pump prior to the transition to a contingency procedure constitutes misoperation or incorrect crew performance in which the crew does not prevent degraded emergency core cooling system capacity that may lead to or prolong core uncover.</p>
6/8	CT2	<p><u>Close CV-3-2826</u></p> <p>During a Large Break LOCA close containment isolation valves such that at least one valve is closed on each critical Phase A penetration before whichever of the following occurs first:</p> <ul style="list-style-type: none"> • The completion of 3-EOP-0 Attachment 3. • Within 60 minutes of the Phase A actuation signal. <p><i>Safety Significance</i> -- Failure to perform the critical task leads to an unnecessary release of fission products to the auxiliary building, increasing the potential for release to the environment and reducing accessibility to vital equipment within the auxiliary building. High radiation in the auxiliary building can lead to increased doses to personnel.</p>

SEQUENCE OF EVENTS

EVENT #	DESCRIPTION
1.	LT-3-459, PZR Level Transmitter, Fails High
2.	3A2 Intake Screen Blockage (Load reduction required)
3.	FT-3-474, 3A S/G Steam Flow Transmitter, Drifts High
4.	PT-3-444, PZR Pressure Transmitter, Fails Low
5.	3A Condensate Pump Sheared Shaft
6.	Large Break LOCA
7.	3B RHR Pump Fails To Auto Start
8.	CV-3-2826, Containment Isolation IA Bleed Valves, Fail To Auto Close CV-3-2819, Containment Isolation IA Bleed Valves, Fail Open

SIMULATOR SET UP INSTRUCTIONS

Check	Action
_____	Restore IC-16 (75% MOL) or equivalent IC.
_____	Unfreeze the Simulator.
_____	Stop the 3A1 Circ Water Pump
_____	Open & execute lesson file L-16-1 N1.lsn
_____	Ensure the following lesson steps are triggered: <ul style="list-style-type: none"> • SETUP - 3A RHR PUMP OOS • SETUP - 3A1 CWP OOS • EVENT 7 SETUP - 3B RHR PUMP FAILS TO AUTO START • EVENT 8 SETUP - 1A BLEED VLVS FAIL TO CLOSE
_____	Place 3A RHR pump in PTL and hang ECO tag.
_____	Place 3A1 CWP in stop and hang ECO tag.
_____	Verify the trend for 3A1 Screen on the TWS DP Recorder is clear.
_____	Ensure Rod Group Step Counters have completed stepping out.
_____	Allow the plant to stabilize.
_____	Acknowledge any alarms and freeze Simulator.
_____	Ensure B train is protected train on VPA.
_____	Perform the SIMULATOR OPERATOR CHECKLIST or equivalent.
_____	Place TURNOVER SHEETS on RO's desk or give to the Lead Evaluator.

BRIEFINGS

- Shift turnover information is attached to the back of this guide.
- Ensure all applicants are prior briefed on Appendix E of NUREG 1021, Policies and Guidelines For Taking NRC Examinations.
- Conduct a Crew Pre-brief to cover turnover information. Shift turnover information is attached to the back of this guide.

US: _____

RCO: _____

BOP: _____

SCENARIO NOTE

0-ADM-211, Emergency and Off-Normal Operating Procedure Usage, Prudent Operator Actions. If redundant stand-by equipment is available and ready, the operator is permitted to start the redundant equipment for failed or failing operating equipment. Immediate follow up of applicable ARPs and ONOPs (AOPs) shall occur as required.

Critical Tasks are highlighted in pink.

Simulator Operator Actions are highlighted in blue.

Operator Verifiable Actions are Highlighted in green

EVENT 1 - LT-3-459, PZR LEVEL TRANSMITTER, FAILS HIGH

3-ONOP-041.6, PRESSURIZER LEVEL CONTROL MALFUNCTION.

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>NOTE</u></p> <p>Ensure the Simulator is in RUN before the crew enters the Simulator.</p>	
		<p>US: Conducts shift turnover.</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When directed by the Lead evaluator trigger EVENT 1 - LT-3-459 FAILS HIGH</p>	<p>RCO: Observes LT-3-459 failed high</p>
		<p>BOP:</p> <ul style="list-style-type: none"> Acknowledges A8/3, A9/3, G1/1 A5/4 may alarm shortly after Reviews ARP and recommends entry into 3-ONOP-041.6, Pressurizer Level Control Malfunction.
		<p>US: Directs 3-ONOP-041.6 response.</p>

PROCEDURE NOTES

- If Pressurizer Level Malfunction is a result of a failure of the 3-459CX or 3-460CX relays (as indicated by a loss of letdown flow with a loss of Pressurizer Heaters with no concurrent failure of Level Transmitters 3-459A, 3-460, 3-461), use 3-ONOP-003.6 Attachment 4, for 3-460CX failure, OR 3-ONOP-003.9 Attachment 4, for 3-459CX failure as guidance for establishing Letdown flow and Pressurizer Heaters.
- If the button on relays 3-459CX or 3-460CX are used to restore Letdown flow and Pressurizer Heaters, comply with Tech Spec Action Statement 3.4.3 Action b.
- If the manual control of Heaters from the Electrical Penetration Room is used, comply with Tech Spec Action Statement 3.4.3 Action a.

EVENT 1 - LT-3-459, PZR LEVEL TRANSMITTER, FAILS HIGH

3-ONOP-041.6, PRESSURIZER LEVEL CONTROL MALFUNCTION.

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>LEAD EVALUATOR</u></p> <p>The 3A2 INTAKE SCREEN BLOCKAGE failure in Event 2 may go undetected for up to 15 minutes. After the crew enters 3-ONOP-041.6, direct the Booth Operator to trigger Event 2 at your discretion.</p>	<p>RCO:</p> <ul style="list-style-type: none"> • Check Pressurizer level indicators LI-3-459A, LI-3-460 AND LI-3-461 • Selects ch 2 & 3 PZR level control (Position 3) • Maintains PZR level on program per 3-ONOP-041.6, Enclosure 1 • May place Master Charging Pump Controller, LC-3-459G in manual • May Start or Stop one charging pump as required. • Place LR-3-459 Channel Select Pressurizer Level Recorder to position 2 or 3. <p style="text-align: right;">Steps 5.1 - 5.4</p>
		<p>US:</p> <p>Marks Steps 5.5 – 5.7 N/A</p>
		<p>RCO:</p> <p>WHEN desired place LC-3-459G in Automatic</p> <p style="text-align: right;">Step 5.8</p>
		<p>US:</p> <p>Perform actions required by 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels.</p> <p style="text-align: right;">Step 5.9</p>

EVENT 1 - LT-3-459, PZR LEVEL TRANSMITTER, FAILS HIGH

3-ONOP-049.1, DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION CHANNELS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>US:</p> <p>Enters and directs actions of 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, for response</p>
		<p>RCO:</p> <ul style="list-style-type: none"> • Verify LT-459 failure by comparison LT-3-460/461 and known plant parameters and conditions • Verify no off-normal conditions exist on LT-3-460/461 • Verify ch 2 & 3 PZR level control in (Position 3) • Verify LR-3-459 Channel Selected to Pressurizer Level Recorder to position 2 or 3 • Verify PZR level control function is returned to automatic. <p style="text-align: right;">Steps 5.1 – 5.5</p>
		<p>US</p> <p>Reviews TECH Specs</p> <ul style="list-style-type: none"> • Tech Spec 3.3-1 Functional Unit 9 not met. <ul style="list-style-type: none"> – Action 13, inoperable channel must be placed in the tripped condition within 6 hours.
		<p>US:</p> <p>Marks steps 5.7 – 5.11 N/A.</p>
		<p>US:</p> <p>Identify Bistables which need to be tripped.</p> <p style="text-align: right;">Step 5.12</p>
		<p>US:</p> <p>Marks steps 5.13 – 5.16 N/A.</p>

EVENT 1 - LT-3-459, PZR LEVEL TRANSMITTER, FAILS HIGH

3-ONOP-049.1, DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION CHANNELS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>WCC/I&C: Acknowledge the report. If asked I&C would like to be present when bi-stables are tripped. They will be in the control room in about 1 hour.</p>	<p>US:</p> <p>Initiate a Plant Work Order AND notify the I&C Supervisor.</p> <p>Step 5.17</p>
		<p>US:</p> <ul style="list-style-type: none"> • Conducts crew brief.

EVENT 2 - 3A2 INTAKE SCREEN BLOCKAGE		
3-ONOP-011, SCREEN WASH SYSTEM/INTAKE MALFUNCTION		
TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When directed by the Lead evaluator trigger EVENT 2 - INTAKE SCREEN BLOCKAGE</p>	
	<p style="text-align: center;"><u>NOTE</u></p> <p>The crew may enter 3-ONOP-011 prior to receiving the alarm.</p> <p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>If asked to rake the grizzly screen, report the rake is stuck. Maintenance support has been requested.</p> <p style="text-align: center;"><u>NOTE</u></p> <p>The crew may swap ICW pumps.</p>	<p>BOP:</p> <ul style="list-style-type: none"> Addresses Alarm Response for I3/3 CHECKs Intake Well DPs greater than 25" water on recorder R-3-2300 at VPA(3C04). Dispatches an Operator to check the following: <ul style="list-style-type: none"> Traveling Screens with HI DP are running in FAST. Operating Traveling Screens Spray Wash is maintaining the screen clear of debris. Recommends entering 3-ONOP-011, Screen Wash System / Intake Malfunction.
		<p>US:</p> <p>Enters and directs the actions of 3-ONOP-011.</p>
		<p>US:</p> <p>Reviews Foldout page with the crew.</p> <ul style="list-style-type: none"> Circulating Water Pump Stopping Criteria Fast Load Reduction Criteria Reactor Trip Criteria Loss of Intake Cooling Water Plant Management Notification Shift Manager Evaluation of Intake Screen Effectiveness Amertap Screen Debris Monitoring <p style="text-align: right;">Foldout Page</p>

EVENT 2 - 3A2 INTAKE SCREEN BLOCKAGE

3-ONOP-011, SCREEN WASH SYSTEM/INTAKE MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
<p style="text-align: center;"><u>PROCEDURE NOTE</u></p> <p><i>To rotate a Traveling Screen manually, a 10mm wrench is required to remove the motor cover to allow access to the drive crank. When the motor cover is removed, a micro switch will de-energize 480V power from the Screen and actuate I-3/4, TRAVELING SCREEN GENERAL TROUBLE.</i></p>		
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When dispatched to locally start traveling screens, wait 2 minutes and then trigger EVENT 2 LOA - START ALL PUMPS AND ALL SCREENS IN FAST</p> <p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When the screens start, verify EVENT 2 - REDUCE SCREEN BLOCKAGE triggers.</p> <p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>If asked all traveling screen equipment is operating normally.</p>	<p>BOP:</p> <p>Direct ANPO to:</p> <ul style="list-style-type: none"> • Check Traveling Screens Operating Properly • Check Traveling Screen Spray Wash Pumps Operating Properly <p style="text-align: right;">Steps 1 & 2</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When dispatched to locally check ICW to CCW and TPCW heat Exchanger or strainers, wait 1-3 min, report all ICW/CCW ICW / TPCW Strainers < 1 ΔP. If a specific value is requested use simulator drawings COMMON SERVICES/INTAKE COOLING and COMMON SERVICES/TURBINE PLANT COOLING to report actual values.</p>	<p>BOP:</p> <p>Directs SNPO:</p> <ul style="list-style-type: none"> • Maintain Intake Cooling Water Flow To Component Cooling Water Heat Exchangers. • Maintain Intake Cooling Water To The Turbine Plant Cooling Water Heat Exchangers <p style="text-align: right;">Steps 3 & 4</p>

EVENT 2 - 3A2 INTAKE SCREEN BLOCKAGE

3-ONOP-011, SCREEN WASH SYSTEM/INTAKE MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When I3/3, Traveling Screen High ΔP alarms, verify EVENT 2 - STABILIZE SCREEN BLOCKAGE triggers</p> <p>Monitor screen Δ level on the TWS DP recorder. If needed use the active malfunction summary page to adjust TAKPXA2 to maintain screen Δ level less than 30 inches.</p>	<p>BOP: Check If Conditions Returned To Normal. (NO, Go to Step 7)</p> <p style="text-align: right;">Step 5</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>Acknowledge request for additional support.</p>	<p>BOP:</p> <ul style="list-style-type: none"> Contact WCC and Maintenance for additional support.
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>If asked to locally check level drop behind Traveling Screens, use the Simulator Panel drawings to report the same level displayed on the control room chart recorders.</p> <p style="text-align: center;"><u>LEAD EVALUATOR</u></p> <p>After the crew evaluates step 7 have the Booth Operator call the Unit Supervisor as the Shift Manager and direct the US to reduce power to less than 60% per 3-GOP-100, Fast Load Reduction to secure the 3A2 Circulating Water Pump.</p>	<p>BOP: Check If One Circulating Water Pump Should Be Stopped.</p> <ul style="list-style-type: none"> Locally check that level drop behind Traveling Screens is greater than 3 feet. (NO) OR VPA ΔP greater than 36 inches. (No) <p style="text-align: center;">Return to step 1</p> <p style="text-align: right;">Step 7</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>Acknowledge notifications</p> <p>If Chemistry is asked, request the crew maintain current blowdown flow.</p>	<p>US: Notify Plant Management.</p>

EVENT 2 - 3A2 INTAKE SCREEN BLOCKAGE

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		US: <ul style="list-style-type: none"> • Directs actions to reduce Rx power from 50% per 3-GOP-100. • Completes Attachment 3 (Page 44) • Brief the crew per Attachment 4 (Page 45) <p style="text-align: right;">Steps 1-2</p>
		US: <p>Reviews Foldout page with crew.</p> <ul style="list-style-type: none"> • 3-EOP-E-0 Transition Criteria • Notify Chemistry Department • Boration Stop Criteria • Restore Blender to AUTO <p style="text-align: right;">FOLDOUT PAGE</p>
	<p><u>BOOTH OPERATOR</u></p> <p>Acknowledge notifications.</p>	BOP: <p>Notify The Following Of Fast Load Reduction</p> <ul style="list-style-type: none"> • System Dispatcher • Plant personnel using the Page Boost • Chemistry to start RCS sampling is required according to Tech Spec Table 4.4-4. <p style="text-align: right;">Step 3</p>

EVENT 2 - 3A2 INTAKE SCREEN BLOCKAGE

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>RCO: Begin Boration For Initial Tavg Effect</p> <ul style="list-style-type: none"> Set the Boric Acid Totalizer to total boric acid volume value determined on Attachment 3 (~250 gallons). Place the Reactor Makeup Selector Switch to BORATE. Place the RCS Makeup Control Switch to START. Adjust FC-3-113A, Boric Acid Flow Controller to achieve 40 gpm boric acid flow as indicated on FR-3-113. WHEN Tavg begins to lower from the boration, THEN, adjust FC-3-113A, Boric Acid Flow Controller to load reduction value from Attachment 3. <p style="text-align: right;">Step 4</p>
		<p>US: Determine Turbine Load Reduction in MW CNTRL</p> <p style="text-align: right;">Step 5</p>
		<p>BOP: Initiate Turbine Load Reduction in MW CNTRL</p> <ul style="list-style-type: none"> Select MW CNTRL Set TARGET power level – MW VALUE from Attachment 3 Set RAMP RATE – MW/M VALUE FROM Attachment 3. Check T_{avg} has lowered 1° to 2°F from the initial value prior to boration. Depress GO Ensure FC-3-113A, Boric Acid Flow Controller, has been adjusted to the load reduction boration rate. <p>Go to Step 10</p> <p style="text-align: right;">Step 6</p>

EVENT 2 - 3A2 INTAKE SCREEN BLOCKAGE

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>BOP:</p> <p>Monitor Load Reduction</p> <ul style="list-style-type: none"> Adjusts power reduction rate to maintain T_{avg}/T_{ref} within limits of Attachment 3. Monitors S/G level control to ensure feed reg valves properly maintain level control in automatic. Refer to Enclosure 1 for expected alarms. (Page 46) <p style="text-align: right;">Step 10</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>Respond as SNPO. If asked, idle Charging Pump ready for start.</p>	<p>RCO:</p> <ul style="list-style-type: none"> Maintain pressurizer level to ensure that automatic pressurizer level control maintains level on program. If needed starts 2nd Chg Pp and places 2nd orifice in service. Adjusts boration rate to maintain T_{avg}/T_{ref} within limits of Attachment 3. Refer to Enclosure 1 for expected alarms. <p style="text-align: right;">Step 10</p>
		<p>RCO:</p> <p>Monitor Boration Rate</p> <ul style="list-style-type: none"> Monitor for excessive rod movement by monitoring TR-3-409D, Rod Position Bank D. Determine if Insertion Limit and Bank D position are converging at a rate that will cause rod insertion limit alarms. Adjust power reduction rate as needed to control rod insertion Increase boration rate and/or total amount as necessary to limit control rod insertion <p style="text-align: right;">Step 11</p>

EVENT 2 - 3A2 INTAKE SCREEN BLOCKAGE

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: <ul style="list-style-type: none"> Monitor Annunciator B 8/1, ROD A/B/C/D BANK LO LIMIT – CLEAR Monitor B 8/2 ROD BANK A/B/C/D EXTRA LO LIMIT – CLEAR <p style="text-align: right;">Steps 12-13</p>
		US: <p>Have SM refer to the following procedures:</p> <ul style="list-style-type: none"> 0-EPIP-20101, DUTIES OF EMERGENCY COORDINATOR 0-ADM-115, NOTIFICATION OF PLANT EVENTS <p style="text-align: right;">Step 14</p>
<p style="text-align: center;"><u>PROCEDURE NOTE</u></p> <p><i>Axial flux difference is allowed to exceed the Target Band during the load reduction without entering 3-ONOP-059.4, AXIAL FLUX DIFFERENCE.</i></p>		
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>Acknowledge notifications</p> <p>If Chemistry is asked, request the crew maintain current blowdown flow.</p>	RCO: <p>Energize Pressurizer Backup Heaters</p> <p style="text-align: right;">Step 15</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When directed to close 3-30-002 and 3-30-004 per step 4 of 3-NOP-010, wait 1 – 2 minutes, then trigger LOA - CLOSE 3-30-002 AND 3-30-004.</p> <p>Report when complete.</p> <p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When dispatched to monitor the 3A2 CWP discharge MOV, report it fully closed after the pump stopped. All checks are SAT.</p>	BOP: <p>When power is reduce to <60%, stops the 3A2 CWP In Accordance With 3-NOP-010, Circulating Water System.</p>
		BOP: <p>Verify Turbine Load is Less Than 675 MWE.</p> <p style="text-align: right;">Step 16</p>

EVENT 2 - 3A2 INTAKE SCREEN BLOCKAGE

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
<p style="text-align: center;"><u>PROCEDURE CAUTIONS</u></p> <ul style="list-style-type: none"> <i>If Medium Runback Armed is ACTIVE and one of three operating Condensate Pumps is shutdown, a Turbine Runback will result.</i> <i>Medium Runback Armed should be NOT ACTIVE below TIP pressure of approximately 574 psig.</i> 		
		<p>BOP:</p> <p>Check Condensate Pump Operation</p> <ol style="list-style-type: none"> Check three condensate pumps running Verify Medium Runback Armed NOT active Stop one condensate pump <p style="text-align: right;">Step 17</p>
		<p>US:</p> <p>Check Desired Final Power Target – LESS THAN 475 MWE</p> <p style="text-align: right;">Step 18</p>
	<p style="text-align: center;"><u>LEAD EVALUATOR</u></p> <p>Once power the 3A2 CWP is shutdown, or at the Lead Evaluators discretion, proceed to the next event.</p>	

EVENT 3 – FT-3-474, 3A S/G STEAM FLOW TRANSMITTER, DRIFTS HIGH

3-ONOP-049.1, DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION CHANNELS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p align="center"><u>BOOTH OPERATOR</u></p> <p>When directed by the lead evaluator, trigger EVENT 3 - FT-3-474 DRIFTS HIGH</p>	<p>BOP:</p> <p>Recognizes and reports FT-3-474 is failing high.</p> <ul style="list-style-type: none"> Takes manual control of 3A S/G level control valve FCV-3-478. Restores 3A S/G level to normal.
	<p align="center"><u>NOTE</u></p> <p>The crew may use direction in the ARP to select alternate input signals and return 3A S/G level control to automatic before enter 3-ONOP-049.1.</p>	<p>RCO:</p> <p>Addresses Alarm Response for C4/1, C5/1, C6/1 and C7/1.</p> <ul style="list-style-type: none"> Ensures BOP takes Prompt Actions <ul style="list-style-type: none"> Take manual control of level. Return SG levels to normal. Checks if alarm is due to instrument failure, then refers to 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels.
		<p>US:</p> <p>Enters and directs actions of 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, for response</p>
	<p align="center"><u>BOOTH OPERATOR</u></p> <p>If dispatched to reset AMSAC, wait 3 to 5 minutes and then trigger EVENT 3 LOA - RESET AMSAC. Report when complete.</p>	<p>BOP:</p> <ul style="list-style-type: none"> Verify FT-3-474 failure by comparison to FT-3-475 and known plant parameters and conditions. Verify no off-normal conditions exist on FT-3-475 Place 3A S/G Steam Flow Control transfer switch to FT-3-475. (Ch IV-Yellow) Place 3A S/G Feed Water Flow Control transfer switch to FT-3-476. (Ch IV-Yellow) When 3A S/G level is returned to normal place FCV-3-478 level control valve in auto. <p align="right">Steps 5.1- 5.5</p>

EVENT 3 – FT-3-474, 3A S/G STEAM FLOW TRANSMITTER, DRIFTS HIGH

3-ONOP-049.1, DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION CHANNELS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>Acknowledge notifications and request for additional support. If asked, I&C would like to be resent when the bi-stables are tripped. They will be in the control room as soon as their work package is ready, about an hour.</p>	<p>US</p> <p>Reviews Tech Specs</p> <ul style="list-style-type: none"> • Tech Spec 3.3-1 Functional Unit 12 not met. <ul style="list-style-type: none"> – Action 6, inoperable channel must be placed in the tripped condition within 6 hours. • Tech Spec 3.3-2 Functional Unit 1f and 4d not met. <ul style="list-style-type: none"> – Action 15, inoperable channel must be placed in the tripped condition within 6 hours. <p style="text-align: right;">Step 5.6</p>
		<p>US:</p> <p>Marks steps 5.7 – 5.11 N/A.</p>
		<p>US:</p> <p>Identify Bistables which need to be tripped.</p> <p style="text-align: right;">Step 5.12</p>
		<p>US:</p> <p>Marks steps 5.13 – 5.16 N/A.</p>
		<p>US:</p> <p>Initiate a Plant Work Order AND notify the I&C Supervisor.</p> <p style="text-align: right;">Step 5.17</p>
	<p style="text-align: center;"><u>LEAD EVALUATOR</u></p> <p>After S/G level control is restored to auto and the Tech Spec review is complete, at the Lead Evaluators discretion, proceed to the next event.</p>	<p>US</p> <ul style="list-style-type: none"> • Conducts crew brief.

EVENT 4 – PT-3-444, PZR PRESSURE TRANSMITTER FAILS LOW

3-ONOP-041.5, PRESSURIZER PRESSURE CONTROL MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When directed by Lead Evaluator, trigger EVENT 4 - PT-3-444 FAILS LOW</p>	
		<p>RCO:</p> <p>Reports PZR pressure rising due to PI-3-444 failing low.</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>The RCO will most likely notice this failure before Alarm A9/2 comes in. The crew may use the ARP for guidance.</p>	<p>BOP:</p> <p>Reviews ARP for A9/2, PZR CONTROL HI/LO PRESS</p> <ul style="list-style-type: none"> Check PZR pressure less than 2235 psig (NO) Check PI-3-445/444, PZR pressure greater than 2300 psig or Less than 2185 psig. Refer to 3-ONOP-041.5, PZR Press Control Malfunction.
		<p>US:</p> <p>Directs the Action of 3-ONOP-041.5, Pressurizer Pressure Control Malfunction.</p>
		<p>US:</p> <p>Reviews the Foldout Page with the crew.</p> <ul style="list-style-type: none"> Failed Instrument Isolation 3-EOP-E-0 Transition Criteria PORV Isolation/Leaking PORV Identification Open/Leaking PZR Safety Valve Identification Spurious Actuation Of CV-3-311, Auxiliary Spray Valve

PROCEDURE CAUTION

The Master Controller should be operated carefully (Normal controller output for 2235 psig is 42.5 percent demand; 92 percent demand will open PCV-3-455C). If the following conditions are met, an excessive increase in controller output could cause Power Operated Relief Valve PCV-3-455C to open:

- PCV-3-455C hand switch in AUTO.*
- Pressurizer pressure is greater than or equal to 2000 psig, or OMS switch in LO Press Ops.*

EVENT 4 – PT-3-444, PZR PRESSURE TRANSMITTER FAILS LOW

3-ONOP-041.5, PRESSURIZER PRESSURE CONTROL MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: <ul style="list-style-type: none"> Check PT-3-444 - NOT FAILED (NO) <ul style="list-style-type: none"> Verify PCV-3-455C OR MOV-3-536 CLOSED. Take manual control of PC-3-444J, PZR PRESS CONTROL. Check PT-3-445 - NOT FAILED <p align="right">Step 1</p>
		RCO: <ul style="list-style-type: none"> Check PORVs Closed PZR pressure normal or trending to normal. Check PZR Safety Valves Closed Check PZR Pressure Stable Or Increasing Check Pressurizer Pressure Above Normal Value (NO – Go to Step 10) <p align="right">Step 2 - 6</p>
		RCO: Check Pressurizer Pressure Low Or Decreasing (NO- Go to Step 20) <p align="right">Step 10</p>
		RCO: Check RCS Pressure Stable <p align="right">Step 20</p>
	<p align="center"><u>BOOTH OPERATOR</u></p> <p>Acknowledge notifications and request for support.</p> <p align="center"><u>LEAD EVALUATOR</u></p> <p>After PZR Pressure is stable, then proceed with the next event.</p>	RCO: Check If Automatic Pressure Control Can Be Established (NO) <ul style="list-style-type: none"> Notify the Instrument and Controls Department. Continue efforts to establish Automatic Pressure Control. Return to Step 20 <p align="right">Step 21</p>

EVENT 5 – 3A CONDENSATE PUMP SHEARED SHAFT

3-NOP-073, CONDENSATE SYSTEM

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When directed by Lead Evaluator, trigger EVENT 5- 3A CONDENSATE PUMP SHEARED SHAFT.</p>	
		<p>RCO:</p> <p>Reviews Alarm G8/3, COND PUMP A LO FLOW</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>If dispatched to check the 3A Condensate pump, wait 2- 3 minutes and then report you see nothing wrong with the pump.</p>	<p>BOP:</p> <ul style="list-style-type: none"> • Check Condensate Pump flow indication on DCS. • Monitor feed pump suction pressure. • Report low amps on 3A Condensate pump and high amps on the 3B Condensate pump.
		<p>US:</p> <p>Direct BOP to start the 3C Condensate pump and Secure the 3A Condensate pump per 3-NOP-073.</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>If asked, the 3C Condensate Pump is ready for a start. After the pump is started, report a SAT start.</p>	<p>BOP:</p> <p>Dispatch an operator to verify the 3B Condensate pump is ready to start per 3-NOP-073.</p> <ul style="list-style-type: none"> • Start the 3C Condensate Pump. • Secure the 3A Condensate Pump.
	<p style="text-align: center;"><u>NOTE</u></p> <p>3A Condensate Pump has restart feature that may encourage the crew to have it racked out.</p>	
	<p style="text-align: center;"><u>LEAD EVALUATOR</u></p> <p>After the Condensate pumps are swapped, proceed to the next event.</p>	<p>US</p> <ul style="list-style-type: none"> • Notifies WCC to initiate PWO and I&C for troubleshooting. • Conducts crew brief.

EVENT 6 – LARGE BREAK LOCA

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When directed by the Lead Evaluator trigger EVENT 6 - LB LOCA</p>	
		<p>RCO:</p> <p>Responds to various alarms PZR LO Pressure and level Alarms A9/2, A9/3.</p> <ul style="list-style-type: none"> • Reports lowering Pressurizer and pressure and level. • Maximizes Charging • Isolates Letdown • When PZR cannot be maintained recommends a Reactor trip.
	<p style="text-align: center;"><u>NOTE</u></p> <p>Steps 1 - 4 of 3-EOP-E-0 are Immediate Operator Actions (IOAs). The board operators will call out the high level steps of the IOAs as each step is completed from memory.</p>	<p>US:</p> <p>Directs RCO to manually trip the Reactor.</p>
		<p>RCO:</p> <p>Manually trips Reactor.</p>
		<p>RCO/BOP:</p> <p>Perform IOAs of 3-EOP-E-0.</p>
		<p>RCO:</p> <p>Verify Reactor Trip</p> <p style="text-align: right;">STEP 1</p>
		<p>BOP:</p> <p>Verify Turbine</p> <p style="text-align: right;">STEP 2</p>
		<p>BOP:</p> <p>Verify Power To Emergency 4 KV Buses</p> <p style="text-align: right;">STEP 3</p>
		<p>RCO:</p> <p>Checks If SI Is Actuated</p> <p style="text-align: right;">STEP 4</p>
		<p>US:</p> <p>Reviews Steps 1 - 4 of 3-EOP-E-0 with the crew.</p>

EVENT 6 – LARGE BREAK LOCA

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;">NOTE</p> <p>The crew may take Prudent Operator Actions to start the 3B RHR pump and/or close Containment Phase A Isolation valve CV-3-2826 or they may wait until directed by 3-EOP-E-0 Attachment 3.</p> <p>CV-3-2819 is failed open and will not close in auto or manual.</p>	
CT1	<p><u>Start 3B RHR Pump</u></p> <p>During a Large Break LOCA, start at least one RHR pump to provide core cooling prior to transition to 3-EOP-ECA-1.1, Loss of Emergency Coolant Recirculation.</p>	<p>RCO:</p> <ul style="list-style-type: none"> Starts the 3B RHR pump
CT2	<p><u>Close CV-3-2826</u></p> <p>During a Large Break LOCA, close containment isolation valves such that at least one valve is closed on each critical Phase A penetration before whichever of the following occurs first:</p> <ul style="list-style-type: none"> The completion of 3-EOP-0 Attachment 3 Within 60 minutes of the Phase A actuation signal. 	<p>BOP:</p> <ul style="list-style-type: none"> Close CV-3-2826
		<p>US:</p> <p>Reviews FOP for 3-EOP-E-0</p> <ul style="list-style-type: none"> Adverse Cntmt (Met, Temp>180°F) RCP Trip Criteria (Met) <ul style="list-style-type: none"> Trips RCPs once met. Faulted S/G Isolation Ruptured S/G Isolation AFW Sys Operation Criteria CST Makeup Water Criteria RHR System Operation Criteria Loss of Offsite Power or SI on the Other Unit Loss of Charging Criteria <p style="text-align: right;">FOLDOUT PAGE</p>

EVENT 6 – LARGE BREAK LOCA

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>NOTE</u></p> <p>The actions of Attachment 3 are listed beginning on page 38.</p>	<p>BOP:</p> <ul style="list-style-type: none"> Continues with ATTACHMENT 3 to complete The Prompt Action Verifications. <p style="text-align: right;">STEP 5</p>
		<p>RCO:</p> <ul style="list-style-type: none"> Check AFW Pumps – AT LEAST TWO RUNNING <p style="text-align: right;">STEP 6</p>
		<p>RCO:</p> <ul style="list-style-type: none"> Verify AFW Valve Alignment – PROPER EMERGENCY ALIGNMENT <p style="text-align: right;">STEP 7</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>Crew may enter 3-EOP-FR-H.1 if total AFW flow is less than 400 gpm with all Steam Generators LESS THAN 27% Narrow Range.</p>	<p>RCO:</p> <p>Verify Proper AFW Flow:</p> <ul style="list-style-type: none"> Check Narrow Range Level in at least one S/G – GREATER THAN 7%[27%] Maintain feed flow to S/G until Narrow Range Levels between 21%[27%] and 50% <p style="text-align: right;">STEP 8</p>
		<p>RCO:</p> <p>All RCP Thermal Barrier Alarms – CLEAR (NO)</p> <ul style="list-style-type: none"> Trip RCPs (RCPs tripped per Foldout Page.) Check All RCP CBO temperatures – LESS THAN 260°F SI – RESET Start one Charging Pump at minimum speed for Seal Injection. Adjust HCV-3-121, Charging Flow To Regen Heat Exchanger, to maintain proper Seal Injection flow <p style="text-align: right;">STEP 9</p>

EVENT 6 – LARGE BREAK LOCA

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: <ul style="list-style-type: none"> Check RCS Temperatures: <ul style="list-style-type: none"> Check RCPs – ANY RUNNING (NO) Check RCS Cold Leg temperatures stable between 545°F and 547°F or trending down to 547°F (NO) IF T_{COLD} is decreasing, THEN perform the following: <ul style="list-style-type: none"> Stop dumping steam. IF cooldown continues AND is due to excessive feed flow, then reduce total feed flow to 400 gpm until Narrow Range Level greater than 7%[27%] in at least one S/G. IF cooldown continues AND is due to excessive steam flow, THEN close Main Steamline isolation and Bypass valves. <p style="text-align: right;">STEP 10</p>
		RCO: Check PRZ PORVs, Spray Valves And Excess Letdown Isolated: <p style="text-align: right;">STEP 11</p>
		RCO: Check If RCPs Should Be Stopped: <ul style="list-style-type: none"> RCPs – ANY RUNNING (NO) <p style="text-align: right;">STEP 12</p>
		RCO: Check If S/Gs Are Faulted: (NO) <p style="text-align: right;">STEP 13</p>
		RCO: Check If S/G Tubes Are Ruptured: (NO) <p style="text-align: right;">STEP 14</p>

EVENT 6 – LARGE BREAK LOCA

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>RCO: Check If RCS Is Intact (NO)</p> <p>US:</p> <ul style="list-style-type: none"> Perform the following: <ul style="list-style-type: none"> Monitor Critical Safety Functions using 3-EOP-F-0, CRITICAL SAFETY FUNCTION STATUS TREES. INTEGRITY Critical Safety Function Status Tree is RED Go to 3-EOP-FR-P.1, RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION <p style="text-align: right;">STEP 15</p>
		<p>US:</p> <p>Reviews the Fold Page of 3-EOP-FR-P.1</p> <ul style="list-style-type: none"> ADVERSE CONTAINMENT CONDITIONS
		<p>RCO:</p> <ul style="list-style-type: none"> Check RCS Pressure – GREATER THAN 275 PSIG [575 PSIG] (NO) Check RHR flow greater than 1100 gpm.
		<p>US:</p> <ul style="list-style-type: none"> Returns to 3-EOP-E-0, step 15. Go to 3-EOP-E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1

EVENT 6 – LB LOCA

3-EOP-E-1, Loss Of Reactor Or Secondary Coolant

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>If dispatched to start the B Standby SGFP, wait 3 minutes and then trigger START B STANDBY SGFP.</p>	<p>US:</p> <ul style="list-style-type: none"> • Conducts EOP transition brief. • Directs 3-EOP-E-1 response.
		<p>US:</p> <p>Reviews FOP for 3-EOP-E-1 with the crew.</p> <ul style="list-style-type: none"> • Containment Adverse (YES) • RCP Trip Criteria - Tripped • SI Termination Criteria • Secondary Integrity Criteria. • E-3 Transition Criteria • Cold Leg Recirculation Switchover Criteria. (met < 155k) • Recirculation Sump Blockage. • CST Makeup Water Criteria. • Loss of Offsite Power or Unit 4 SI • RHR Sys Operation Criteria • Loss Of Charging Criteria <p style="text-align: right;">FOLDOUT PAGE</p>
		<p>RCO:</p> <p>Check If RCPs Should Be Stopped (Tripped)</p> <p style="text-align: right;">STEP 1</p>
		<p>RCO:</p> <p>Check If S/Gs Are NOT Faulted.</p> <p style="text-align: right;">STEP 2</p>

EVENT 6 – LB LOCA

3-EOP-E-1, Loss Of Reactor Or Secondary Coolant

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: Check Intact S/G Levels: <ul style="list-style-type: none"> Any Narrow Range Level Greater Than 7%[27%]. <ul style="list-style-type: none"> Maintain total feed flow greater than 400 gpm until Narrow range Level greater the 7% [27%] in at least one S/G. Control feed flow to maintain Narrow Range Level between 21%[27%] and 50%. Narrow Range Level Less Than 50%. STEP 3
	<u>BOOTH OPERATOR</u> Acknowledge the request for Chemistry and HP support	RCO: Check Secondary Radiation: STEP 4
		RCO: Checks PRZ PORVs And Block Valves: STEP 5
		RCO: Check SI – RESET STEP 6
		RCO: Resets Containment Isolation Phase A and Phase B. STEP 7
		RCO: Verify Instrument Air To Containment STEP 8
		RCO: Check Power Supply To All Charging Pumps - ALIGNED TO OFFSITE POWER STEP 9

EVENT 6 – LB LOCA

3-EOP-E-1, Loss Of Reactor Or Secondary Coolant

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>RCO: Check If Charging Flow Has Been Established.</p> <ul style="list-style-type: none"> Charging pumps - AT LEAST ONE RUNNING (YES) Establish desired charging by performing ATTACHMENT 2, steps 3 through 5. <ul style="list-style-type: none"> Place RCS Makeup Control Switch in STOP Start additional Charging pumps if needed. Adjust Charging Flow To Regen Heat Exchanger, HCV-3-121, to maintain proper seal injection flow. Verify charging pump suction auto transfers to RWST. Notify Unit Supervisor That Attachment 2 Is Complete. <p style="text-align: right;">STEP 10</p>
		<p>US: Check if SI Flow Should Be Terminated (NO)</p> <p style="text-align: right;">STEP 11</p>
		<p>RCO: Check if Containment Spray should be stopped. (NO)</p> <p style="text-align: right;">STEP 12</p>
		<p>RCO: Check If RHR Pumps Should Be Stopped. (NO)</p> <p style="text-align: right;">STEPS 13</p>

EVENT 6 – LB LOCA

3-EOP-E-1, Loss Of Reactor Or Secondary Coolant

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO\BOP: Check RCS And S/G Pressures <ul style="list-style-type: none"> Pressure in all S/Gs – STABLE OR INCREASING RCS pressure STABLE OR DECREASING <p style="text-align: right;">STEP 14</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> If directed to Stop 4A and 4B EDG, acknowledge request. <p style="text-align: center;"><u>BOOTH OPERATOR</u></p> If dispatched to place <u>any</u> stopped EDGs in standby, acknowledge request.	BOP: Check If Diesel Generators Should Be Stopped: <ul style="list-style-type: none"> Stop 3A and 3B EDG by placing its Normal Stop/Normal Start switch in NORMAL STOP position. Direct Unit 4 RCO to stop any unloaded diesel generator by placing its Normal Stop/Normal Start switch in NORMAL STOP position. Dispatch Operator to place <u>any</u> stopped EDGs in standby using 3/4-OP-023, EMERGENCY DIESEL GENERATOR <p style="text-align: right;">STEP 15</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> If dispatched to unlock and close cold leg recirc breakers, wait 2 to 3 minutes then trigger LOA - ENERGIZE TRAIN A SI RECIR MOVS and LOA - ENERGIZE TRAIN B SI RECIR MOVS	US: Initiate Evaluation Of Plant Status <p style="text-align: right;">STEP 16</p>
The scenario may be terminated after the crew transitions from 3-EOP-FR-P.1 to 3-EOP-E-1 at the Lead Evaluator's discretion once all Critical Task have been evaluated.		
*** END OF SCENARIO ***		

EVENT 8 – CV-3-2826/2819, CONTAINMENT ISOLATION IA BLEED VALVES, FAIL TO AUTO CLOSE

3-EOP-E-0 ATTACHMENT 3, PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Check Load Centers Associated With Energized 4 KV Buses – ENERGIZED STEP 1
		BOP: Verify Feedwater Isolation: STEP 2
	<p style="text-align: center;"><u>NOTE</u></p> <p>The crew may have taken Prudent Operator Actions to close CV-3-2826 after SI Actuated.</p> <p>3-CV-3-2819 is failed open and will not close in auto or manual.</p>	BOP: Check If Main Steam Lines Should Be Isolated STEP 3
CT2	<p><u>Close CV-3-2826</u></p> <p>During a Large Break LOCA, close containment isolation valves such that at least one valve is closed on each critical Phase A penetration before whichever of the following occurs first:</p> <ul style="list-style-type: none"> The completion of 3-EOP-0 Attachment 3 Within 60 minutes of the Phase A actuation signal. 	BOP: Verify Containment Isolation Phase A Valve White Lights On VPB – ALL BRIGHT (NO) <ul style="list-style-type: none"> Manually actuate Containment isolation Phase A. Close CV-3-2826 STEP 4

EVENT 7 – 3B RHR PUMP FAILS TO AUTO START

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
CT1	<p style="text-align: center;"><u>NOTE</u></p> <p>The crew may have taken Prudent Operator Actions to start the 3B RHR pump after SI actuated.</p>	<p>BOP:</p> <p>Verify Pump Operation:</p> <ul style="list-style-type: none"> At least two High-Head SI Pumps – RUNNING Both RHR Pumps – RUNNING (NO) Starts the 3B RHR pump <p style="text-align: right;">STEP 5</p>
	<p><u>Start 3B RHR Pump</u></p> <p>During a Large Break LOCA start at least one RHR pump to provide core cooling prior to transition to 3-EOP-ECA-1.1, Loss of Emergency Coolant Recirculation.</p>	
		<p>BOP:</p> <p>Verify Proper CCW System Operation:</p> <ul style="list-style-type: none"> CCW Heat Exchangers – THREE IN SERVICE CCW Pumps – ONLY TWO RUNNING CCW Headers – TIED TOGETHER MOV-3-626, RCP Thermal Barrier CCW Outlet – OPEN (NO Phase B) <p style="text-align: right;">STEP 6</p>
		<p>BOP:</p> <p>Verify Proper ICW System Operation:</p> <ul style="list-style-type: none"> Verify ICW Pumps – AT LEAST TWO RUNNING Verify ICW To TPCW Heat Exchanger – ISOLATED: Check ICW Headers – TIED TOGETHER <p style="text-align: right;">STEP 7</p>
		<p>BOP:</p> <p>Check Emergency Containment Coolers – ONLY TWO RUNNING</p> <p style="text-align: right;">STEP 8</p>

EVENT 7 – 3B RHR PUMP FAILS TO AUTO START

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Verify Unit 3 Containment Purge Exhaust And Supply Fans – OFF STEP 9
		BOP: Verify Containment Spray and Phase B actuated. STEP 10
		BOP: Verify SI – RESET STEP 11
		BOP: Verify SI Valve Amber Lights On VPB – ALL BRIGHT STEP 12
		BOP: Verify SI Flow: <ul style="list-style-type: none"> RCS pressure – LESS THAN 1625 PSIG[1950 PSIG] High-Head SI Pump flow indicator – CHECK FOR FLOW STEP 13
	<u>BOOTH OPERATOR</u> When requested, trigger LOA – ALIGN U-4 HHSIs TO U3 RWST	BOP: Realign SI System: <ul style="list-style-type: none"> Check Procedure Entry Status – E-0 ENTERED FROM 3-ONOP-047.1, LOSS OF CHARGING FLOW IN MODES 1 THROUGH 4 (NO) Verify Unit 3 High-Head SI Pumps – TWO RUNNING Stop both Unit 4 High-Head SI Pumps and place in standby Direct Unit 4 Reactor Operator to align Unit 4 High-Head SI Pump suction to Unit 3 RWST using Attachment 1. STEP 14

EVENT 7 – 3B RHR PUMP FAILS TO AUTO START

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Verify Containment Isolation Phase A – RESET STEP 15
		BOP: Reestablish RCP Cooling: <ul style="list-style-type: none"> • Check RCPs – AT LEAST ONE RUNNING (NO) • Go to Step 17 STEP 16
		BOP: Verify Control Room Ventilation Isolation: STEP 17
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When requested, trigger LOA – PLACE PAHM IN SERVICE, wait 3 to 5 minutes and then report task complete.</p>	BOP: Place Hydrogen Monitors In Service Using 3-NOP-094, CONTAINMENT POST ACCIDENT MONITORING SYSTEM STEP 18
		BOP: Verify All Four EDGs – RUNNING STEP 19
		BOP: Verify Power To Emergency 4 KV Buses: STEP 20
		BOP: Notify Unit Supervisor Of The Following: <ul style="list-style-type: none"> • Attachment 3 is complete • Any safeguards equipment that is NOT running is in the required condition • Status of Containment pressure continuous action STEP 21

Discussion Points are intentionally NOT included in evaluated scenarios. However, space is available below to document follow-up questions when further information is required to determine an evaluation outcome.

FOLLOW-UP QUESTIONS

QUESTION #1

ANSWER #1

QUESTION #2

ANSWER #2

SIMULATOR POST-SCENARIO RESTORATION:

- _____ 1. Restore per Simulator Operator Checklist.
- _____ 2. Once exams are complete, restore from SEI-19, Simulator Exam Security.

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ATTACHMENT 3
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FAST LOAD REDUCTION MANEUVERING PLAN

Item#

1.	MW CNTRL Load Reduction Rate MW/min	35	30	25	20	15	10
2.	Load Reduction Rate %/min	4.1	3.5	2.9	2.4	1.8	1.2
3.	TIP CNTRL Load Reduction Rate PSIG/min	27.1	23.2	19.3	15.5	11.6	7.7
4.	Expected Tavg/Tref ΔT	4° F	4° F	3.5°F	3° F	3° F	2°F

5. Current Power _____ %

6. End Target Power _____ % [= % power level at which load reduction is expected to be complete]

7. Total Power Change _____ % [= (Item 5) - (Item 6)]

8. Time Required for Total Power Change _____ min [(Item 7) ÷ (Item 2)]

%RTP	TIP	MWe	Tavg
10	47.6	85.1	550.0
20	107.6	170.1	553.0
30	169.6	255.2	556.0
40	233.8	340.3	559.1
50	300.2	425.4	562.3

%RTP	TIP	MWe	Tavg
60	368.6	510.4	565.7
70	439.1	595.5	569.1
80	511.8	680.6	572.6
90	586.6	765.6	576.3
100	663.5	850.7	580.0

9. Turbine MW CNTRL (or manual) Target Power Level = _____ MW
(N/A if TIP CNTRL Selected)
[= (Item 6) x (.01) x (850.7 MW) or from table above]

10. Turbine TIP CNTRL Target Power Level = _____ PSIG (N/A if MW CNTRL Selected)
[= (0.0106 x (Item 6)³) + (5.6775 x Item 6) - 10.216 or from table above]

11. Calculate (multiplication) Total Boron Addition With Rod Movement
[Use 20 gallons/% with no rod movement]

$$\frac{(\quad)}{\text{Item 7 - Total Power Change for Boron Addition}} \times \frac{(10 \text{ gal/\%power})}{\text{Boron Worth}} = \frac{\quad}{\text{Total Boron Volume Change (Gallons)}}$$

12. Calculate (division) Boron Addition Rate

$$\frac{\text{Item 11 - Total Boron Volume Change (Gallons)}}{\text{Item 8 - Time Required for Power Change (min)}} = \frac{(\quad)}{(\quad)} = \frac{\quad}{\text{Total Boron Rate (gpm)}}$$

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ATTACHMENT 4
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FAST LOAD REDUCTION BRIEF

1. Reason for load reduction _____
2. Maneuvering Guidelines (From Attachment 3 Maneuvering Sheet)
 - Load reduction rate _____ % /minute [Item 2]
 - Time required for power change _____ min [Item 8]
 - End Target Power Level _____ % Power [Item 6]
 - Turbine Target Power Level _____ MW or PSIG (circle as applicable) [Item 9 or Item 10 as applicable]
 - Load reduction rate for Turbine _____ MW/min or PSIG/min (circle as applicable) [Item 1 or 3]
 - Total boron addition _____ gallons [Item 11]
 - Boron Addition Rate _____ gpm [Item 12]
3. Maneuvering Plan
 - Initial boration rate of 40 gpm for T_{AVG} reduction
 - Start load reduction after T_{AVG} reduction
 - Stop boration when 10% from target power
 - IF rod control motion is NOT available (Auto or Manual), THEN perform load reduction by leading with the reactor AND lowering turbine load using manual or automatic turbine control as desired.
4. Plant Control Parameters and Contingency Actions
 - Maintain Tav/Tref expected ΔT band [Item 4] +/- 1° F - Adjust ramp rate or boration rate
 - Monitor load rate and boration rate to prevent B 8/1, ROD BANK LO LIMIT and B 8/2, ROD BANK A/B/C/D EXTRA LO LIMIT - follow guidance in body of procedure
 - Annunciator B 4/4, TAVG/TAVG TREF DEVIATION - Stop load reduction.
5. Actions When Target Power Level Achieved
 - Manual reactor trip
 - Transition to 3-GOP-103 if Tripped from 5% or 3-EOP-E-0 if Tripped at 20%
6. EOP E-0 Transition Criteria
 - Manual reactor and turbine trip: T_{AVE} 6 °F > T_{TREF}
7. Review required actions from other procedures currently in effect (example, stop RCP).
8. Questions or crew input?
9. End of Brief

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ENCLOSURE 1
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EXPECTED ALARMS DURING LOAD REDUCTION

1. The following are expected alarms while maneuvering the unit:
 - A 2/5 BORIC ACID MAKE-UP FLOW DEVIATION
 - B 2/2 POWER RANGE UPPER DET HI FLUX DEV/AUTO DEFEAT
 - B 2/3 POWER RANGE LOWER DET HI FLUX DEV/AUTO DEFEAT
 - D 1/1 FW HEATER 1A HI LEVEL
 - D 1/2 FW HEATER 2A HI LEVEL
 - D 1/3 FW HEATER 3A HI LEVEL
 - D 1/4 FW HEATER 4A HI LEVEL
 - D 1/5 FW HEATER 5A HI LEVEL
 - D 1/6 FW HEATER 6A HI LEVEL
 - D 2/1 FW HEATER 1B HI LEVEL
 - D 2/2 FW HEATER 2B HI LEVEL
 - D 2/3 FW HEATER 3B HI LEVEL
 - D 2/4 FW HEATER 4B HI LEVEL
 - D 2/5 FW HEATER 5B HI LEVEL
 - D 2/6 FW HEATER 6B HI LEVEL
 - D 4/6 SJAE LO STEAM PRESS (after Attachment 1 is complete)
 - D 5/2 SGFP A LO FLOW
 - D 6/2 SGFP B LO FLOW
 - D 9/5 HDT B HI LEVEL
 - E 5/5 TURB GLAND SEAL LO PRESS (after Attachment 1 is complete)
 - F 2/1 POWER SYSTEM STABILIZER TROUBLE
 - G 4/3 RCS METAL IMPACT
 - G 5/2 AXIAL FLUX ADMIN LIMIT EXCEEDED

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OPERATIONS SHIFT TURNOVER REPORT



UNIT 3 RISK: GREEN (ACCEPTABLE)
PROTECTED TRAIN: B

UNIT 4 RISK: GREEN (ACCEPTABLE)
PROTECTED TRAIN: B

ONCOMING CREW ASSIGNMENTS

Shift Mgr:			Inside SNPO:	
Field Supv.:			Outside SNPO:	
Admin RCO:			ANPO:	
Unit 3			Unit 4	
Unit Supv.:			Unit Supv.:	
RCO:			RCO:	
NPO:			NPO:	

PLANT STATUS

Unit 3			Unit 4	
Mode:	1		Mode:	1
Power:	75%		Power:	100%
MWe:	608		MWe:	842
Gross Leakrate:	.22 gpm		Gross Leakrate:	0.03 gpm
RCS Boron Conc:	828 ppm		RCS Boron Conc:	642

Operational Concerns:

3A RHR pump taken OOS 4 hours ago for an oil change, expected back by the end of this shift.
3A1 Circ Water pump OOS. Tripped on over current, Electrical Maintenance is investigating.
3A Condensate pump was returned to service last shift following a motor bearing replacement.
Return to full power expected next shift.
MIMS alarms are inhibited.

U3 Anticipated LCO Actions:

None

U4 Anticipated LCO Actions:

None

Results of Offgoing Focus Area:

UNIT 3 STATUS					
REACTOR OPERATOR					
UNIT RISK: GREEN (ACCEPTABLE) PROTECTED TRAIN: B					
Mode:	1	RCS Leakrate		Accumulator Ref Levels	
Power:	75%	Gross:	0.22 GPM	A	6656
MWe	608	Unidentified	0.04 GPM	B	6608
Tavg:	571°F	Charging Pps:	0.00 GPM	C	6646
RCS Pressure:	2235				
RCS Boron Conc:	828 ppm				
Abnormal Annunciators:					
Annunciator:					
Comp Actions:					
Annunciator:					
Comp Actions:					
Annunciator:					
Comp Actions:					
Annunciator:					
Comp Actions:					
Annunciator:					
Comp Actions:					
Current Tech Spec Action Statements: (Does Not Include "For Tracking Only Items")					
T.S.A.S / Component:	3A RHR pump, 3.5.2.c – Action g				
Reason:	Oil Change				
Entry Date:	4 hours ago				
T.S.A.S / Component:					
Reason:					
Entry Date:					
T.S.A.S / Component:					
Reason:					
Entry Date:					
T.S.A.S / Component:					
Reason:					
Entry Date:					

REACTOR OPERATOR (CONT'D)
UNIT RISK: GREEN (ACCEPTABLE) PROTECTED TRAIN: B
<u>Changes to Risk Significant Equipment:</u>
<p>No recent changes from last shift.</p> <p>OLRM: GREEN</p> <p>PROTECTED TRAIN: B</p>
<u>Upcoming Reactivity Management Activities:</u>
<p>Maintain current power level \pm .5%</p> <p>Xe is stable.</p>
<u>Upcoming Major POD Activities:</u>
<p>NONE</p>
<u>Upcoming ECOs to Hang and /or Release:</u>
<ul style="list-style-type: none"> Hang – None Release – None
<u>Evolutions or Compensatory Actions in Progress:</u>
<p>NONE</p>
<u>General Information, Remarks, and Operator Work Around Status:</u>
<ul style="list-style-type: none"> Weather forecast is overcast skies with scattered pockets of severe rain. U3 supplying Aux Steam Air In-leakage = 0.0 SCFM

NRC EXAM SECURE INFORMATION

Appendix D

Scenario Outline

Form ES-D-1

L-16-1 N2 (Rev-0)

Facility: <u>Turkey Point Units 3 & 4</u>		Scenario No.: 2		Op Test No.: <u>2016-301</u>	
Examiners:		Operators:		Surrogate (SRO)	
_____		_____		Mark Formoso (RCO)	
Phil		_____		Mike Portal (BOP)	
Michael		_____			
Initial Conditions:		The plant is at 100% power (BOL). Online risk is green. B train is protected on both units.			
Turnover:		The 3A RHR pump and 3A1 Circulating Water pump are OOS.			
Event.	Malf. No.	Event Type*	Event Description		
1	TFB1LTLV	I-RCO I-SRO	LT-3-115 VCT Level Transmitter Fails Low		
2	TVUTPMPA TFL10101	C-RCO C-SRO	3A Heater Drain Pump Trip (Turbine Runback) Rods Fail To Auto Insert		
3	TFN1CP22	I-BOP I-SRO (TS)	N-42 Loss Of Instrument Power		
4	N/A	R-RCO R-SRO N-BOP	3B S/G Feedwater pump High Vibration (Fast Load Reduction required)		
5	TFS1M5EA	I-BOP I-SRO (TS)	FT-3-494 3C S/G Steam Flow Transmitter Fails As Is		
6	TVFAHDR1 TVSBVL14 TAFK144 TAFK244 TAFK344	M-RCO M-BOP M-SRO	Common Main Feed Header Break Common Loss Of Suction To All AFW Pumps		
7	TFU10005	P- BOP	Main Turbine Fails To Automatically Trip		
8	TFHV55CC	P-RCO	PCV-3-455C Fails To Open. (PZR PORV)		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (P)ost Trip					

SCENARIO SUMMARY**Event 1**

Shortly after the crew takes the shift LT-3-115 VCT Level Transmitter Fails Low which causes auto makeup to start. The crew responds using the 3-ONOP-046.4, Malfunction of Boron Concentration Control System. The RCO manually stops auto makeup.

Event 2

Once the crew stabilizes VCT level the 3A Heater Drain Pump trips which causes an automatic Turbine Runback. The crew will enter 3-ONOP-089, Turbine Runback. During the runback Control Rods fail to auto insert. The RCO will manually insert rods to maintain Tave $\pm 3^{\circ}\text{F}$. When the Runback is complete the RCO will borate as needed to clear Rod Lo Limit and Axial Flux alarms, and the BOP will reset the Steam Dumps. When the plant is stable the crew will enter 3-ONOP-028, Reactor Control System Malfunction for the failure of Rods to auto insert.

Event 3

Once the crew resets the Steam Dumps and completes the required actions for the Reactor Control System Malfunction the N-42 Instrument Power Fuse Blows. The crew will enter 3-ONOP-059.8, Power Range Nuclear Instrumentation Malfunction. The BOP will defeat or bypass the affect functions of N-42 as directed by the ONOP.

Event 4

After the crew completes the actions of 3-ONOP-059.8 Engineering reports High Vibration on the 3B SGFW pump. The SM directs the crew to start a 3-GOP-100 Fast Load Reduction to secure the 3B SGFW pump.

Event 5

When the crew starts the down power FT-3-494, 3C S/G Steam Flow Transmitter will be failed as is. The BOP will take manual control of the 3C S/G level and restore the 3C S/G level to normal. The US will enter 3-ONOP-049.1, direct the BOP to select an operable channel, and restore 3C S/G level control to automatic.

Event 6

After the crew reduces power by 5 to 10% and completes the actions for the failed Steam Flow channel a Main Feed Water Header break occurs. The crew responds to the reactor trip using 3-EOP-E-0, Reactor Trip or Safety Injection. During the loss of Main Feed Water there's also a loss of the suction piping to all AFW pumps. The crew will transition to 3-EOP-FR-H.1, Response To Loss Of Secondary Heat Sink, and initiate Feed and Bleed.

Event 7

During 3-EOP-E-0, The Main Turbine fails to automatically trip. The BOP will take compensatory action to trip the Turbine manually.

Event 8

When the crew attempts to initiate Feed and Bleed one of the PZR PORVs fails to open so the crew will open all RCS Vent Valves

The scenario is terminated once the RCS Vent Valves are or at the Lead Evaluator's discretion once all critical tasks have been evaluated.

Event	<u>CRITICAL TASKS</u>	
6	CT1	<p><u>Manually Trip the Main Turbine</u></p> <p>Manually trip the main turbine before any RCS cold leg temperature decreases by more than 100°F.</p> <p><i>Safety Significance</i> - Failure to trip the main turbine causes an excessive rate of RCS cooldown, well beyond the conditions typically analyzed in the FSAR. The excessive cooldown rate creates large thermal stresses in the reactor pressure vessel and causes rapid insertion of a large amount of positive reactivity. Thus, failure to manually trip the Main Turbine under the postulated conditions can result in challenges to the Integrity and Subcriticality CSFs.</p>
6	CT2	<p><u>Initiate Bleed-And-Feed</u></p> <p>Initiate RCS bleed and feed so that the RCS depressurizes sufficiently for high-head injection to occur.</p> <p><i>Safety Significance</i> - Failure to initiate RCS bleed and feed before the RCS saturates at a pressure above which the high-head ECCS pumps can inject results in significant and sustained core uncover. If RCS bleed is initiated so that the RCS is depressurized below the shutoff head of the high-head ECCS pumps, then core uncover is prevented or minimized.</p>



L-16-1 NRC EXAM SCENARIO 2
NRC EXAM SECURE INFORMATION

SEG

Site: Turkey Point Units 3 and 4 (PTN)

Title: L-16-1 NRC EXAM SCENARIO 2

LMS #: NRC 22

LMS Rev Date: 6/7/16 **Rev #:** 0.0

SEG Type: ☐ Training ☒ Evaluation

Program: ☐ LOCT ☒ LOIT ☐ Other

Duration: 110 minutes

Developed by: Brian Clark 8/4/16
Instructor/Developer Date

Reviewed by: Luis Sagion 8/4/16
Instructor (Instructional Review) Date

Validated by : Sean Bloom 8/5/16
SME (Technical Review) Date

Approved by: Mark Wilson 8/5/16
Training Supervision Date

Approved by: Sean Bloom 8/5/16
Training Program Owner (Line) Date

NRC EXAM SECURE INFORMATION

SCENARIO REFERENCES

DOC NO.	TITLE	REV
	PTN TECHNICAL SPECIFICATIONS	300
3-EOP-E-0	REACTOR TRIP OR SAFETY INJECTION	12
3-GOP-100	FAST LOAD REDUCTION	12A
3-ONOP-028	REACTOR CONTROL SYSTEM MALFUNCTION	4A
3-ONOP-046.4	MALFUNCTION OF BORON CONCENTRATION CONTROL SYSTEM	0
3-ONOP-049.1	DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION CHANNEL	4
3-ONOP-059.8	POWER RANGE NUCLEAR INSTRUMENTATION MALFUNCTION	0A
3-ONOP-089	TURBINE RUNBACK	1A
3-OSP-059.10	DETERMINATION OF QUADRANT POWER TILT RATIO	2A

SIMULATOR EXERCISE GUIDE REQUIREMENTS

Terminal Objective	Given this simulator scenario and resources normally found in the Control Room, the operating crew will perform Control Room operations IAW approved plant procedures in order to maintain the integrity of the plant and the health and safety of the public.
Enabling Objectives:	<p>Given this simulator scenario and resources normally found in the Control Room, operate in accordance with approved plant procedures, Operations Department Instructions, and management expectations:</p> <ol style="list-style-type: none"> 1. (ALL) Demonstrate personnel SAFETY awareness in interactions with plant staff and outside agencies. 2. (ALL) Demonstrate ALARA awareness in interactions with plant staff and outside agencies. 3. (ALL) Exchange correct information using 3-point communication/Repeat-backs with Control Room personnel and other plant staff. 4. (ALL) Inform plant personnel and System of plant conditions, as needed. 5. (US) Employ timely and concise crew briefs where appropriate. 6. (ALL) Maintain awareness of plant status and control board indication. 7. (ALL) Correctly diagnose plant situations. 8. (ALL) Solve operational problems as they arise. 9. (RCO/BOP) Manipulate plant controls properly and safely. 10. (ALL) Demonstrate self-checking using STAR and peer checks(when required) 11. (US) Demonstrate command and control of the crew. 12. (US) Coordinate the input of crew members and other plant staff. 13. (US) Utilize the input of crew members and other plant staff. 14. (ALL) Demonstrate conservative decision making. 15. (ALL) Demonstrate teamwork. 16. (ALL) Respond to plant events using procedural guidance (OPs/ONOPs/EOPs) as applicable in accordance with rules of usage. 17. (RCO/BOP) Implement any applicable procedural immediate operator actions without use of references. 18. (SRO) Maintain compliance with Tech Specs. 19. (ALL) Identify/enter applicable Tech Spec action statements. 20. (ALL) Respond to annunciators using ARPs (time permitting). 21. (ALL) Maintain written communication, logs, and documentation as needed to permit post-event reconstruction. <p style="text-align: center;">Continued on next page</p>

SIMULATOR EXERCISE GUIDE REQUIREMENTS

	<p>While addressing the following events:</p> <ol style="list-style-type: none"> 1. LT-3-115 VCT Level Transmitter Fails Low. 2. 3A Heater Drain Pump (Turbine Runback) Rods Fail To Auto Insert 3. N-42 Loss Of Instrument Power 4. 3B S/G Feedwater pump High Vibration (Fast Load Reduction required) 5. FT-3-494 3C S/G Steam Flow Transmitter Fails As Is 6. Common Main Feed Header Break Common Loss Of Suction To All AFW Pumps 7. Main Turbine Fails To Automatically Trip 8. PCV-3-455C Fails To Open (PZR PORV)
Prerequisites:	None
Training Resources:	PTN Unit 3 Plant Simulator
Development References:	<ul style="list-style-type: none"> • TR-AA-220-1003, Initial NRC and Audit Exam Process • TR-AA-230-1003, SAT Development • TR-AA-230-1007, Conduct of Simulator Training and Evaluation • 0-ADM-232, Time Critical Action Program • OP-AA-100-1000, Conduct Of Operations • OP-AA-103-1000, Reactivity Management • 0-ADM-200, Operations Management Manual • 0-ADM-211, Emergency and Off-Normal Operating Procedure Usage • WCAP-17711-NP, Pressurized Water Reactor Owners Group Westinghouse Emergency Response Guideline Revision 2-Based Critical Tasks
Protected Content:	N/A
Evaluation Method:	Performance Mode
Operating Experience:	None
Risk Significant Operator Actions:	Initiate bleed-and-feed cooling within 36 minutes following a loss of Feed Water with a reactor trip on low SG level.

TASKS ASSOCIATED WITH THIS SIMULATOR EXERCISE GUIDE

SRO TASK #	TASK TITLE
02028033500	Authorize Unit Trip
02046045300	Recover From VCT Level Transmitter Failures
02059026300	Respond To Loss Of Power Range Instrumentation Channel
02074016500	Respond To A Loss Of Heat Sink Following A Reactor Trip
02081006300	Respond To A Loss Of One Heater Drain Pump
02200046500	Respond to Steam Generator Low Level
02200009300	Respond to Unit Runback

RO TASK	TASK TITLE
01046045300	Recover from VCT Level Transmitter Failures
01059026300	Respond to Loss of Power Range Instrumentation Channel
01074006100	Stop Steam Generator Feed Pump
01074011300	Control Steam Generator Level Manually With Main Feed Regulating Valves
01074016500	Respond To A Loss Of Heat Sink Following A Reactor Trip
01081006300	Respond to a Loss of One Heater Drain Pump
01089020100	Trip Turbine Manually
01200001500	Respond To Unit Trip
01200046500	Respond to Steam Generator Low Level
01200009300	Respond to Unit Runback

UPDATE LOG:

NOTES:

Place this form with the working copies of lesson plans and/or other materials to document changes made between formal revisions. For fleet-wide training materials, keep electronic file of this form in same folder as approved materials. Refer to TR-AA-230-1003 SAT Development for specific directions regarding how and when this form shall be used.

Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER	DATE
				REVIEWER	DATE
0-0	Initial Revision	Revised for L-16-1 NRC Exam	2108338	Note 5	Note 5
				Note 5	Note 5
0-1					
0-2					
0-3					
0-4					
0-5					

1. Individual updating lesson plan or training material shall complete the appropriate blocks on the Update Log.
2. Describe the change to the lesson plan or training materials.
3. State the reason for the change (e.g., reference has changed, typographical error, etc.)
4. Preparer enters name/date on the Update Log and obtains Training Supervisor approval.
5. Initial dates and site approval on cover page.

SCENARIO SUMMARY**Initial Conditions:**

The plant is at 100% power (BOL). Online risk is green. B train is protected on both units

Equipment OOS

The 3A RHR pump and 3A1 Circulating Water pump are OOS.

SCENARIO SUMMARY**Event 1**

Shortly after the crew takes the shift, LT-3-115, VCT Level Transmitter, Fails Low which causes auto makeup to start. The crew responds using the 3-ONOP-046.4, Malfunction of Boron Concentration Control System. The RCO manually stops auto makeup.

Event 2

Once the crew stabilizes VCT level, the 3A Heater Drain Pump trips, which causes an automatic Turbine Runback. The crew will enter 3-ONOP-089, Turbine Runback. During the runback, Control Rods fail to auto insert. The RCO will manually insert rods to maintain Tave $\pm 3^{\circ}\text{F}$. When the Runback is complete, the RCO will borate as needed to clear Rod Lo Limit and Axial Flux alarms, and the BOP will reset the Steam Dumps. When the plant is stable, the crew will enter 3-ONOP-028, Reactor Control System Malfunction, for the failure of Rods to auto insert.

Event 3

Once the crew resets the Steam Dumps and completes the required actions for the Reactor Control System Malfunction, the N-42 Instrument Power Fuse Blows. The crew will enter 3-ONOP-059.8, Power Range Nuclear Instrumentation Malfunction. The BOP will defeat or bypass the functions of N-42, as directed by the ONOP.

Event 4

After the crew completes the actions of 3-ONOP-059.8, Engineering reports High Vibration on the 3B SGFW pump. The SM directs the crew to start a 3-GOP-100 Fast Load Reduction to secure the 3B SGFW pump.

Event 5

When the crew starts the down power, FT-3-494, 3C S/G Steam Flow Transmitter, will be failed as is. The BOP will take manual control of the 3C S/G level and restore the 3C S/G level to normal. The US will enter 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, and direct the BOP to select an operable channel, then restore 3C S/G level control to automatic.

SCENARIO SUMMARY**Event 6**

After the crew reduces power by 5 to 10% and completes the actions for the failed Steam Flow channel, a Main Feed Water Header break occurs inside containment. The crew responds to the reactor trip using 3-EOP-E-0, Reactor Trip or Safety Injection. During the loss of Main Feed Water, there's also a loss of the suction piping to all AFW pumps. The crew will transition to 3-EOP-FR-H.1, Response To Loss Of Secondary Heat Sink, and initiate Feed and Bleed.

Event 7

During 3-EOP-E-0, The Main Turbine fails to automatically trip. The BOP will take compensatory action to trip the Turbine manually.

Event 8

When the crew attempts to initiate Feed and Bleed, one of the PZR PORVs fails to open so the crew will open all RCS Vent Valves

The scenario is terminated once the RCS Vent Valves are open or at the Lead Evaluator's discretion once all critical tasks have been evaluated.

Event	<u>CRITICAL TASKS</u>	
7	CT1	<p><u>Manually Trip the Main Turbine</u></p> <p>Manually trip the main turbine before any RCS cold leg temperature decreases by more than 100°F.</p> <p><i>Safety Significance</i> - Failure to trip the main turbine causes an excessive rate of RCS cooldown, well beyond the conditions typically analyzed in the FSAR. The excessive cooldown rate creates large thermal stresses in the reactor pressure vessel and causes rapid insertion of a large amount of positive reactivity. Thus, failure to manually trip the Main Turbine under the postulated conditions can result in challenges to the Integrity and Subcriticality CSFs.</p>
8	CT2	<p><u>Initiate Bleed-And-Feed</u></p> <p>Initiate RCS bleed and feed so that the RCS depressurizes sufficiently for high-head injection to occur</p> <p><i>Safety Significance</i> - Failure to initiate RCS bleed and feed before the RCS saturates at a pressure above which the high-head ECCS pumps can inject results in significant and sustained core uncover. If RCS bleed is initiated so that the RCS is depressurized below the shutoff head of the high-head ECCS pumps, then core uncover is prevented or minimized.</p>

SEQUENCE OF EVENTS	
Event #	Description
1.	LT-3-115 VCT Level Transmitter Fails Low
2.	3A Heater Drain Pump (Turbine Runback) Rods Fail To Auto Insert
3.	N-42 Loss Of Instrument Power
4.	3B S/G Feedwater pump High Vibration (Fast Load Reduction required)
5.	FT-3-494 3C S/G Steam Flow Transmitter Fails As Is
6.	Common Main Feed Header Break Common Loss Of Suction To All AFW Pumps
7.	Main Turbine Fails To Automatically Trip
8.	PCV-3-455C Fails To Open (PZR PORV)

SIMULATOR SET UP INSTRUCTIONS	
Check	Action
_____	Restore IC-11 (100% BOL) or equivalent IC.
_____	Place the Simulator in RUN.
_____	Stop the 3A1 Circ Water Pump
_____	Open & execute lesson file L-16-1 N2
_____	Ensure the following lesson steps are triggered: <ul style="list-style-type: none"> • EVENT 6 SETUP - LOSS OF AFW PUMP SUCTION • EVENT 8 SETUP - PORV 455C FAILED CLOSE • EVENT 7 SETUP - TURBINE FAILS TO TRIP • EVENT 7 SETUP - CV FAIL AS IS is in CONDITION state • SETUP - 3A RHR PUMP OOS • SETUP - 3A1 CWP OOS
_____	<ul style="list-style-type: none"> • Place 3A RHR pump in PTL and hang an ECO Card • 3A1 CWP in stop and hang an ECO card
_____	Verify the trend for 3A1 Screen on the TWS DP Recorder is clear.
_____	Ensure Rod Group Step Counters have completed stepping out.
_____	Allow the plant to stabilize.
_____	Acknowledge any alarms and freeze Simulator.
_____	Ensure B train is protected train on VPA.
_____	Verify Key 13 for Reactor Head Vent valves is in the key locker (6 keys on one key ring)
_____	Perform the SIMULATOR OPERATOR CHECKLIST or equivalent.
_____	Place TURNOVER SHEETS on RO's desk or give to the Lead Evaluator.

BRIEFINGS

- Shift turnover information is attached to the back of this guide.
- Ensure all applicants are prior briefed on Appendix E of NUREG 1021, Policies and Guidelines For Taking NRC Examinations.
- Conduct a Crew Pre-brief to cover turnover information. Shift turnover information is attached to the back of this guide.

US: _____

RCO: _____

BOP: _____

SCENARIO NOTE

0-ADM-211 Prudent Operator Actions - If redundant stand-by equipment is available and ready, the operator is permitted to start the redundant equipment for failed or failing operating equipment. Immediate follow up of applicable ARPs and ONOPs (AOPs) shall occur as required.

Critical Tasks are highlighted in red.

Simulator Operator Actions are highlighted in blue.

Operator Verifiable Actions are highlighted in green.

EVENT 1 - LT-3-115 VCT LEVEL TRANSMITTER FAILS LOW.

3-ONOP-046.4, MALFUNCTION OF BORON CONCENTRATION CONTROL SYSTEM

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>NOTE</u></p> <p>Ensure the Simulator is in RUN before the crew enters the Simulator.</p>	
		<p>US:</p> <p>Conducts shift turnover.</p>
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by the Lead Evaluator, trigger EVENT 1 - LT-3-115 FAILS LOW</p>	
		<p>RCO:</p> <p>Responds to Alarms A3/4 VCT AUTO MAKE-UP and A4/6 VCT HI/LOW LEVEL</p> <ul style="list-style-type: none"> • VERIFY Make-Up Flow. • Reports LT-3-115 failed low.
	<p><u>BOOTH OPERATOR</u></p> <p>If dispatched to locally check the VCT level, wait 2-5 minutes and report LT-3-115 failed low. No obvious cause of the failure.</p>	<p>BOP:</p> <ul style="list-style-type: none"> • Reviews ARP, refer to 3-ONOP-046.4, Malfunction of Boron Concentration Control System. • Checks VCT level on DCS • Dispatches SNPO to locally check LT-3-115 indication in charging pump room.
		<p>US:</p> <p>Directs response using 3-ONOP-046.4, Malfunction of Boron Concentration Control System</p>
		<p>RCO:</p> <p>Check Boric Acid OR Primary Water Makeup Flow Rates – ABNORMAL (NO Go to Step 28)</p> <p style="text-align: right;">Step 1</p>

EVENT 1 - LT-3-115 VCT LEVEL TRANSMITTER FAILS LOW.

3-ONOP-046.4, MALFUNCTION OF BORON CONCENTRATION CONTROL SYSTEM

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>RCO:</p> <p>Check For VCT Level Transmitter, LT-3-115, Failing Or Failed High. (NO, Go to Step 31)</p> <p style="text-align: right;">Step 28</p>
		<p>RCO</p> <p>Check for LI-3-115 Failing Or Failed Low</p> <ul style="list-style-type: none"> LI-3-115 – ABNORMALLY LOW (YES) LI-3-112 – INCREASING DUE TO AUTO MAKEUP <u>OR</u> STABLE DUE TO LCV-3-115A DIVERTING <p style="text-align: right;">Step 31</p>
		<p>US:</p> <p>Review caution and note with the crew.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>With no operator action, LT-3-115 failed low with makeup flow greater than charging flow could result in over pressurization of the VCT.</p> <p style="text-align: center;"><u>NOTE</u></p> <p>Failure of LT-3-115 low will result in the following:</p> <ul style="list-style-type: none"> Annunciator Alarm A4/6 VCT HI/LO LEVEL. Auto makeup starts, but does not stop automatically. LCV-3-115A modulating open to attempt to control level at the VCT Level Controller, LC-3-112, setpoint
		<p>RCO:</p> <p>Turn RCS Makeup Control Switch To STOP</p> <p>Go to Step 41.</p> <p style="text-align: right;">Step 32</p>

EVENT 1 - LT-3-115 VCT LEVEL TRANSMITTER FAILS LOW.

3-ONOP-046.4, MALFUNCTION OF BORON CONCENTRATION CONTROL SYSTEM

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>Respond as WCC/I&C</p>	<p>Notifies WCC/I&C regarding LT-3-115 failure. Directs PWO initiation & troubleshooting.</p> <p>Determines no Tech Specs apply</p> <p>Steps 41/42</p>
		<p>Performs a manual MU to the VCT using 0-OP-046, as required</p> <p>Step 43</p>
	<p><u>BOOTH OPERATOR</u></p> <p>Acknowledge briefing on how to swap charging pump suction to RWST if required.</p>	<p>US:</p> <ul style="list-style-type: none"> • Conducts crew brief. • Briefs Operator how to manually swap charging pump suction to RWST if required.

EVENT 2 – 3A HEATER DRAIN PUMP TRIP, RODS FAIL TO AUTO INSERT

3-ONOP-089, TURBINE RUNBACK

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When directed by the Lead Evaluator, trigger EVENT 2 – 3A HDP TRIP</p>	
		<p>BOP:</p> <ul style="list-style-type: none"> Acknowledges Alarms D8/2, HDP A/B MOTOR OVERLOAD TRIP and E2/5, TURBINE RUNBACK. Reports 3A Heater Drain Pump tripped, Turbine Runback in progress
	<p style="text-align: center;"><u>NOTE</u></p> <p>Steps 1 and 2 are Immediate Operator Actions.</p>	<p>BOP:</p> <p>Verifies a SGFP was NOT lost.</p> <p style="text-align: right;">IOA-Step 1</p>
		<p>RCO/BOP:</p> <p>Check for proper operation of the following:</p> <ul style="list-style-type: none"> Steam Dumps Turbine If Rods are in AUTO, then verify Auto Rod Insertion to match Tavg with Tref. (NO) <ul style="list-style-type: none"> Manually insert Rods as need to match Tavg with Tref Main Feedwater Valves Pressurizer <p style="text-align: right;">IOA-Step 2</p>
		<p>US:</p> <ul style="list-style-type: none"> Enters and directs the actions of 3-ONOP-089, Turbine Runback. Reviews Notes with the crew.
		<p>BOP:</p> <p>Check Steam Generator levels stabilized and on program.</p> <p style="text-align: right;">Step 1</p>

EVENT 2 – 3A HEATER DRAIN PUMP TRIP, RODS FAIL TO AUTO INSERT

3-ONOP-089, TURBINE RUNBACK

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: Check Tavg is maintained within $\pm 3^{\circ}\text{F}$ of Tref. <ul style="list-style-type: none"> Place Control Rods in Manual. Maintain Tavg/Tref ΔT within $\pm 3^{\circ}\text{F}$. <p style="text-align: right;">Step 2</p>
		BOP: Check Steam Generator pressures stabilizing. <p style="text-align: right;">Step 3</p>
		RCO: Check Pressurizer Level stabilizing and trending to Program Level. <p style="text-align: right;">Step 4</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>When the plant is stabilized, the US may also enter 3-ONOP-028, Reactor Control System Malfunction due to the failure of rods to auto insert. 3-ONOP-028 starts on page 20.</p>	RCO: Check Pressurizer Pressure stabilizing and trending to 2235 psig. <p style="text-align: right;">Step 5</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>If dispatched to locally check the 3A Heater Drain pump, wait 5 minutes, and then report its breaker has an over current flag but nothing abnormal at the pump.</p>	BOP: Check following for proper operation: <ul style="list-style-type: none"> Steam Gen Feed Pump Recirc Condensate Pump Recirc Heater Drain Pumps Heater Drain Tank Level Controls Secondary Heater Level Controls <p style="text-align: right;">Step 6</p>

EVENT 2 – 3A HEATER DRAIN PUMP TRIP, RODS FAIL TO AUTO INSERT

3-ONOP-089, TURBINE RUNBACK

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>NOTE</u></p> <p>The crew should monitor alarms and borate using 50 gallon batches as necessary to withdraw rods until the alarm is clear.</p> <p style="text-align: center;"><u>NOTE</u></p> <p>The crew may acknowledge LEFM inputs using DCS.</p>	<p>RCO/BOP:</p> <ul style="list-style-type: none"> Monitor Annunciator G5/1, AXIAL FLUX T.S. LIMIT EXCEEDED – CLEAR. Monitor Annunciator B9/2, Axial Flux Tilt - CLEAR Monitor Annunciator B8/1, ROD BANK LO LIMIT – CLEAR. (NO) → <p>RNO Perform the following as necessary after the runback:</p> <ol style="list-style-type: none"> WHEN runback is complete, THEN PLACE rods in Manual. SET boric acid totalizer to 50 gallons. DETERMINE boric acid flow rate as determined by the Unit Supervisor. PLACE the Reactor Makeup Selector Switch to BORATE. PLACE the RCS Makeup Control Switch to START. ADJUST the setpoint on the Boric Acid Controller FC-3-113A to the desired flow rate as indicated on FR-3-113. WITHDRAW Control Rods to establish $T_{avg}/T_{ref} \Delta T$ up to +3°F GREATER THAN T_{ref} until Annunciator B8/1 is CLEAR. <ul style="list-style-type: none"> Monitor Annunciator B8/2 ROD BANK A/B/C/D EXTRA LO LIMIT – CLEAR. <p style="text-align: right;">Steps 7 - 10</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>The crew may direct personnel to rack out the 3A Heater Drain Pump breaker due to its auto start features.</p>	<p>BOP:</p> <p>When the turbine runback is complete:</p> <ul style="list-style-type: none"> Match the control switch flag for the 3A Heater Drain pump. <p style="text-align: right;">Steps 11.a</p>
<p style="text-align: center;"><u>PROCEDURE NOTE</u></p> <p>Closing CV-3-2011, LP HTR BYP, can cause a minor secondary transient causing T_{avg} to rise by 1°F to 2°F, Reactor Power to drop 1% to 2%, and MWe output to rise.</p>		

EVENT 2 – 3A HEATER DRAIN PUMP TRIP, RODS FAIL TO AUTO INSERT

3-ONOP-089, TURBINE RUNBACK

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		When the turbine runback is complete: <ul style="list-style-type: none"> Check CV-3-2011, LP HTR BYP CLOSED. <p align="right">Steps 11.b</p>
	<p align="center"><u>BOOTH OPERATOR</u></p> <p>Acknowledge reports of plant status and request for support.</p>	<p>BOP:</p> <p>NOTIFY Load Dispatcher of load restrictions. (~85% and 740 MW)</p> <p align="right">Step 11c</p>
		<p>US:</p> <p>Informs SM to notify Plant Management and NRC Resident per 0-ADM-115, Notifications of Plant Events.</p> <p align="right">Step 11d</p>
	<p align="center"><u>NOTE</u></p> <p>The crew may decide to not restore Auto Makeup to AUTO due to previous failures.</p>	<p>RCO:</p> <p>If boration was used, when plant conditions are stable, stop the boration and restore Auto Makeup</p> <p align="right">Step 12</p>
	<p align="center"><u>NOTE</u></p> <p>Since Auto Rod control is not working, the crew should leave rods in manual.</p>	<p>RCO:</p> <p>Check Rod Control in MANUAL.</p> <p>A. CHECK T_{avg} within $\pm 1.5^{\circ}\text{F}$ of T_{ref}</p> <p>B. PLACE Rod Control in AUTO</p> <p align="right">Step 13</p>
	<p align="center"><u>BOOTH OPERATOR</u></p> <p>Acknowledge notification to take RCS samples.</p>	<p>BOP:</p> <p>IF change in Reactor Power exceeded 15%, then notify Chemistry that RCS sampling is required within 2 to 6 hours per TS 4.4.8, Table 4.4-4, Item 6b.</p> <p align="right">Step 14</p>
	<p align="center"><u>NOTE</u></p> <p>If the RO promptly inserts rods during the runback, the Steam Dumps may not arm.</p> <p align="center"><u>BOOTH OPERATOR</u></p> <p>If crew prematurely places SDTC to manual thinking it's malfunctioned, respond appropriately and report that there are no abnormalities.</p>	<p>BOP:</p> <p>Take Steam Dump To Condenser Mode Switch to Reset, and Release to AUTO.</p> <p align="right">Step 15</p>

EVENT 2 – 3A HEATER DRAIN PUMP TRIP, RODS FAIL TO AUTO INSERT

3-ONOP-028, REACTOR CONTROL SYSTEM MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		US: Enters and direct the actions of 3-ONOP-028.
		RCO: <ul style="list-style-type: none"> Verify Rods in manual. <p style="text-align: right;">Step 4.2.1</p>
		RCO: <ul style="list-style-type: none"> Do NOT increase reactor power without permission from the Reactor Engineering Supervisor and the Shift Manager. Manually position the RCC control bank to restore steady state conditions. Notify Reactor Engineering and I&C Review Subsection 5.1. Determine Unit Shut down not required at this time <p style="text-align: right;">Steps 5.2.1 - 5.2.5</p>
	<p style="text-align: center;"><u>LEAD EVALUATOR NOTE</u></p> <p>After plant is stabilized or at the Lead Evaluators discretion, proceed to Event 3</p>	

EVENT 3 – N-42 LOSS OF INSTRUMENT POWER

3-ONOP-059.8, POWER RANGE NUCLEAR INSTRUMENTATION MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When directed by the Lead Evaluator trigger EVENT 3 - N42 BLOWN INST PWR FUSE</p>	
		<p>RCO:</p> <ul style="list-style-type: none"> Respond to multiple alarms associated with the Power Range Reports N-42 Instrument Power Fuse blown.
		<p>BOP:</p> <p>Reviews ARPs, recommend entering 3-ONOP-059.8, Power Range Nuclear Instrumentation Malfunction.</p>
		<p>US:</p> <p>Enters 3-ONOP-059.8, Power Range NI Malfunction.</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>If asked, I&C would like be present while tripping bistables. They will report to the control room in about one hour.</p>	<p>BOP:</p> <ul style="list-style-type: none"> Place the DROPPED ROD MODE switch for N42 channel in the BYPASS position (ANN B8/4) Place the N42 ROD STOP BYPASS switch to the failed channel BYPASS position Transfer the UPPER SECTION comparator defeat switch to the N42. Transfer the LOWER SECTION comparator defeat switch to the N42. Transfer POWER MISMATCH BYPASS switch to BYPASS N42. Transfer the COMPARATOR CHANNEL DEFEAT switch to N42 <p style="text-align: right;">Step 5.1.1.1 – 5.1.1.6</p>

EVENT 3 – N-42 LOSS OF INSTRUMENT POWER

3-ONOP-059.8, POWER RANGE NUCLEAR INSTRUMENTATION MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>Acknowledge request for assistance. If asked, the STA will monitor QPTR.</p>	<p>US:</p> <p>Notify I&C</p> <p>Monitor the Quadrant Power Tilt Ratio using 3-OSP-059.10, Determination Of Quadrant Power Tilt Ratio.</p> <p>Step 5.1.1.9 – 5.1.1.10</p>
		<p>US:</p> <p>Review Tech Specs:</p> <ul style="list-style-type: none"> • TS 3.3.1, Functional Unit 2 a & b <ul style="list-style-type: none"> - Action 2, Trip bistables in 6 hrs and restrict power to 75% RTP or monitor QPTR • TS 3.3.1, Functional Unit 5 & 6 <ul style="list-style-type: none"> - Action 13, Trip bistables in 6 hrs
	<p><u>LEAD EVALUATOR</u></p> <p>Once the crew completes the steps of 3-ONOP-059.8, or at the Lead Evaluators discretion, move on the next event.</p>	

EVENT 4 – 3B S/G FEEDWATER PUMP HIGH VIBRATION

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When directed by the Lead Evaluator, call as the SM to report High Vibration on the 3B SG Feedwater pump. Engineering has looked at the pump and recommends it be secured. Direct the crew to start a 3-GOP-100, Fast Load Reduction, to secure the 3B SG Feedwater pump.</p>	
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>Acknowledge request for support.</p>	
	<p style="text-align: center;"><u>NOTE</u></p> <p>Attachment 3 is available on Page 43 Attachment 4 is available on Page 44</p>	<p>US:</p> <ul style="list-style-type: none"> • Directs actions to reduce Rx power from 50% per 3-GOP-100. • Completes Attachment 3 • Brief the crew per Attachment 4 <p style="text-align: right;">Steps 1-2</p>
		<p>US:</p> <p>Reviews Foldout page with crew.</p> <ul style="list-style-type: none"> • 3-EOP-E-0 Transition Criteria • Notify Chemistry Department • Boration Stop Criteria • Restore Blender to AUTO <p style="text-align: right;">FOLDOUT PAGE</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>Acknowledge notifications.</p>	<p>BOP:</p> <p>Notify The Following Of Fast Load Reduction</p> <ul style="list-style-type: none"> • System Dispatcher • Plant personnel using the Page Boost • Chemistry to start RCS sampling is required according to Tech Spec Table 4.4-4. <p style="text-align: right;">Step 3</p>

EVENT 4 – 3B S/G FEEDWATER PUMP HIGH VIBRATION

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>RCO:</p> <p>Begin Boration For Initial Tav_g Effect</p> <ul style="list-style-type: none"> Set the Boric Acid Totalizer to total boric acid volume value determined on Attachment 3. Place the Reactor Makeup Selector Switch to BORATE. Place the RCS Makeup Control Switch to START. Adjust FC-3-113A, Boric Acid Flow Controller, to achieve 40 gpm boric acid flow as indicated on FR-3-113. WHEN Tav_g begins to lower from the boration, THEN adjust FC-3-113A, Boric Acid Flow Controller, to load reduction value from Attachment 3. <p style="text-align: right;">Step 4</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When crew starts reducing power, trigger EVENT 5 – FT-3-494 FAILED AS IS</p>	<p>US:</p> <p>Determine Turbine Load Reduction in MW CNTRL</p> <p style="text-align: right;">Step 5</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>When the crew notices the 3C Steam Flow Chanel, FT-3-494, failed as is, they may place the ramp on hold. The steps for the FT-3-494 failure start on page 27.</p>	<p>BOP:</p> <p>Initiate Turbine Load Reduction in MW CNTRL</p> <ul style="list-style-type: none"> Select MW CNTRL Set TARGET power level – MW VALUE from Attachment 3 Set RAMP RATE – MW/M VALUE FROM Attachment 3. Check T_{avg} has lowered 1° to 2°F from the initial value prior to boration. Depress GO Ensure FC-3-113A, Boric Acid Flow Controller, has been adjusted to the load reduction boration rate. <p>Go to Step 10</p> <p style="text-align: right;">Step 6</p>

EVENT 4 – 3B S/G FEEDWATER PUMP HIGH VIBRATION

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p align="center"><u>NOTE</u></p> <p>Enclosure 1 is available on Page 45.</p>	<p>BOP:</p> <p>Monitor Load Reduction</p> <ul style="list-style-type: none"> Adjusts power reduction rate to maintain T_{avg}/T_{ref} within limits of Attachment 3. Monitors S/G level control to ensure feed reg valves properly maintain level control in automatic. Refer to Enclosure 1 for expected alarms. <p align="right">Step 10</p>
	<p align="center"><u>BOOTH OPERATOR</u></p> <p>Respond as SNPO. If asked, idle Charging Pump ready for start.</p>	<p>RCO:</p> <ul style="list-style-type: none"> Maintain pressurizer level to ensure that automatic pressurizer level control maintains level on program. If needed, start 2nd Chg Pp and place 2nd orifice in service. Adjust boration rate to maintain T_{avg}/T_{ref} within limits of Attachment 3. Refer to Enclosure 1 for expected alarms. <p align="right">Step 10</p>
		<p>RCO:</p> <p>Monitor Boration Rate</p> <ul style="list-style-type: none"> Monitor for excessive rod movement by monitoring TR-3-409D, Rod Position Bank D. Determine if Insertion Limit and Bank D position are converging at a rate that will cause rod insertion limit alarms. Adjust power reduction rate as needed to control rod insertion Increase boration rate and/or total amount as necessary to limit control rod insertion <p align="right">Step 11</p>

EVENT 4 – 3B S/G FEEDWATER PUMP HIGH VIBRATION

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: <ul style="list-style-type: none"> Monitor Annunciator B 8/1, ROD BANK LO LIMIT – CLEAR Monitor B 8/2 ROD BANK A/B/C/D EXTRA LO LIMIT – CLEAR <p style="text-align: right;">Steps 12-13</p>
		US: <p>Have SM refer to the following procedures:</p> <ul style="list-style-type: none"> 0-EPIP-20101, DUTIES OF EMERGENCY COORDINATOR 0-ADM-115, NOTIFICATION OF PLANT EVENTS <p style="text-align: right;">Step 14</p>
		RCO: <p>Energize Pressurizer Backup Heaters</p> <p style="text-align: right;">Step 15</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>Since the unit is not coming offline, the crew should leave station services on the Auxiliary Transformers.</p>	BOP: <ul style="list-style-type: none"> Verify Turbine Load Less Than 675 MWE Stop one condensate pump Check Desired Final Power Target – LESS THAN 475 MWe.
	<p style="text-align: center;"><u>LEAD EVALUATOR</u></p> <p>Once power has been reduced by a minimum of 5%, or at the Lead Evaluators discretion, proceed to Event 6.</p>	

EVENT 5 – FT-3-494 3C S/G STEAM FLOW TRANSMITTER FAILS AS IS

3-ONOP-049.1, DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>This malfunction was inserted when the crew started the fast load reduction.</p>	<p>BOP:</p> <ul style="list-style-type: none"> Recognizes and reports 3C S/G Steam Flow FT-3-494 failure. Takes Prompt Actions <ul style="list-style-type: none"> Take manual control of 3C S/G level control valve FCV-3-498. Return 3C S/G level to normal.
	<p><u>NOTE</u></p> <p>The crew may stop the load reduction.</p>	<p>RCO:</p> <p>Addresses Alarm Response for C6/3, SG C Level Deviation.</p> <ul style="list-style-type: none"> CHECK LI-3-496 or LI-3-498, C STM GEN LEVEL controlling channel for SG Level deviation. CHECK Feedwater Controllers FIC-3-498A or FIC-3-498B for indications of failure, alarm, or input signal failures. CHECK Feedwater Controller Inputs IF alarm is due to instrument failure, THEN REFER TO 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels.
		<p>US:</p> <p>Enters and directs actions of 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, for response.</p>
	<p><u>NOTE</u></p> <p>The crew may use the ARP to select an operable channel and restore automatic level control.</p>	<p>BOP:</p> <ul style="list-style-type: none"> Verify FT-3-494 failure by channel check comparison. Verify no off-normal conditions exist on FT-3-495. Place 3C S/G Steam Flow Control Transfer Switch to FT-3-495 (Yellow) Place 3C S/G Feed Water Flow Control Transfer Switch to FT-3-496 (Yellow) Ensure 3C S/G level is returned to AUTO.

EVENT 5 – FT-3-494 3C S/G STEAM FLOW TRANSMITTER FAILS AS IS

3-ONOP-049.1, DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>WCC/I&C: Acknowledge the report. I&C want to be present to trip bi-stables and should be in the control room in about an hour.</p>	<p>BOP:</p> <p>Notifies WCC to initiate PWO and I&C for troubleshooting.</p>
	<p><u>BOOTH OPERATOR</u></p> <p>If asked to reset AMSAC, wait 2- 3 minutes and then trigger EVENT 5 - RESET AMSAC.</p>	<p>US:</p> <p>Reviews Tech Specs</p> <ul style="list-style-type: none"> Enters Tech Spec Action 3.3.1 Functional Unit 12 <ul style="list-style-type: none"> Action 6, within 6 hrs trip bistables Enters Tech Spec Action 3.3.2 Functional Unit 1.f and 4.d <ul style="list-style-type: none"> Action 15, within 6 hrs trip bistables
	<p><u>LEAD EVALUATOR</u></p> <p>If the crew stopped the Rapid Power reduction, they should resume it once the 3C S/G level control is restored to auto and the US completes a review of Tech Specs.</p>	<p>US:</p> <p>Conducts crew brief.</p>

EVENT 6 - COMMON MAIN FEED HEADER BREAK

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	TIME	TIME
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by Lead Evaluator or if Reactor trips, verify EVENT 6 - MAIN FEED HEADER BREAK triggers.</p>	
		<p>BOP</p> <ul style="list-style-type: none"> • Reports S/G levels lowing rapidly • Recommends a Manual Rx trip and SI
		<p>US:</p> <ul style="list-style-type: none"> • Directs RCO to manually trip the Reactor and for operators to perform their IOA's.
		<p>RCO:</p> <ul style="list-style-type: none"> • Manually trips Reactor.
	<p><u>NOTE</u></p> <p>Steps 1 - 4 of 3-EOP-E-0 are Immediate Operator Actions (IOAs). The board operators will call out the high level steps of the IOAs as each step is completed from memory. Once the IOAs are completed, the US will read through Steps 1 – 4 with the crew.</p>	<p>RO/BOP:</p> <p>Perform IOA's.</p>
		<p>RCO:</p> <p>Verifies Reactor Trip</p> <p>STEP 1</p>

EVENT - 7 MAIN TURBINE FAILS TO AUTOMATICALLY TRIP

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	TIME	TIME
CT1	<p><u>Manually Trip the Main Turbine</u> Manually trip the main turbine before any RCS cold leg temperature decreases by more than 100°F.</p> <p><u>BOOTH OPERATOR</u> When the BOP trips the turbine verify EVENT 6 – STEAM LEAK INSIDE CTMT triggers.</p> <p>When the BOP trips the turbine verify EVENT 7 - DELETE TURBINE TRIP FAILURE triggers.</p>	<p>BOP: Verify Turbine Trip (NO)</p> <ul style="list-style-type: none"> Manually Trips the turbine. <p>STEP 2</p>
		<p>BOP: Verifies Power To Emergency 4 KV Buses</p> <p>STEP 3</p>
		<p>RCO: Checks If SI Is Actuated</p> <p>STEP 4</p>
		<p>US: Directs 3-EOP-E-0 response and reviews the IOAs.</p>

EVENT - 7 MAIN TURBINE FAILS TO AUTOMATICALLY TRIP

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	TIME	TIME
		<p>US:</p> <p>Reviews FOP for 3-EOP-E-0 with the crew</p> <ul style="list-style-type: none"> • Adverse Containment Conditions • RCP Trip Criteria • Faulted S/G Isolation Criteria • Ruptured S/G Isolation Criteria • AFW System Operation Criteria • CST Makeup Water Criteria • RHR System Operation Criteria(YES, RCO starts timer) • Loss Of Offsite Power Or SI On Other Unit • Loss Of Charging Criteria <p style="text-align: right;">FOLDOUT PAGE</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>Attachment 3 actions start on page 37.</p>	<p>BOP:</p> <p>Continues with ATTACHMENT 3 to complete The Prompt Action Verifications.</p> <p style="text-align: right;">STEP 5</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>If dispatched to check AFW pumps, wait 3 to 5 minutes and then report there too much steam in the area to check the pumps.</p>	<p>RCO:</p> <p>Check AFW Pumps – AT LEAST TWO RUNNING. (NO)</p> <p style="text-align: right;">STEP 6</p>
		<p>RCO:</p> <p>Verify AFW Valve Alignment – PROPER EMERGENCY ALIGNMENT</p> <p style="text-align: right;">STEP 7</p>
		<p>RCO:</p> <p>Verify Proper AFW Flow: (NO)</p> <ul style="list-style-type: none"> • NO feed flow available <p style="text-align: right;">STEP 8</p>

EVENT - 7 MAIN TURBINE FAILS TO AUTOMATICALLY TRIP

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	TIME	TIME
		US: <ul style="list-style-type: none"> • Monitor Critical Safety Functions using 3-EOP-F-0, Critical Safety Function Status Trees. • Go to 3-EOP-FR-H.1, Response To Loss Of Secondary Heat Sink, Step 1.

EVENT 8 – PCV-3-455C FAILS TO OPEN. (PZR PORV)

3-EOP-FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>If dispatched to start A or B Standby S/G Feedwater Pump, wait 2 to 3 minutes and then report DWDS-3-012, Standby S/G FW Pump Manual Isolation valve, will not open.</p>	<p>US: Enters and directs the actions of 3-EOP-FR-H.1, Response To Loss Of Secondary Heat Sink</p>
<p style="text-align: center;"><u>PROCEDURE CAUTION</u></p> <ul style="list-style-type: none"> If total feed flow has been reduced to less than 400 gpm due to procedural requirements <u>AND</u> 400 gpm total feed flow is available, then this procedure shall NOT be performed. Feed flow shall NOT be re-established to any faulted S/G if a non-faulted S/G is available. If an Alternate Low Pressure Feedwater Source has been implemented (e.g., 3-EOP-ECA-0.0, Attachment 15), <u>AND</u> CETs are able to be maintained stable <u>OR</u> decreasing, then this procedure shall NOT be performed. 		
		<p>RCO: Check If Secondary Heat Sink Is Required (YES)</p> <ul style="list-style-type: none"> a. RCS pressure – GREATER THAN ANY NON-FAULTED S/G PRESSURE b. RCS Hot Leg Temp – GREATER THAN 350°F <p style="text-align: right;">STEP 1</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>The transient also cause a small steam leak on the 3B Main Steam Line inside containment.</p>	<p>US: Reviews Foldout Page</p> <ul style="list-style-type: none"> Adverse Containment Conditions (MET) <p style="text-align: right;">Foldout Page</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>Step 2 is a continuous action step.</p>	<p>RCO: Check If Bleed And Feed Is Required</p> <ul style="list-style-type: none"> Stop all RCPs (Go to Step 13) <p style="text-align: right;">STEP 2</p>
	<p style="text-align: center;"><u>CAUTION</u></p> <p>Step 13 through Step 17 must be performed quickly in order to establish RCS heat removal by RCS bleed and feed.</p>	<p>US: Reviews Caution with the crew.</p>

EVENT 8 – PCV-3-455C FAILS TO OPEN. (PZR PORV)

3-EOP-FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	Part of CT2	RCO: Actuate SI And Containment Isolation Phase A STEP 13
	Part of CT2	RCO: Establish maximum Charging flow <ul style="list-style-type: none"> • Check power supply to all Charging pumps – Aligned To Offsite Power • Check status of Charging pumps prior to SI actuation in Step 13 – any running (NO) • Check CCW flow to RCP(s) Thermal Barrier is lost (NO) • Reset SI • Start all available Charging pumps • Adjust Charging pump speed controllers to establish maximum charging flow • Adjust HCV-3-121, Charging Flow To Regen Heat Exchanger, to maintain proper Seal Injection flow • Place RCS Makeup Control Switch in STOP • Check Charging Pump Suction – Aligned To RWST STEP 14.a
		RCO: <ul style="list-style-type: none"> • Check SI pumps status – at least two running • Verify SI valve amber lights on VPB – All Bright STEP 14.b&c

EVENT 8 – PCV-3-455C FAILS TO OPEN. (PZR PORV)

3-EOP-FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>US:</p> <p>Reviews Caution and notes with crew</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>If Low PRZ Pressure SI signal is NOT blocked prior to PRZ pressure decreasing below 1730 psig, Charging Pumps started in previous step will trip</p> <p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> PRZ pressure must be less than 1987 psig for permissive to block the Low PRZ Pressure SI signal. Step 15 should be reviewed in advance to ensure timely performance.
CT2	<p style="text-align: center;"><u>NOTE</u></p> <p>PORV-455C was failed closed during the simulator setup. One PORV is insufficient bleed path.</p> <p><u>Initiate Bleed-And-Feed</u></p> <p>Initiate bleed-and-feed cooling in accordance with 3-EOP-FR-H.1 within 36 minutes following an automatic or manual Reactor trip due to a loss of Feed Water.</p>	<p>RCO:</p> <ul style="list-style-type: none"> Verify power to PRZ PORV Block valves – Available Verify PRZ PORV Block valves – Both Open Check Block Low PRZ Press S.I. status light – ON (NO) Open one PRZ PORV When Block Low PRZ Press. S.I. status light is ON Momentarily place both Safety Injection Block switches to Block and return to Neutral Verify Low PRZ Press. S.I. Blocked status light – ON Open remaining PRZ PORV (NO, Failed Close) <p style="text-align: right;">STEP 15</p>
		<p>BOP:</p> <p>Verify Instrument Air To Containment</p> <p style="text-align: right;">STEP 16</p>

EVENT 8 – PCV-3-455C FAILS TO OPEN. (PZR PORV)

3-EOP-FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When dispatched to install the fuses for the RCS Vent valves, trigger EVENT 8 LOA - INSTALL FUSES FOR RX HEAD VENTS.</p>	<p>RCO/BOP:</p> <p>Both PRZ PORVs Open (NO)</p> <ul style="list-style-type: none"> Install fuses for RCS Vent valves: WHEN power is restored to RCS vent valves, THEN open all RCS vents: <p>STEP 17</p>
The scenario is terminated once the RCS Vent Valves are open or at the Lead Evaluator's discretion once all critical task have been evaluated.		
*** END OF SCENARIO ***		

EVENT 6 – COMMON MAIN FEED HEADER BREAK

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>BOP: Check Load Centers Associated With Energized 4 KV Buses – ENERGIZED</p> <p>STEP 1</p>
		<p>BOP: Verify Feedwater Isolation:</p> <ul style="list-style-type: none"> Place Main Feedwater Pump switches in STOP Feedwater Control Valves – CLOSED Feedwater Bypass Valves – CLOSED Feedwater Bypass Isolation Valves – CLOSED Feedwater Isolation MOVs – CLOSED Verify Standby Feedwater Pumps – OFF <p>STEP 2</p>
		<p>BOP: Check If Main Steam Lines Should Be Isolated</p> <p>STEP 3</p>
		<p>BOP: Verify Containment Isolation Phase A Valve White Lights On VPB – ALL BRIGHT</p> <p>STEP 4</p>
		<p>BOP: Verify Pump Operation:</p> <ul style="list-style-type: none"> At least two High-Head SI Pumps – RUNNING Only one RHR Pump Available <p>STEP 5</p>

EVENT 6 – COMMON MAIN FEED HEADER BREAK

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>BOP:</p> <p>Verify Proper CCW System Operation:</p> <ul style="list-style-type: none"> • CCW Heat Exchangers – THREE IN SERVICE • CCW Pumps – ONLY TWO RUNNING • CCW Headers – TIED TOGETHER • MOV-3-626, RCP Thermal Barrier CCW Outlet – OPEN <p style="text-align: right;">STEP 6</p>
		<p>BOP:</p> <p>Verify Proper ICW System Operation:</p> <ul style="list-style-type: none"> • Verify ICW Pumps – AT LEAST TWO RUNNING • Verify ICW To TPCW Heat Exchanger – ISOLATED • Check ICW Headers – TIED TOGETHER <p style="text-align: right;">STEP 7</p>
		<p>BOP:</p> <p>Check Emergency Containment Coolers – ONLY TWO RUNNING</p> <p style="text-align: right;">STEP 8</p>
		<p>BOP:</p> <p>Verify Unit 3 Containment Purge Exhaust And Supply Fans – OFF</p> <p style="text-align: right;">STEP 9</p>
		<p>BOP:</p> <p>Verify Containment Spray NOT Required:</p> <p style="text-align: right;">-STEP 10</p>
		<p>BOP:</p> <p>Verify SI – RESET</p> <p style="text-align: right;">STEP 11</p>

EVENT 6 – COMMON MAIN FEED HEADER BREAK

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Verify SI Valve Amber Lights On VPB – ALL BRIGHT <div style="text-align: right;">STEP 12</div>
		BOP: Verify SI Flow: <ul style="list-style-type: none"> RCS pressure – LESS THAN 1625 PSIG[1950 PSIG] (NO) <div style="text-align: right;">STEP 13</div>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When directed by the crew, trigger LOA – ALIGN U-4 HHSI TO U-3 RWST.</p> <p>Wait 5 minutes and report local operator steps complete.</p>	BOP: Realign SI System: <ul style="list-style-type: none"> Check Procedure Entry Status – E-0 ENTERED FROM 3-ONOP-047.1, LOSS OF CHARGING FLOW IN MODES 1 THROUGH 4 (NO) Verify Unit 3 High-Head SI Pumps – TWO RUNNING Direct Unit 4 Reactor Operator to align Unit 4 High-Head SI Pump suction to Unit 3 RWST using Attachment 1. <div style="text-align: right;">STEP 14</div>
		BOP: Verify Containment Isolation Phase A – RESET <div style="text-align: right;">STEP 15</div>
		BOP: Reestablish RCP Cooling: <ul style="list-style-type: none"> Check RCPs – AT LEAST ONE RUNNING Open CCW To Normal Containment Cooler Valves: <ul style="list-style-type: none"> MOV-3-1417 MOV-3-1418 Reset and start Normal Containment Coolers <div style="text-align: right;">STEP 16</div>

EVENT 6 – COMMON MAIN FEED HEADER BREAK

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Verify Control Room Ventilation Isolation: STEP 17
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When requested by crew, trigger LOA – PLACE PAHMS IN SERVICE.</p> <p>Wait 5 minutes and report local operator steps complete.</p>	BOP: Place Hydrogen Monitors In Service Using 3-NOP-094, CONTAINMENT POST ACCIDENT MONITORING SYSTEM <ul style="list-style-type: none"> For Each Hydrogen Monitor A/B <ul style="list-style-type: none"> ENSURE FUNCTION SELECTOR switch is in SAMPLE. PLACE control switch in ANALYZE. PRESS the REMOTE SELECTOR button. PRESS the ALARM RESET button. Dispatch an operator to complete local step of 3-NOP-094 STEP 18
		BOP: Verify All Four EDGs – RUNNING STEP 19
		BOP: Verify Power To Emergency 4 KV Buses: STEP 20
		BOP: Notify Unit Supervisor Of The Following: <ul style="list-style-type: none"> Attachment 3 is complete Any safeguards equipment that is NOT In the required condition Status of Containment pressure continuous action STEP 21

Discussion Points are intentionally NOT included in evaluated scenarios. However, space is available below to document follow-up questions when further information is required to determine an evaluation outcome.

FOLLOW-UP QUESTIONS

QUESTION #1

ANSWER #1

QUESTION #2

ANSWER #2

SIMULATOR POST-SCENARIO RESTORATION:

- _____ 1. Restore per Simulator Operator Checklist.
- _____ 2. Once exams are complete, restore from SEI-19, Simulator Exam Security.

Procedure No.: 3-GOP-100	Procedure Title: Fast Load Reduction	Page: 26
		Approval Date: 1/27/16

ATTACHMENT 3
(Page 1 of 1)

FAST LOAD REDUCTION MANEUVERING PLAN

Item#

1.	MW CNTRL Load Reduction Rate MW/min	35	30	25	20	15	10
2.	Load Reduction Rate %/min	4.1	3.5	2.9	2.4	1.8	1.2
3.	TIP CNTRL Load Reduction Rate PSIG/min	27.1	23.2	19.3	15.5	11.6	7.7
4.	Expected Tavg/Tref ΔT	4° F	4° F	3.5°F	3° F	3° F	2°F

5. Current Power _____ %
6. End Target Power _____ % [= % power level at which load reduction is expected to be complete]
7. Total Power Change _____ % [= (Item 5) - (Item 6)]
8. Time Required for Total Power Change _____ min [(Item 7) ÷ (Item 2)]

%RTP	TIP	MWe	Tavg
10	47.6	85.1	550.0
20	107.6	170.1	553.0
30	169.6	255.2	556.0
40	233.8	340.3	559.1
50	300.2	425.4	562.3

%RTP	TIP	MWe	Tavg
60	368.6	510.4	565.7
70	439.1	595.5	569.1
80	511.8	680.6	572.6
90	586.6	765.6	576.3
100	663.5	850.7	580.0

9. Turbine MW CNTRL (or manual) Target Power Level = _____ MW
(N/A if TIP CNTRL Selected)
[= (Item 6) x (.01) x (850.7 MW) or from table above]
10. Turbine TIP CNTRL Target Power Level = _____ PSIG (N/A if MW CNTRL Selected)
[= (0.0106 x (Item 6)³) + (5.6775 x Item 6) - 10.216 or from table above]
11. Calculate (multiplication) Total Boron Addition With Rod Movement
[Use 20 gallons/% with no rod movement]

$$\frac{(\quad)}{\text{Item 7 - Total Power Change for Boron Addition}} \times \frac{(10 \text{ gal/\%power})}{\text{Boron Worth}} = \frac{\quad}{\text{Total Boron Volume Change (Gallons)}}$$

12. Calculate (division) Boron Addition Rate

$$\frac{\text{Item 11 - Total Boron Volume Change (Gallons)}}{\text{Item 8 - Time Required for Power Change (min)}} = \frac{(\quad)}{(\quad)} = \frac{\quad}{\text{Total Boron Rate (gpm)}}$$

W2010-DD/ab/njw/r

Procedure No.: 3-GOP-100	Procedure Title: Fast Load Reduction	Page: 27 Approval Date: 1/27/16
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ATTACHMENT 4
(Page 1 of 1)

FAST LOAD REDUCTION BRIEF

1. Reason for load reduction _____
2. Maneuvering Guidelines (From Attachment 3 Maneuvering Sheet)
 - Load reduction rate _____ % /minute [Item 2]
 - Time required for power change _____ min [Item 8]
 - End Target Power Level _____ % Power [Item 6]
 - Turbine Target Power Level _____ MW or PSIG (circle as applicable) [Item 9 or Item 10 as applicable]
 - Load reduction rate for Turbine _____ MW/min or PSIG/min (circle as applicable) [Item 1 or 3]
 - Total boron addition _____ gallons [Item 11]
 - Boron Addition Rate _____ gpm [Item 12]
3. Maneuvering Plan
 - Initial boration rate of 40 gpm for T_{AVG} reduction
 - Start load reduction after T_{AVG} reduction
 - Stop boration when 10% from target power
 - IF rod control motion is NOT available (Auto or Manual), THEN perform load reduction by leading with the reactor AND lowering turbine load using manual or automatic turbine control as desired.
4. Plant Control Parameters and Contingency Actions
 - Maintain Tav/Tref expected ΔT band [Item 4] +/- 1° F - Adjust ramp rate or boration rate
 - Monitor load rate and boration rate to prevent B 8/1, ROD BANK LO LIMIT and B 8/2, ROD BANK A/B/C/D EXTRA LO LIMIT - follow guidance in body of procedure
 - Annunciator B 4/4, TAVG/TAVG TREF DEVIATION - Stop load reduction.
5. Actions When Target Power Level Achieved
 - Manual reactor trip
 - Transition to 3-GOP-103 if Tripped from 5% or 3-EOP-E-0 if Tripped at 20%
6. EOP E-0 Transition Criteria
 - Manual reactor and turbine trip: T_{AVE} 6 °F > T_{TREF}
7. Review required actions from other procedures currently in effect (example, stop RCP).
8. Questions or crew input?
9. End of Brief

W2010:DD/ab/njw/r

Procedure No.:	Procedure Title:	Page:
3-GOP-100	Fast Load Reduction	23
		Approval Date:
		7/31/15

ENCLOSURE 1
 (Page 1 of 1)

EXPECTED ALARMS DURING LOAD REDUCTION

1. The following are expected alarms while maneuvering the unit:
 - A 2/5 BORIC ACID MAKE-UP FLOW DEVIATION
 - B 2/2 POWER RANGE UPPER DET HI FLUX DEV/AUTO DEFEAT
 - B 2/3 POWER RANGE LOWER DET HI FLUX DEV/AUTO DEFEAT
 - D 1/1 FW HEATER 1A HI LEVEL
 - D 1/2 FW HEATER 2A HI LEVEL
 - D 1/3 FW HEATER 3A HI LEVEL
 - D 1/4 FW HEATER 4A HI LEVEL
 - D 1/5 FW HEATER 5A HI LEVEL
 - D 1/6 FW HEATER 6A HI LEVEL
 - D 2/1 FW HEATER 1B HI LEVEL
 - D 2/2 FW HEATER 2B HI LEVEL
 - D 2/3 FW HEATER 3B HI LEVEL
 - D 2/4 FW HEATER 4B HI LEVEL
 - D 2/5 FW HEATER 5B HI LEVEL
 - D 2/6 FW HEATER 6B HI LEVEL
 - D 4/6 SJAE LO STEAM PRESS (after Attachment 1 is complete)
 - D 5/2 SGFP A LO FLOW
 - D 6/2 SGFP B LO FLOW
 - D 9/5 HDT B HI LEVEL
 - E 5/5 TURB GLAND SEAL LO PRESS (after Attachment 1 is complete)
 - F 2/1 POWER SYSTEM STABILIZER TROUBLE
 - G 4/3 RCS METAL IMPACT
 - G 5/2 AXIAL FLUX ADMIN LIMIT EXCEEDED

W2010:DD/ab/hjw/r



OPERATIONS SHIFT TURNOVER REPORT



UNIT 3 RISK: GREEN (ACCEPTABLE)
PROTECTED TRAIN: B

UNIT 4 RISK: GREEN (ACCEPTABLE)
PROTECTED TRAIN: B

ONCOMING CREW ASSIGNMENTS

Shift Mgr:			Inside SNPO:	
Field Supv.:			Outside SNPO:	
Admin RCO:			ANPO:	
Unit 3			Unit 4	
Unit Supv.:			Unit Supv.:	
RCO:			RCO:	
NPO:			NPO:	

PLANT STATUS

Unit 3			Unit 4	
Mode:	1		Mode:	1
Power:	100%		Power:	100%
MWe:	842		MWe:	842
Gross Leakrate:	0.25 gpm		Gross Leakrate:	0.03 gpm
RCS Boron Conc:	1145		RCS Boron Conc:	642

Operational Concerns:

3A RHR pump taken OOS 4 hours ago for an oil change, expected back by the end of this shift.
3A1 Circ Water pump OOS. Tripped on over current, Electrical Maintenance is investigating.

U3 Anticipated LCO Actions:

None

U4 Anticipated LCO Actions:

None

Results of Offgoing Focus Area:

UNIT 3 STATUS					
REACTOR OPERATOR					
UNIT RISK: GREEN (ACCEPTABLE) PROTECTED TRAIN: B					
Mode:	1	RCS Leakrate		Accumulator Ref Levels	
Power:	100%	Gross:	0.25 GPM	A	6656
MWe	842	Unidentified	0.04 GPM	B	6608
Tavg:	580°F	Charging Pps:	0.00 GPM	C	6646
RCS Pressure:	2235				
RCS Boron Conc:	1145				
Abnormal Annunciators:					
Annunciator:					
Comp Actions:					
Annunciator:					
Comp Actions:					
Annunciator:					
Comp Actions:					
Annunciator:					
Comp Actions:					
Annunciator:					
Comp Actions:					
Current Tech Spec Action Statements: (Does Not Include "For Tracking Only Items")					
T.S.A.S / Component:	3A RHR pump, 3.5.2.c – Action g				
Reason:	Oil Change				
Entry Date:	4 hours ago				
T.S.A.S / Component:					
Reason:					
Entry Date:					
T.S.A.S / Component:					
Reason:					
Entry Date:					
T.S.A.S / Component:					
Reason:					
Entry Date:					

REACTOR OPERATOR (CONT'D)

UNIT RISK: GREEN (ACCEPTABLE) PROTECTED TRAIN: B

Changes to Risk Significant Equipment:

No recent changes from last shift.

OLRM: GREEN

PROTECTED TRAIN: B

Upcoming Reactivity Management Activities:

Maintain 99.5% to 100%

Upcoming Major POD Activities:

NONE

Upcoming ECOs to Hang and /or Release:

- Hang – None
- Release – None

Evolutions or Compensatory Actions in Progress:

NONE

General Information, Remarks, and Operator Work Around Status:

- Weather forecast is overcast skies with scattered pockets of severe rain.
- U3 supplying Aux Steam
- Air In-leakage = 0.0 SCFM

NRC EXAM SECURE INFORMATION

Appendix D

Scenario Outline

Form ES-D-1

L-16-1 N3 (Rev-0)

Facility: Turkey Point Nuclear (PTN) – Units 3 and 4		Scenario No.: 3	Op Test No.: 2016-301
Examiners: _____		Operators: _____ (SRO)	
_____		_____ (RCO)	
_____		_____ (BOP)	
Initial Conditions:		The plant is at 10 ⁻⁸ Amps power (BOL). Online risk is green. B train is protected on both units.	
Turnover:		No equipment is OOS	
Event	Malf. No.	Event Type*	Event Description
1	N/A	R-RCO R-SRO N-BOP	Raise Power to 3%
2	TFN1IACF	I-BOP I-SRO (TS)	N35 Loss Of Compensating Voltage
3	TAB1SCLC V8CG30OF TCB1SCLC	C-RCO C-SRO	3C Charging Pump Speed Controller Air Leak
4	TVS1SR2O	C-BOP C-SRO	PT-3-1607, 3B S/G Steam Dump To Atmosphere Pressure Transmitter, drifts high
5	TFC1SOL	I-SRO (TS)	PS-3-2007, Containment Pressure Channel Fails High
6	TFN1IBFH TFL2RTAB TFL4AF	I-RCO I-SRO	N-36, Intermediate Range Nuclear Instrument fails high The Rx fails to automatically trip
7	TFLIA44 TFLIA84	P-RCO	2 Stuck Rods
8	TVSBVL14	M-RCO M-BOP M-SRO	3B S/G Faulted Inside Containment
9	TFFVV87M TFFVV89	P-BOP	POV-3-487, Feedwater Bypass Isolation, and FCV-3-489, Feedwater Bypass, Valves Fail To Isolate.
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (P)ost Trip			

SCENARIO SUMMARY**NOTE**

Allow 30 minutes for the crew to brief raising power before entering the control room to brief raising power from 10^{-8} amps to 3%.

Event 1

After the crew takes the shift the RCO will start raising Rx power by withdrawing Control Rods per 3-GOP-301, Hot Standby to Power Operation. The BOP will manually adjust Feedwater Bypass Flow Control valves, FCV-3-479/489/499, to maintain Steam Generator levels

Event 2

After the crew levels power at ~ 3% N35 loses compensating voltage. The US will enter 3-ONOP-059.7, Intermediate Range Nuclear Instrumentation and direct the BOP to place N35 in bypass.

Event 3

After the actions of 3-ONOP-059.7 are complete an air leak will develop on the 3C Charging pump speed controller causing the controller to fail to maximum output. The US will enter 3-ONOP-041.6, Pressurizer Level Control Malfunction and direct the RCO to start the 3B charging pump and secure the 3C charging pump.

Event 4

After the charging pumps are swapped PT-3-1607, 3B S/G Steam Dump To Atmosphere Pressure Transmitter, will drift high causing CV-3-1607, 3B Steam Dump To Atmosphere, to slowly open lowering the 3B S/G pressure. The BOP will place CV-3-1607 in manual and reduce demand to stabilize 3B S/G pressure.

Event 5

After the plant is stabilized, PS-3-2007, Containment Pressure Channel fails high. The US will enter 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channel, and review Tech Specs for the failed pressure channel.

Event 6

The US complete a review of Tech Specs for PS-3-2007, Intermediate Range Nuclear Instrumentation Channel N36 fails high and the Rx fails to auto trip. The RCO will manually trip the Reactor. The US will enter and direct the actions 3-EOP-E-0, Reactor Trip or Safety Injection.

Event 7

When the Rx is tripped the RCO will report 2 control rods failed to fully insert. After the crew completes the Immediate Operator Actions they will transition to 3-EOP-ES-0.1, Reactor Trip Response. The RCO will start a boration for the 2 stuck rods.

Event 8

After the boration is started a steam leak will develop on the 3B S/G inside containment. The crew will return to 3-EOP-E-0, verify SI actuates, and isolate Aux Feed Water to the 3B S/G per the Foldout page of 3-EOP-E-0.

Event 9

When SI actuates POV-3-487, 3B S/G Feedwater Bypass Isolation valve, 3B S/G Feedwater Bypass is failed as is, and FCV-3-489 will leak by. The BOP will manually close POV-3-487 per Attachment 3 of 3-EOP-E-0. The crew will complete the actions of 3-EOP-E-0. About the time the crew is ready to transition to 3-EOP-E-2, Faulted Steam Generator Isolation, a red path will develop on the RCS Integrity Status Tree. The US will transition to 3-EOP-FR-P.1, Response To Imminent Pressurized Thermal Shock Condition.

The scenario is terminated once the crew transitions to 3-EOP-FR-P.1 and isolates AFW flow to the 3B Steam Generator or at the Lead Evaluator's discretion once all critical tasks have been evaluated.

Event	<u>CRITICAL TASKS</u>	
6	CT1	<p><u>MANUALLY TRIP THE RX</u> Manually trip the reactor from the control room prior to manually inserting rods.</p> <p><i>Safety Significance:</i> Failure to manually trip the reactor demonstrates the inability of the crew to recognize a failure or an incorrect automatic actuation of an ESF system or component.</p>
8	CT2	<p><u>STOP AFW FLOW TO FAULTED SG</u> During a MSLB stop AFW flow to the faulted Steam Generator prior to starting the 1 hour soak required per 3-EOP-FR-P.1, Response To Imminent Pressurized Thermal Shock Condition.</p> <p><i>Safety Significance:</i> Failure to isolate a Faulted Steam Generator that can be isolated causes an additional challenge to the Integrity Critical Safety Function.</p>



L-16-1 NRC EXAM SCENARIO 3
NRC EXAM SECURE INFORMATION

SEG

Site: Turkey Point Units 3 and 4 (PTN)

Title: L-16-1 NRC EXAM SCENARIO 3

LMS #: NRC 23

LMS Rev Date: 5/31/16 **Rev #:** 0.0

SEG Type: ☐ Training ☒ Evaluation

Program: ☐ LOCT ☒ LOIT ☐ Other

Duration: 120 minutes

Developed by: Brian Clark 8/4/16
Instructor/Developer Date

Reviewed by: Luis Sagion 8/4/16
Instructor (Instructional Review) Date

Validated by : Sean Bloom 8/5/16
SME (Technical Review) Date

Approved by: Mark Wilson 8/5/16
Training Supervision Date

Approved by: Sean Bloom 8/5/16
Training Program Owner (Line) Date

NRC EXAM SECURE INFORMATION

SCENARIO REFERENCES

DOC NO.	TITLE	REV
3-GOP-301	HOT STANDBY TO POWER OPERATION	36B
3-ONOP-059.7	INTERMEDIATE RANGE NUCLEAR INSTRUMENTATION MALFUNCTION	0
3-ONOP-041.6	PRESSURIZER LEVEL CONTROL MALFUNCTION	2
3-ONOP-049.1	DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION CHANNEL	4
3-EOP-E-0	REACTOR TRIP OR SAFETY INJECTION	12
3-EOP-ES-0.1	REACTOR TRIP RESPONSE	12
3-ONOP-046.1	EMERGENCY BORATION	4
3-EOP-E-2	FAULTED STEAM GENERATOR ISOLATION	4
3-EOP-FR-P.1	RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION	4
	PTN TECHNICAL SPECIFICATIONS	300

SIMULATOR EXERCISE GUIDE REQUIREMENTS

Terminal Objective

Given this simulator scenario and resources normally found in the Control Room, the operating crew will perform Control Room operations IAW approved plant procedures in order to maintain the integrity of the plant and the health and safety of the public.

Enabling Objectives:

- Given this simulator scenario and resources normally found in the Control Room, operate in accordance with approved plant procedures, Operations Department Instructions, and management expectations:
1. (ALL) Demonstrate personnel SAFETY awareness in interactions with plant staff and outside agencies.
 2. (ALL) Demonstrate ALARA awareness in interactions with plant staff and outside agencies.
 3. (ALL) Exchange correct information using 3-point communication/Repeat-backs with Control Room personnel and other plant staff.
 4. (ALL) Inform plant personnel and System of plant conditions, as needed.
 5. (US) Employ timely and concise crew briefs where appropriate.
 6. (ALL) Maintain awareness of plant status and control board indication.
 7. (ALL) Correctly diagnose plant situations.
 8. (ALL) Solve operational problems as they arise.
 9. (RCO/BOP) Manipulate plant controls properly and safely.
 10. (ALL) Demonstrate self-checking using STAR and peer checks(when required)
 11. (US) Demonstrate command and control of the crew.
 12. (US) Coordinate the input of crew members and other plant staff.
 13. (US) Utilize the input of crew members and other plant staff.
 14. (ALL) Demonstrate conservative decision making.
 15. (ALL) Demonstrate teamwork.
 16. (ALL) Respond to plant events using procedural guidance (OPs/ONOPs/EOPs) as applicable in accordance with rules of usage.
 17. (RCO/BOP) Implement any applicable procedural immediate operator actions without use of references.
 18. (SRO) Maintain compliance with Tech Specs.
 19. (ALL) Identify/enter applicable Tech Spec action statements.
 20. (ALL) Respond to annunciators using ARPs (time permitting).
 21. (ALL) Maintain written communication, logs, and documentation as needed to permit post-event reconstruction.

Continued on the next page:

SIMULATOR EXERCISE GUIDE REQUIREMENTS

	<p>While addressing the following events:</p> <ol style="list-style-type: none"> 1. Raise Power to 3% 2. N35 Loss Of Compensating Voltage 3. 3C Charging Pump Speed Controller Air Leak 4. PT-3-1607, 3B S/G Steam Dump To Atmosphere Pressure Transmitter, Drifts High 5. PS-3-2007, Containment Pressure Channel Fails High 6. N36 Fails High, Rx Fails To Automatically Trip 7. 2 Stuck Rods 8. 3B Faulted S/G Inside Containment 9. POV-3-487, Feedwater Bypass Isolation, and FCV-3-489, Feedwater Bypass, Valves Fail To Isolate.
Prerequisites:	None
Training Resources:	PTN Unit 3 Plant Simulator
Development References:	<ul style="list-style-type: none"> • TR-AA-220-1003, Initial NRC and Audit Exam Process • TR-AA-230-1003, SAT Development • TR-AA-230-1007, Conduct of Simulator Training and Evaluation • 0-ADM-232, Time Critical Action Program • OP-AA-100-1000, Conduct Of Operations • OP-AA-103-1000, Reactivity Management • 0-ADM-200, Operations Management Manual • 0-ADM-211, Emergency and Off-Normal Operating Procedure Usage • WCAP-17711-NP, Pressurized Water Reactor Owners Group Westinghouse Emergency Response Guideline Revision 2-Based Critical Tasks
Protected Content:	N/A
Evaluation Method:	Performance Mode
Operating Experience:	None
Risk Significant Operator Actions:	None

TASKS ASSOCIATED WITH SIMULATOR EXERCISE GUIDE

SRO TASK #	TASK TITLE
02028033500	AUTHORIZE UNIT TRIP
02046008300	EMERGENCY BORATE THE R.C.S. (MOV-350)
02047008300	INVESTIGATE CHARGING PUMP MALFUNCTIONS
02059008100	AUTHORIZE REMOVAL OF AN INTERMEDIATE RANGE NIS CHANNEL FROM SERVICE
02059024300	RESPOND TO LOSS OF INTERMEDIATE RANGE INSTRUMENTATION
02059027300	EVALUATE AND DIRECT TECH SPECS REQUIRED ACTIONS DUE TO NIS OUT OF SPEC / SERVICE CONDITIONS
02200002500	EVALUATE CRITICAL SAFETY FUNCTION (CSF) STATUS TREE OUTPUT
02200007500	RESPOND TO A STEAM LINE FAULT
02200022500	DIAGNOSE CAUSE OF SAFEGUARDS ACTUATION
02200023100	COORDINATE UNIT STARTUP
02200050500	RESPOND TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION

RO TASK	TASK TITLE
01200023100	COORDINATE UNIT STARTUP
01059024300	RESPOND TO LOSS OF INTERMEDIATE RANGE INSTRUMENTATION
01046008300	EMERGENCY BORATE THE R.C.S. (MOV-350)
01200007500	RESPOND TO A STEAM LINE FAULT
01200022500	DIAGNOSE CAUSE OF SAFEGUARDS ACTUATION
01200050500	RESPOND TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION
01047013100	START A CHARGING PUMP
01200001500	RESPOND TO UNIT TRIP
01047008300	INVESTIGATE CHARGING PUMP MALFUNCTIONS

UPDATE LOG:

NOTES:

Place this form with the working copies of lesson plans and/or other materials to document changes made between formal revisions. For fleet-wide training materials, keep electronic file of this form in same folder as approved materials. Refer to TR-AA-230-1003 SAT Development for specific directions regarding how and when this form shall be used.

Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER	DATE
				REVIEWER	DATE
0-0	Initial Revision	New for L-16-1 NRC Exam	2108338	Note 5	Note 5
				Note 5	Note 5

1. Individual updating lesson plan or training material shall complete the appropriate blocks on the Update Log.
2. Describe the change to the lesson plan or training materials.
3. State the reason for the change (e.g., reference has changed, typographical error, etc.)
4. Preparer enters name/date on the Update Log and obtains Training Supervisor approval.
5. Initial dates and site approval on cover page.

SCENARIO SUMMARY**INITIAL CONDITIONS**

The plant is at 10^{-8} Amps power (BOL). Online risk is green. B train is protected on both units. The crew will raise power to 3%.

EQUIPMENT OOS:

None

NOTE

Allow 30 minutes for the crew to brief raising power before entering the control room to brief raising power from 10^{-8} amps to 3%.

Event 1

After the crew takes the shift, the RCO will start raising Rx power by withdrawing Control Rods per 3-GOP-301, Hot Standby to Power Operation. The BOP will manually adjust Feedwater Bypass Flow Control valves, FCV-3-479/489/499, to maintain Steam Generator levels.

Event 2

After the crew stabilizes power at ~ 3%, N35 loses compensating voltage. The US will enter 3-ONOP-059.7, Intermediate Range Nuclear Instrumentation, and direct the BOP to place N35 in bypass.

Event 3

After the actions of 3-ONOP-059.7 are complete, an air leak will develop on the 3C Charging pump speed controller, causing the controller to fail to maximum output. The US will enter 3-ONOP-041.6, Pressurizer Level Control Malfunction, and direct the RCO to start the 3B charging pump and secure the 3C charging pump.

Event 4

After the charging pumps are swapped, PT-3-1607, 3B S/G Steam Dump To Atmosphere Pressure Transmitter, will drift high causing CV-3-1607, 3B Steam Dump To Atmosphere, to slowly open, lowering the 3B S/G pressure. The BOP will place CV-3-1607 in manual and reduce demand to stabilize 3B S/G pressure.

Event 5

After the plant is stabilized, PS-3-2007, Containment Pressure Channel, fails high. The US will enter 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channel, and review Tech Specs for the failed pressure channel.

Event 6

After the US completes the review of Tech Specs for PS-3-2007, Intermediate Range Nuclear Instrumentation Channel, N36, fails high and the Rx fails to auto trip. The RCO will manually trip the Reactor. The US will enter and direct the actions 3-EOP-E-0, Reactor Trip or Safety Injection.

SCENARIO SUMMARY

Event 7

When the Rx is tripped, the RCO will report 2 control rods failed to fully insert. After the crew completes the Immediate Operator Actions they will transition to 3-EOP-ES-0.1, Reactor Trip Response. The RCO will start a boration for the 2 stuck rods using 3-ONOP-046.1, Emergency Boration.

Event 8

After the boration is started, a steam leak will develop on the 3B S/G inside containment. The crew will return to 3-EOP-E-0, verify SI actuates, and isolate Aux Feed Water to the 3B S/G per the Foldout page of 3-EOP-E-0.

Event 9

When SI actuates, POV-3-487, 3B S/G Feedwater Bypass Isolation valve, is failed as is, and FCV-3-489, 3B FW Bypass, will leak by. The BOP will manually close POV-3-487, 3B FW Bypass Isolation, per Attachment 3 of 3-EOP-E-0. The crew will complete the actions of 3-EOP-E-0. About the time the crew is ready to transition to 3-EOP-E-2, Faulted Steam Generator Isolation, a red path will develop on the RCS Integrity Status Tree. The US will transition to 3-EOP-FR-P.1, Response To Imminent Pressurized Thermal Shock Condition.

The scenario is terminated once the crew transitions to 3-EOP-FR-P.1 and isolates AFW flow to the 3B Steam Generator or at the Lead Evaluator's discretion once all critical tasks have been evaluated.

CREW CRITICAL TASKS

Event		Description
6	CT1	<p><u>MANUALLY TRIP THE RX</u></p> <p>Manually trip the reactor from the control room prior to manually inserting rods.</p> <p><i>Safety Significance:</i> Failure to manually trip the reactor demonstrates the inability of the crew to recognize a failure or an incorrect automatic actuation of an ESF system or component.</p>
8	CT2	<p><u>STOP AFW FLOW TO FAULTED SG</u></p> <p>During a MSLB stop AFW flow to the faulted Steam Generator prior to starting the 1 hour soak required per 3-EOP-FR-P.1, Response To Imminent Pressurized Thermal Shock Condition.</p> <p><i>Safety Significance:</i> Failure to isolate a Faulted Steam Generator that can be isolated causes an additional challenge to the Integrity Critical Safety Function.</p>

SEQUENCE OF EVENTS

Event #	Description
1.	Raise Power to 3%
2.	N35 Loss Of Compensating Voltage
3.	3C Charging Pump Speed Controller Air Leak
4.	PT-3-1607, 3B S/G Steam Dump To Atmosphere Pressure Transmitter, Drifts High
5.	PS-3-2007, Containment Pressure Channel Fails High
6.	N36 Fails High, Rx Fails To Automatically Trip
7.	2 Stuck Rods
8.	3B Faulted S/G Inside Containment
9.	POV-3-487, Feedwater Bypass Isolation, and FCV-3-489, Feedwater Bypass, Valves Fail To Isolate.

SIMULATOR SET UP INSTRUCTIONS

Check	Action
_____	Restore IC-181 BOL 10^{-8} amps
_____	Open & execute lesson file L-16-1 N3.Isn
_____	Verify the following step is triggered <ul style="list-style-type: none"> • SETUP - DEFEAT AUTO RX TRIP
_____	Ensure Rod Group Step Counters have completed stepping out.
_____	Allow the plant to stabilize.
_____	Acknowledge any alarms and freeze Simulator.
_____	Ensure B train is protected train on VPB.
_____	Perform the SIMULATOR OPERATOR CHECKLIST or equivalent.
_____	Place TURNOVER SHEETS on RO's desk or give to the Lead Evaluator.
_____	Ensure a copy of the maneuvering guideline is available
_____	Ensure a marked copy of 3-GOP-301 is available for power increase.
_____	Ensure a copy of 0-ADM-200 is available for briefs.
_____	Ensure a copy of ODI-44 is available for briefs.

BRIEFINGS

- Shift turnover information is attached to the back of this guide.
- Ensure all applicants are prior briefed on Appendix E of NUREG 1021, Policies and Guidelines For Taking NRC Examinations.
- Conduct a Crew Pre-brief to cover turnover information. Shift turnover information is attached to the back of this guide

US: _____

RCO: _____

BOP: _____

SCENARIO NOTE

0-ADM-211 Prudent Operator Actions - If redundant stand-by equipment is available and ready, the operator is permitted to start the redundant equipment for failed or failing operating equipment. Immediate follow up of applicable ARPs and ONOPs (AOPs) shall occur as required.

Critical Tasks are highlighted in pink.

Simulator Operator Actions are highlighted in blue.

Operator Verifiable Actions are Highlighted in green

EVENT 1 – RAISE POWER TO 3%

3-GOP-301, HOT STANDBY TO POWER OPERATION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>NOTE</u></p> <p>The Reactivity briefing will occur prior to assuming the watch in the Simulator Briefing Room. Allow up to 30 minutes for the briefing before the crew enters the control room.</p>	<p>CREW:</p> <p>Participates in reactivity briefing for raising Rx power to 3% / POAH.</p>
	<p><u>NOTE</u></p> <p>Maneuvering Guidelines are attached to the back of this Scenario Guide.</p>	<p>US:</p> <p>Directs the evolution per 3-GOP-301, Hot Standby to Power Operation, in accordance Step 5.24.</p>
		<p>RCO:</p> <p>Pull Rods to establish a startup rate not to exceed 1 dpm while below the POAH.</p>
		<p>BOP:</p> <p>Adjusts Steam Dumps to Atmosphere and Feedwater flow to maintain S/G Level on program when POAH is reached.</p>
		<p>RCO:</p> <p>Once above the POAH withdrawals rods continues to raise power with a startup rate not to exceed .5 dpm.</p>
	<p><u>LEAD EVALUATOR</u></p> <p>Once the crew levels power above the POAH or at the lead evaluator's discretion, direct the Booth Operator to trigger the next event.</p>	

EVENT 2 – N35 LOSS OF COMPENSATING VOLTAGE

3-ONOP-059.7, INTERMEDIATE RANGE NUCLEAR INSTRUMENTATION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When directed by Lead Evaluator, trigger EVENT 2 – N-35 FAILS</p>	
		<p>RCO:</p> <p>Recognizes / reports N-35 IR channel malfunction.</p>
		<p>BOP:</p> <p>Review ARP B5/3</p> <ul style="list-style-type: none"> CHECK LOSS OF COMP VOLT light on N-35 IR channel drawer ON. Refer to 3-ONOP-059.7
		<p>US:</p> <p>Enters 3-ONOP-059.7, Intermediate Range Nuclear Instrumentation Malfunction.</p>
		<p>RCO:</p> <ul style="list-style-type: none"> Check If Reactor Trip Required <ul style="list-style-type: none"> Check Rx Power <P-10 Check Hi Flux Status Light for N35 <u>OR</u> N36 – ON Check Rx Trip Breakers - OPEN Check Annunciator B 5/3 OFF. (NO) Go to Step 4 <p style="text-align: right;">Steps 1-2</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>Annunciator B8/4 expected when placing level trip switch to bypass.</p>	<p>BOP:</p> <ul style="list-style-type: none"> Places N35 level trip switch in BYPASS Verify N36 Operable <p>RCO:</p> <ul style="list-style-type: none"> Verify N-45 recorder selected to N36 <p style="text-align: right;">Step 4</p>

EVENT 2 – N35 LOSS OF COMPENSATING VOLTAGE

3-ONOP-059.7, INTERMEDIATE RANGE NUCLEAR INSTRUMENTATION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: <ul style="list-style-type: none"> • Check Reactor In Mode 1 Above P-10 (NO) • Check Reactor In Mode 1 Below P-10 (NO) • Check Reactor In Mode 2 Above P-6 • Maintain power below 5 percent until both IR channels are Operable • Go to Step 10 <p style="text-align: right;">Steps 5 - 7</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> As WCC / I&C, inform US that ARs & WRs have been written and I&C has been notified to investigate.	US: Initiate a PWO and notify I&C to check affected IR channel.
		US: Reviews Tech Spec applicability. <ul style="list-style-type: none"> • TS 3.3.1 Functional Unit 3 <ul style="list-style-type: none"> – Action 3, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 10% • TS 3.3.1 Functional Unit 17a <ul style="list-style-type: none"> – Action 7, within 1 hr determine that the interlock is in its required state
	<p style="text-align: center;"><u>LEAD EVALUATOR</u></p> Once the US completes the review of Tech Specs, or at your discretion, continue to the next event.	

EVENT 3 - 3C CHARGING PUMP SPEED CONTROLLER AIR LEAK

3-ONOP-041.6, PRESSURIZER LEVEL CONTROL MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by Lead Evaluator, trigger EVENT 3 – 3C CHARGING PUMP SPEED CONTROLLER AIR LEAK</p>	
		<p>RCO:</p> <p>Report Max demand on 3C Charging pump speed controller.</p>
	<p><u>NOTE</u></p> <p>The US may use the guidance in the ARP to swap charging pumps prior to entering enter 3-ONOP-041.6.</p>	<p>BOP:</p> <p>Review ARP G1/2, CHARGING PUMP HI SPEED</p> <ul style="list-style-type: none"> Check individual charging pump controller and the master charging pump controller. IF a failure of the individual charging pump controller has occurred in automatic, THEN PLACE the individual controller in manual AND MAINTAIN pressurizer level on program. <ul style="list-style-type: none"> GO TO 3-ONOP-041.6, Pressurizer Level Control Malfunction IF unable to control running charging pump, THEN START a standby charging pump AND SHUTDOWN the affected pump.
		<p>US:</p> <p>Enter 3-ONOP-041.6, Pressurizer Level Control Malfunction</p>

EVENT 3 - 3C CHARGING PUMP SPEED CONTROLLER AIR LEAK

3-ONOP-041.6, PRESSURIZER LEVEL CONTROL MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
<p style="text-align: center;"><u>PROCEDURE NOTE</u></p> <ul style="list-style-type: none"> <i>If Pressurizer Level Malfunction is a result of a failure of the 3-459CX or 3-460CX relays (as indicated by a loss of letdown flow with a loss of Pressurizer Heaters with no concurrent failure of Level Transmitters 3-459A, 3-460, 3-461), use 3-ONOP-003.6 Attachment 4, for 3-460CX failure, OR 3-ONOP-003.9 Attachment 4, for 3-459CX failure as guidance for establishing Letdown flow and Pressurizer Heaters.</i> <i>If the button on relays 3-459CX or 3-460CX are used to restore Letdown flow and Pressurizer Heaters, comply with Tech Spec Action Statement 3.4.3 Action b.</i> <i>If the manual control of Heaters from the Electrical Penetration Room is used, comply with Tech Spec Action Statement 3.4.3 Action a.</i> 		
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>If dispatched to check the 3C Charging Pump, wait 2 to 3 minutes and then report a large air leak on the speed controller.</p> <p>If asked, the 3B Charging pump is ready for a start and once it's started, report back a SAT start.</p>	<p>RCO:</p> <ul style="list-style-type: none"> Check pressurizer level indicators LI-3-459A, LI-3-460, and LI-3-461 (NO) Place Master Charging Pump Controller, LC-3-459G in Manual Place individual Charging Pump Controllers in Manual Start or stop additional pumps as necessary <p style="text-align: right;">Steps 5.1 – 5.3</p>
		<p>RCO:</p> <p>When desired, place running charge controllers and master controller in auto.</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When asked, acknowledge request for addition support. .</p>	<p>US:</p> <p>Initiate a PWO</p>
	<p style="text-align: center;"><u>LEAD EVALUATOR</u></p> <p>Continue with next event after the RCO swaps charging pumps.</p>	

EVENT 4 – 3B S/G STEAM DUMP TO ATMOSPHERE PRESSURE TRANSMITTER DRIFTS HIGH

0-ADM-211, PRUDENT OPERATOR ACTIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by Lead Evaluator, trigger EVENT 4 - PT-3-1607, 3B S/G STEAM DUMP TO ATMOSPHERE PRESSURE TRANSMITTER, DRIFTS HIGH</p>	
		<p>CREW: Hears steam flow.</p>
		<p>BOP: Reports CV-3-1607, 3B Steam Dump to Atmosphere, is open.</p>
		<p>US: Directs BOP to close CV-3-1607.</p>
	<p><u>BOOTH OPERATOR</u></p> <p>As WCC, inform US that WCC/AOM has been notified, ARs & WRs were written, and proper work groups have been notified.</p>	<p>BOP: Places CV-3-1607 in manual and reduces demand to stabilize 3B S/G pressure.</p>
	<p><u>LEAD EVALUATOR</u></p> <p>After the plant is stabilized, proceed with the next event.</p>	

EVENT 5 – PS-3-2007, CONTAINMENT PRESSURE CHANNEL FAILS HIGH

3-ONOP-049.1, DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION CHANNEL

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by Lead Evaluator, trigger EVENT 5 - CTMT PRESSURE CHANNEL FAILS HIGH</p>	
		<p>BOP:</p> <p>Review ARP, H5/1, CNTMT HI-HI/HI PRESS</p> <ul style="list-style-type: none"> CHECK Containment pressure indication CHECK Status lamps on VPB(3C05) Refer to 3-ONOP-049.1
		<p>US:</p> <p>Enters 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels</p>
		<p>BOP:</p> <p>Verify instrument loop failure by comparison to adjacent loops and known plant parameters and conditions.</p> <p>Step 5.1</p>
		<p>US:</p> <p>Refer to Technical Specifications</p> <ul style="list-style-type: none"> Tech Spec 3.3.2, Functional units 1.c, 2.b, 3.b.3, and 4.c <ul style="list-style-type: none"> Action 15 – Place the inoperable channel in the tripped condition within 6 hours. <p>Step 5.6</p>
		<p>US:</p> <p>Identifies fuses for failed channel using Attachment 7. (FU 25 & 26)</p>
	<p><u>BOOTH OPERATOR</u></p> <p>WCC/I&C: Acknowledge the report. State that I&C wants to be present before removing the fuses and should be in the control room in about an hour.</p>	<p>BOP:</p> <p>Notifies WCC to initiate PWO and I&C for troubleshooting.</p>

EVENT 5 – PS-3-2007, CONTAINMENT PRESSURE CHANNEL FAILS HIGH

3-ONOP-049.1, DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION CHANNEL

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>LEAD EVALUATOR</u></p> <p>After the US completes the Tech Spec review, proceed with the next event.</p>	

EVENT 6 - N36 FAILS HIGH

3-EOP-E-0, REACTOR TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When directed by Lead Evaluator, trigger EVENT 6 - N36 FAILURE and verify EVENT 7 – 2 STUCK RODS triggers.</p>	
	<p style="text-align: center;"><u>NOTE</u></p> <p>Record the time Annunciator C6/5 INTERM RANGE HI FLUX TRIP Alarms</p>	<p>RCO:</p> <p>Reports conditions met for manual reactor trip.</p> <ul style="list-style-type: none"> • N-36 has failed high • Associated bistables are lit • Reports manual reactor trip is required
		<p>US:</p> <p>Directs a reactor trip</p>
<p>CT1</p> <p>SAT _____</p>	<p><u>Manually Trip The Rx</u></p> <p>Manually trip the reactor from the control room prior to manually inserting rods.</p>	<p>RCO:</p> <p>Trips the reactor</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>Steps 1 - 4 of 3-EOP-E-0 are Immediate Operator Actions (IOAs). The board operators will call out the high level steps of the IOAs as each step is completed from memory. Once the IOAs are complete the US read through steps 1 - 4 with the crew.</p>	<p>RCO:</p> <p>Verifies Reactor Trip</p> <ul style="list-style-type: none"> • Determines 2 rods stuck out • Reports reactor trip (NO) <p>RNO – Rx Power is <5% and lowering.</p> <p style="text-align: right;">Step 1</p>
		<p>BOP:</p> <p>Verifies Turbine trip</p> <p style="text-align: right;">Step 2</p>
		<p>BOP:</p> <p>Verifies Power To Emergency 4 KV Buses</p> <p style="text-align: right;">Step 3</p>
		<p>RCO:</p> <p>Checks SI has NOT Actuated and is NOT required</p> <p style="text-align: right;">Step 4</p>

EVENT 6 - N36 FAILS HIGH

3-EOP-E-0, REACTOR TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		US: Directs transition to 3-EOP-ES-0.1, Reactor Trip Response Step 4

EVENT 7 – 2 STUCK RODS

3-EOP-ES-0.1, REACTOR TRIP RESPONSE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		US: Directs 3-EOP-ES-0.1 response
		CREW: Reviews FOP for 3-EOP-ES-0.1 <ul style="list-style-type: none"> • SI Actuation Criteria • Pressurizer Level Criteria • S/G Level Criteria Using AFW • CST Makeup Water Criteria • Control Room Ventilation Manual Isolation Criteria <p style="text-align: right;">Foldout Page</p>
<p style="text-align: center;"><u>PROCEDURE CAUTION</u></p> <p>If SI Actuation occurs during this procedure, 3-EOP-E-0, REACTOR TRIP OR SAFETY INJECTION, is required to be performed.</p>		
		BOP: <ul style="list-style-type: none"> ➔ Checks RCS temperature control • Checks AFW pumps - NONE running • Checks RCPs – all running • Checks RCS Average Temperatures using DCS - Stable between 545°F and 547°F <p style="text-align: right;">Step 1</p>

EVENT 7 – 2 STUCK RODS

3-EOP-ES-0.1, REACTOR TRIP RESPONSE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>BOP:</p> <p>Checks Feedwater Status</p> <ul style="list-style-type: none"> • Checks RCS Average Temperatures - LESS THAN 554°F • Verifies Main Feedwater Flow Control valves – CLOSED AND IN MANUAL • Manually closes Feedwater Isolation valves: <ul style="list-style-type: none"> – MOV-3-1407 – MOV-3-1408 – MOV-3-1409 • Checks S/G Narrow Range Levels – GREATER THAN 7% IN AT LEAST ONE S/G • Stops all but one Main Feedwater Pump <p style="text-align: right;">Step 2</p>
		<p>RCO:</p> <p>Verifies ALL control rods - fully inserted (NO) (L-7 & L-9 are stuck out)</p> <ul style="list-style-type: none"> • Emergency Borate for stuck control rods using 3-ONOP-046.1, EMERGENCY BORATION, while continuing with Step 4. <p style="text-align: right;">Step 3</p>

EVENT 7 – 2 STUCK RODS

3-EOP-ES-0.1, REACTOR TRIP RESPONSE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>NOTE</u></p> <p>In accordance with step 4 of 3-ONOP-046.1, Emergency borate for 50 minutes for each rod not fully inserted using BAST water at 60 GPM through MOV-3-350. (2 rods x 50 min /rod = 100 min)</p> <p style="text-align: center;"><u>LEAD EVALUATOR</u></p> <p>When emergency boration is established, continue with next event.</p>	<p>RCO:</p> <p>Commences emergency boration using 3-ONOP-046.1</p> <ul style="list-style-type: none"> • Verifies charging pumps - AT LEAST ONE RUNNING • Turns RCS Makeup Control Switch to STOP • Manually starts Boric Acid Pump 3A or 3B • Opens Emergency Boration Valve, MOV-3-350 • Opens Charging Flow to Regen Heat Exchanger, HCV-3-121 • Verify Loop A Charging Isolation, CV-3-310A – OPEN • Establishes emergency boration flow <ul style="list-style-type: none"> – FI-3-110 > 60 GPM – FI-3-122A > 45 GPM • Informs US emergency boration is established
	<p style="text-align: center;"><u>NOTE</u></p> <p>The US and BOP should continue with 3-EOP-ES-0.1.</p>	<p>BOP:</p> <ul style="list-style-type: none"> • Checks 4KV Power Status To Both Unit 3 And Unit 4 • Checks Pressurizer Level Control • Checks PRZ Pressure Control • Checks S/G Levels ➔ Verifies All 4kV buses energized by OFFSITE POWER • Establish S/G Pressure Control

EVENT 8 – 3B S/G FAULTED INSIDE CONTAINMENT

3-EOP-E-0, REACTOR TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When directed by Lead Evaluator, trigger EVENT 8 - 3B S/G STEAM LEAK INSIDE CONTAINMENT</p> <p>When event 8 is triggered, verify EVENT 9 – 3B SG FAILS TO ISOLATE triggers</p>	<p>RCO:</p> <ul style="list-style-type: none"> • Reports Tavg lowering • Reports containment press rising <p>BOP:</p> <ul style="list-style-type: none"> • Reports 3B SG pressure lowering uncontrollably
	<p style="text-align: center;"><u>NOTE</u></p> <p>The Crew will transition to 3-EOP-FR-P.1 when any RCS Cold Leg is $\leq 280^{\circ}\text{F}$ (Orange Condition for P.1) The steps for 3-EOP-FR-P.1 start on page 30.</p>	<p>US:</p> <p>Transitions to 3-EOP-E-0, Step 1, when Foldout page SI initiation criteria are met.</p>
		<p>RCO:</p> <p>Verifies Reactor Trip</p> <p style="text-align: right;">Step 1</p>
		<p>BOP:</p> <p>Verifies Turbine Trip</p> <p style="text-align: right;">Step 2</p>
		<p>BOP:</p> <p>Verifies Power To Emergency 4 KV Buses</p> <p style="text-align: right;">Step 3</p>
		<p>RCO:</p> <p>Checks If SI Is Actuated</p> <p style="text-align: right;">Step 4</p>
		<p>US:</p> <p>Directs 3-EOP-E-0 response and reviews the IOAs.</p>

3-EOP-E-0, REACTOR TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
CT2 SAT _____	<p align="center"><u>NOTE</u></p> <p>CT2 may be completed and at any time before the completion of 3-EOP-FR-P.1 Step 2.</p> <p><u>STOP AFW FLOW TO FAULTED SG</u></p> <p>During a MSLB stop AFW flow to the faulted Steam Generator prior to starting the 1 hour soak required per 3-EOP-FR-P.1, Response To Imminent Pressurized Thermal Shock Condition.</p>	<p>CREW:</p> <p>Reviews FOP for 3-EOP-E-0</p> <ul style="list-style-type: none"> Adverse Cntmt RCP Trip Criteria (YES) <ul style="list-style-type: none"> Trips RCPs when RCP trip criteria met. Faulted S/G Isolation - (YES) <ul style="list-style-type: none"> Place in manual and close or reduce the controller setpoint to 0 <ul style="list-style-type: none"> Train 1 AFW Flow to 3B S/G CV-3-2817 Train 2 AFW Flow to 3B S/G CV-3-2832 RUPTURED S/G ISOLATION CRITERIA AFW Sys Operation Criteria - (YES) CST Makeup Water Criteria RHR System Operation Criteria - (YES) Set timer) Loss of Offsite Power or SI on the Other Unit Loss of Charging Criteria <p align="right">Foldout Page</p>
	<p align="center"><u>NOTE</u></p> <p>Attachment 3 actions start on page 32.</p>	<p>BOP:</p> <p>Continues with ATTACHMENT 3 to complete the Prompt Action Verifications.</p> <p align="right">Step 5</p>
		<p>RCO:</p> <p>Check AFW Pumps – AT LEAST TWO RUNNING - (YES)</p> <p align="right">Step 6</p>
		<p>RCO:</p> <p>Verify AFW Valve Alignment – PROPER EMERGENCY ALIGNMENT - (YES)</p> <p align="right">Step 7</p>

EVENT 8 – 3B S/G FAULTED INSIDE CONTAINMENT

3-EOP-E-0, REACTOR TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: <ul style="list-style-type: none"> Verify Proper AFW Flow: Check Narrow Range Level in at least one S/G – GREATER THAN 7%[27%] Maintain feed flow to S/G until Narrow Range Levels between 21%[27%] and 50% <p style="text-align: right;">Step 8</p>
		RCO: Check RCP Seal Cooling d. SI – RESET (NO) → Reset SI f. Start <u>one</u> Charging Pump at minimum speed for Seal Injection <p style="text-align: right;">Step 9.d & f</p>
		RCO: ➔ Check RCS Temperatures <ul style="list-style-type: none"> Check RCPs – ANY RUNNING – (NO) Check RCS Cold Leg Temperatures – STABLE BETWEEN 545°F AND 547°F OR TRENDING DOWN TO 547°F - (NO) Stops dumping steam <p style="text-align: right;">Step 10</p>
		RCO: Check PRZ PORVs, Spray Valves And Excess Letdown Isolated - Yes <p style="text-align: right;">Step 11</p>
		RCO: Check If RCPs Should Be Stopped – (Not running) <p style="text-align: right;">Step 12</p>
		RCO: <ul style="list-style-type: none"> Check If S/Gs Are Faulted - YES Continue to monitor CSFs <p style="text-align: right;">Step 13</p>

EVENT 8 – 3B S/G FAULTED INSIDE CONTAINMENT

3-EOP-E-0, REACTOR TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>US:</p> <p>When any RCS Cold Leg is $\leq 280^{\circ}\text{F}$ (Orange Condition for P.1) transition to 3-EOP-FR-P.1, Response To Imminent Pressurized Thermal Shock Condition</p> <p style="text-align: right;">Step 13</p>

EVENT 8 – 3B S/G FAULTED INSIDE CONTAINMENT

3-EOP-FR-P.1, RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		US: Enter 3-EOP-FR-P.1, Response To Imminent Pressurized Thermal Shock.
		US: Reviews the Foldout Page <ul style="list-style-type: none"> ADVERSE CONTAINMENT CONDITIONS (YES) Foldout Page
		RCO: Check RCS Pressure – GREATER THAN 275 PSIG [575 PSIG] (NO) Step 1
		BOP: RCS Cold Leg Temperatures – DECREASING Try to stop RCS cooldown: <ul style="list-style-type: none"> Verify S/G Steam Dump To Atmosphere Valves – CLOSED Verify steam Dump To Condenser Valves – CLOSED IF RHR System in service THEN stop any cool down from RHR System Control feed flow to non-faulted S/G(s) to stop RCS cooldown. Steps 2a – 2b

EVENT 8 – 3B S/G FAULTED INSIDE CONTAINMENT

3-EOP-FR-P.1, RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When dispatched to isolate AFW steam supply from the 3B S/G using Attachment 2, wait 1 to 2 minutes and then trigger LOA – CLOSE AND DE-ENERGIZE MOV-3-1404. Report when the step is complete.</p> <p><u>NOTE</u></p> <p>CT2 may have been completed per the FOLDOUT Page of 3-EOP-E-0</p> <p><u>STOP AFW FLOW TO FAULTED SG</u></p> <p>During a MSLB stop AFW flow to the faulted Steam Generator prior to starting the 1 hour soak required per 3-EOP-FR-P.1, Response To Imminent Pressurized Thermal Shock Condition.</p>	<p>RCO/BOP:</p> <p>Minimize cooldown from faulted S/G(s)</p> <ul style="list-style-type: none"> • Check S/Gs – ANY FAULTED • Verify Main Steamline Isolation AND Bypass Valves closed for each Faulted S/G <ul style="list-style-type: none"> – Close 3B MSIV • Dispatch operator to isolate AFW steam supply from 3B S/G using Attachment 2 • Check all S/Gs – ANY S/G NOT FAULTED • Control feed flow at 50 gpm to any Faulted S/G(s) needed for RCS temperature control • Isolate Feedwater to all Faulted S/G(s) NOT needed for RCS temperature control <ul style="list-style-type: none"> – Place in manual and close or reduce the controller setpoint to 0 – Train 1 AFW Flow to 3B S/G CV-3-2817 – Train 2 AFW Flow to 3B S/G CV-3-2832 <p style="text-align: right;">Step 2.c</p>
CT2		
SAT _____		

The scenario is terminated once the crew transitions to 3-EOP-FR-P.1 and isolates AFW flow to the 3B Steam Generator or at the Lead Evaluator's discretion once all critical tasks have been evaluated.

EVENT 9 – 3B S/G FAULTED INSIDE CONTAINMENT

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Check Load Centers - Energized Step 1
		BOP: Verify Feedwater Isolation: <ul style="list-style-type: none"> Place Main Feedwater Pump switches in STOP Feedwater Control valves – CLOSED Feedwater Bypass valves – CLOSED Feedwater Bypass Isolation valves – NOT CLOSED <ul style="list-style-type: none"> Closes POV-3-487 Feedwater Isolation MOVs – CLOSED Verify Standby Feedwater Pumps – OFF Step 2
		BOP: Check If Main Steam Lines Should Be Isolated (MSIVs Closed) Step 3
		BOP: Verify Containment Isolation Phase A Valve White Lights On VPB – ALL BRIGHT Step 4
		BOP: Verify Pump Operation: <ul style="list-style-type: none"> At least two High-Head SI Pumps – RUNNING Both RHR Pumps – RUNNING Step 5

EVENT 9 – 3B S/G FAULTED INSIDE CONTAINMENT

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>BOP:</p> <p>Verify Proper CCW System Operation:</p> <ul style="list-style-type: none"> • CCW Heat Exchangers – THREE IN SERVICE • CCW Pumps – ONLY TWO RUNNING • CCW Headers – TIED TOGETHER • MOV-3-626, RCP Thermal Barrier CCW Outlet – OPEN <p style="text-align: right;">Step 3</p>
		<p>BOP:</p> <p>Verify Containment Isolation Phase A Valve White Lights On VPB – ALL BRIGHT</p> <p style="text-align: right;">Step 4</p>
		<p>BOP:</p> <p>Verify Pump Operation:</p> <ul style="list-style-type: none"> • At least two High-Head SI Pumps – RUNNING • Both RHR Pumps – RUNNING <p style="text-align: right;">Step 5</p>
		<p>BOP:</p> <p>Verify Proper CCW System Operation:</p> <ul style="list-style-type: none"> • CCW Heat Exchangers – THREE IN SERVICE • CCW Pumps – ONLY TWO RUNNING • CCW Headers – TIED TOGETHER • MOV-3-626, RCP Thermal Barrier CCW Outlet – OPEN <p style="text-align: right;">Step 6</p>

EVENT 9 – 3B S/G FAULTED INSIDE CONTAINMENT

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Verify Proper ICW System Operation: <ul style="list-style-type: none"> • Verify ICW Pumps – AT LEAST TWO RUNNING • Verify ICW To TPCW Heat Exchanger – ISOLATED • Check ICW Headers – TIED TOGETHER <p style="text-align: right;">Step 7</p>
		BOP: Check Emergency Containment Coolers – ONLY TWO RUNNING <p style="text-align: right;">Step 8</p>
		BOP: <ul style="list-style-type: none"> • Verify Unit 3 Containment Purge Exhaust And Supply Fans – OFF <p style="text-align: right;">Step 9</p>
		BOP: ➔ Verify Containment Spray Running <p style="text-align: right;">Step 10</p>
		BOP: Verify SI – RESET <p style="text-align: right;">Step 11</p>
		BOP: Verify SI Valve Amber Lights On VPB – ALL BRIGHT <p style="text-align: right;">Step 12</p>
		BOP: Verify SI Flow: <ul style="list-style-type: none"> • RCS pressure – LESS THAN 1625 PSIG[1950 PSIG] (NO) • Go to Step 14. <p style="text-align: right;">Step 13</p>

EVENT 9 – 3B S/G FAULTED INSIDE CONTAINMENT

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When requested, trigger LOA – ALIGN U-4 HHSIs TO U3 RWST</p>	<p>BOP:</p> <p>Realign SI System:</p> <ul style="list-style-type: none"> Check Procedure Entry Status – E-0 ENTERED FROM 3-ONOP-047.1, LOSS OF CHARGING FLOW IN MODES 1 THROUGH 4 (NO) Verify Unit 3 High-Head SI Pumps – TWO RUNNING <p style="text-align: right;">Step 14</p>
		<p>BOP:</p> <p>Reset Phase A.</p> <p style="text-align: right;">Step 15</p>
		<p>BOP:</p> <p>Reestablish RCP Cooling:</p> <ul style="list-style-type: none"> Check RCPs – AT LEAST ONE RUNNING (NO Go To Step 17) <p style="text-align: right;">Step 16</p>
		<p>BOP:</p> <p>Verify Control Room Ventilation Isolation:</p> <p style="text-align: right;">Step 17</p>
	<p><u>BOOTH OPERATOR</u></p> <p>When requested, trigger LOA – ALIGN PAHMS FOR SERVICE</p>	<p>BOP:</p> <p>Place Hydrogen Monitors In Service Using 3-NOP-094, CONTAINMENT POST ACCIDENT MONITORING SYSTEM</p> <p style="text-align: right;">Step 18</p>
		<p>BOP:</p> <p>Verify All Four EDGs – RUNNING</p> <p style="text-align: right;">Step 19</p>
		<p>BOP:</p> <p>Verify Power To Emergency 4 KV Buses:</p> <p style="text-align: right;">Step 20</p>

EVENT 9 – 3B S/G FAULTED INSIDE CONTAINMENT

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>BOP:</p> <p>Notify Unit Supervisor Of The Following:</p> <ul style="list-style-type: none"> • Attachment 3 is complete • Any safeguards equipment that is NOT is in the required condition • Status of Containment pressure continuous action <p style="text-align: right;">Step 21</p>

Discussion Points are intentionally NOT included in evaluated scenarios. However, space is available below to document follow-up questions when further information is required to determine an evaluation outcome.

FOLLOW-UP QUESTIONS

QUESTION #1

ANSWER #1

QUESTION #2

ANSWER #2

SIMULATOR POST-SCENARIO RESTORATION:

- _____ 1. Restore per Simulator Operator Checklist.
- _____ 2. Once exams are complete, restore from SEI-19, Simulator Exam Security.

OPERATIONS SHIFT TURNOVER REPORT



UNIT 3 RISK: GREEN (ACCEPTABLE)
PROTECTED TRAIN: B

UNIT 4 RISK: GREEN (ACCEPTABLE)
PROTECTED TRAIN: B

ONCOMING CREW ASSIGNMENTS

Shift Mgr:			Inside SNPO:	
Field Supv.:			Outside SNPO:	
Admin RCO:			ANPO:	
Unit 3			Unit 4	
Unit Supv.:			Unit Supv.:	
RCO:			RCO:	
NPO:			NPO:	

PLANT STATUS

Unit 3			Unit 4	
Mode:	2		Mode:	1
Power:	10 ⁻⁸ amps		Power:	100%
MWe:	0		MWe:	842
Gross Leakrate:	0.23 gpm		Gross Leakrate:	0.03 gpm
RCS Boron Conc:	1670 ppm		RCS Boron Conc:	642 ppm

Operational Concerns:

Plant Start Up last shift following a 10 day outage to repair Feed Water Line Leak.
2 ROs and 2 SROs are in JITT for Turbine Roll and power accession. You are to raise power to 3% and hold until they return.

U3 Anticipated LCO Actions:

None

U4 Anticipated LCO Actions:

None

Results of Offgoing Focus Area:

UNIT 3 STATUS

REACTOR OPERATOR

UNIT RISK: GREEN (ACCEPTABLE) PROTECTED TRAIN: B

Mode:	2	RCS Leakrate		Accumulator Ref Levels	
Power:	.2%	Gross:	0.23 GPM	A	6656
MWe	0	Unidentified	0.02 GPM	B	6608
Tavg:	547 °F	Charging Pps:	0.00 GPM	C	6646
RCS Pressure:	2235				
RCS Boron Conc:	1670 ppm				

Abnormal Annunciators:

Annunciator:	
Comp Actions:	
Annunciator:	
Comp Actions:	
Annunciator:	
Comp Actions:	
Annunciator:	
Comp Actions:	
Annunciator:	
Comp Actions:	

Current Tech Spec Action Statements: (Does Not Include "For Tracking Only Items")

T.S.A.S / Component:	
Reason:	
Entry Date:	
T.S.A.S / Component:	
Reason:	
Entry Date:	
T.S.A.S / Component:	
Reason:	
Entry Date:	
T.S.A.S / Component:	
Reason:	
Entry Date:	

REACTOR OPERATOR (CONT'D)

UNIT RISK: GREEN (ACCEPTABLE) PROTECTED TRAIN: B

Changes to Risk Significant Equipment:

No recent changes from last shift.

OLRM: GREEN

PROTECTED TRAIN: B

Upcoming Reactivity Management Activities:

Approval granted to withdraw rods to 125 steps to raise power to Raise Power to 3% to roll the Turbine per 3-GOP-301 Step 5.45.

Place unit online and continue power increase to 30%.

Upcoming Major POD Activities:

SM has approved going to Mode 1

Roll the Turbine

Place the Unit Online

Continue power increase to 30%.

Upcoming ECOs to Hang and /or Release:

- Hang – None

Evolutions or Compensatory Actions in Progress:

NONE

General Information, Remarks, and Operator Work Around Status:

- Weather forecast is overcast skies with scattered pockets of severe rain.
- U4 supplying Aux Steam
- Air In-leakage = 0.0 SCFM

FOR TRAINING USE ONLY

TURKEY POINT

Reactivity Manipulation Table
 (USE ONLY AS GUIDELINE)

REACTOR ENGINEERING

Unit 3 Cycle 28 BOC Power Ascension Rev. 0

ELAPSED TIME	POWER (%)	CBD (Steps)	AFD (%)	RAOC (Limit)	BORON (ppm)	CHANGE (ppm)	DILUTE (gal)	BORATE (gal)
00:00	0.1	107	-0.00	N/A	1675	*	*	*
00:02	0.1	109	-0.00	N/A	1675	*	*	*
00:04	0.5	111	-0.00	N/A	1675	*	*	*
00:06	0.5	113	-0.00	N/A	1675	*	*	*
00:08	1.0	115	-0.1	N/A	1675	*	*	*
00:10	1.5	117	-0.1	N/A	1675	*	*	*
00:12	2.0	117	-0.1	N/A	1675	*	*	*
00:14	2.5	119	-0.2	N/A	1675	*	*	*
00:16	3.0	119	-0.2	N/A	1675	*	*	*
00:18	3.0	119	-0.2	N/A	1675	*	*	*
00:20	3.0	119	-0.2	N/A	1675	*	Note 3	*

NOTES

1. Withdraw rods to establish a SUR of 1 dpm to raise power from 10^{-8} amps to the Point Of Adding Heat
2. The SUR should be limited to .5 dpm above the Point Of Adding Heat
3. Once power is leveled at ~ 3% dilute and operate control rods as required to maintain RCS temperature for current power plateau.

NRC EXAM SECURE INFORMATION

Appendix D

Scenario Outline

Form ES-D-1

L-16-1 N4 (Rev-0)

Facility: Turkey Point Nuclear (PTN) – Units 3 and 4		Scenario No.: 4	Op Test No.: 2016-301
Examiners: _____		Operators: _____ (SRO)	
_____		_____ (RCO)	
_____		_____ (BOP)	
Initial Conditions:		The plant is at 100% power (MOL). Online risk is green. B train is protected on both units.	
Turnover:		The 3A RHR pump and 3A1 Circulating Water pump are OOS.	
Event	Malf. No.	Event Type*	Event Description
1	TVS1M6WD	I-BOP I-SRO (TS)	PT-3-495 3C S/G Pressure Transmitter Fails High
2	HNACSPECI FIC_VRCPS EAL1CTVV HNACSPECI FIC_VRCPS EAL2CTVV	R-RCO R-SRO N-BOP	3C RCP Degraded Seals (Rapid S/D Required)
3	TCE6DG8C	C-RCO C-BOP C-SRO (TS)	3P08 Loss Of Power (Power Restored)
4	HNACSPECI FIC_VRCPS EAL1CTVV / EAL2CTVV	C-RCO C-SRO	3C RCP Seal Failure, (Rx Trip Required)
5	TFP1S3GC TFE2Z51S	M-RCO M-BOP M-SRO	Loss of All AC
6	TFQ6X1BF	P-BOP	3B 4Kv Bus Stripping Relay Failure
7	TVHHCLC	M-RCO M-BOP M-SRO	Small Break LOCA
8	TFL3S12D	P-RCO P-BOP	MOV-3-843B HHSI Discharge to Cold Leg fails to auto open. (Slave Relay Failure)
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (P)ost Trip			

NRC EXAM SECURE INFORMATION

Scenario Summary**Event 1**

After the crew takes the shift PT-3-495 3C S/G Pressure slowly fails high. The BOP will take manual control of 3C S/G level, and restore level to normal. The crew will use the ARP or 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, to select operable channels and restore 3C S/G level control to automatic. The US will enter 3-ONOP-049.1 to verify all required actions are complete and to determine which bistables need to be tripped.

Event 2

Once equipment is restored to automatic, the 3C RCP seals will start degrading. The US will enter 3-ONOP-041.1, Reactor Coolant Pump Off-Normal and commence a unit shutdown using 3-GOP-100, Fast Load Reduction.

Event 3

After the crew starts the Load reduction Vital AC Bus 3P08 loses power. The Crew will enter 3-ONOP-003.8, Loss of Vital AC Bus 3P08. The crew will dispatch an operator to 3P08 to attempt to restore power. The 3A and 3B S/G level controllers shift to manual. The 3C S/G level controller shifts to manual on the Backup Controller. The BOP will select operable control channels for the 3A and 3B S/G and then restore automatic control. The operator dispatched to the restore power will report the Main Breaker for 3P08 will not close. Electrical Maintenance estimates it will take 2 hours to replace the breaker.

Event 4

After the US completes the Tech Spec review for the loss of 3P08, the 3C RCP Seal degrades to the point that requires a Reactor trip and stopping of the 3C RCP. The RCO will trip the Reactor, verify the Reactor is tripped, stop 3C RCP, close 3C RCP CBO Isolation Valve CV-3-303C, and close PCV-3-455A, PZR Spray Valve Loop C. The crew will enter 3-EOP-E-0, Reactor Trip or Safety Injection and complete the Operator Immediate Actions.

Event 5

After the RCO completes tripping the 3C RCP, a Loss of AC Power will occur. The 3A and 3B Emergency Diesel Generators will start but neither will energize its respective 4KV bus. The crew will enter 3-EOP-ECA-0.0, Loss of All AC Power.

Event 6

The 3A 4KV Bus is locked out so the US will direct the BOP perform Attachment 2, 3B 4KV Bus Stripping. The BOP will open the 3B ICW pump, 3B CCW pump, 3C CCW pump, 3B Load Center, and 3D Load Center breakers to complete bus stripping. Once Bus Stripping is complete the 3B EDG will automatically energize the 3B 4KV Bus.

Event 7

Once the 3B 4KV Bus is energized the crew will transition back to 3-EOP-E-0. Shortly after the transition a Small Break LOCA will occur.

Scenario Summary**Event 8**

When SI actuates, the slave relay which opens MOV-3-843B fails to actuate. The RCO may open MOV-3-843B any time after SI actuates. If the RCO doesn't open MOV-3-843B the BOP will open it during the performance of 3-EOP-E-0 Attachment 3, Prompt Action Verifications.

When the crew is ready to transition to 3-EOP-E-1, Loss Of Reactor Or Secondary Coolant, they will notice the Integrity Critical Safety Function Status Tree is RED and will transition to 3-EOP-FR-P.1, Response To Imminent Pressurized Thermal Shock Condition.

The scenario is terminated after the crew transitions to 3-EOP-FR-P.1 and determines a soak is required, or at the Lead Evaluator's discretion once all critical tasks have been evaluated.

<u>Event</u>	<u>Scenario Critical Tasks</u>	
6	CT1	<u>Re-energize 3B 4KV Bus</u> Following a Loss Of All AC, complete bus stripping and restore power to the 3B 4KV bus prior to actuating SI and within 30 minutes of the loss of power. <i>Safety Significance:</i> The failure to energize an AC emergency bus in a timely manner constitutes a misoperation or incorrect crew performance in which the crew does not prevent a degraded emergency power capacity. The 30 minute time limit is based minimizing DC bus battery depletion and the requirement to manually load a de-energized DC bus battery charger onto the operating EDG. (0-ADM-232, Attachment 1, Time Critical Operator Actions)
7	CT2	<u>Open MOV-3-843B</u> During a SBLOCA establish at least one train of HHSI flow prior to completing 3-EOP-E-0 Attachment 3 and within 30 minutes the HHSI pump starting. <i>Safety Significance:</i> Failure to establish at least one train HHSI flow constitutes a misoperation or incorrect crew performance in which the crew does not prevent "degraded emergency core cooling system (ECCS) capacity." The 30 minute time limit is based on the requirement to limit the time the pump is operating at shutoff head to less than 30 minutes. (0-ADM-232 Attachment 1, Time Critical Operator Actions)

Site: Turkey Point Units 3 and 4 (PTN)

Title: L-16-1 NRC EXAM SCENARIO 4

LMS #: NRC 24

LMS Rev Date: 6/8/16 **Rev #:** 0

SEG Type: ☐ Training ☒ Evaluation

Program: ☐ LOCT ☒ LOIT ☐ Other

Duration: 120 minutes

Developed by: Tim Hodge / Luis Sagion 8/4/16
Instructor/Developer Date

Reviewed by: Brian Clark 8/4/16
Instructor (Instructional Review) Date

Validated by : Sean Bloom 8/5/16
SME (Technical Review) Date

Approved by: Mark Wilson 8/5/16
Training Supervision Date

Approved by: Sean Bloom 8/5/16
Training Program Owner (Line) Date

SCENARIO REFERENCES		
DOC NO.	TITLE	REV
3-EOP-E-0	REACTOR TRIP OR SAFETY INJECTION	12
3-EOP-ECA-0.0	LOSS OF ALL AC POWER	10
3-EOP-FR-P.1	RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION	3
3-GOP-100	FAST LOAD REDUCTION	12A
3-ONOP-003.8	LOSS OF 120V VITAL INSTRUMENT PANEL 3P08	6
3-ONOP-041.1	REACTOR COOLANT PUMP OFF-NORMAL	11
3-ONOP-049.1	DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION CHANNEL	4
	PTN TECHNICAL SPECIFICATIONS	300

SIMULATOR EXERCISE GUIDE REQUIREMENTS

Terminal Objective

Given this simulator scenario and resources normally found in the Control Room, the operating crew will perform Control Room operations IAW approved plant procedures in order to maintain the integrity of the plant and the health and safety of the public.

Enabling Objectives:

Given this simulator scenario and resources normally found in the Control Room, operate in accordance with approved plant procedures, Operations Department Instructions, and management expectations:

1. (ALL) Demonstrate personnel SAFETY awareness in interactions with plant staff and outside agencies.
2. (ALL) Demonstrate ALARA awareness in interactions with plant staff and outside agencies.
3. (ALL) Exchange correct information using 3-point communication/Repeat-backs with Control Room personnel and other plant staff.
4. (ALL) Inform plant personnel and System of plant conditions, as needed.
5. (US) Employ timely and concise crew briefs where appropriate.
6. (ALL) Maintain awareness of plant status and control board indication.
7. (ALL) Correctly diagnose plant situations.
8. (ALL) Solve operational problems as they arise.
9. (RCO/BOP) Manipulate plant controls properly and safely.
10. (ALL) Demonstrate self-checking using STAR and peer checks(when required)
11. (US) Demonstrate command and control of the crew.
12. (US) Coordinate the input of crew members and other plant staff.
13. (US) Utilize the input of crew members and other plant staff.
14. (ALL) Demonstrate conservative decision making.
15. (ALL) Demonstrate teamwork.
16. (ALL) Respond to plant events using procedural guidance (OPs/ONOPs/EOPs) as applicable in accordance with rules of usage.
17. (RCO/BOP) Implement any applicable procedural immediate operator actions without use of references.
18. (SRO) Maintain compliance with Tech Specs.
19. (ALL) Identify/enter applicable Tech Spec action statements.
20. (ALL) Respond to annunciators using ARPs (time permitting).
21. (ALL) Maintain written communication, logs, and documentation as needed to permit post-event reconstruction.

Continued on next page

SIMULATOR EXERCISE GUIDE REQUIREMENTS

	<p>While addressing the following events:</p> <ol style="list-style-type: none"> 1. PT-3-495 3C S/G Pressure Transmitter Fails High 2. 3C RCP Degraded Seals 3. 3P08 Loss Of Power 4. 3C RCP Seal Failure 5. Loss of All AC 6. 3B 4Kv Bus Stripping Relay Failure 7. Small Break LOCA 8. MOV-3-843B HHSI Discharge to Cold Leg Fails To Auto Open
Prerequisites:	None
Training Resources:	PTN Unit 3 Plant Simulator
Development References:	<ul style="list-style-type: none"> • TR-AA-220-1003, Initial NRC and Audit Exam Process • TR-AA-230-1003, SAT Development • TR-AA-230-1007, Conduct of Simulator Training and Evaluation • 0-ADM-232, Time Critical Action Program • OP-AA-100-1000, Conduct Of Operations • OP-AA-103-1000, Reactivity Management • 0-ADM-200, Operations Management Manual • 0-ADM-211, Emergency and Off-Normal Operating Procedure Usage • WCAP-17711-NP, Pressurized Water Reactor Owners Group Westinghouse Emergency Response Guideline Revision 2-Based Critical Tasks
Protected Content:	N/A
Evaluation Method:	Performance Mode
Operating Experience:	None
Risk Significant Operator Actions:	<p>Following a Loss Of All AC, complete bus stripping and restore power to the 3B 4KV bus prior to actuating SI and within 30 minutes of the loss of power.</p> <p>During a SBLOCA, establish at least one train of HHSI flow prior to completing 3-EOP-E-0, Attachment 3, and within 30 minutes the HHSI pump starting.</p>

TASKS ASSOCIATED WITH THIS SIMULATOR EXERCISE GUIDE

SRO TASK #	TASK TITLE
02005015500	RESPOND TO A LOSS OF ALL A.C. POWER
02028033500	AUTHORIZE UNIT TRIP
02041029300	EVALUATE AND RESPOND TO A LOW PRESSURIZER PRESSURE
02041044300	EVALUATE AND RESPOND TO HIGH RCP NUMBER ONE SEAL LEAKOFF
02089026300	AUTHORIZE FAST LOAD REDUCTION
02200001500	RESPOND TO UNIT TRIP
02200021500	RESPOND TO LOSS OF COOLANT ACCIDENT
02200022500	DIAGNOSE CAUSE OF SAFEGUARDS ACTUATION
02200044500	RESPOND TO HIGH STEAM GENERATOR LEVEL
02200050500	RESPOND TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION

RO TASK	TASK TITLE
01005015500	RESPOND TO A LOSS OF ALL A.C. POWER
01041044300	EVALUATE AND RESPOND TO HIGH RCP NUMBER ONE SEAL LEAKOFF
01089026300	RESPOND TO / ADJUST TURBINE DURING FAST LOAD REDUCTION
01200001500	RESPOND TO UNIT TRIP
01200021500	RESPOND TO LOSS OF COOLANT ACCIDENT
01200022500	DIAGNOSE CAUSE OF SAFEGUARDS ACTUATION
02200044500	RESPOND TO HIGH STEAM GENERATOR LEVEL
02200050500	RESPOND TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION

UPDATE LOG:

NOTES:

Place this form with the working copies of lesson plans and/or other materials to document changes made between formal revisions. For fleet-wide training materials, keep electronic file of this form in same folder as approved materials. Refer to TR-AA-230-1003 SAT Development for specific directions regarding how and when this form shall be used.

Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER	DATE
				REVIEWER	DATE
0-0	Initial Revision	Revised for L-16-1 NRC Exam	2108338	Note 5	Note 5
				Note 5	Note 5
0-1					
0-2					
0-3					
0-4					
0-5					

1. Individual updating lesson plan or training material shall complete the appropriate blocks on the Update Log.
2. Describe the change to the lesson plan or training materials.
3. State the reason for the change (e.g., reference has changed, typographical error, etc.)
4. Preparer enters name/date on the Update Log and obtains Training Supervisor approval.
5. Initial dates and site approval on cover page.

SCENARIO SUMMARY**Initial Conditions:**

The plant is at 100% power (MOL). Online risk is green. B train is protected on both units.

Equipment OOS

- The 3A RHR pump and 3A1 Circulating Water pump are OOS.

Event 1

After the crew takes the shift, PT-3-495, 3C S/G Pressure, slowly fails high. The BOP will take manual control of 3C S/G level and restore level to normal. The crew will use the ARP or 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, to select operable channels and restore 3C S/G level control to automatic. The US will enter 3-ONOP-049.1 to verify all required actions are complete and to determine which bistables need to be tripped.

Event 2

Once equipment is restored to automatic, the 3C RCP seals will start degrading. The US will enter 3-ONOP-041.1, Reactor Coolant Pump Off-Normal, and commence a unit shutdown using 3-GOP-100, Fast Load Reduction.

Event 3

After the crew starts the Load reduction, Vital AC Bus 3P08 loses power. The Crew will enter 3-ONOP-003.8, Loss of Vital AC Bus 3P08. The crew will dispatch an operator to 3P08 to attempt to restore power. The 3A and 3B S/G level controllers shift to manual. The 3C S/G level controller shifts to manual on the Backup Controller. The BOP will select operable control channels for the 3A and 3B S/G and then restore automatic control. The operator dispatched to restore power will report the Main Breaker for 3P08 will not close. Electrical Maintenance estimates it will take 2 hours to replace the breaker.

Event 4

After the US completes the Tech Spec review for the loss of 3P08, the 3C RCP Seal degrades to the point that requires a Reactor trip and stopping the 3C RCP. The RCO will trip the Reactor, verify the Reactor is tripped, stop 3C RCP, close 3C RCP CBO Isolation Valve, CV-3-303C, and close PCV-3-455A, PZR Spray Valve Loop C. The crew will enter 3-EOP-E-0, Reactor Trip or Safety Injection, and complete the Immediate Operator Actions.

Event 5

After the RCO completes tripping the 3C RCP, a Loss of AC Power will occur. The 3A and 3B Emergency Diesel Generators will start, but neither will energize its respective 4KV bus. The crew will enter 3-EOP-ECA-0.0, Loss of All AC Power.

SCENARIO SUMMARY

Event 6

The 3A 4KV Bus is locked out, so the US will direct the BOP perform Attachment 2, 3B 4KV Bus Stripping. The BOP will open the 3B ICW pump, 3B CCW pump, 3C CCW pump, 3B Load Center, and 3D Load Center breakers to complete bus stripping. Once Bus Stripping is complete, the 3B EDG will automatically energize the 3B 4KV Bus.

Event 7

Once the 3B 4KV Bus is energized, the crew will transition back to 3-EOP-E-0. Shortly after the transition, a Small Break LOCA will occur.

Event 8

When SI actuates, the slave relay which opens MOV-3-843B fails to actuate. The RCO may open MOV-3-843B any time after SI actuates. If the RCO doesn't open MOV-3-843B, the BOP will open it during the performance of 3-EOP-E-0 Attachment 3, Prompt Action Verifications.

The scenario is terminated after the crew transitions to 3-EOP-FR-P.1 and determines a soak is required, or at the Lead Evaluator's discretion once all critical tasks have been evaluated.

Event	<u>CRITICAL TASKS</u>	
6	CT1	<p><u>Re-energize 3B 4KV Bus</u></p> <p>Following a Loss Of All AC, complete bus stripping and restore power to the 3B 4KV bus prior to actuating SI and within 30 minutes of the loss of power.</p> <p><i>Safety Significance:</i> The failure to energize an AC emergency bus in a timely manner constitutes a misoperation or incorrect crew performance in which the crew does not prevent a degraded emergency power capacity. The 30 minute time limit is based minimizing DC bus battery depletion and the requirement to manually load a de-energized DC bus battery charger onto the operating EDG. (0-ADM-232, Attachment 1, Time Critical Operator Actions)</p>
7	CT2	<p><u>Open MOV-3-843B</u></p> <p>During a SBLOCA, establish at least one train of HHSI flow prior to completing 3-EOP-E-0, Attachment 3, and within 30 minutes the HHSI pump starting.</p> <p><i>Safety Significance:</i> Failure to establish at least one train HHSI flow constitutes a misoperation or incorrect crew performance in which the crew does not prevent "degraded emergency core cooling system (ECCS) capacity." The 30 minute time limit is based on the requirement to limit the time the pump is operating at shutoff head to less than 30 minutes. (0-ADM-232 Attachment 1, Time Critical Operator Actions)</p>

SEQUENCE OF EVENTS

Event #	Description
1.	PT-3-495 3C S/G Pressure Transmitter Fails High
2.	3C RCP Degraded Seals
3.	3P08 Loss Of Power
4.	3C RCP Seal Failure
5.	Loss of All AC
6.	3B 4Kv Bus Stripping Relay Failure
7.	Small Break LOCA
8.	MOV-3-843B HHSI Discharge to Cold Leg Fails To Auto Open

SIMULATOR SET UP INSTRUCTIONS

Check	Action
_____	Restore IC-1 (100% MOL) or equivalent IC.
_____	Place the Simulator in RUN.
_____	Stop the 3A1 Circ Water Pump
_____	Open & execute lesson file L-16-1 N4
_____	Ensure the following lesson steps are triggered: <ul style="list-style-type: none"> • SETUP - 3A RHR PUMP OOS • SETUP - 3A1 CWP OOS • SETUP EVENT 6 - 3B BUS STRIPPING FAILURE • SETUP EVENT 8 - B TRAIN SLAVE RELAY FAILURE
_____	<ul style="list-style-type: none"> • Place an ECO tag on the 3A RHR pump place it in PTL: • Place an ECO tag on the 3A1 CWP place it in Stop.
_____	Verify the trend for 3A1 Screen on the TWS DP Recorder is clear.
_____	Ensure Rod Group Step Counters have completed stepping out.
_____	Allow the plant to stabilize.
_____	Acknowledge any alarms and freeze Simulator.
_____	Ensure B train is protected train on VPA.
_____	Perform the SIMULATOR OPERATOR CHECKLIST or equivalent.
_____	Place TURNOVER SHEETS on RO's desk or give to the Lead Evaluator.

BRIEFINGS

- Shift turnover information is attached to the back of this guide.
- Ensure all applicants are prior briefed on Appendix E of NUREG 1021, Policies and Guidelines For Taking NRC Examinations.
- Conduct a Crew Pre-brief to cover turnover information. Shift turnover information is attached to the back of this guide.

US: _____

RCO: _____

BOP: _____

SCENARIO NOTE

0-ADM-211 Prudent Operator Actions - If redundant stand-by equipment is available and ready, the operator is permitted to start the redundant equipment for failed or failing operating equipment. Immediate follow up of applicable ARPs and ONOPs (AOPs) shall occur as required.

Critical Tasks are highlighted in red.

Simulator Operator Actions are highlighted in blue.

Operator Verifiable Actions are Highlighted in green.

EVENT 1 - PT-3-495 3C S/G PRESSURE TRANSMITTER FAILS HIGH

3-ONOP-049.1, DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p>BOOTH OPERATOR</p> <p>When directed by Lead Evaluator, trigger EVENT 1 – PT-3-495 FAILS HIGH</p>	
		<p>BOP:</p> <ul style="list-style-type: none"> Recognizes and reports PT-3-495 failure. <p>PROMPT ACTIONS</p> <ul style="list-style-type: none"> Takes manual control of 3C S/G level control valve FCV-3-498. Restores 3C S/G level to normal.
		<p>RCO:</p> <p>Addresses Alarm Response for C5/3, 6/3, SG C Level Deviation.</p> <ul style="list-style-type: none"> CHECK LI-3-496 or LI-3-498, B/C STM GEN LEVEL controlling channel for SG Level deviation. CHECK Feedwater Controllers FIC-3-498A or FIC-3-498B for indications of failure, alarm, or input signal failures. CHECK Feedwater Controller Inputs IF alarm is due to instrument failure, THEN REFER TO 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels.
		<p>US:</p> <p>Enters and directs actions of 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, for response.</p>

EVENT 1 - PT-3-495 3C S/G PRESSURE TRANSMITTER FAILS HIGH

3-ONOP-049.1, DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>NOTE</u></p> <p>The crew may use the ARP to select an operable channel and restore automatic level control.</p> <p><u>BOOTH OPERATOR</u></p> <p>If asked to locally investigate transmitters, wait 2-3 minutes and report no abnormalities noticed.</p>	<p>BOP:</p> <ul style="list-style-type: none"> Verify PT-3-495 failure by channel check comparison. Verify no off-normal conditions exist on PT-3-496. Place 3C S/G Steam Flow Control Transfer Switch to FT-3-495 (Ch IV - Yellow) Place 3C S/G Feed Water Flow Control Transfer Switch to FT-3-496 (CH IV - Yellow) Ensure 3C S/G level is returned to auto.
	<p><u>BOOTH OPERATOR</u></p> <p>WCC/I&C: Acknowledge the report. If asked, I&C would like to be present before tripping bi-stables. They will report to the control room within an hour.</p>	<p>BOP:</p> <p>Notifies WCC to initiate PWO and I&C for troubleshooting.</p>
		<p>US:</p> <p>Reviews Tech Specs</p> <ul style="list-style-type: none"> LCO 3.3.1 Functional Unit 12 <ul style="list-style-type: none"> Action 6 within 6 hours trip bi-stables LCO 3.3.2 Functional Unit 1e, 1f, and 4d. <ul style="list-style-type: none"> Action 15 within 6 hours trip bi-stables
	<p><u>LEAD EVALUATOR</u></p> <p>After S/G level control is restored to auto and the US completes the review of Tech Specs, at the Lead Evaluators discretion, direct the Booth Operator to trigger the next event.</p>	<p>US:</p> <p>Conducts crew brief.</p>

EVENT 2 – 3C RCP DEGRADED SEALS

3-ONOP-041.1, REACTOR COOLANT PUMP OFF-NORMAL

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by the lead evaluator, trigger EVENT 2 - 3C RCP DEGRADED SEAL</p>	
		<p>BOP:</p> <p>Reviews ARPs A6/4, 7/4, 7/5.</p> <ul style="list-style-type: none"> Refer to 3-ONOP-041.1, Reactor Coolant Pump Off Normal.
		<p>RCO:</p> <p>Responds to RCP Alarms</p> <ul style="list-style-type: none"> Check P2 pressure equal to or less than 1741 psig on VPA (NO) Check P3 pressure greater than 975 psig on VPA (YES)
		<p>US:</p> <p>Enter and direct the actions of 3-ONOP-041.1, Reactor Coolant Pump Off Normal.</p>
		<p>US:</p> <p>Reviews Foldout Page with the crew.</p> <ul style="list-style-type: none"> RCP Stopping Criteria RCP Seal Criteria For Stopping RCP Fast Load Reduction Criteria (YES, 3C RCP Seal Stage - greater than 1700 and / or CBO exceeds 3.7 gpm) Exceeding Vibration Or Stator Temperature Limits RCP Vibration Assessment Criteria
		<p>US:</p> <p>Enter and direct the actions of 3-GOP-100, Fast Load Reduction</p>

EVENT 2 – 3C RCP DEGRADED SEALS

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>NOTE</u></p> <p>Attachment 3 is available on Page 41 Attachment 4 is available on Page 42</p>	<p>US:</p> <ul style="list-style-type: none"> • Directs actions to reduce Rx power per 3-GOP-100 • Completes Attachment 3 • Brief the crew per Attachment 4 <p>Steps 1-2</p>
		<p>US:</p> <p>Reviews Foldout page with crew.</p> <ul style="list-style-type: none"> • 3-EOP-E-0 Transition Criteria • Notify Chemistry Department • Boration Stop Criteria • Restore Blender to AUTO <p>FOLDOUT PAGE</p>
	<p><u>BOOTH OPERATOR</u></p> <p>Acknowledge notifications.</p>	<p>BOP:</p> <p>Notify The Following Of Fast Load Reduction</p> <ul style="list-style-type: none"> • System Dispatcher • Plant personnel using the Page Boost • Chemistry to start RCS sampling is required according to Tech Spec Table 4.4-4. <p>Step 3</p>

EVENT 2 – 3C RCP DEGRADED SEALS

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>RCO:</p> <p>Begin Boration For Initial Tavg Effect</p> <ul style="list-style-type: none"> Set the Boric Acid Totalizer to total boric acid volume value determined on Attachment 3. Place the Reactor Makeup Selector Switch to BORATE. Place the RCS Makeup Control Switch to START. Adjust FC-3-113A, Boric Acid Flow Controller, to achieve 40 gpm boric acid flow as indicated on FR-3-113. WHEN Tavg begins to lower from the boration, adjust FC-3-113A, Boric Acid Flow Controller, to load reduction value from Attachment 3. <p style="text-align: right;">Step 4</p>
		<p>US:</p> <p>Determine Turbine Load Reduction in MW CNTRL</p> <p style="text-align: right;">Step 5</p>
		<p>BOP:</p> <p>Initiate Turbine Load Reduction in MW CNTRL</p> <ul style="list-style-type: none"> Select MW CNTRL Set TARGET power level – MW VALUE from Attachment 3 Set RAMP RATE – MW/M VALUE FROM Attachment 3. Check T_{avg} has lowered 1° to 2°F from the initial value prior to boration. Depress GO Ensure FC-3-113A, Boric Acid Flow Controller, has been adjusted to the load reduction boration rate. <p>Go to Step 10</p> <p style="text-align: right;">Step 6</p>

EVENT 2 – 3C RCP DEGRADED SEALS

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p>NOTE</p> <p>Enclosure 1 is available on Page 43.</p>	<p>BOP:</p> <p>Monitor Load Reduction</p> <ul style="list-style-type: none"> Adjusts power reduction rate to Maintain Tavg/Tref within the expected ΔT identified in Attachment 3. Monitors S/G level control to ensure feed reg valves properly maintain level control in automatic. Refer to Enclosure 1 for expected alarms. <p style="text-align: right;">Step 10</p>
	<p><u>BOOTH OPERATOR</u></p> <p>Respond as SNPO. If asked, report idle Charging Pump is ready for start.</p>	<p>RCO:</p> <ul style="list-style-type: none"> Maintain pressurizer level to ensure that automatic pressurizer level control maintains level on program. If needed, start 2nd Chg Pp and place 2nd orifice in service. Adjusts boration rate to Maintain Tavg/Tref within the expected ΔT identified in Attachment 3. Refer to Enclosure 1 for expected alarms. <p style="text-align: right;">Step 10</p>
		<p>RCO:</p> <p>Monitor Boration Rate</p> <ul style="list-style-type: none"> Monitor for excessive rod movement by monitoring TR-3-409D, Rod Position Bank D. Determine if Insertion Limit and Bank D position are converging at a rate that will cause rod insertion limit alarms. Adjust power reduction rate as needed to control rod insertion Increase boration rate and/or total amount as necessary to limit control rod insertion <p style="text-align: right;">Step 11</p>

EVENT 2 – 3C RCP DEGRADED SEALS

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: <ul style="list-style-type: none"> Monitor Annunciator B 8/1, ROD BANK LO LIMIT – CLEAR Monitor B 8/2 ROD BANK A/B/C/D EXTRA LO LIMIT – CLEAR <p style="text-align: right;">Steps 12-13</p>
		US: <p>Have SM refer to the following procedures:</p> <ul style="list-style-type: none"> 0-EPIP-20101, DUTIES OF EMERGENCY COORDINATOR 0-ADM-115, NOTIFICATION OF PLANT EVENTS <p style="text-align: right;">Step 14</p>
	<p style="text-align: center;"><u>LEAD EVALUATOR</u></p> <p>Once power has been reduced by a minimum of 5%, at the Lead Evaluators discretion, proceed to the next Event.</p>	RCO: <p style="background-color: #e6f2e6;">Energize Pressurizer Backup Heaters</p> <p style="text-align: right;">Step 15</p>

EVENT 3 – 3P08 LOSS OF POWER

3-ONOP-003.8, LOSS OF 120V VITAL INSTRUMENT PANEL 3P08

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by the Lead Evaluator, trigger EVENT 3 – LOSS OF 3P08</p>	
		<p>RCO/BOP</p> <ul style="list-style-type: none"> Respond to various alarms. Report a loss of power to 3P08 <ul style="list-style-type: none"> Power Range N-43 Failure (NIS Racks Channel III Lights Out) Loss of Channel III Vital Instrumentation/Indications Bottom two rows of bistable lights are out
		<p>US:</p> <p>Enter and direct the actions of 3-ONOP-003.8, Loss Of 120V Vital Instrument Panel 3P08.</p>
	<p><u>NOTE</u></p> <p>Step 1 is an immediate action step.</p>	<p>RCO:</p> <ul style="list-style-type: none"> Check If A Reactor Trip has occurred (NO) Check If A Reactor Trip is required. (NO) <p style="text-align: right;">STEP 1</p>
	<p><u>BOOTH OPERATOR</u></p> <p>When dispatched to restore power 3P08 per Attachment 1, wait 3 minutes and then report nothing obviously wrong.</p> <p>Inform the control room you are going to attempt to re-energize the bus, then trigger EVENT 3 - 3P08/3P23 ALL BREAKERS OFF.</p>	<p>US:</p> <p>Reviews Foldout Page with the crew.</p> <ul style="list-style-type: none"> Verify Turbine Inlet Pressure Control selected to PT-3-447 (CH.4 Yellow) Dispatch operator to restore power to 3P08 using Attachment 1. If a Reactor Trip has occurred (NO) If power available to 3P09, then perform the following: <ul style="list-style-type: none"> Place CS-3-1608, Power Selector switch for H/A-3-1608, to 3P09. Restore H/A-3-1608 to Auto. <p style="text-align: right;">FOLDOUT PAGE</p>

EVENT 3 – 3P08 LOSS OF POWER

3-ONOP-003.8, LOSS OF 120V VITAL INSTRUMENT PANEL 3P08

PROCEDURE CAUTION

Loss of power to 3P08 when OMS is in LOW PRESSURE OPS will cause a continuous open signal to PCV-3-456.

RCO/BOP:

Check Unit Operating In Modes 1 Through 3 Prior To Loss Of 3P08.

STEP 2

RCO:

- Verify Pressurizer PORVs – CLOSED
- Check Pressurizer Level control switch in Position 1 (CH 1 & 2)
- Control charging flow using the 3A or 3B charging pumps in AUTO speed control
 - Starts 3A or 3B Charging pump
 - Stop 3C Charging pump

STEP 3

PROCEDURE CAUTION

- 3C Steam Generator Level Recorder is de-energized.
- Main Generator load should be maintained as stable as possible until all FW Control Valves are restored to automatic control.

PROCEDURE NOTE

- 3A and 3B Steam Generator level controllers should remain in AUTOMATIC if Feedwater flow selected to Channel IV (Yellow) and Steam Generator Level selected to the control channel.
- 3C Steam Generator level controllers is in MANUAL on the Backup Controller.
- 3A and 3B Steam Generator level controllers shift to MANUAL If Feedwater flow or Steam Generator Level selected to channel III (Blue).

BOP:

Control 3C Steam Generator Water Level by using MANUAL control on the backup Controller.

Step 4a

EVENT 3 – 3P08 LOSS OF POWER

3-ONOP-003.8, LOSS OF 120V VITAL INSTRUMENT PANEL 3P08

		<p>BOP: Check 3A Steam Generator Feedwater Primary Controller in AUTOMATIC Mode (NO)</p> <ul style="list-style-type: none"> Select 3A Steam Generator Feedwater Flow Control Transfer switch to FI-3-476 (Ch IV - Yellow) Select 3A Steam Generator Steam Flow Control Transfer switch to FI-3-475 (Ch IV - Yellow) Select 3A Steam Generator Level Control Transfer switch to LI-3-478 (Ch I - Red) On 3A Primary Controller, press "A" button for 2 seconds until backlit to return controller to AUTOMATIC Mode <p style="text-align: right;">STEP 4b</p>
		<p>BOP: Check 3B Steam Generator Feedwater Primary Controller in AUTOMATIC Mode (NO)</p> <ul style="list-style-type: none"> Select 3B Steam Generator Feedwater Flow Control Transfer switch to FI-3-486 (Ch IV - Yellow) Select 3B Steam Generator Steam Flow Control Transfer switch to FI-3-485 (Ch IV - Yellow) Select 3B Steam Generator Level Control Transfer switch to LI-3-488 (Ch II - White) On 3B Primary Controller press "A" button for 2 seconds until backlit to return controller to AUTOMATIC Mode <p style="text-align: right;">STEP 4c</p>
<p style="text-align: center;"><u>PROCEDURE CAUTION</u></p> <p>If T_{avg} decreases to less than 543°F, an automatic Safety Injection will occur due to the High Steam Flow bistables already tripped by the loss of power.</p>		
		<p>RCO/BOP Maintain Plant Parameters - STABLE</p> <p style="text-align: right;">STEP 5</p>

EVENT 3 – 3P08 LOSS OF POWER

3-ONOP-003.8, LOSS OF 120V VITAL INSTRUMENT PANEL 3P08

	<p><u>BOOTH OPERATOR</u></p> <p>Report the Main breaker for 3P08 will not close. Electrical Maintenance will have to replace it. Estimated repair time is 2 hours.</p>	<p>RCO:</p> <p>Check Power Restored To 3P08 (NO)</p> <p>IF power can NOT be restored to 3P08 within 1 hour, THEN perform the actions required by Technical Specifications as directed by the SM, Return to Step 1.</p> <p>STEP 6</p>
	<p><u>LEAD EVALUATOR</u></p> <p>This Tech Spec review can be quite extensive. The Lead evaluator may choose to have the US identify Tech Specs with actions statements of 2 hours or less as a follow up question. When the US starts the Tech Spec review at the Lead Evaluators discretion proceed to the next event.</p> <p><u>NOTE</u></p> <p>Per Foldout Page, cooldown will require closure of MSIVs and possible reduction of feedwater flow.</p>	<p>US:</p> <p>Review Tech Specs</p> <ul style="list-style-type: none"> • LCO 3.3.1 Functional Unit 17.b due to the loss of PT-3-446 <ul style="list-style-type: none"> – Action 7 - within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock is in its required state for the existing plant condition, or apply Specification 3.0.3. • LCO 3.4.4 due to the loss of PORV PCV-3-456 <ul style="list-style-type: none"> – Action a - within 1 hour either restore the PORV(s) to OPERABLE status or close the associated block valve(s) with power maintained to the block valve(s); otherwise be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. • LCO 3.8.3.1.h due to the loss of 3P08 <ul style="list-style-type: none"> – Action c - Reenergize the A.C. vital panel within 2 hours or be in at least HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 30 hours.


EVENT 4 - 3C RCP SEAL FAILURE

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by Lead Evaluator, trigger EVENT 4 - 3C RCP SEAL FAILURE</p>	
		<p>RCO:</p> <ul style="list-style-type: none"> Reports rising CBO Flow and #3 seal differential pressure. RCP CBO flow exceeds 4.1 gpm or any Seal Stage differential pressure exceeds 2000 psid, recommends a Manual Rx trip.
		<p>US:</p> <ul style="list-style-type: none"> Directs 3-EOP-E-0 response after auto Reactor trip.
		<p>RCO:</p> <ul style="list-style-type: none"> Manually trips Reactor.
	<p><u>LEAD EVALUATOR</u></p> <p>When the RCO completes the required actions for the RCP seal package failure, proceed to the next event.</p>	<p>RCO:</p> <ul style="list-style-type: none"> Verifies Reactor Trip After verifying Rx Trip <ul style="list-style-type: none"> Trips 3C RCP Closes CV-3-303C, CBO Isolation valve CV-303C. Closes PCV-3-455A, PZR Spray Valve Loop C <p>STEP 1</p>
		<p>BOP:</p> <p>Verify Turbine Trip</p> <p>STEP 2</p>
		<p>BOP:</p> <p>Verify Power To Emergency 4 KV Buses</p> <p>STEP 3</p>
		<p>RCO:</p> <p>Checks If SI Is Actuated</p> <p>STEP 4</p>

EVENT 5 - LOSS OF ALL AC

3-EOP-ECA-0.0, LOSS OF ALL AC POWER

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p align="center"><u>BOOTH OPERATOR</u></p> <p>When directed by the Lead Evaluator, trigger EVENT 5 LOSS OF ALL AC.</p>	
<p>CT1  Start Time</p>	<p align="center"><u>NOTE</u></p> <p>Record the time offsite power is lost for Time Critical Task verification.</p>	
	<p align="center"><u>NOTE</u></p> <p>Step 1 and Step 2 are IMMEDIATE ACTION steps</p>	<p>RCO: Verify Reactor Trip</p> <p align="right">STEP 1</p>
		<p>BOP: Verify Turbine Trip</p> <p align="right">STEP 2</p>
		<p>RCO: Check If RCS Is Isolated (NO)</p> <ul style="list-style-type: none"> Close Letdown Isolation valves CV-3-200A/B/C <p align="right">STEP 3</p>
		<p>BOP: Verify Proper AFW Flow</p> <p align="right">STEP 4</p>
		<p>US: The Unit Supervisor shall evaluate plant conditions and establish EDG Priority. Since the 3A Bus is locked out the US determines the 3B EDG is the priority.</p> <p align="right">STEP 5</p>
		<p>BOP: Try To Restore Power To 3A OR 3B 4KV Bus</p> <ul style="list-style-type: none"> Check EDG Priority – 3A (NO) <ul style="list-style-type: none"> Go to Step 5.o <p align="right">STEP 5.a</p>

EVENT 5 - LOSS OF ALL AC

3-EOP-ECA-0.0, LOSS OF ALL AC POWER

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>BOP:</p> <ul style="list-style-type: none"> • Check 3B Bus Lockout Relay – RESET • Check 3B EDG Lockout – RESET • Check 3B EDG – RUNNING • Check 3B 4KV Bus – ENERGIZED (NO) <ul style="list-style-type: none"> • Go to step 5.t <p>STEP 5.o – 5.r</p>
		<p>BOP:</p> <p>Verify 3B 4KV bus stripping using Attachment 2.</p> <p>STEP 5.t</p>

EVENT 6 - 3B 4KV BUS STRIPPING RELAY FAILURE

3-EOP-ECA-0.0, LOSS OF ALL AC POWER ATTACHMENT 2

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Step 1 is N/A <div>STEP 1</div>
<div>CT1</div> <div>Stop Time</div>	<p>NOTE</p> <p>The BOP will have to manually strip the loads highlighted in red. When all loads are stripped, the 3B EDG will energize the 3B 4KV Bus.</p> <p>Re-energize 3B 4KV Bus</p> <p>Following a Loss Of All AC, complete bus stripping and restore power to the 3B 4KV bus prior to actuating SI and within 30 minutes of the loss of power.</p>	BOP: Verify the following breakers OPEN <ul style="list-style-type: none"> • 3AB22, 3B 4KV BUS TIE TO 3A OR 3C 4KV BUS • 3AB05, STARTUP TRANSFORMER 3B 4KV BUS SUPPLY • 3AB02, AUXILIARY TRANSFORMER 3B BUS SUPPLY • 3AB10, HEATER DRAIN PUMP 3B • 3AB21, CONDENSATE PUMP 3B • 3AB12, SAFETY INJECTION PUMP 3B • 3AB15, RESIDUAL HEAT REMOVAL PUMP 3B • 3AB13, COMPONENT COOLING WATER PUMP 3B • 3AB01, REACTOR COOLANT PUMP 3B • 3AB06, REACTOR COOLANT PUMP 3C • 3AB17, INTAKE COOLING WATER PUMP 3B • 3AB11, TURBINE PLANT COOLING WATER PUMP 3B • 3AB16, CIRCULATING WATER PUMP 3B1 • 3AB18, CIRCULATING WATER PUMP 3B2 • 3AB09, 3B LOAD CENTER • 3AB14, 3D LOAD CENTER <div>STEP 2</div>
		BOP: Step 3 is N/A <div>STEP 3</div>

EVENT 6 - 3B 4KV BUS STRIPPING RELAY FAILURE

3-EOP-ECA-0.0, LOSS OF ALL AC POWER ATTACHMENT 2

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>BOP:</p> <ul style="list-style-type: none"> • Verify 3AD05, INTAKE COOLING WATER PUMP 3C BREAKER, is open. • Verify 3AD04, COMPONENT COOLING WATER PUMP 3C BREAKER, is open <p style="text-align: right;">STEP 4</p>
		<p>BOP:</p> <p>Notify Unit Supervisor that 3B 4KV Bus stripping is complete.</p> <p style="text-align: right;">STEP 5</p>


EVENT 6 - 3B 4KV BUS STRIPPING RELAY FAILURE

3-EOP-ECA-0.0, LOSS OF ALL AC POWER

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
<p align="center"><u>PROCEDURE CAUTION</u></p> <p>If an SI signal exists <u>OR</u> is actuated during this procedure, it must be reset to ensure restoration of a power source and to ensure controlled loading of equipment on the 4KV bus.</p>		
<p align="center"><u>PROCEDURE NOTE</u></p> <p>If a Sequencer Failure has occurred <u>AND</u> SI has actuated, the associated EDG Output Breaker may NOT close <u>unless</u> SI is reset.</p>		
		<p>BOP:</p> <ul style="list-style-type: none"> • Verify SI – RESET • Check 3B 4KV Bus – ENERGIZED • Observe CAUTION and NOTE prior to Step 5.f, and return to Step 5.f <p align="right">STEPS 5.u – 5.w</p>
		<p>Crew</p> <p>Verify required Safeguards equipment – OPERATING</p> <p align="right">STEP 5.f</p>
	<p align="center"><u>LEAD EVALUATOR</u></p> <p>When the crew returns to 3-EOP-E-0 proceed to the next event.</p>	<p>US:</p> <p>Check status of 3-EOP-F-0, CRITICAL SAFETY FUNCTION STATUS TREES, prior to entering this procedure – MONITORED FOR INFORMATION ONLY. (NO)</p> <ul style="list-style-type: none"> • Implement FRPs as required • Return to procedure and step in effect. <p align="right">STEP 5.g</p>

EVENT 7 – SMALL BREAK LOCA

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by the Lead Evaluator, trigger EVENT 7 - SBLOCA</p>	
		<p>RCO: Verify Reactor Trip</p> <p>STEP 1</p>
		<p>BOP: Verify Turbine</p> <p>STEP 2</p>
		<p>BOP: Verify Power To Emergency 4 KV Buses</p> <p>STEP 3</p>
<p>CT2  Start Time</p>	<p><u>NOTE</u></p> <p>Record the time SI actuates for Time Critical task verification</p>	<p>RCO: Checks If SI Is Actuated</p> <p>STEP 4</p>
		<p>US: Reviews Steps 1 - 4 of 3-EOP-E-0 with the crew.</p>

EVENT 7 – SMALL BREAK LOCA

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		US: Reviews FOP for 3-EOP-E-0 <ul style="list-style-type: none"> • Adverse Cntmt (Will Be Met) • RCP Trip Criteria (Not Running) • Faulted S/G Isolation • Ruptured S/G Isolation • AFW Sys Operation Criteria • CST Makeup Water Criteria • RHR System Operation Criteria (Starts a Timer) • Loss of Offsite Power or SI on the Other Unit • Loss of Charging Criteria <p style="text-align: right;">FOLDOUT PAGE</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>The actions of Attachment 3 are listed beginning on page 35.</p>	BOP: <ul style="list-style-type: none"> • Continues with ATTACHMENT 3 to complete The Prompt Action Verifications. <p style="text-align: right;">STEP 5</p>
		RCO: <ul style="list-style-type: none"> • Check AFW Pumps – AT LEAST TWO RUNNING <p style="text-align: right;">STEP 6</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>If asked to manually align AFW valves, acknowledge request but take no action. If later asked status update, report still working on it.</p>	RCO: <ul style="list-style-type: none"> • Verify AFW Valve Alignment – PROPER EMERGENCY ALIGNMENT (NO) • Manually align Valves <p style="text-align: right;">STEP 7</p>

EVENT 7 – SMALL BREAK LOCA

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: Verify Proper AFW Flow: <ul style="list-style-type: none"> Check Narrow Range Level in at least one S/G – GREATER THAN 7%[27%] Maintain feed flow to S/G until Narrow Range Levels between 21%[27%] and 50% <p style="text-align: right;">STEP 8</p>
		RCO: All RCP Thermal Barrier Alarms – CLEAR <p style="text-align: right;">STEP 9</p>
		RCO: <ul style="list-style-type: none"> Check RCS Temperatures: <ul style="list-style-type: none"> Check RCPs – ANY RUNNING (NO) Check RCS Cold Leg temperatures stable between 545°F and 547°F or trending down to 547°F (NO) IF T_{COLD} is decreasing, THEN perform the following: <ul style="list-style-type: none"> Stop dumping steam. If cooldown continues, and is due to excessive feed flow, then reduce total feed flow to 400 gpm until Narrow Range Level greater than 7%[27%] in at least one S/G. IF cooldown continues AND is due to excessive steam flow, THEN close Main Steamline isolation and Bypass valves. <p style="text-align: right;">STEP 10</p>

EVENT 7 – SMALL BREAK LOCA

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: Check PRZ PORVs, Spray Valves, And Excess Letdown Isolated: STEP 11
		RCO: Check If RCPs Should Be Stopped: • RCPs – ANY RUNNING (NO) STEP 12
		RCO: • Check If S/Gs Are Faulted: (NO) STEP 13
		RCO: • Check If S/G Tubes Are Ruptured: (NO) STEP 14
		RCO: If RCS Is Intact (NO) US: • Perform the following: – Monitor Critical Safety Functions using 3-EOP-F-0, CRITICAL SAFETY FUNCTION STATUS TREES. – INTEGRITY Critical Safety Function Status Tree is RED – Go to 3-EOP-FR-P.1, RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION STEP 15

EVENT 7 – SMALL BREAK LOCA

3-EOP-FR-P.1, RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		US: <ul style="list-style-type: none"> Conducts EOP transition brief. Directs 3-EOP-FR-P.1 response.
		US: Reviews FOP for 3-EOP-FR-P.1 with the crew. <ul style="list-style-type: none"> Containment Adverse (YES) FOLDOUT PAGE
		RCO: Check RCS Pressure – GREATER THAN 275 PSIG [575 PSIG] Step 1

PROCEDURE CAUTION

- Low range flow indication is **NOT** available when using Main Feedwater instrumentation and an alternate source of feedwater. Changes in RCS temperature and S/G level may be used to control feedwater flow.
- If the AFW Pumps are the only available source of feed flow, the steam supply to the AFW Pumps needs to be maintained from at least one S/G.

PROCEDURE NOTE

A Faulted S/G is any S/G that is depressurizing in an uncontrolled manner OR is completely depressurized.

		RCO: Check RCS Cold Leg Temperatures decreasing (NO) <ul style="list-style-type: none"> Go to Step 3 Step 2
		RCO: Check PRZ PORV Block Valves Step 3
		RCO: Check If PRZ PORVs Should Be Closed Step 4

EVENT 7 – SMALL BREAK LOCA

3-EOP-FR-P.1, RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: Check High-Head SI Pumps – ANY RUNNING Step 5
		RCO: Check If SI Can Be Terminated (NO) Go to Step 23 Step 6
		RCO: Determine If RCS Temperature Soak Is Required (YES) Step 23
The scenario is terminated after the crew transitions to 3-EOP-FR-P.1 and determines a soak is required, or at the Lead Evaluator's discretion once all critical tasks have been evaluated.		
*** END OF SCENARIO ***		

EVENT 8 – MOV-3-843B HHSI DISCHARGE TO COLD LEG FAILS TO AUTO OPEN

3-EOP-E-0 Attachment 3 – Prompt Action Verifications

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Check Load Centers Associated With Energized 4 KV Buses – ENERGIZED (NO 3A & 3C no power) STEP 1
	<u>BOOTH OPERATOR</u> When requested, trigger LOA – CLOSE MOV 1408 & 1409 . Wait 3-5 minutes and then report task complete.	BOP: Verify Feedwater Isolation: STEP 2
		BOP: Check If Main Steam Lines Should Be Isolated STEP 3
	<u>BOOTH OPERATOR</u> If dispatched to verify MOV-3-1426 and MOV-3-1427 closed, wait 3 to 5 minutes and then report the valves are closed.	BOP: Verify Containment Isolation Phase A Valve White Lights On VPB – ALL BRIGHT (NO) <ul style="list-style-type: none"> Manually actuate Containment Isolation Phase A. Dispatch Operator to verify closed MOV-3-1426, and MOV-3-1427, MOV-3-6386 (MOV-3-281 closed) Containment Purge Valves (fuses pulled) STEP 4
		BOP: Verify Pump Operation: <ul style="list-style-type: none"> At least two High-Head SI Pumps – RUNNING Both RHR Pumps – RUNNING (NO) <ul style="list-style-type: none"> 3A RHR pump OOS STEP 5


EVENT 8 – MOV-3-843B HHSI DISCHARGE TO COLD LEG FAILS TO AUTO OPEN

3-EOP-E-0 Attachment 3 – Prompt Action Verifications

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>BOP:</p> <p>Verify Proper CCW System Operation:</p> <ul style="list-style-type: none"> • CCW Heat Exchangers – THREE IN SERVICE • CCW Pumps – ONLY TWO RUNNING (NO) <ul style="list-style-type: none"> – Starts 3C CCW pump • CCW Headers – TIED TOGETHER • MOV-3-626, RCP Thermal Barrier CCW Outlet – OPEN <p>STEP 6</p>
		<p>BOP:</p> <p>Verify Proper ICW System Operation:</p> <ul style="list-style-type: none"> • Verify ICW Pumps – AT LEAST TWO RUNNING (NO) <ul style="list-style-type: none"> – Starts the 3C ICW pump • Verify ICW To TPCW Heat Exchanger – ISOLATED: • Check ICW Headers – TIED TOGETHER <p>STEP 7</p>
		<p>BOP:</p> <p>Check Emergency Containment Coolers – ONLY TWO RUNNING</p> <p>STEP 8</p>
		<p>BOP:</p> <p>Verify Unit 3 Containment Purge Exhaust And Supply Fans – OFF</p> <p>STEP 9</p>
		<p>BOP:</p> <p>→ Verify -Containment Spray NOT Required</p> <p>STEP 10</p>
		<p>BOP:</p> <p>Verify SI – RESET</p> <p>STEP 11</p>

EVENT 8 – MOV-3-843B HHSI DISCHARGE TO COLD LEG FAILS TO AUTO OPEN

3-EOP-E-0 Attachment 3 – Prompt Action Verifications

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
 CT2 Stop Time	<p><u>Open MOV-3-843B</u></p> <p>During a SBLOCA, establish at least one train of HHSI flow prior to completing 3-EOP-E-0 Attachment 3 and within 30 minutes the HHSI pump starting.</p>	<p>BOP:</p> <p>Verify SI Valve Amber Lights On VPB – ALL BRIGHT (NO)</p> <ul style="list-style-type: none"> Opens MOV-3-843B Opens MOV-3-744B No power to equipment powered by the 3A Bus <p>STEP 12</p>
		<p>BOP:</p> <p>Verify SI Flow:</p> <ul style="list-style-type: none"> RCS pressure – LESS THAN 1625 PSIG[1950 PSIG] High-Head SI Pump flow indicator – CHECK FOR FLOW <p>STEP 13</p>
	<p><u>BOOTH OPERATOR</u></p> <p>When requested, trigger LOA – ALIGN U-4 HHSIs TO U3 RWST. Wait 5 to 7 minutes and then report task complete.</p>	<p>BOP:</p> <p>Realign SI System:</p> <ul style="list-style-type: none"> Check Procedure Entry Status – E-0 ENTERED FROM 3-ONOP-047.1, LOSS OF CHARGING FLOW IN MODES 1THROUGH 4 (NO) Verify Unit 3 High-Head SI Pumps – TWO RUNNING (NO) <ul style="list-style-type: none"> Stop one Unit 4 High-Head SI Pump and place in standby Direct Unit 4 Reactor Operator to align Unit 4 High-Head SI Pump suction to Unit 3 RWST using Attachment 1. <p>STEP 14</p>
		<p>BOP:</p> <p>Verify Containment Isolation Phase A – RESET</p> <p>STEP 15</p>

EVENT 8 – MOV-3-843B HHSI DISCHARGE TO COLD LEG FAILS TO AUTO OPEN

3-EOP-E-0 Attachment 3 – Prompt Action Verifications

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Reestablish RCP Cooling: <ul style="list-style-type: none"> Check RCPs – AT LEAST ONE RUNNING (NO) Go to Step 17 <p style="text-align: right;">STEP 16</p>
		BOP: Verify Control Room Ventilation Isolation: <p style="text-align: right;">STEP 17</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>When requested, trigger LOA – PLACE PAHM IN SERVICE. Wait 3 to 5 minutes and then report task complete.</p>	BOP: Place Hydrogen Monitors In Service Using 3-NOP-094, CONTAINMENT POST ACCIDENT MONITORING SYSTEM <p style="text-align: right;">STEP 18</p>
		BOP: Verify All Four EDGs – RUNNING <p style="text-align: right;">STEP 19</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>If asked to start one train of chilled water, acknowledge request. No action required.</p>	BOP: <ul style="list-style-type: none"> Verify Power To 3A and 3B Emergency 4KV Buses (NO) <ul style="list-style-type: none"> Inform US Check 3A and 3B 4KV buses energized from offsite power. (NO) <ul style="list-style-type: none"> Start one train of Chilled Water <p style="text-align: right;">STEP 20</p>
		BOP: Notify Unit Supervisor Of The Following: <ul style="list-style-type: none"> Attachment 3 is complete Any safeguards equipment that is NOT In the required condition Status of Containment pressure continuous action <p style="text-align: right;">STEP 21</p>

Discussion Points are intentionally NOT included in evaluated scenarios. However, space is available below to document follow-up questions when further information is required to determine an evaluation outcome.

FOLLOW-UP QUESTIONS

QUESTION #1

ANSWER #1

QUESTION #2

ANSWER #2

SIMULATOR POST-SCENARIO RESTORATION:

- _____ 1. Restore per Simulator Operator Checklist.
- _____ 2. Once exams are complete, restore from SEI-19, Simulator Exam Security.

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ATTACHMENT 3

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FAST LOAD REDUCTION MANEUVERING PLAN

Item#

1.	MW CNTRL Load Reduction Rate MW/min	35	30	25	20	15	10
2.	Load Reduction Rate %/min	4.1	3.5	2.9	2.4	1.8	1.2
3.	TIP CNTRL Load Reduction Rate PSIG/min	27.1	23.2	19.3	15.5	11.6	7.7
4.	Expected Tavg/Tref ΔT	4° F	4° F	3.5°F	3° F	3° F	2°F

5. Current Power _____ %

6. End Target Power _____ % [= % power level at which load reduction is expected to be complete]

7. Total Power Change _____ % [= (Item 5) - (Item 6)]

8. Time Required for Total Power Change _____ min [(Item 7) ÷ (Item 2)]

%RTP	TIP	MWe	Tavg
10	47.6	85.1	550.0
20	107.6	170.1	553.0
30	169.6	255.2	556.0
40	233.8	340.3	559.1
50	300.2	425.4	562.3

%RTP	TIP	MWe	Tavg
60	368.6	510.4	565.7
70	439.1	595.5	569.1
80	511.8	680.6	572.6
90	586.6	765.6	576.3
100	663.5	850.7	580.0

9. Turbine MW CNTRL (or manual) Target Power Level = _____ MW

(N/A if TIP CNTRL Selected)

[= (Item 6) x (.01) x (850.7 MW) or from table above]

10. Turbine TIP CNTRL Target Power Level = _____ PSIG (N/A if MW CNTRL Selected)

[= (0.0106 x (Item 6)³) + (5.6775 x Item 6) - 10.216 or from table above]

11. Calculate (multiplication) Total Boron Addition With Rod Movement

[Use 20 gallons/% with no rod movement]

$$\frac{(\quad)}{\text{Item 7 - Total Power Change for Boron Addition}} \times \frac{(10 \text{ gal/\%power})}{\text{Boron Worth}} = \frac{\quad}{\text{Total Boron Volume Change (Gallons)}}$$

12. Calculate (division) Boron Addition Rate

$$\frac{\text{Item 11 - Total Boron Volume Change (Gallons)}}{\text{Item 8 - Time Required for Power Change (min)}} = \frac{(\quad)}{(\quad)} = \frac{\quad}{\text{Total Boron Rate (gpm)}}$$

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ATTACHMENT 4
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FAST LOAD REDUCTION BRIEF

1. Reason for load reduction _____
2. Maneuvering Guidelines (From Attachment 3 Maneuvering Sheet)
 - Load reduction rate _____ % /minute [Item 2]
 - Time required for power change _____ min [Item 8]
 - End Target Power Level _____ % Power [Item 6]
 - Turbine Target Power Level _____ MW or PSIG (circle as applicable) [Item 9 or Item 10 as applicable]
 - Load reduction rate for Turbine _____ MW/min or PSIG/min (circle as applicable) [Item 1 or 3]
 - Total boron addition _____ gallons [Item 11]
 - Boron Addition Rate _____ gpm [Item 12]
3. Maneuvering Plan
 - Initial boration rate of 40 gpm for T_{AVG} reduction
 - Start load reduction after T_{AVG} reduction
 - Stop boration when 10% from target power
 - IF rod control motion is NOT available (Auto or Manual), THEN perform load reduction by leading with the reactor AND lowering turbine load using manual or automatic turbine control as desired.
4. Plant Control Parameters and Contingency Actions
 - Maintain Tav/Tref expected ΔT band [Item 4] +/- 1° F - Adjust ramp rate or boration rate
 - Monitor load rate and boration rate to prevent B 8/1, ROD BANK LO LIMIT and B 8/2, ROD BANK A/B/C/D EXTRA LO LIMIT - follow guidance in body of procedure
 - Annunciator B 4/4, TAVG/TAVG TREF DEVIATION - Stop load reduction.
5. Actions When Target Power Level Achieved
 - Manual reactor trip
 - Transition to 3-GOP-103 if Tripped from 5% or 3-EOP-E-0 if Tripped at 20%
6. EOP E-0 Transition Criteria
 - Manual reactor and turbine trip: T_{AVE} 6 °F > T_{REF}
7. Review required actions from other procedures currently in effect (example, stop RCP).
8. Questions or crew input?
9. End of Brief

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ENCLOSURE 1

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EXPECTED ALARMS DURING LOAD REDUCTION

1. The following are expected alarms while maneuvering the unit:
 - A 2/5 BORIC ACID MAKE-UP FLOW DEVIATION
 - B 2/2 POWER RANGE UPPER DET HI FLUX DEV/AUTO DEFEAT
 - B 2/3 POWER RANGE LOWER DET HI FLUX DEV/AUTO DEFEAT
 - D 1/1 FW HEATER 1A HI LEVEL
 - D 1/2 FW HEATER 2A HI LEVEL
 - D 1/3 FW HEATER 3A HI LEVEL
 - D 1/4 FW HEATER 4A HI LEVEL
 - D 1/5 FW HEATER 5A HI LEVEL
 - D 1/6 FW HEATER 6A HI LEVEL
 - D 2/1 FW HEATER 1B HI LEVEL
 - D 2/2 FW HEATER 2B HI LEVEL
 - D 2/3 FW HEATER 3B HI LEVEL
 - D 2/4 FW HEATER 4B HI LEVEL
 - D 2/5 FW HEATER 5B HI LEVEL
 - D 2/6 FW HEATER 6B HI LEVEL
 - D 4/6 SJAE LO STEAM PRESS (after Attachment 1 is complete)
 - D 5/2 SGFP A LO FLOW
 - D 6/2 SGFP B LO FLOW
 - D 9/5 HDT B HI LEVEL
 - E 5/5 TURB GLAND SEAL LO PRESS (after Attachment 1 is complete)
 - F 2/1 POWER SYSTEM STABILIZER TROUBLE
 - G 4/3 RCS METAL IMPACT
 - G 5/2 AXIAL FLUX ADMIN LIMIT EXCEEDED

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OPERATIONS SHIFT TURNOVER REPORT



UNIT 3 RISK: GREEN (ACCEPTABLE)
PROTECTED TRAIN: B

UNIT 4 RISK: GREEN (ACCEPTABLE)
PROTECTED TRAIN: B

ONCOMING CREW ASSIGNMENTS

Shift Mgr:			Inside SNPO:	
Field Supv.:			Outside SNPO:	
Admin RCO:			ANPO:	
Unit 3			Unit 4	
Unit Supv.:			Unit Supv.:	
RCO:			RCO:	
NPO:			NPO:	

PLANT STATUS

Unit 3			Unit 4	
Mode:	1		Mode:	1
Power:	100%		Power:	100%
MWe:	842		MWe:	842
Gross Leakrate:	.22 gpm		Gross Leakrate:	0.03 gpm
RCS Boron Conc:	745 ppm		RCS Boron Conc:	642

Operational Concerns:

3A RHR pump taken OOS 4 hours ago for an oil change, expected back by the end of this shift.
3A1 Circ Water pump OOS. Tripped on over current, Electrical Maintenance is investigating.

U3 Anticipated LCO Actions:

None

U4 Anticipated LCO Actions:

None

Results of Offgoing Focus Area:

UNIT 3 STATUS

REACTOR OPERATOR

UNIT RISK: GREEN (ACCEPTABLE) PROTECTED TRAIN: B

Mode:	1	RCS Leakrate		Accumulator Ref Levels	
Power:	100%	Gross:	0.22 GPM	A	6656
MWe	842	Unidentified	0.04 GPM	B	6608
Tavg:	580°F	Charging Pps:	0.00 GPM	C	6646
RCS Pressure:	2235				
RCS Boron Conc:	745 ppm				

Abnormal Annunciators:

Annunciator:	
Comp Actions:	
Annunciator:	
Comp Actions:	
Annunciator:	
Comp Actions:	
Annunciator:	
Comp Actions:	
Annunciator:	
Comp Actions:	

Current Tech Spec Action Statements: (Does Not Include "For Tracking Only Items")

T.S.A.S / Component:	3A RHR pump, 3.5.2.c – Action g
Reason:	Oil Change
Entry Date:	4 hours ago
T.S.A.S / Component:	
Reason:	
Entry Date:	
T.S.A.S / Component:	
Reason:	
Entry Date:	
T.S.A.S / Component:	
Reason:	
Entry Date:	

REACTOR OPERATOR (CONT'D)

UNIT RISK: GREEN (ACCEPTABLE) PROTECTED TRAIN: B

Changes to Risk Significant Equipment:

No recent changes from last shift.

OLRM: GREEN

PROTECTED TRAIN: B

Upcoming Reactivity Management Activities:

Maintain current power level 99.5% -100%
Xe is stable.

Upcoming Major POD Activities:

NONE

Upcoming ECOs to Hang and /or Release:

- Hang – None
- Release – None

Evolutions or Compensatory Actions in Progress:

NONE

General Information, Remarks, and Operator Work Around Status:

- Weather forecast is overcast skies with scattered pockets of severe rain.
- U3 supplying Aux Steam
- Air In-leakage = 0.0 SCFM

EXAM SECURE INFORMATION

Appendix D

Scenario Outline

Form ES-D-1

L-16-1 N5 (Rev-0)

Facility: Turkey Point Nuclear (PTN) – Units 3 and 4		Scenario No.: 5		Op Test No.: 2016-301	
Examiners: _____ _____ _____		Operators: _____ (SRO) _____ (RCO) _____ (BOP)			
Initial Conditions:		The plant is at 60% power (MOL). Online risk is green. B train is protected on both units.			
Turnover:		The 3A RHR pump and 3A1 Circulating Water pump are OOS.			
Event	Malf. No.	Event Type*	Event Description		
1	TVF1M87D	I-BOP I-SRO (TS)	FT-3-487 3B S/G Feed Water Flow Transmitter Drifts High		
2	TFCMM2H3 TFKV609O	C-RCO C-SRO	R-3-17B CCW Hx Radiation Monitor Fails High & RCV-3-609 CCW Surge Tank Vent Fails To Auto Close		
3	TAKD032	C-BOP C-SRO	3A TPCW Pump Cavitation		
4	TFH1TV60	I-RCO I-SRO (TS)	LT-3-460 Pressurizer Level Fails Low		
5	TFC1DOR TFC1DOR2	R-RCO R-SRO N-BOP	3A & 3B CRDM Fans Trip (Fast Load Reduction required)		
6	TVHHSGA	M-RCO M-BOP M-SRO	3A SGTR with LOOP		
7	TFP1S3GC TFP8D6MT TFP8D6BT	P- BOP	Control Room HVAC Fails To Align on SI		
8	TFHV55CO	P-RCO	PCV-3-445C PZR PORV, Fails To Close During E-3 Depressurization		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

EXAM SECURE INFORMATION

Scenario #5**Event 1**

Shortly after the crew takes the shift FT-3-487 3B S/G Feed Water Flow transmitter drifts high. The BOP will take manual control of 3B S/G level and restore level to normal. The crew may use the ARP or 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection, to select operable channels and restore 3B S/G level control to automatic. The US will enter 3-ONOP-049.1 to verify all required actions are complete and to determine which bistables need to be tripped.

Event 2

After the actions of Event 1 are complete CCW Surge Tank Radiation Monitor R-17B fails high. CCW surge tank vent valve RCV-3-609 fails to close on the high radiation signal. The US will enter 3-ONOP-067, Radioactive Effluent Release, to verify the failure and direct the RCO to manually close the valve.

Event 3

After the actions of Event 2 are complete the crew will respond to a TPCW low pressure alarm. The BOP will report signs of cavitation and swap TPCW pumps. The US may enter 3-ONOP-008, Turbine Plant Cooling Water Malfunction to verify all required actions are complete.

Event 4

After the crew swaps TPCW pumps Pressurizer Level transmitter LT-3-460 will fail low. The PZR Heaters will trip and letdown will isolate. The US will enter 3-ONOP-041.6, Pressurizer Level Control Malfunction. The RCO will select an operable channel, re-establish normal letdown flow, and restore PZR heaters to automatic. The US will also enter 3-ONOP-049.1 to verify all required actions are complete and to determine which bistables need to be tripped.

Event 5

After the actions of Event 4 are complete the 3A CRDM Fan Trips and a few minutes later the 3B CRDM Fan Trips. The crew will commence a shutdown using 3-GOP-100, Fast Load Reduction.

Event 6

After a 5 to 10% downpower a SGTR develops over a 5 minute period on the 3A S/G. The crew will take actions to maximize Charging and to isolate Letdown. When the leakage exceeds the CVCS capacity, the US will order the RCO to trip the Reactor and enter to 3-EOP-E-0, Reactor Trip Or Safety Injection. When the Generator trips a Loss Of Offsite Power occurs. Both Emergency Diesel Generators will start and energize their respective 4KV buses. When the Ruptured S/G Isolation Criteria are met the BOP or RCO will isolate Aux Feed Water flow to the 3A S/G.

Event 7

When SI actuates Control Room Ventilation fails to align for recirc. The BOP will manually open Emergency Inlet Dampers D-2 and D-3 per 3-EOP-E-0 Attachment 3, Prompt Action Verifications.

Event 8

The crew will transition from 3-EOP-E-0 to 3-EOP-E-3, Steam Generator Tube Rupture. The crew will isolate the 3A S/G, cooldown the RCS, Establish Charging Flow, and stop the RHR pumps. When the cooldown is complete the RCO will open PZR PORV PCV-3-455C to depressurize the RCS (PCV-3-456 is failed close). When the depressurization is complete PCV-3-455C will fail to close so the RCO will close block valve MOV-3-536 to stop the depressurization.

The scenario is terminated after the crew completes the depressurization per 3-EOP-E-3, or at the Lead Evaluator's discretion once all critical task have been evaluated.

Event	Scenario Critical Tasks	
6	CT1	<p><u>Isolate the Ruptured S/G</u></p> <p>During a Steam Generator Tube Rupture, isolate the ruptured S/G before the ruptured Steam Generator pressure drops below 450 psig to prevent transition to 3-EOP-ECA-3.1, SGTR With Loss Of Reactor Coolant-Subcooled Recovery Desired.</p> <p><i>Safety Significance:</i> Isolation of the ruptured steam generator minimizes release of radioactivity from this generator. In addition, isolation is necessary to establish a pressure differential between the ruptured and non-ruptured steam generators in order to cool the RCS and stop primary-to-secondary leakage. If any ruptured S/G cannot be isolated from at least one intact S/G, the operator is directed to go to 3-ECA-3.1, SGTR With Loss Of Reactor Coolant -Subcooled Recovery Desired.</p>
6	CT2	<p><u>Control Initial RCS Cooldown</u></p> <p>During a Steam Generator Tube Rupture dump steam from intact S/Gs at maximum rate to achieve Core Exit TCs less than required temperatures based on the lowest ruptured S/G pressure without causing a transition to 3-EOP-FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, or 3-EOP-ECA-3.1, SGTR With Loss Of Reactor Coolant-Subcooled Recovery Desired.</p> <p><i>Safety Significance:</i> A SGTR mitigation strategy leading to a transition from 3-EOP-E-3 to a contingency procedure constitutes an incorrect performance requiring the crew to take additional compensatory actions that complicate the event mitigation strategy. With a SGTR, there exists a breach of the RCS fission-product and Containment barriers which allows radioactive RCS inventory to leak into the SG and associated piping. Without controlling the cooldown, the primary-to-secondary leakage is not stopped. This continued leakage results in a larger release of radioactivity to the environment affecting the safety of the public.</p>

<u>Event</u>	<u>Scenario Critical Tasks</u>	
6	CT3	<p><u>Limit RHR Time On Recirculation</u></p> <p>When a RHR Pump starts and is operating at shutoff head, limit the operating time at shutoff head with minimum flow recirculation to no more than 44 minutes. (0-ADM-232, Time Critical Operator Action Program–Attachment 1)</p> <p><i>Safety Significance:</i> Failure to secure the RHR Pumps operating at shutoff head leads to pump overheating and adverse vibration which would constitutes incorrect crew performance in which the crew does not prevent a degradation of the emergency core cooling system (ECCS) capacity.</p>
6	CT4	<p><u>Control Initial RCS Depressurization</u></p> <p>During a Steam Generator Tube Rupture depressurize the RCS to the ruptured S/G pressure without causing a transition to 3-EOP-FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, or 3-EOP-ECA-3.1, SGTR With Loss Of Reactor Coolant-Subcooled Recovery Desired.</p> <p><i>Safety Significance:</i> A SGTR mitigation strategy leading to a transition from 3-EOP-E-3 to a contingency procedure constitutes an incorrect performance requiring the crew to take additional compensatory actions that complicate the event mitigation strategy. With a SGTR, there exists a breach of the RCS fission-product and Containment barriers which allows radioactive RCS inventory to leak into the SG and associated piping. Without controlling the cooldown, the primary-to-secondary leakage is not stopped. This continued leakage results in a larger release of radioactivity to the environment affecting the safety of the public.</p>



L-16-1 NRC EXAM SCENARIO 5

NRC EXAM SECURE INFORMATION

SEG

Site: Turkey Point Units 3 and 4 (PTN)

Title: L-16-1 NRC EXAM SCENARIO 5

LMS #: NRC 25

LMS Rev Date: 6/9/16 Rev #: 0

SEG Type: ☐ Training ☒ Evaluation

Program: ☐ LOCT ☒ LOIT ☐ Other

Duration: 120 minutes

Developed by: Brian Clark 8/4/16
Instructor/Developer Date

Reviewed by: Luis Sagion 8/4/16
Instructor (Instructional Review) Date

Validated by : Sean Bloom 8/5/16
SME (Technical Review) Date

Approved by: Mark Wilson 8/5/16
Training Supervision Date

Approved by: Sean Bloom 8/5/16
Training Program Owner (Line) Date

NRC EXAM SECURE INFORMATION

SCENARIO REFERENCES

DOC NO.	TITLE	REV
3-EOP-E-0	REACTOR TRIP OR SAFETY INJECTION	12
3-EOP-E-3	STEAM GENERATOR TUBE RUPTURE	9
3-ONOP-028	REACTOR CONTROL SYSTEM MALFUNCTION	4A
3-ONOP-041.5	PRESSURIZER PRESSURE CONTROL MALFUNCTION	1
3-ONOP-049.1	DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR	4
3-ONOP-059.8	POWER RANGE NUCLEAR INSTRUMENTATION MALFUNCTION	4
3-ONOP-071.2	STEAM GENERATOR TUBE LEAKAGE	11
3-OSP-059.10	DETERMINATION OF QUADRANT POWER TILT RATIO	2A
	PTN TECHNICAL SPECIFICATIONS	300

SIMULATOR EXERCISE GUIDE REQUIREMENTS

Terminal Objective

Given this simulator scenario and resources normally found in the Control Room, the operating crew will perform Control Room operations IAW approved plant procedures in order to maintain the integrity of the plant and the health and safety of the public.

Enabling Objectives:

- Given this simulator scenario and resources normally found in the Control Room, operate in accordance with approved plant procedures, Operations Department Instructions, and management expectations:
1. (ALL) Demonstrate personnel SAFETY awareness in interactions with plant staff and outside agencies.
 2. (ALL) Demonstrate ALARA awareness in interactions with plant staff and outside agencies.
 3. (ALL) Exchange correct information using 3-point communication/Repeat-backs with Control Room personnel and other plant staff.
 4. (ALL) Inform plant personnel and System of plant conditions, as needed.
 5. (US) Employ timely and concise crew briefs where appropriate.
 6. (ALL) Maintain awareness of plant status and control board indication.
 7. (ALL) Correctly diagnose plant situations.
 8. (ALL) Solve operational problems as they arise.
 9. (RCO/BOP) Manipulate plant controls properly and safely.
 10. (ALL) Demonstrate self-checking using STAR and peer checks(when required)
 11. (US) Demonstrate command and control of the crew.
 12. (US) Coordinate the input of crew members and other plant staff.
 13. (US) Utilize the input of crew members and other plant staff.
 14. (ALL) Demonstrate conservative decision making.
 15. (ALL) Demonstrate teamwork.
 16. (ALL) Respond to plant events using procedural guidance (OPs/ONOPs/EOPs) as applicable in accordance with rules of usage.
 17. (RCO/BOP) Implement any applicable procedural immediate operator actions without use of references.
 18. (SRO) Maintain compliance with Tech Specs.
 19. (ALL) Identify/enter applicable Tech Spec action statements.
 20. (ALL) Respond to annunciators using ARPs (time permitting).
 21. (ALL) Maintain written communication, logs, and documentation as needed to permit post-event reconstruction.

Continued on next page

SIMULATOR EXERCISE GUIDE REQUIREMENTS

	<p>While addressing the following events:</p> <ol style="list-style-type: none"> 1. FT-3-487 3B S/G Feed Water Flow Transmitter Drifts High 2. R-3-17B CCW Hx Radiation Monitor Fails High 3. 3A TPCW Pump Cavitation 4. LT-3-460 Pressurizer Level Fails Low 5. 3A & 3B CRDM Fans Trip 6. 3A SGTR with LOOP 7. Control Room HVAC Fails To Align on SI 8. PCV-3-445C PZR PORV, Fails To Close During E-3 Depressurization
Prerequisites:	None
Training Resources:	PTN Unit 3 Plant Simulator
Development References:	<ul style="list-style-type: none"> • TR-AA-220-1003, Initial NRC and Audit Exam Process • TR-AA-230-1003, SAT Development • TR-AA-230-1007, Conduct of Simulator Training and Evaluation • 0-ADM-232, Time Critical Action Program • OP-AA-100-1000, Conduct Of Operations • OP-AA-103-1000, Reactivity Management • 0-ADM-200, Operations Management Manual • 0-ADM-211, Emergency and Off-Normal Operating Procedure Usage • WCAP-17711-NP, Pressurized Water Reactor Owners Group Westinghouse Emergency Response Guideline Revision 2-Based Critical Tasks
Protected Content:	N/A
Evaluation Method:	Performance Mode
Operating Experience:	None
Risk Significant Operator Actions:	<p><u>Limit RHR Time On Recirculation</u></p> <p>When a RHR Pump starts and is operating at shutoff head, limit the operating time at shutoff head with minimum flow recirculation to no more than 44 minutes.</p>

TASKS ASSOCIATED WITH THIS SIMULATOR EXERCISE GUIDE

SRO TASK #	TASK TITLE
02008001300	RESPOND TO TURBINE PLANT COOLING WATER (TPCW) MALFUNCTIONS
02028033500	AUTHORIZE UNIT TRIP
02041029300	EVALUATE AND RESPOND TO A LOW PRESSURIZER PRESSURE
02041057300	RESPOND TO PRESSURIZER LEVEL CONTROL CHANNEL MALFUNCTION
02067009300	RESPOND TO PROCESS RADIATION MONITOR ALARM(S)
02089026300	AUTHORIZE FAST LOAD REDUCTION
02200001500	RESPOND TO UNIT TRIP
02200006300	INVESTIGATE AND CONTROL STEAM GENERATOR TUBE LEAK
02200008500	RESPOND TO A STEAM GENERATOR TUBE RUPTURE
02200022500	DIAGNOSE CAUSE OF SAFEGUARDS ACTUATION
02200046500	RESPOND TO STEAM GENERATOR LOW LEVEL

RO TASK	TASK TITLE
01008001300	RESPOND TO TURBINE PLANT COOLING WATER SYSTEM MALFUNCTION
01041029300	EVALUATE AND RESPOND TO A LOW PRESSURIZER PRESSURE
01041057300	RESPOND TO PRESSURIZER LEVEL CONTROL CHANNEL MALFUNCTION
01067009300	RESPOND TO PROCESS RADIATION MONITOR ALARM(S)
01089026300	RESPOND TO / ADJUST TURBINE DURING FAST LOAD REDUCTION
01200001500	RESPOND TO UNIT TRIP
01200006300	INVESTIGATE AND CONTROL STEAM GENERATOR TUBE LEAK
01200008500	RESPOND TO A STEAM GENERATOR TUBE RUPTURE
01200022500	DIAGNOSE CAUSE OF SAFEGUARDS ACTUATION
01200046500	RESPOND TO STEAM GENERATOR LOW LEVEL

UPDATE LOG:

NOTES:

Place this form with the working copies of lesson plans and/or other materials to document changes made between formal revisions. For fleet-wide training materials, keep electronic file of this form in same folder as approved materials. Refer to TR-AA-230-1003 SAT Development for specific directions regarding how and when this form shall be used.

Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER	DATE
				REVIEWER	DATE
0-0	Initial Revision	Revised for L-16-1 NRC Exam	2108338	Note 5	Note 5
				Note 5	Note 5

1. Individual updating lesson plan or training material shall complete the appropriate blocks on the Update Log.
2. Describe the change to the lesson plan or training materials.
3. State the reason for the change (e.g., reference has changed, typographical error, etc.)
4. Preparer enters name/date on the Update Log and obtains Training Supervisor approval.
5. Initial dates and site approval on cover page.

Initial Conditions:

The plant is at 60% power (MOL). Online risk is green. B train is protected on both units.

Equipment OOS

- The 3A RHR pump and 3A1 Circulating Water pump are OOS.

SCENARIO SUMMARY**Event 1**

Shortly after the crew takes the shift, FT-3-487, 3B S/G Feed Water Flow transmitter, drifts high. The BOP will take manual control of 3B S/G level and restore level to normal. The crew may use the ARP or 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection, to select operable channels and restore 3B S/G level control to automatic. The US will enter 3-ONOP-049.1 to verify all required actions are complete and to determine which bistables need to be tripped.

Event 2

After the actions of Event 1 are complete, CCW Surge Tank Radiation Monitor, R-17B, fails high. CCW surge tank vent valve, RCV-3-609, fails to close on the high radiation signal. The US will enter 3-ONOP-067, Radioactive Effluent Release, to verify the failure and direct the RCO to manually close the valve.

Event 3

After the actions of Event 2 are complete, the crew will respond to a TPCW low pressure alarm. The BOP will report signs of cavitation and swap TPCW pumps. The US may enter 3-ONOP-008, Turbine Plant Cooling Water Malfunction, to verify all required actions are complete.

Event 4

After the crew swaps TPCW pumps, Pressurizer Level transmitter, LT-3-460, will fail low. The PZR Heaters will trip and letdown will isolate. The US will enter 3-ONOP-041.6, Pressurizer Level Control Malfunction. The RCO will select an operable channel, re-establish normal letdown flow, and restore PZR heaters to automatic. The US will also enter 3-ONOP-049.1 to verify all required actions are complete and to determine which bistables need to be tripped.

Event 5

After the actions of Event 4 are complete, the 3A CRDM Fan Trips. A few minutes later the 3B CRDM Fan Trips. The crew will commence a shutdown using 3-GOP-100, Fast Load Reduction.

Event 6

After a 5 to 10% downpower, a SGTL develops over a 5 minute period on the 3A S/G. The crew will take actions to maximize Charging and to isolate Letdown in accordance with 3-ONOP-071.2. When the leakage exceeds the CVCS capacity, the US will order the RCO to trip the Reactor and enter to 3-EOP-E-0, Reactor Trip Or Safety Injection. When the Generator trips a Loss Of Offsite Power occurs. Both Emergency Diesel Generators will start and energize their respective 4KV buses. When the Ruptured S/G Isolation Criteria are met, the BOP or RCO will isolate Aux Feed Water flow to the 3A S/G.

Event 7

When SI actuates, Control Room Ventilation fails to align for recirc. The BOP will manually open Emergency Inlet Dampers D-2 and D-3 per 3-EOP-E-0 Attachment 3, Prompt Action Verifications.

Event 8

The crew will transition from 3-EOP-E-0 to 3-EOP-E-3, Steam Generator Tube Rupture. The crew will isolate the 3A S/G, cooldown the RCS, Establish Charging Flow, and stop the RHR pumps. When the cooldown is complete the RCO will open PZR PORV, PCV-3-455C, to depressurize the RCS (PCV-3-456 is failed close). When the depressurization is complete, PCV-3-455C will fail to close so the RCO will close block valve MOV-3-536 to stop the depressurization.

The scenario is terminated after the crew completes the depressurization per 3-EOP-E-3, or at the Lead Evaluator's discretion, once all critical tasks have been evaluated.

Event		<u>CRITICAL TASKS</u>
6	CT1	<p><u>Isolate the Ruptured S/G</u></p> <p>During a Steam Generator Tube Rupture, isolate the ruptured S/G before a the ruptured Steam Generator pressure drops below 450 psig to prevent transition to 3-EOP-ECA-3.1, SGTR With Loss Of Reactor Coolant-Subcooled Recovery Desired.</p> <p><i>Safety Significance:</i> Isolation of the ruptured steam generator minimizes release of radioactivity from this generator. In addition, isolation is necessary to establish a pressure differential between the ruptured and non-ruptured steam generators in order to cool the RCS and stop primary-to secondary leakage. If any ruptured S/G cannot be isolated from at least one intact S/G, the operator is directed to go to 3-ECA-3.1, SGTR With Loss Of Reactor Coolant -Subcooled Recovery Desired.</p>

Event		<u>CRITICAL TASKS</u>
6	CT2	<p><u>Control Initial RCS Cooldown</u></p> <p>During a Steam Generator Tube Rupture, dump steam from intact S/Gs at maximum rate to achieve Core Exit TCs less than required temperatures based on the lowest ruptured S/G pressure without causing a transition to 3-EOP-FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, or 3-EOP-ECA-3.1, SGTR With Loss Of Reactor Coolant-Subcooled Recovery Desired.</p> <p><i>Safety Significance:</i> A SGTR mitigation strategy leading to a transition from 3-EOP-E-3 to a contingency procedure constitutes an incorrect performance requiring the crew to take additional compensatory actions that complicate the event mitigation strategy. With a SGTR, there exists a breach of the RCS fission-product and Containment barriers which allows radioactive RCS inventory to leak into the SG and associated piping. Without controlling the cooldown, the primary-to-secondary leakage is not stopped. This continued leakage results in a larger release of radioactivity to the environment affecting the safety of the public.</p>
6	CT3	<p><u>Limit RHR Time On Recirculation</u></p> <p>When a RHR Pump starts and is operating at shutoff head, limit the operating time at shutoff head with minimum flow recirculation to no more than 44 minutes. (0-ADM-232, Time Critical Operator Action Program–Attachment 1)</p> <p><i>Safety Significance:</i> Failure to secure the RHR Pumps operating at shutoff head leads to pump overheating and adverse vibration which would constitutes incorrect crew performance in which the crew does not prevent a degradation of the emergency core cooling system (ECCS) capacity.</p>
8	CT4	<p><u>Control Initial RCS Depressurization</u></p> <p>During a Steam Generator Tube Rupture, depressurize the RCS to the ruptured S/G pressure without causing a transition to 3-EOP-FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, or 3-EOP-ECA-3.1, SGTR With Loss Of Reactor Coolant-Subcooled Recovery Desired.</p> <p><i>Safety Significance:</i> A SGTR mitigation strategy leading to a transition from 3-EOP-E-3 to a contingency procedure constitutes an incorrect performance requiring the crew to take additional compensatory actions that complicate the event mitigation strategy. With a SGTR, there exists a breach of the RCS fission-product and Containment barriers which allows radioactive RCS inventory to leak into the SG and associated piping. Without controlling the cooldown, the primary-to-secondary leakage is not stopped. This continued leakage results in a larger release of radioactivity to the environment affecting the safety of the public.</p>

SEQUENCE OF EVENTS	
Event #	Description
1.	FT-3-487 3B S/G Feed Water Flow Transmitter Drifts High
2.	R-3-17B CCW Hx Radiation Monitor Fails High
3.	3A TPCW Pump Cavitation
4.	LT-3-460 Pressurizer Level Fails Low
5.	3A & 3B CRDM Fans Trip
6.	3A SGTR with LOOP
7.	Control Room HVAC Fails To Align on SI
8.	PCV-3-445C PZR PORV, Fails To Close During E-3 Depressurization

SIMULATOR SET UP INSTRUCTIONS

Check	Action
_____	Restore IC-24 (60% MOL) or equivalent IC.
_____	Place the Simulator in RUN.
_____	Stop the 3A1 Circ Water Pump
_____	Open & execute lesson file L-16-1 N5
_____	Ensure the following lesson steps are triggered: <ul style="list-style-type: none"> • SETUP - 3A RHR PUMP OOS • SETUP - 3A1 CWP OOS • SETUP EVENT 2 - RCV-609 FAILED OPEN • SETUP EVENT 7 - CONTROL ROOM VENTILATION FANS FAIL TO START • SETUP EVENT 8 - PORV 456 FAILED CLOSE
_____	<ul style="list-style-type: none"> • Place the 3A RHR pump in PTL and hang an ECO tag. • Place the 3A1 CWP in STOP and hang an ECO tag.
_____	Verify the trend for 3A1 Screen on the TWS DP Recorder is clear.
_____	Ensure Rod Group Step Counters have completed stepping out.
_____	Allow the plant to stabilize.
_____	Acknowledge any alarms and freeze Simulator.
_____	Ensure B train is protected train on VPA.
_____	Perform the SIMULATOR OPERATOR CHECKLIST or equivalent.
_____	Place TURNOVER SHEETS on RO's desk or give to the Lead Evaluator.

BRIEFINGS

- Shift turnover information is attached to the back of this guide.
- Ensure all applicants are prior briefed on Appendix E of NUREG 1021, Policies and Guidelines For Taking NRC Examinations.
- Conduct a Crew Pre-brief to cover turnover information. Shift turnover information is attached to the back of this guide.

US: _____

RCO: _____

BOP: _____

SCENARIO NOTE

0-ADM-211 Prudent Operator Actions - If redundant stand-by equipment is available and ready, the operator is permitted to start the redundant equipment for failed or failing operating equipment. Immediate follow up of applicable ARPs and ONOPs (AOPs) shall occur as required.

Critical Tasks are highlighted in pink.

Simulator Operator Actions are highlighted in blue.

Operator Verifiable Actions are Highlighted in green

EVENT 1 - FT-3-487 3B S/G FEED WATER FLOW TRANSMITTER DRIFTS HIGH

3-ONOP-049.1, DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>NOTE</u></p> <p>Ensure the Simulator is in RUN before the crew enters the Simulator.</p>	
		<p>US:</p> <p>Conducts shift turnover.</p>
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by Lead Evaluator, trigger EVENT 1 - FT-3-487 DRIFTS HIGH</p>	<p>BOP:</p> <ul style="list-style-type: none"> Recognizes and reports FT-3-487 failure. <p><u>PROMPT ACTIONS</u></p> <ul style="list-style-type: none"> Takes manual control of 3B S/G level control valve, FCV-3-488. Restores 3B S/G level to normal.
		<p>RCO:</p> <p>Addresses Alarm Response for C4/2 & C6/2</p> <ul style="list-style-type: none"> CHECK LI-3-486 or LI-3-488, B STM GEN LEVEL, controlling channel for SG Level deviation. CHECK Feedwater Controllers, FIC-3-488A or FIC-3-488B, for indications of failure, alarm, or input signal failures. CHECK Feedwater Controller Inputs IF alarm is due to instrument failure, THEN REFER TO 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels.
		<p>US:</p> <p>Enters and directs actions of 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, for response.</p>

EVENT 1 - FT-3-487 3B S/G FEED WATER FLOW TRANSMITTER DRIFTS HIGH

3-ONOP-049.1, DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>NOTE</u></p> <p>The crew may use the ARP to select an operable channel and restore automatic level control.</p>	<p>BOP:</p> <ul style="list-style-type: none"> Verify FT-3-487 failure by channel check comparison. Verify no off-normal conditions exist on FT-3-486. Place 3B S/G Feed Water Flow Control Transfer Switch to FT-3-486 (Yellow) Place 3B S/G Steam Flow Control Transfer Switch to FT-3-485 (Yellow) Ensure 3B S/G level is returned to auto. <p>Steps 5.1 - 5.4</p>
	<p><u>BOOTH OPERATOR</u></p> <p>WCC/I&C: Acknowledge the report. I&C would like to be present when bistables are tripped. They will be in the control in one hour.</p> <p>If asked to locally check FT-3-487, wait 2 to 3 minutes and then report nothing visibility wrong.</p>	<p>BOP:</p> <p>Notifies WCC to initiate PWO and I&C for troubleshooting.</p>
	<p><u>BOOTH OPERATOR</u></p> <p>If dispatched to reset AMSAC, wait 2 to 3 minutes and then trigger EVENT 1 - RESET AMSAC</p>	<p>US:</p> <p>Reviews Tech Specs</p> <ul style="list-style-type: none"> LCO 3.3.1 Functional Unit 12 <ul style="list-style-type: none"> Action 6 within 6 hours trip bi-stables <p>Step 5.5 - 5.6</p>
	<p><u>LEAD EVALUATOR</u></p> <p>After S/G level control is restored to auto and the US has reviewed Tech Specs, at the Lead Evaluators discretion, direct the Booth Operator to trigger the next event.</p>	<p>US:</p> <p>Conducts crew brief.</p>

EVENT 2 - R-3-17B CCW HX RADIATION MONITOR FAILS HIGH

3-ONOP-067, RADIOACTIVE EFFLUENT RELEASE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by Lead Evaluator, trigger EVENT 2 - R-17B FAILS HIGH</p>	
	<p><u>BOOTH OPERATOR</u></p> <p>When the RCO closes RCV-3-609, verify EVENT 2 - ALLOW RCV-609 TO CLOSE MANUALLY triggers.</p>	<p>BOP:</p> <p>Reviews ARP for H1/4</p> <ul style="list-style-type: none"> IF alarm is on R-17A/B, then REFER to 3-ONOP-067, Radioactive Effluent Release, for expected automatic actions. CHECK alarm valid as follows: <ul style="list-style-type: none"> CHECK FAIL/TEST light NOT LIT. PUSH FAIL/TEST light (meter reading of 288 or 289K) PUSH SOURCE CHECK light (should get meter increase). PUSH HIGH ALARM light to determine if meter level is above high alarm setpoint
		<p>US:</p> <p>Enter and direct the actions of 3-ONOP-067, Radioactive Effluent Release</p>
		<p>US:</p> <p>Review the Foldout Page</p> <ul style="list-style-type: none"> Notify plant personnel IF a Reactor Trip occurs AND any following PRMS alarms Actuate, THEN within 30 minutes of the alarm, manually align Control Room ventilation in the Emergency Recirculation Mode R-15/19/20 IF any PRMS high alarm occurs AND automatic actions are required, THEN verify the applicable automatic actions for the occurring PRMS HIGH ALARMS: <ul style="list-style-type: none"> R-17A/B HIGH ALARM, RCV-3-609, CCW Head Tank Vent Valve – CLOSED

EVENT 2 - R-3-17B CCW HX RADIATION MONITOR FAILS HIGH

3-ONOP-067, RADIOACTIVE EFFLUENT RELEASE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: Closes RCV-3-609, CCW Head Tank Vent Valve, per fold out page.
		BOP: Check High Alarm On R-17B STEP 1
	<p><u>NOTE</u></p> <p>Parts of this step may have been completed using the ARP.</p>	<p>BOP:</p> <ul style="list-style-type: none"> Check R17B readout GREATER THAN OR EQUAL TO ALARM SETPOINT Check channel operability as follows <ul style="list-style-type: none"> Depress and hold FAIL/TEST pushbutton on affected PRMS Channel Check readout - EQUAL TO 288K OR 289K Release FAIL/TEST pushbutton Check affected PRMS drawer responds to source check Check for PRMS channel failure <ul style="list-style-type: none"> Check Fail indicator – OFF Display and recorder reading – NOT FAILED LOW <p>STEP 2</p>
	<p><u>BOOTH OPERATOR</u></p> <p>Acknowledge reports to SM, RP and Chemistry. If asked to survey or sample CCW for elevated radiation, wait 3 to 5 minutes and then report all radiation levels are normal.</p>	<p>US:</p> <ul style="list-style-type: none"> Notify the Shift Manager of problem with R-17B. Direct Radiation Protection Shift Supervisor to conduct radiological surveys to confirm validity of alarm. Direct Chemistry to perform sampling to confirm validity of alarm. <p>STEP 2 RNO</p>

EVENT 2 - R-3-17B CCW HX RADIATION MONITOR FAILS HIGH

3-ONOP-067, RADIOACTIVE EFFLUENT RELEASE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p>NOTE</p> <p>The US may discontinue use of 3-ONOP-067 once it's determined that an actual high radiation condition does not exist.</p>	<p>BOP:</p> <p>Check R-17A and R-17B High Alarms – OFF (NO)</p> <ul style="list-style-type: none"> Go to Step 29 <p>STEP 3</p>
		<p>RCO:</p> <p>Check CCW System For High Activity</p> <ul style="list-style-type: none"> Announce the high radiation alarm on page system and warn personnel to remain clear of all CCW piping Verify RCV-3-609, CCW Head Tank vent Valve - CLOSED Direct Chemistry Department to sample CCW System to determine its activity level Route any known CCW system leakage to the WHUT floor drain <p>STEP 29</p>
		<p>Crew:</p> <ul style="list-style-type: none"> Check Normal CCW Temperatures And Flows Out Of RCP Thermal Barriers Check Normal CCW Temperature And Flow Out Of NRHX Check Normal CCW Temperature And Flow Out Of Seal Water Heat Exchanger Check Normal CCW Temperature And Flow Out Of In-Service Spent Fuel Pit HXs Check Normal CCW Temperature And Flow Out Of Excess Letdown HX Check 3A RHR Pump AND 3A RHR Heat Exchanger - IN SERVICE (NO) <ul style="list-style-type: none"> Go to step 37 <p>STEP 30 - 35</p>

EVENT 2 - R-3-17B CCW HX RADIATION MONITOR FAILS HIGH

3-ONOP-067, RADIOACTIVE EFFLUENT RELEASE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>LEAD EVALUATOR</u></p> <p>Once the crew has verified the operability of the R-17B, go to the next event at your discretion.</p>	<p>RCO:</p> <p>Check 3B RHR Pump AND 3B RHR Heat Exchanger - IN SERVICE (NO)</p> <ul style="list-style-type: none"> Go to step 39 <p>STEP 37</p>

EVENT 3 - 3A TPCW PUMP CAVITATION

3-ONOP-008, TURBINE PLANT COOLING WATER MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by Lead Evaluator, trigger EVENT 3 – 3A TPCW PUMP CAVITATION.</p>	
		<p>BOP:</p> <p>Reports 3A TPCW amps and TPCW pressure fluctuating.</p>
	<p><u>BOOTH OPERATOR</u></p> <p>If dispatched to check the 3A TPCW while it's running, wait 2 to 3 minutes and then report it sounds like its cavitating. If the 3A TPCW pump is stopped when you arrive, report it looks okay.</p> <p>If asked to check out the 3B TPCW for a start, report it is ready to start. Once the pump is running, report SAT start.</p> <p>If WCC or maintenance is contacted acknowledge request for additional support.</p>	<p>RCO:</p> <p>Reviews ARP I5/4</p> <ul style="list-style-type: none"> • Use DCS to check TPCW Temperature • IF TPCW header low pressure condition exists: <ul style="list-style-type: none"> – START standby TPCW pump – MONITOR pump amp indication on 3C04. – Locally CHECK for system leakage, including TPCW Supplemental Cooling Chiller(s) • REFER TO 3-ONOP-008, Turbine Plant Cooling Water Malfunction.
	<p><u>LEAD EVALUATOR</u></p> <p>Once the TPCW pumps are swapped, move to the next event at your discretion.</p>	<p>BOP:</p> <ul style="list-style-type: none"> • Starts 3B TPCW pump • Stops 3A TPCW pump
	<p><u>NOTE</u></p> <p>The US may choose not to enter 3-ONOP-008 if the TPCW pumps are swapped per the ARP.</p>	<p>US:</p> <p>Enter and direct the actions of 3-ONOP-008.</p>

EVENT 3 - 3A TPCW PUMP CAVITATION

3-ONOP-008, TURBINE PLANT COOLING WATER MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>If dispatched to check TPCW equipment, report all system parameters to be normal. If asked for specific values, use the simulator drawing or DCS to report actual value.</p>	<p>BOP:</p> <ul style="list-style-type: none"> • Check All Turbine Plant Cooling Water Pump Alarms – OFF • Verify Turbine Plant Cooling Water Pumps - AT LEAST ONE RUNNING • Check Turbine Plant Cooling Water Header Pressure 15/4, TPCW HI TEMP/LO PRESS NOT LIT • Check Proper Intake Cooling Water Lineup To Turbine Plant Cooling Water Heat Exchangers • Check For Abnormal Surge Tank Level (NO) <ul style="list-style-type: none"> - Go to Step 12 <p>STEPs 1-5</p>
		<p>BOP:</p> <ul style="list-style-type: none"> • Check Cooling To Turbine Plant Cooling Water Heat Exchangers • Locally Verify Turbine Plant Cooling Water Basket Strainer ΔP - LESS THAN 1.5 PSID • Check GEN RTD HI-HI TEMP – OFF • Check Generator Alarms – OFF • Check Pump Alarms – OFF • Check Proper Turbine Plant Cooling Water System Operation • Check Temperature Of Components Supplied By Turbine Plant Cooling Water - STABLE OR DECREASING • Go To Appropriate Plant Procedure As Determined By Shift Manager <p>STEPs 12-17</p>

EVENT 4 - LT-3-460 PRESSURIZER LEVEL FAILS LOW

3-ONOP-041.6, PRESSURIZER LEVEL CONTROL MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by the Lead evaluator, trigger EVENT 4 – LT-3-460 FAILS LOW</p>	<p>RCO:</p> <p>Reports LT-3-460 failed low</p>
	<p><u>NOTE</u></p> <p>Failure of LT-3-460 will cause Letdown to isolate and PZR Heaters to de-energize.</p>	<p>BOP:</p> <ul style="list-style-type: none"> Acknowledges A8/4, A9/4 CHECK LI-459A/460/461 less than or equal to 6%. Check LCV-3-460, and CV-3-200A/B/C closed. CHECK Control and Backup heaters OFF Recommends entry into 3-ONOP-041.6, Pressurizer Level Control Malfunction.
		<p>US:</p> <p>Directs 3-ONOP-041.6 response.</p>

PROCEDURE NOTE

- If Pressurizer Level Malfunction is a result of a failure of the 3-459CX or 3-460CX relays (as indicated by a loss of letdown flow with a loss of Pressurizer Heaters with no concurrent failure of Level Transmitters 3-459A, 3-460, 3-461), use 3-ONOP-003.6 Attachment 4, for 3-460CX failure, **OR** 3-ONOP-003.9 Attachment 4, for 3-459CX failure as guidance for establishing Letdown flow and Pressurizer Heaters.
- If the button on relays 3-459CX or 3-460CX are used to restore Letdown flow and Pressurizer Heaters, comply with Tech Spec Action Statement 3.4.3 Action b.
- If the manual control of Heaters from the Electrical Penetration Room is used, comply with Tech Spec Action Statement 3.4.3 Action a.

EVENT 4 - LT-3-460 PRESSURIZER LEVEL FAILS LOW

3-ONOP-041.6, PRESSURIZER LEVEL CONTROL MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>RCO:</p> <ul style="list-style-type: none"> Check Pressurizer level indicators LI-3-459A, LI-3-460 AND LI-3-461 Selects ch 1 & 3 PZR level control (Position 2) Maintains PZR level on program per 3-ONOP-041.6, Enclosure 1 May place Master Charging Pump Controller, LC-3-459G, in manual May Start or Stop one charging pump as required. Place LR-3-459 Channel Select Pressurizer Level Recorder to position 1 or 3. <p style="text-align: right;">Steps 5.1 - 5.4</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>This failure may cause VCT Auto Makeup.</p>	<p>RCO:</p> <p>Restore Letdown Flow</p> <ul style="list-style-type: none"> Place LC-3-459G, Pzr Lvl Inst Man/Auto Station, in Manual AND adjust charging flow as required for increased letdown flow. Throttle Low Pressure LTDN Controller, PCV-3-145, as necessary to prevent LTDN relief valve from lifting. Manually control Low Pressure Letdown Control Valve, PCV-3-145, to limit pressure spike. Open High Pressure L/D Isol Vlv from Loop B Cold Leg, LCV-3-460. Open L/D Isolation Valves, CV-3-200 A, B, or C as required to restore pressurizer level to programmed level. Return Lower Pressure Letdown Control Valve, PCV-3-145, to Automatic. <p style="text-align: right;">STEP 5.5</p>

EVENT 4 - LT-3-460 PRESSURIZER LEVEL FAILS LOW

3-ONOP-041.6, PRESSURIZER LEVEL CONTROL MALFUNCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: N/A STEP 5.6
		RCO: <ul style="list-style-type: none"> Restore PRZ heaters to automatic operation or take manual control. Maintain pressurizer level to be consistent with programmed level as indicated in Enclosure 1. WHEN desired, THEN place LC-3-459G in Automatic. STEPS 5.7 – 5.8
		US: Perform actions required by 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels. Step 5.9

EVENT 4 - LT-3-460 PRESSURIZER LEVEL FAILS LOW

3-ONOP-049.1, DEVIATION OR FAILURE OF SAFETY RELATED OR REACTOR PROTECTION CHANNELS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>US:</p> <p>Enters and directs actions of 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, for response</p>
		<p>BOP:</p> <ul style="list-style-type: none"> Verify LT-3-460 failure by comparison with LT-3-459/461 and known plant parameters and conditions Verify no off-normal conditions exist on LT-3-459/461 Verify ch 1 & 3 PZR level control in (Position 2) Verify LR-3-459 Channel Selected to Pressurizer Level Recorder to position 1 or 3 Verify PZR level control function is returned to automatic. <p style="text-align: right;">Steps 5.1 – 5.5</p>
	<p><u>BOOTH OPERATOR</u></p> <p>If asked, I&C would like to be present when bi-stables are tripped. They will be in the control room in one hour.</p>	<p>US</p> <p>Reviews TECH Specs</p> <ul style="list-style-type: none"> Tech Spec 3.3.-1 Functional Unit 9 not met. <ul style="list-style-type: none"> Action 13, inoperable channel must be placed in the tripped condition within 6 hours.
	<p><u>BOOTH OPERATOR</u></p> <p>WCC/I&C: Acknowledge the report. If asked, I&C would like to be present when bi-stables are tripped. They will be in the control room in one hour.</p>	<p>US</p> <ul style="list-style-type: none"> Notifies WCC to initiate PWO and I&C for troubleshooting. Notifies Plant Management IAW 0-ADM-115.
	<p><u>LEAD EVALUATOR</u></p> <p>After the PZR level control is restored to auto and the US completes a review of Tech Specs, proceed to the next event at the Lead Evaluators discretion</p>	<p>US:</p> <ul style="list-style-type: none"> Conducts crew brief.

EVENT 5 – 3A & 3B CRDM FANS TRIP

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>When directed by the Lead evaluator, trigger EVENT 5 - CRDM FANS TRIP</p>	
	<p><u>NOTE</u></p> <p>The 2nd fan trips 60 seconds after the first fan.</p> <p><u>BOOTH OPERATOR</u></p> <p>If dispatched to check CRMD fan breakers, wait 2 to 3 minutes and report breakers tripped. If asked to reset them, report they will not reset.</p>	<p>BOP:</p> <p>Reviews ARP I8/5</p> <ul style="list-style-type: none"> CHECK indicating lights to determine affected CRDM Cooler on VPB. TAKE affected CRDM Cooler control switch to OFF. ENSURE remaining CRDM Cooler in service. IF neither fan will start, THEN PERFORM the following commence shutdown using 3-GOP-100, Fast Load Reduction.
	<p><u>NOTE</u></p> <p>Attachment 3 is available on Page 49. Attachment 4 is available on Page 50.</p>	<p>US:</p> <ul style="list-style-type: none"> Directs actions to reduce Rx power per 3-GOP-100. Completes Attachment 3 Brief the crew per Attachment 4 <p>Steps 1-2</p>
		<p>US:</p> <p>Reviews Foldout page with crew.</p> <ul style="list-style-type: none"> 3-EOP-E-0 Transition Criteria Notify Chemistry Department Boration Stop Criteria Restore Blender to AUTO <p>FOLDOUT PAGE</p>

EVENT 5 – 3A & 3B CRDM FANS TRIP

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>BOOTH OPERATOR</u></p> <p>Acknowledge notifications.</p>	<p>BOP:</p> <p>Notify The Following Of Fast Load Reduction</p> <ul style="list-style-type: none"> • System Dispatcher • Plant personnel using the Page Boost • Chemistry to start RCS sampling is required according to Tech Spec Table 4.4-4. <p>Step 3</p>
		<p>RCO:</p> <p>Begin Boration For Initial Tavg Effect</p> <ul style="list-style-type: none"> • Set the Boric Acid Totalizer to total boric acid volume value determined on Attachment 3. • Place the Reactor Makeup Selector Switch to BORATE. • Place the RCS Makeup Control Switch to START. • Adjust FC-3-113A, Boric Acid Flow Controller, to achieve 40 gpm boric acid flow as indicated on FR-3-113. • WHEN Tavg begins to lower from the boration, THEN adjust FC-3-113A, Boric Acid Flow Controller, to load reduction value from Attachment 3. <p>Step 4</p>
		<p>US:</p> <p>Determine Turbine Load Reduction in MW CNTRL</p> <p>Step 5</p>

EVENT 5 – 3A & 3B CRDM FANS TRIP

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>BOP:</p> <p>Initiate Turbine Load Reduction in MW CNTRL</p> <ul style="list-style-type: none"> Select MW CNTRL Set TARGET power level – MW VALUE from Attachment 3 Set RAMP RATE – MW/M VALUE FROM Attachment 3. Check T_{avg} has lowered 1° to 2°F from the initial value prior to boration. Depress GO Ensure FC-3-113A, Boric Acid Flow Controller, has been adjusted to the load reduction boration rate. <p>Go to Step 10</p> <p style="text-align: right;">Step 6</p>
	<p style="text-align: center;"><u>NOTE</u></p> <p>Enclosure 1 is available on Page 51.</p>	<p>BOP:</p> <p>Monitor Load Reduction</p> <ul style="list-style-type: none"> Adjusts power reduction rate to maintain T_{avg}/T_{ref} within limits of Attachment 3. Monitors S/G level control to ensure feed reg valves properly maintain level control in automatic. Refer to Enclosure 1 for expected alarms. <p style="text-align: right;">Step 10</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> <p>Respond as SNPO. If asked, idle Charging Pump ready for start.</p>	<p>RCO:</p> <ul style="list-style-type: none"> Maintain pressurizer level to ensure that automatic pressurizer level control maintains level on program. If needed, starts 2nd Chg Pp and places 2nd orifice in service. Adjusts boration rate to maintain T_{avg}/T_{ref} within $\pm 4^{\circ}\text{F } \Delta T$. Refer to Enclosure 1 for expected alarms. <p style="text-align: right;">Step 10</p>

EVENT 5 – 3A & 3B CRDM FANS TRIP

3-GOP-100, FAST LOAD REDUCTION

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: Monitor Boration Rate <ul style="list-style-type: none"> Monitor for excessive rod movement by monitoring TR-3-409D, Rod Position Bank D. Determine if Insertion Limit and Bank D position are converging at a rate that will cause rod insertion limit alarms. Adjust power reduction rate as needed to control rod insertion Increase boration rate and/or total amount as necessary to limit control rod insertion <p style="text-align: right;">Step 11</p>
		RCO: <ul style="list-style-type: none"> Monitor Annunciator B 8/1, ROD BANK LO LIMIT – CLEAR Monitor B 8/2 ROD BANK A/B/C/D EXTRA LO LIMIT – CLEAR <p style="text-align: right;">Steps 12-13</p>
	<p style="text-align: center;"><u>BOOTH OPERATOR</u></p> Acknowledge notification to refer to E-Plan and ADM-115.	US: Have SM refer to the following procedures: <ul style="list-style-type: none"> 0-EPIP-20101, DUTIES OF EMERGENCY COORDINATOR 0-ADM-115, NOTIFICATION OF PLANT EVENTS <p style="text-align: right;">Step 14</p>
	<p style="text-align: center;"><u>LEAD EVALUATOR</u></p> Once power has been reduced by a minimum of 5%, at the Lead Evaluators discretion, proceed to the next Event.	RCO: Energize Pressurizer Backup Heaters <p style="text-align: right;">Step 15</p>

EVENT 6 – 3A SGTR WITH LOOP

3-ONOP-071.2, STEAM GENERATOR TUBE LEAKAGE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p><u>NOTE</u></p> <p>The tube rupture ramps in over 5 minutes. The crew will meet conditions to trip in ~ 2 minutes. The US may direct actions to maximize charging, isolate letdown, and trip the Reactor without enter 3-ONOP-071.2.</p> <p><u>BOOTH OPERATOR</u></p> <p>When directed by the Lead Evaluator, trigger EVENT 6 - 3A SGTR</p>	
		<p>BOP:</p> <p>Reviews ARP for H1/4, PRMS HI RADIATION</p> <ul style="list-style-type: none"> • Checks alarm on R-15 • REFER TO 3-ONOP-071.2, Steam Generator Tube Leakage. • Check S/G Feedwater flows and levels for indication of a Ruptures S/G.
		<p>RCO:</p> <p>Checks PZR pressure and level for indication of a S/G Tube Rupture.</p>
		<p>US:</p> <p>Enters and directs the actions of 3-ONOP-071.2, Steam Generator Tube Leakage.</p>
		<p>US:</p> <p>Reviews the Foldout page with the crew.</p> <ul style="list-style-type: none"> • 3-EOP-E-0 Transition Criteria • Control Room Ventilation Manual Isolation Criteria • Turbine Load Within 10% Of Target Power Level • Blowdown Release Path Isolation • AFW Steam Supply Release Path Isolation


EVENT 6 – 3A SGTR WITH LOOP

3-ONOP-071.2, STEAM GENERATOR TUBE LEAKAGE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>RCO:</p> <p>Check PRZ level – STABLE OR INCREASING</p> <ul style="list-style-type: none"> Start additional charging pumps as required. Reduce letdown flow as necessary. IF PRZ level can NOT be maintained, THEN manually trip the reactor AND go to 3-EOP-E-0, REACTOR TRIP OR SAFETY INJECTION. <p style="text-align: right;">Step 1</p>
		<p>BOP:</p> <ul style="list-style-type: none"> Check R-15 High Alarm light – ON Check PRMS Channel R-15 Alarm Valid As Follows Check PRMS Channels R-19 For Proper Operation <p>Step 2 - 4</p>

EVENT 6 - 3A SGTR WITH LOOP

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	TIME	TIME
	<p><u>NOTE</u></p> <ol style="list-style-type: none"> When the Generator trips, a Loss Of Offsite Power occurs and both Emergency Diesel Generators start and energize their respective 4KV buses. When SI actuates, Control Room Ventilation fails to align for recirc. 	<p>US:</p> <ul style="list-style-type: none"> Directs 3-EOP-E-0 response after auto Reactor trip. <p>OR</p> <ul style="list-style-type: none"> Directs RCO to manually trip the Reactor, then for operators to perform their IOA's.
		<p>RCO:</p> <ul style="list-style-type: none"> Manually trips Reactor. Manually actuates SI and Phase A
	<p><u>NOTE</u></p> <p>Steps 1 - 4 of 3-EOP-E-0 are Immediate Operator Actions (IOAs). The board operators will call out the high level steps of the IOAs as each step is completed from memory. Once the IOAs are complete, the US will read through Steps 1 – 4 with the crew.</p>	<p>RO/BOP:</p> <p>Perform IOA's.</p>
<p>CT3 </p> <p>Start Time</p>	<p><u>NOTE</u></p> <p>3B RHR pumps will start when SI actuates. Record the time for verification of CT3 to secure RHR pumps within 44 minutes.</p>	<p>RCO:</p> <p>Verifies Reactor Trip</p> <p>STEP 1</p>
		<p>BOP:</p> <p>Verify Turbine Trip</p> <p>STEP 2</p>
	<p><u>BOOTH OPERATOR</u></p> <p>When the GEN MID BKR OPENS, verify EVENT 6 LOOP triggers.</p>	<p>BOP:</p> <p>Verifies Power To Emergency 4 KV Buses</p> <p>STEP 3</p>
		<p>RCO:</p> <p>Checks If SI Is Actuated</p> <p>STEP 4</p>

EVENT 6 - 3A SGTR WITH LOOP

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	TIME	TIME
		RCO: Checks if SI is required: <ul style="list-style-type: none"> Manually actuate SI. Manually actuate Containment Isolation Phase A. <p style="text-align: right;">STEP 4 RNO</p>
		US: Directs 3-EOP-E-0 response and reviews the IOAs.
CT1	<u>Isolate the Ruptured S/G</u> Closing CV-3-2816 & CV-3-2831 is part of CT1.	US: Reviews FOP for 3-EOP-E-0 with the crew <ol style="list-style-type: none"> Adverse Containment Conditions RCP Trip Criteria Faulted S/G Isolation Criteria Ruptured S/G Isolation Criteria (YES) <ul style="list-style-type: none"> When 3A S/G narrow range level is greater than 7%[27%], close CV-3-2816 & CV-3-2831 AFW System Operation Criteria CST Makeup Water Criteria RHR System Operation Criteria (YES, RCO starts timer) Loss Of Offsite Power Or SI On Other Unit Loss Of Charging Criteria <p style="text-align: right;">FOLDOUT PAGE</p>
<p style="text-align: center;"><u>PROCEDURE NOTE</u></p> <p>Hydrogen monitors should be in service within 30 minutes of a valid SI signal.</p>		
	<p style="text-align: center;"><u>NOTE</u></p> <p>Attachment 3 actions start on page 43.</p>	BOP: <ul style="list-style-type: none"> Continues with ATTACHMENT 3 to complete The Prompt Action Verifications. <p style="text-align: right;">STEP 5</p>

EVENT 6 - 3A SGTR WITH LOOP

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	TIME	TIME
		RCO: • Check AFW Pumps – AT LEAST TWO RUNNING. STEP 6
		RCO: Verify AFW Valve Alignment – PROPER EMERGENCY ALIGNMENT STEP 7
		RCO: Verify Proper AFW Flow: STEP 8
		RCO: Check all RCP Thermal Barrier Alarms clear. (A 1/1, 1/2 and 1/3) STEP 9
		RCO: Check any RCPs running. (No) • Check RCS Cold Leg temperatures between 545°F and 547°F or trending down to 547°F. (NO) – Stop dumping steam. – Reduce AFW flow – Close MSIVs STEP 10
		RCO: Check PRZ PORVs, Spray Valves And Excess Letdown Isolated: STEP 11
		RCO: Check If RCPs Should Be Stopped: (Not Running) STEP 12
		RCO: Check If S/Gs Are Faulted: (NO Go to Step 14) STEP 13


EVENT 6 - 3A SGTR WITH LOOP

3-EOP-E-0, RX TRIP OR SAFETY INJECTION

TIME	TIME	TIME
	<p><u>BOOTH OPERATOR</u></p> <p>If Chemistry or RP is called, report local secondary radiation readings and samples are highest on 3A SG.</p>	<p>RCO:</p> <p>Check If S/G Tubes Are Ruptured: (YES for 3A SG)</p> <p>STEP 14</p>
		<p>US:</p> <ul style="list-style-type: none"> Monitor Critical Safety Functions using 3-EOP-F-0, CRITICAL SAFETY FUNCTION STATUS TREES Go to 3-EOP-E-3, STEAM GENERATOR TUBE RUPTURE, Step 1

EVENT 6 - 3A SGTR with LOOP

3-EOP-E-3, STEAM GENERATOR TUBE RUPTURE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<p align="center"><u>NOTE</u></p> <p>The crew may wait until 3-EOP-E-3 step 10 to Stop RHR Pumps.</p>	<p>US:</p> <p>Directs 3-EOP-E-3 response.</p>
	<p><u>Limit RHR Time On Recirculation</u></p> <p>When a RHR Pump starts and is operating at shutoff head, limit the operating time at shutoff head with minimum flow recirculation to no more than 44 minutes.</p> <p>[0-ADM-232, Time Critical Operator Action Program – Attachment 1]</p>	<p><u>Reviews Foldout Page</u></p> <ul style="list-style-type: none"> • Adverse Containment Setpoints • RCP Trip Criteria • SI Re-Initiation Criteria • Secondary Integrity Criteria • Cold Leg Recirculation Switchover Criteria • CST Makeup Water Criteria • Multiple Tube Rupture Criteria • Loss Of Offsite Power Or SI On Other Unit. • If RHR flow is less than 1100 gpm, then the RHR Pumps shall be shut down within 44 minutes of the initial start signal.
		FOP
		<p>RCO:</p> <ul style="list-style-type: none"> • Checks If RCPs Should Be Stopped <p align="right">STEP 1</p>
	<p align="center"><u>BOOTH OPERATOR</u></p> <p>If called as RP, report the radiation readings on 3A SG lines are higher than normal.</p>	<p>RCO:</p> <p>Identify Ruptured S/G:</p> <ul style="list-style-type: none"> • Identify 3A as the Ruptured S/G • Directs RP to take rad readings on Main Steam and Blowdown Lines • Evaluates DAM1 on DCS • Determines ruptured SG by level increase or radiation <p align="right">STEP 2</p>

EVENT 6 - 3A SGTR with LOOP

3-EOP-E-3, STEAM GENERATOR TUBE RUPTURE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
CT1	<p><u>Isolate the Ruptured S/G</u> Adjusting 3A S/G Steam Dump To Atmosphere controller setpoint to 1060 psig and verifying it goes closed is part of CT1.</p>	<p>RCO: Isolate Flow From Ruptured S/G</p> <ul style="list-style-type: none"> Adjusts 3A S/G Steam Dump To Atmosphere controller setpoint to 1060 psig Checks 3A S/G Steam Dump To Atmosphere Closed. WHEN ruptured S/G pressure is less than 1060 psig, THEN Verify S/G Steam Dump to Atmosphere is closed. <p>STEP 3.a/b</p>
CT1	<p><u>BOOTH OPERATOR</u> When directed to de-energize MOV-3-1403 BKR 4D01-28, wait 3 minutes and then trigger LOA – DEENERGIZE MOV-3-1403. Report when action is complete.</p> <p><u>Isolate the Ruptured S/G</u> Closing and de-energizing MOV-3-1403 is part of CT1.</p>	<p>BOP: Close steam supply valves from ruptured 3A S/G to AFW Pumps using: Attachment 17</p> <ul style="list-style-type: none"> Check SI reset Check AMSAC reset Check Both AFW Auto Start White Lights – OFF (3QR50 AND 3QR51) Close 3A Steam Generator AFW Steam Supply, MOV-3-1403. Dispatch an Operator to de-energize BKR 4D01-28 for MOV-3-1403. Verify MOV-3-1403 – CLOSED Notify Unit Supervisor That 3A S/G AFW Steam Supply Is Isolated and Attachment 17 is complete. <p>STEP 3.c</p>
CT1	<p><u>Isolate the Ruptured S/G</u> Closing the 3A MSIV is part of CT1.</p>	<p>BOP:</p> <ul style="list-style-type: none"> Verify 3A S/G Blowdown Isolation Valve, FCV-3-6275A, is closed on 3A S/G. Closes 3A MSIV. <p>STEP 3.d-e</p>

EVENT 6 - 3A SGTR with LOOP

3-EOP-E-3, STEAM GENERATOR TUBE RUPTURE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: <ul style="list-style-type: none"> Check Circulating Water Pumps – ANY RUNNING (NO) <ul style="list-style-type: none"> Close 3B and 3C MSIVs STEP 3.f
	<p><u>BOOTH OPERATOR</u></p> <p>When dispatched to Align Main Steam auxiliaries using Attachment 5, trigger LOA – ALIGN AUX STEAM SUPPLY FROM U4.</p> <p>After 5 minutes, report complete.</p>	BOP: <ul style="list-style-type: none"> Dispatch Operator to align main steam auxiliaries using Attachment 5 STEP 3.f
	<p><u>BOOTH OPERATOR</u></p> <p>When dispatched to close 3-10-321 and 3-10-896 for S/G 3C per Attachment 16, wait 5 minutes and report steps complete.</p>	BOP: <p>Isolate miscellaneous flow paths from 3A S/G using Attachment 16.</p> <ul style="list-style-type: none"> Verify 3A S/G Blowdown Sample MOV MOV-3-1427 – CLOSED Dispatches Operator to locally isolate <ul style="list-style-type: none"> 3A S/G Main Steamline Steam Trap 3-10-121A Steam Sample Valves 3-10-891 for S/G 3A Inform Unit Supervisor That Attachment 16 is Complete. STEP 3.f

EVENT 6 - 3A SGTR with LOOP

3-EOP-E-3, STEAM GENERATOR TUBE RUPTURE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
CT1	<p><u>Isolate the Ruptured S/G</u></p> <p>During a Steam Generator Tube Rupture, isolate the ruptured S/G before a the ruptured Steam Generator pressure drops below 450 psig to prevent transition to 3-EOP-ECA-3.1, SGTR With Loss Of Reactor Coolant-Subcooled Recovery Desired.</p> <p>Verify 3A S/G has been Isolated by the crew</p> <ul style="list-style-type: none"> CV-3-2818, TRN 1 AFW controller, in manual and closed or auto with the setpoint set to zero. CV-3-2831, TRN 2 AFW controller, in manual and closed or auto with the setpoint set to zero. MOV-3-1403, 3A Steam Supply to AFW pumps, closed and de-energized MOV-3-1407, 3A S/G FW Isolation, closed CV-3-1606, 3A S/G Stm Dump to Atmosphere, closed in Auto and set to 1060# 3A MSIV CLOSED 	<p>BOP:</p> <ul style="list-style-type: none"> Check 3A S/G Level Narrow Range level – GREATER THAN 7%[27%] Verify feed flow stopped to the 3A S/G. <p style="text-align: right;">STEP 4</p>
		<p>US:</p> <p>Checks 3C S/G pressure greater than 450 psig.</p> <p style="text-align: right;">STEP 5</p>


EVENT 6 - 3A SGTR with LOOP

3-EOP-E-3, STEAM GENERATOR TUBE RUPTURE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>US/BOP:</p> <p>Initiate RCS Cooldown</p> <ul style="list-style-type: none"> Determines required CET Temp for Cooldown. Check feed sources to intact S/Gs – CAPABLE OF PROVIDING 400 GPM Check Condenser AVAILABLE (NO) Manually dump steam to atmosphere from 3B & 3C S/G(s) at maximum rate using Steam Dump to Atmosphere Valves. Continue with step 7 <ul style="list-style-type: none"> When Core Exit TCs - LESS THAN REQUIRED TEMPERATURE, then stops cooldown. Maintains core exit TCs – LESS THAN REQUIRED TEMPERATURE. <p style="text-align: right;">STEP 6</p>
		<p>BOP:</p> <p>Check Intact S/G Level:</p> <ul style="list-style-type: none"> Any Narrow Range Level – GREATER THAN 7%[27%]. Maintain 3A and 3B S/G narrow range level between 21%[27%] and 50%. Narrow Level – LESS THAN 50%. <p style="text-align: right;">STEP 7</p>
		<p>RCO:</p> <p>Verify SI – RESET</p> <p style="text-align: right;">STEP 8</p>

EVENT 6 - 3A SGTR with LOOP

3-EOP-E-3, STEAM GENERATOR TUBE RUPTURE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		<p>RCO:</p> <p>Establish Charging Flow:</p> <ul style="list-style-type: none"> Charging Pumps – AT LEAST <u>ONE</u> RUNNING Check offsite power – AVAILABLE (NO) <ul style="list-style-type: none"> Check if diesel capacity is adequate to run three Charging Pumps Start all available Charging Pumps. Adjust speed controller as necessary to establish maximum Charging flow from the running Charging Pump(s). Place RCS Makeup Control in STOP. Adjust HCV-3-121, Charging Flow To Regen Heat Exchanger, to maintain proper Seal Injection flow. Verify Charging Pump Suction auto transfers to RWST. <p style="text-align: right;">STEP 9</p>
<p>CT3 </p> <p>Stop Time</p>	<p>Limit RHR Time On Recirculation</p> <p>When a RHR Pump starts and is operating at shutoff head, limit the operating time at shutoff head with minimum flow recirculation to no more than 44 minutes.</p> <p>[0-ADM-232, Time Critical Operator Action Program – Attachment 1]</p>	<p>RCO:</p> <p>→ Check If RHR Pumps should Be Stopped:</p> <ul style="list-style-type: none"> Check RCS pressure – GREATER THAN 275 PSIG[575 PSIG] Check RHR flow – LESS THAN 1100 GPM Stop RHR Pumps and place in standby. <p style="text-align: right;">STEP 10</p>

EVENT 6 - 3A SGTR with LOOP

3-EOP-E-3, STEAM GENERATOR TUBE RUPTURE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		RCO: Check PRZ PORVs And Block Valves: <ul style="list-style-type: none"> • Check Power to block valves – AVAILABLE • Check PORVs – CLOSED • Check Block valves - AT LEAST ONE OPEN <p style="text-align: right;">STEP 11</p>
		RCO: Reset Containment Isolation Phase A & Phase B. <p style="text-align: right;">STEP 12</p>
		RCO: Verify Instrument Air To Containment: <ul style="list-style-type: none"> • Verify CV-3-2803, Instrument Air Containment Isolation – OPEN • Verify Instrument Air pressure, as indicated on PI-3-1444 – GREATER THAN 95 PSIG <p style="text-align: right;">STEP 13</p>
CT2	Control Initial RCS Cooldown When 3-EOP-E-3, Steam Generator Tube Rupture, is entered, dump steam from 3B and 3C SGs at maximum rate using the Condenser Steam Dump Valves or Steam Dump To Atmosphere Valves to achieve Core Exit TCs less than required temperatures based on the lowest ruptured S/G pressure without causing a required transition to 3-EOP-FR-P.1, Response to Imminent Pressurized Thermal Shock Condition.	BOP: Check If RCS Cooldown Should be Stopped: <ul style="list-style-type: none"> • Check CETs < REQUIRED • WHEN core exit TCs are less than required temperature • Stop RCS cooldown • Maintain CETs < REQUIRED <p style="text-align: right;">STEP 14</p>
		BOP: Checks Ruptured S/G(s) Pressure STABLE or INCREASING <p style="text-align: right;">STEP 15</p>

EVENT 6 - 3A SGTR with LOOP

3-EOP-E-3, STEAM GENERATOR TUBE RUPTURE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Check RCS Subcooling Based On Core Exit TCs – GREATER THAN 39°F[93°F] STEP 16

EVENT 8 - PCV-3-445C PZR PORV, FAILS TO CLOSE DURING E-3 DEPRESSURIZATION

3-EOP-E-3, STEAM GENERATOR TUBE RUPTURE

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
	<u>BOOTH OPERATOR</u> When PCV-3-455C is opened, verify EVENT 8 - PORV 455C FAILS TO CLOSE triggers.	
	<u>NOTE</u> PORV PCV-3-456 was failed close in the scenario setup.	RCO: Check Normal PRZ Spray available (NO) Go to Step 18 STEP 17
CT4	<u>Control Initial RCS Depressurization</u> During a Steam Generator Tube Rupture, depressurize the RCS to the ruptured S/G pressure without causing a transition to 3-EOP-FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, or 3-EOP-ECA-3.1, SGTR With Loss Of Reactor Coolant - Subcooled Recovery Desired.	RCO: <ul style="list-style-type: none"> Open one PRZ PORV until any of the conditions satisfied using Attachment 6. When the conditions of Attachment 6 are satisfied close PZR PORV Close Block Valve MOV-3-536 to stop the depressurization. STEP 18

The scenario may be terminated at the discretion of the Lead Evaluator after the RCS cooldown is complete and the crew has had the opportunity to complete all critical steps.

*** END OF SCENARIO ***

EVENT 7 – CONTROL ROOM HVAC FAILS TO ALIGN ON SI

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Check Load Centers Associated With Energized 4 KV Buses – ENERGIZED STEP 1
		BOP: Verify Feedwater Isolation: <ul style="list-style-type: none"> Place Main Feedwater Pump switches in STOP STEP 2
		BOP: Check If Main Steam Lines Should Be Isolated STEP 3
		BOP: Verify Containment Isolation Phase A Valve White Lights On VPB – ALL BRIGHT STEP 4
		BOP: Verify Pump Operation: STEP 5
		BOP: Verify Proper CCW System Operation: STEP 6
		BOP: Verify Proper ICW System Operation: STEP 7
		BOP: Check Emergency Containment Coolers – ONLY TWO RUNNING STEP 8

EVENT 7 – CONTROL ROOM HVAC FAILS TO ALIGN ON SI

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Verify Unit 3 Containment Purge Exhaust And Supply Fans – OFF STEP 9
		BOP: Verify Containment Spray NOT Required: -STEP 10
		BOP: Verify SI – RESET STEP 11
		BOP: Verify SI Valve Amber Lights On VPB – ALL BRIGHT STEP 12
		BOP: Verify SI Flow: (NO) Go to Step 14 STEP 13
	<u>BOOTH OPERATOR</u> When directed by the crew, trigger LOA – ALIGN U4 HHSI TO U3 RWST. Wait 5 minutes and report local operator steps complete.	BOP: Realign SI System: <ul style="list-style-type: none"> Verify Unit 3 High-Head SI Pumps – TWO RUNNING Stop both Unit 4 HHSI pump. Direct Unit 4 Reactor Operator to align Unit 4 High-Head SI Pump suction to Unit 3 RWST using Attachment 1. Stop Unit 4 HHSI pumps STEP 14
		BOP: Verify Containment Isolation Phase A – RESET STEP 15

EVENT 7 – CONTROL ROOM HVAC FAILS TO ALIGN ON SI

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Check RCPs – AT LEAST ONE RUNNING (NO Go to Step 17) STEP 16
	<p><u>BOOTH OPERATOR</u></p> <p>When the BOP opens damper D3, verify EVENT 7 - ALLOW OPENING D3 triggers</p> <p>When the BOP opens damper D2, verify EVENT 7 - ALLOW OPENING D2 triggers</p>	BOP: <ul style="list-style-type: none"> Verify Emergency Air Supply Fans – at least one running Control Room Ventilation dampers – aligned for recirc (NO) <ul style="list-style-type: none"> Open Emergency Inlet Damper D-3 Open Emergency Inlet Damper D-2 Verify Normal Flow green indicating light (4QR82) – ON TS-0002, TSC Emergency Vent Auto Initiate Key Switch – IN ENABLE STEP 17
	<p><u>BOOTH OPERATOR</u></p> <p>When requested by crew, trigger LOA – PLACE PAHMS IN SERVICE.</p> <p>Wait 5 minutes and report local operator steps complete.</p>	BOP: <p>Place Hydrogen Monitors In Service Using 3-NOP-094, CONTAINMENT POST ACCIDENT MONITORING SYSTEM</p> <ul style="list-style-type: none"> For Each Hydrogen Monitor A/B <ul style="list-style-type: none"> ENSURE FUNCTION SELECTOR switch is in SAMPLE. PLACE control switch in ANALYZE. PRESS the REMOTE SELECTOR button. PRESS the ALARM RESET button. Dispatch an operator to complete local step of 3-NOP-094 (STEP 18)

EVENT 7 – CONTROL ROOM HVAC FAILS TO ALIGN ON SI

3-EOP-E-0 ATTACHMENT 3 – PROMPT ACTION VERIFICATIONS

TIME	EVALUATOR ACTIVITIES & NOTES	EXPECTED STUDENT RESPONSE
		BOP: Verify All Four EDGs – RUNNING STEP 19
		BOP: Check 3A AND 3B 4 KV Buses – All Energized From Offsite power. (NO, check computer chiller running) STEP 20
		BOP: Notify Unit Supervisor that Attachment 3 is complete. STEP 21

Discussion Points are intentionally NOT included in evaluated scenarios. However, space is available below to document follow-up questions when further information is required to determine an evaluation outcome.

FOLLOW-UP QUESTIONS**QUESTION #1**

ANSWER #1

QUESTION #2

ANSWER #2

SIMULATOR POST-SCENARIO RESTORATION:

- _____ 1. Restore per Simulator Operator Checklist.
- _____ 2. Once exams are complete, restore from SEI-19, Simulator Exam Security.

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ATTACHMENT 3
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FAST LOAD REDUCTION MANEUVERING PLAN

Item#

1.	MW CNTRL Load Reduction Rate MW/min	35	30	25	20	15	10
2.	Load Reduction Rate %/min	4.1	3.5	2.9	2.4	1.8	1.2
3.	TIP CNTRL Load Reduction Rate PSIG/min	27.1	23.2	19.3	15.5	11.6	7.7
4.	Expected Tavg/Tref ΔT	4° F	4° F	3.5°F	3° F	3° F	2°F

5. Current Power _____ %

6. End Target Power _____ % [= % power level at which load reduction is expected to be complete]

7. Total Power Change _____ % [= (Item 5) - (Item 6)]

8. Time Required for Total Power Change _____ min [(Item 7) ÷ (Item 2)]

%RTP	TIP	MWe	Tavg
10	47.6	85.1	550.0
20	107.6	170.1	553.0
30	169.6	255.2	556.0
40	233.8	340.3	559.1
50	300.2	425.4	562.3

%RTP	TIP	MWe	Tavg
60	368.6	510.4	565.7
70	439.1	595.5	569.1
80	511.8	680.6	572.6
90	586.6	765.6	576.3
100	663.5	850.7	580.0

9. Turbine MW CNTRL (or manual) Target Power Level = _____ MW
(N/A if TIP CNTRL Selected)
[= (Item 6) x (.01) x (850.7 MW) or from table above]

10. Turbine TIP CNTRL Target Power Level = _____ PSIG (N/A if MW CNTRL Selected)
[= (0.0106 x (Item 6)³) + (5.6775 x Item 6) - 10.216 or from table above]

11. Calculate (multiplication) Total Boron Addition With Rod Movement
[Use 20 gallons/% with no rod movement]

$$\frac{(\quad)}{\text{Item 7 - Total Power Change for Boron Addition}} \times \frac{(10 \text{ gal/\%power})}{\text{Boron Worth}} = \frac{\quad}{\text{Total Boron Volume Change (Gallons)}}$$

12. Calculate (division) Boron Addition Rate

$$\frac{\text{Item 11 - Total Boron Volume Change (Gallons)}}{\text{Item 8 - Time Required for Power Change (min)}} = \frac{(\quad)}{(\quad)} = \frac{\quad}{\text{Total Boron Rate (gpm)}}$$

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ATTACHMENT 4
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FAST LOAD REDUCTION BRIEF

1. Reason for load reduction _____
2. Maneuvering Guidelines (From Attachment 3 Maneuvering Sheet)
 - Load reduction rate _____ % /minute [Item 2]
 - Time required for power change _____ min [Item 8]
 - End Target Power Level _____ % Power [Item 6]
 - Turbine Target Power Level _____ MW or PSIG (circle as applicable) [Item 9 or Item 10 as applicable]
 - Load reduction rate for Turbine _____ MW/min or PSIG/min (circle as applicable) [Item 1 or 3]
 - Total boron addition _____ gallons [Item 11]
 - Boron Addition Rate _____ gpm [Item 12]
3. Maneuvering Plan
 - Initial boration rate of 40 gpm for T_{AVG} reduction
 - Start load reduction after T_{AVG} reduction
 - Stop boration when 10% from target power
 - IF rod control motion is NOT available (Auto or Manual), THEN perform load reduction by leading with the reactor AND lowering turbine load using manual or automatic turbine control as desired.
4. Plant Control Parameters and Contingency Actions
 - Maintain Tav/Tref expected ΔT band [Item 4] +/- 1° F - Adjust ramp rate or boration rate
 - Monitor load rate and boration rate to prevent B 8/1, ROD BANK LO LIMIT and B 8/2, ROD BANK A/B/C/D EXTRA LO LIMIT - follow guidance in body of procedure
 - Annunciator B 4/4, TAVG/TAVG TREF DEVIATION - Stop load reduction.
5. Actions When Target Power Level Achieved
 - Manual reactor trip
 - Transition to 3-GOP-103 if Tripped from 5% or 3-EOP-E-0 if Tripped at 20%
6. EOP E-0 Transition Criteria
 - Manual reactor and turbine trip: T_{AVE} 6 °F > T_{TREF}
7. Review required actions from other procedures currently in effect (example, stop RCP).
8. Questions or crew input?
9. End of Brief

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ENCLOSURE 1

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EXPECTED ALARMS DURING LOAD REDUCTION

1. The following are expected alarms while maneuvering the unit:
 - A 2/5 BORIC ACID MAKE-UP FLOW DEVIATION
 - B 2/2 POWER RANGE UPPER DET HI FLUX DEV/AUTO DEFEAT
 - B 2/3 POWER RANGE LOWER DET HI FLUX DEV/AUTO DEFEAT
 - D 1/1 FW HEATER 1A HI LEVEL
 - D 1/2 FW HEATER 2A HI LEVEL
 - D 1/3 FW HEATER 3A HI LEVEL
 - D 1/4 FW HEATER 4A HI LEVEL
 - D 1/5 FW HEATER 5A HI LEVEL
 - D 1/6 FW HEATER 6A HI LEVEL
 - D 2/1 FW HEATER 1B HI LEVEL
 - D 2/2 FW HEATER 2B HI LEVEL
 - D 2/3 FW HEATER 3B HI LEVEL
 - D 2/4 FW HEATER 4B HI LEVEL
 - D 2/5 FW HEATER 5B HI LEVEL
 - D 2/6 FW HEATER 6B HI LEVEL
 - D 4/6 SJAE LO STEAM PRESS (after Attachment 1 is complete)
 - D 5/2 SGFP A LO FLOW
 - D 6/2 SGFP B LO FLOW
 - D 9/5 HDT B HI LEVEL
 - E 5/5 TURB GLAND SEAL LO PRESS (after Attachment 1 is complete)
 - F 2/1 POWER SYSTEM STABILIZER TROUBLE
 - G 4/3 RCS METAL IMPACT
 - G 5/2 AXIAL FLUX ADMIN LIMIT EXCEEDED

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OPERATIONS SHIFT TURNOVER REPORT



UNIT 3 RISK: GREEN (ACCEPTABLE)
PROTECTED TRAIN: B

UNIT 4 RISK: GREEN (ACCEPTABLE)
PROTECTED TRAIN: B

ONCOMING CREW ASSIGNMENTS

Shift Mgr:			Inside SNPO:	
Field Supv.:			Outside SNPO:	
Admin RCO:			ANPO:	
Unit 3			Unit 4	
Unit Supv.:			Unit Supv.:	
RCO:			RCO:	
NPO:			NPO:	

PLANT STATUS

Unit 3			Unit 4	
Mode:	1		Mode:	1
Power:	60%		Power:	100%
MWe:	464		MWe:	842
Gross Leakrate:	.22 gpm		Gross Leakrate:	0.03 gpm
RCS Boron Conc:	885 ppm		RCS Boron Conc:	642 ppm

Operational Concerns:

3A RHR pump taken OOS 4 hours ago for an oil change, expected back by the end of this shift.
3A1 Circ Water pump OOS. Tripped on over current, Electrical Maintenance is investigating.
3A Condensate pump was returned to service last shift following a motor bearing replacement and PMT run. Return to full power expected next shift.

U3 Anticipated LCO Actions:

None

U4 Anticipated LCO Actions:

None

Results of Offgoing Focus Area:

UNIT 3 STATUS

REACTOR OPERATOR

UNIT RISK: GREEN (ACCEPTABLE) PROTECTED TRAIN: B

Mode:	1	RCS Leakrate		Accumulator Ref Levels	
Power:	60%	Gross:	0.22 GPM	A	6656
MWe	464	Unidentified	0.04 GPM	B	6608
Tavg:	565°F	Charging Pps:	0.00 GPM	C	6646
RCS Pressure:	2235				
RCS Boron Conc:	885ppm				

Abnormal Annunciators:

Annunciator:	
Comp Actions:	
Annunciator:	
Comp Actions:	
Annunciator:	
Comp Actions:	
Annunciator:	
Comp Actions:	
Annunciator:	
Comp Actions:	

Current Tech Spec Action Statements: (Does Not Include "For Tracking Only Items")

T.S.A.S / Component:	3A RHR pump, 3.5.2.c – Action g
Reason:	Oil Change
Entry Date:	4 hours ago
T.S.A.S / Component:	
Reason:	
Entry Date:	
T.S.A.S / Component:	
Reason:	
Entry Date:	
T.S.A.S / Component:	
Reason:	
Entry Date:	

REACTOR OPERATOR (CONT'D)

UNIT RISK: GREEN (ACCEPTABLE) PROTECTED TRAIN: B

Changes to Risk Significant Equipment:

No recent changes from last shift.

OLRM: GREEN

PROTECTED TRAIN: B

Upcoming Reactivity Management Activities:

Maintain current power level $\pm .5\%$
Xe is stable.

Upcoming Major POD Activities:

NONE

Upcoming ECOs to Hang and /or Release:

- Hang – None
- Release – None

Evolutions or Compensatory Actions in Progress:

•
NONE

General Information, Remarks, and Operator Work Around Status:

- Weather forecast is overcast skies with scattered pockets of severe rain.
- U3 supplying Aux Steam
- Air In-leakage = 0.0 SCFM



L-16-1 NRC EXAM SCENARIO 1
NRC EXAM SECURE INFORMATION

SEG

Site: Turkey Point Units 3 and 4 (PTN)

Title: L-16-1 NRC EXAM SCENARIO 1

LMS #: NRC 21

LMS Rev Date: 6/6/16 **Rev #:** 0

SEG Type: ☐ Training ☒ Evaluation

Program: ☐ LOCT ☒ LOIT ☐ Other

Duration: 120 minutes

Developed by:  8/4/16
Instructor/Developer Date

Reviewed by:  8/4/16
Instructor (Instructional Review) Date

Validated by :  8/5/16
SME (Technical Review) Date

Approved by:  8/5/16
Training Supervision Date

Approved by:  8/5/16
Training Program Owner (Line) Date

NRC EXAM SECURE INFORMATION



L-16-1 NRC EXAM SCENARIO 2
NRC EXAM SECURE INFORMATION

SEG

Site: Turkey Point Units 3 and 4 (PTN)

Title: L-16-1 NRC EXAM SCENARIO 2

LMS #: NRC 22

LMS Rev Date: 6/7/16 **Rev #:** 0.0

SEG Type: ☐ Training ☒ Evaluation

Program: ☐ LOCT ☒ LOIT ☐ Other

Duration: 110 minutes

Developed by: Brian Clark
Instructor/Developer

8/4/16
Date

Reviewed by: Li Jang
Instructor (Instructional Review)

8/4/16
Date

Validated by : LEBE
SME (Technical Review)

8/5/16
Date

Approved by: [Signature]
Training Supervision

8/5/16
Date

Approved by: LEBE
Training Program Owner (Line)

8/5/16
Date

NRC EXAM SECURE INFORMATION



L-16-1 NRC EXAM SCENARIO 3
NRC EXAM SECURE INFORMATION

SEG

Site: Turkey Point Units 3 and 4 (PTN)

Title: L-16-1 NRC EXAM SCENARIO 3

LMS #: NRC 23

LMS Rev Date: 5/31/16 **Rev #:** 0.0

SEG Type: ☐ Training ☒ Evaluation

Program: ☐ LOCT ☒ LOIT ☐ Other

Duration: 120 minutes

Developed by: Brian Clark
Instructor/Developer

8/4/16
Date

Reviewed by: Le Fay
Instructor (Instructional Review)

8/4/16
Date

Validated by : le Be
SME (Technical Review)

8/5/16
Date

Approved by: [Signature]
Training Supervision

8/5/16
Date

Approved by: le Be
Training Program Owner (Line)

8/5/16
Date



L-16-1 NRC EXAM SCENARIO 4

NRC EXAM SECURE INFORMATION

SEG

Site: Turkey Point Units 3 and 4 (PTN)

Title: L-16-1 NRC EXAM SCENARIO 4

LMS #: NRC 24

LMS Rev Date: 6/8/16 Rev #: 0

SEG Type: ☐ Training ☒ Evaluation

Program: ☐ LOCT ☒ LOIT ☐ Other

Duration: 120 minutes

Developed by:

T. Hodge
Instructor/Developer

8/4/16 8/4/16
Date

Reviewed by:

Brian Jones
Instructor (Instructional Review)

8/4/16
Date

Validated by :

leBe
SME (Technical Review)

8/5/16
Date

Approved by:

[Signature]
Training Supervision

8/5/16
Date

Approved by:

leBe
Training Program Owner (Line)

8/5/16
Date

NRC EXAM SECURE INFORMATION



L-16-1 NRC EXAM SCENARIO 5

NRC EXAM SECURE INFORMATION

SEG

Site: Turkey Point Units 3 and 4 (PTN)

Title: L-16-1 NRC EXAM SCENARIO 5

LMS #: NRC 25

LMS Rev Date: 6/9/16 Rev #: 0

SEG Type: ☐ Training ☒ Evaluation

Program: ☐ LOCT ☒ LOIT ☐ Other

Duration: 120 minutes

Developed by: Brian Clark 8/4/16
Instructor/Developer Date

Reviewed by: [Signature] 8/4/16
Instructor (Instructional Review) Date

Validated by: [Signature] 8/5/16
SME (Technical Review) Date

Approved by: [Signature] 8/5/16
Training Supervision Date

Approved by: [Signature] 8/5/16
Training Program Owner (Line) Date

NRC EXAM SECURE INFORMATION

L-16-1 NRC Exam

Control Room - JPM A



JOB PERFORMANCE MEASURE

JPM

NRC EXAM SECURE INFORMATION

JPM TITLE: Respond to Control Bank D Demanded Past ARO

JPM NUMBER: 01028916302

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01028916300 /
Respond to Control Bank D Demanded Past ARO

K/A NUMBERS: 001 A4.14

K/A VALUE: RO 3.0 / SRO 3.4

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

Developed by:	<u>Brian Clark</u> Instructor/Developer	<u>8/4/16</u> Date
Reviewed by:	<u>Tim Hodge</u> Instructor (Instructional Review)	<u>8/4/16</u> Date
Validated by:	<u>Sean Bloom</u> SME (Technical Review)	<u>8/5/16</u> Date
Approved by:	<u>Mark Wilson</u> Training Supervision	<u>8/5/16</u> Date
Approved by:	<u>Sean Bloom</u> Training Program Owner	<u>8/5/16</u> Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

SIMULATOR SETUP INSTRUCTIONS:

_____	1.	Reset to IC 1 or saved IC.
_____	2.	Place simulator in RUN.
_____	3.	Ensure applicable portions of Simulator Operator Checklist are complete.
_____	4.	N/A if using saved IC Perform following setup steps: a. Place Rod Motion Control Selector Switch in MANUAL b. Withdraw Control Bank D to 230 steps
_____	5.	Open and execute L-16-1 NRC JPM A.Isn
_____	6.	Allow plant to stabilize.
_____	7.	Acknowledge alarms and place simulator in FREEZE.
_____	8.	Save as temporary IC, if JPM will be repeated.
_____	9.	When ready to begin, then place Simulator in RUN.

SIMULATOR MALFUNCTIONS:

- TFL10201: Continuous rod insertion in auto

SIMULATOR OVERRIDES:

- N/A

SIMULATOR REMOTE FUNCTIONS:

- N/A



Required Materials:	<ul style="list-style-type: none">• HANDOUT 3-ONOP-028• HANDOUT Unit 3 COLR
General References:	<ul style="list-style-type: none">• 3-ONOP-028, Reactor Control System Malfunction• Plant Curve Book, Unit 3
Task Standards:	<ul style="list-style-type: none">• Restore the Rod Control System to normal configuration with Bank D at 228 steps withdrawn• Respond to a continuous rod insertion event by placing rods in MANUAL

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- Unit 3 is at 100% power.
- Control Bank D has been inadvertently withdrawn past 228 steps.
- The Control Bank D step counters currently indicate 230 steps.
- The crew entered 3-ONOP-028, Reactor Control System Malfunction, and completed the immediate actions.

INITIATING CUES:

- The Unit Supervisor directs you to restore the Rod Control System to its normal configuration by performing Section 5.5 of 3-ONOP-028, Reactor Control System Malfunction.
- The Shift Manager has authorized the return of control rods to automatic, on completion of the procedure.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.



JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain 3-ONOP-028, Reactor Control System Malfunction.
Evaluator Note:	If a peer check is requested for any of the following steps, then acknowledge the request and allow the operator to continue.
Evaluator Cue:	Provide examinee with copies of HANDOUT 3-ONOP-028 and HANDOUT Unit 3 COLR.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 2 Critical: No	3-ONOP-028, prior to Step 5.5.1: <u>CAUTION</u> <i>Demanding RCCs to step past the ARO position may cause failure of the stationary grippers and result in a misaligned, partially inserted or dropped rod.</i>
Standard:	Read CAUTION and determine it is satisfactory to proceed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: No	3-ONOP-028, Step 5.5.1: Check for indications of misaligned or dropped RCCs
Standard:	Observe Control Bank D's rod position indicators and determines that no rods are misaligned or dropped.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 4 Critical: No	3-ONOP-028, Step 5.5.2: <u>IF</u> a RCC is determined to be misaligned, <u>THEN</u> ...
Standard:	Read step, compare to Initial Conditions, and determine it does not apply.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical: No	3-ONOP-028, Step 5.5.3: <u>IF</u> a RCC is determined to be dropped, <u>THEN</u> ...
Standard:	Read step, compare to Initial Conditions, and determine it does not apply.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical: No	3-ONOP-028, Step 5.5.4: <u>IF</u> Control Bank D control rods have not been withdrawn more than 230 demanded steps, <u>THEN</u> perform the following: 1. Verify the Rod Motion Control Selector switch is in MAN.
Standard:	Recognize that switch is in MAN position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical: Yes	3-ONOP-028, Step 5.5.4: <u>IF</u> Control Bank D control rods have not been withdrawn more than 230 demanded steps, <u>THEN</u> perform the following: 2. Insert Control Bank D to All Rods Out as defined in Core Operating Limits Report (COLR).
Standard:	Determine ARO to be 228 steps and insert rods 2 steps.
Evaluator Note:	Acknowledge any communication.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 8 Critical: No	3-ONOP-028, Step 5.5.4: <u>IF</u> Control Bank D control rods have not been withdrawn more than 230 demanded steps, <u>THEN</u> perform the following: 3. <u>IF</u> directed by the Shift manager, <u>THEN</u> Place Rod Control Selector Switch to AUTOMATIC position.
Standard:	Place rod control selector switch to AUTO position.
Booth Operator Note:	When rods are placed in MANUAL, verify trigger CONTINUOUS ROD INSERTION IN AUTO triggers.
Evaluator Note:	May need to call as the SM if examinee chooses to leave rods in MAN. Placing rods in AUTO is necessary as it triggers the next event.
Evaluator/Booth Cue:	If asked, respond as the SM and direct the rods to be placed in AUTO.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

THIS BEGINS THE ALTERNATE-PATH PORTION OF THE JPM

Performance Step: 9 Critical: Yes	3-ONOP-028, Step 5.5.4: IF Control Bank D control rods have not been withdrawn more than 230 demanded steps, THEN perform the following: 3. IF directed by the Shift manager, THEN Place Rod Control Selector Switch to AUTOMATIC position.
Standard:	Recognize continuous rod insertion and place rod control selector switch to MANUAL position.
Evaluator Note:	Examinee should place the Rod Motion Selector Switch in the MAN position prior to T_{avg} being 6°F less than T_{ref} (i.e., 2°F lower than transient band per 0-ADM-211, Emergency And Off-Normal Operating Procedure Usage).
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: Once the Rod Control Selector Switch is placed in manual, state "This completes the JPM."

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES
CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

*NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If
unsatisfactory performance is demonstrated, the entire JPM should be retained.*

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 3 is at 100% power.
- Control Bank D has been inadvertently withdrawn past 228 steps.
- The Control Bank D step counters currently indicate 230 steps.
- The crew entered 3-ONOP-028, Reactor Control System Malfunction, and completed the immediate actions.

INITIATING CUES:

- The Unit Supervisor directs you to restore the Rod Control System to its normal configuration by performing Section 5.5 of 3-ONOP-028, Reactor Control System Malfunction.
- The Shift Manager has authorized the return of control rods to automatic, on completion of the procedure.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

Control Room - JPM A



JOB PERFORMANCE MEASURE

JPM

NRC EXAM SECURE INFORMATION

JPM TITLE: Respond to Control Bank D Demanded Past ARO

JPM NUMBER: 01028916302

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01028916300 /
Respond to Control Bank D Demanded Past ARO

K/A NUMBERS: 001 A4.14

K/A VALUE: RO 3.0 / SRO 3.4

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

Developed by:	<u>Brian Clark</u> Instructor/Developer	<u>8/4/16</u> Date
Reviewed by:	<u>Luis Sagion</u> Instructor (Instructional Review)	<u>8/4/16</u> Date
Validated by:	<u>Sean Bloom</u> SME (Technical Review)	<u>8/5/16</u> Date
Approved by:	<u>Mark Wilson</u> Training Supervision	<u>8/5/16</u> Date
Approved by:	<u>Sean Bloom</u> Training Program Owner	<u>8/5/16</u> Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

SIMULATOR SETUP INSTRUCTIONS:

_____	1.	Reset to IC 1 or saved IC.
_____	2.	Place simulator in RUN.
_____	3.	Ensure applicable portions of Simulator Operator Checklist are complete.
_____	4.	N/A if using saved IC Perform following setup steps: a. Place Rod Motion Control Selector Switch in MANUAL b. Withdraw Control Bank D to 230 steps
_____	5.	Open and execute L-16-1 NRC JPM A.Isn
_____	6.	Allow plant to stabilize.
_____	7.	Acknowledge alarms and place simulator in FREEZE.
_____	8.	Save as temporary IC, if JPM will be repeated.
_____	9.	When ready to begin, then place Simulator in RUN.

SIMULATOR MALFUNCTIONS:

- TFL10201: Continuous rod insertion in auto

SIMULATOR OVERRIDES:

- N/A

SIMULATOR REMOTE FUNCTIONS:

- N/A



Required Materials:	<ul style="list-style-type: none">• HANDOUT 3-ONOP-028• HANDOUT Unit 3 COLR
General References:	<ul style="list-style-type: none">• 3-ONOP-028, Reactor Control System Malfunction• Plant Curve Book, Unit 3
Task Standards:	<ul style="list-style-type: none">• Restore the Rod Control System to normal configuration with Bank D at 228 steps withdrawn• Respond to a continuous rod insertion event by placing rods in MANUAL

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- Unit 3 is at 100% power.
- Control Bank D has been inadvertently withdrawn past 228 steps.
- The Control Bank D step counters currently indicate 230 steps.
- The crew entered 3-ONOP-028, Reactor Control System Malfunction, and completed the immediate actions.

INITIATING CUES:

- The Unit Supervisor directs you to restore the Rod Control System to its normal configuration by performing Section 5.5 of 3-ONOP-028, Reactor Control System Malfunction.
- The Shift Manager has authorized the return of control rods to automatic, on completion of the procedure.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.



JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain 3-ONOP-028, Reactor Control System Malfunction.
Evaluator Note:	If a peer check is requested for any of the following steps, then acknowledge the request and allow the operator to continue.
Evaluator Cue:	Provide examinee with copies of HANDOUT 3-ONOP-028 and HANDOUT Unit 3 COLR.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: No	3-ONOP-028, prior to Step 5.5.1: <p style="text-align: center;"><u>CAUTION</u></p> <p><i>Demanding RCCs to step past the ARO position may cause failure of the stationary grippers and result in a misaligned, partially inserted or dropped rod.</i></p>
Standard:	Read CAUTION and determine it is satisfactory to proceed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: No	3-ONOP-028, Step 5.5.1: Check for indications of misaligned or dropped RCCs
Standard:	Observe Control Bank D's rod position indicators and determines that no rods are misaligned or dropped.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 4 Critical: No	3-ONOP-028, Step 5.5.2: <u>IF</u> a RCC is determined to be misaligned, <u>THEN</u> ...
Standard:	Read step, compare to Initial Conditions, and determine it does not apply.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical: No	3-ONOP-028, Step 5.5.3: <u>IF</u> a RCC is determined to be dropped, <u>THEN</u> ...
Standard:	Read step, compare to Initial Conditions, and determine it does not apply.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical: No	3-ONOP-028, Step 5.5.4: <u>IF</u> Control Bank D control rods have not been withdrawn more than 230 demanded steps, <u>THEN</u> perform the following: 1. Verify the Rod Motion Control Selector switch is in MAN.
Standard:	Recognize that switch is in MAN position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical: Yes	3-ONOP-028, Step 5.5.4: <u>IF</u> Control Bank D control rods have not been withdrawn more than 230 demanded steps, <u>THEN</u> perform the following: 2. Insert Control Bank D to All Rods Out as defined in Core Operating Limits Report (COLR).
Standard:	Determine ARO to be 228 steps and insert rods 2 steps.
Evaluator Note:	Acknowledge any communication.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 8 Critical: No	3-ONOP-028, Step 5.5.4: <u>IF</u> Control Bank D control rods have not been withdrawn more than 230 demanded steps, <u>THEN</u> perform the following: 3. <u>IF</u> directed by the Shift manager, <u>THEN</u> Place Rod Control Selector Switch to AUTOMATIC position.
Standard:	Place rod control selector switch to AUTO position.
Booth Operator Note:	When rods are placed in MANUAL, verify trigger CONTINUOUS ROD INSERTION IN AUTO triggers.
Evaluator Note:	May need to call as the SM if examinee chooses to leave rods in MAN. Placing rods in AUTO is necessary as it triggers the next event.
Evaluator/Booth Cue:	If asked, respond as the SM and direct the rods to be placed in AUTO.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

THIS BEGINS THE ALTERNATE-PATH PORTION OF THE JPM

Performance Step: 9 Critical: Yes	3-ONOP-028, Step 5.5.4: IF Control Bank D control rods have not been withdrawn more than 230 demanded steps, THEN perform the following: 3. IF directed by the Shift manager, THEN Place Rod Control Selector Switch to AUTOMATIC position.
Standard:	Recognize continuous rod insertion and place rod control selector switch to MANUAL position.
Evaluator Note:	Examinee should place the Rod Motion Selector Switch in the MAN position prior to T_{avg} being 6°F less than T_{ref} (i.e., 2°F lower than transient band per 0-ADM-211, Emergency And Off-Normal Operating Procedure Usage).
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: Once the Rod Control Selector Switch is placed in manual, state "This completes the JPM."

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES
CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

*NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If
unsatisfactory performance is demonstrated, the entire JPM should be retained.*

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 3 is at 100% power.
- Control Bank D has been inadvertently withdrawn past 228 steps.
- The Control Bank D step counters currently indicate 230 steps.
- The crew entered 3-ONOP-028, Reactor Control System Malfunction, and completed the immediate actions.

INITIATING CUES:

- The Unit Supervisor directs you to restore the Rod Control System to its normal configuration by performing Section 5.5 of 3-ONOP-028, Reactor Control System Malfunction.
- The Shift Manager has authorized the return of control rods to automatic, on completion of the procedure.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

Control Room - JPM B



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Place Excess Letdown in Service

JPM NUMBER: 01047016102

REV. 2-0

TASK NUMBER(S) / TASK TITLE(S): 01047016100 /
Initiate Excess Letdown

K/A NUMBERS: 004 A4.06

K/A VALUE: RO 3.6 / SRO 3.1

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

Developed by: <u>Brian Clark</u>	8/4/16
Instructor/Developer	Date

Reviewed by: <u>Tim Hodge</u>	8/4/16
Instructor (Instructional Review)	Date

Validated by: <u>Sean Bloom</u>	8/5/16
SME (Technical Review)	Date

Approved by: <u>Mark Wilson</u>	8/4/16
Training Supervision	Date

Approved by: <u>Sean Bloom</u>	8/5/16
Training Program Owner	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A



01047016102, Place Excess Letdown in Service, Rev. 2-0
L-16-1 NRC EXAM SECURE INFORMATION

JPM
Page 4 of 19

UPDATE LOG: Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER	DATE
				SUPERVISOR	DATE
1-0	Updated to fleet template; text/grammar changes	2015 LOCT Annual Exam	N/A	N/A	N/A
				N/A	N/A
2-0	Formatting; text/grammar changes	L-16-1 NRC Exam	N/A	N/A	N/A
				N/A	N/A

SIMULATOR SET-UP:

SIMULATOR SETUP INSTRUCTIONS:

_____	1.	Reset to IC 1 or equivalent IC.
_____	2.	Place simulator in RUN.
_____	3.	Ensure applicable portions of Simulator Operator Checklist are complete.
_____	4.	Open and execute L-16-1 NRC JPM B.Isn: a. Verify trigger RV-3-304 Fails Open is in CONDITION state
_____	5.	Allow plant to stabilize.
_____	6.	Acknowledge alarms and place simulator in FREEZE.
_____	7.	Save as temporary IC, if JPM will be repeated.
_____	8.	When ready to begin, then place Simulator in RUN.

SIMULATOR MALFUNCTIONS:

- TFBVO304 – RV-304 Fails Open
- TFBVO10 – 387 Fails Open

SIMULATOR OVERRIDES:

- N/A

SIMULATOR REMOTE FUNCTIONS:

- N/A

Required Materials:	<ul style="list-style-type: none">• HANDOUT 3-OP-047• HANDOUT 3-ONOP-041.3
General References:	<ul style="list-style-type: none">• 3-OP-047, CVCS Charging and Letdown• 3-ONOP-041.3, Excessive Reactor Coolant System Leakage
Task Standards:	<ul style="list-style-type: none">• Place excess letdown in service• Recognize that RV-3-304 has failed open• Start a charging pump, per 3-ONOP-041.3, to maintain pressurizer level

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- Unit 3 is in Mode 1.
- Personnel are currently being briefed to perform maintenance and calibration on LCV-3-460, Letdown Isolation Valve.

INITIATING CUES:

- In preparation for the isolation of normal letdown to support maintenance, the Unit Supervisor directs you to place excess letdown in service in accordance with Section 7.12 of 3-OP-047, CVCS Charging and Letdown.
- All applicable prerequisites in Section 3.0 are satisfied.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical : No	Obtain required reference materials.
Standard:	Obtain 3-OP-047, CVCS Charging and Letdown, Section 7.12.
Evaluator Note:	If a peer check is requested for any of the following steps, then acknowledge the request and allow the operator to continue.
Evaluator Cue:	Provide examinee with a copy of HANDOUT 3-OP-047.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 2 Critical : No	3-OP-047, Step 7.12.2.1: Verify Excess Ltdn Hx CCW Outlet, CV-3-739, is Open
Standard:	Recognize that CV-3-739 is open.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical : No	3-OP-047, Step 7.12.2.2: Verify greater than 200 gpm and less than or equal to 238 gpm CCW flow on flow indicator FI-3-624 (located in the Pipe and Valve Room)
Standard:	Contact field operator and verify that flow on FI-3-624 is satisfactory.
Booth Operator Cue:	When asked, report that flow is 211 gpm as indicated on FI-3-624.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical : No	3-OP-047, Step 7.12.2.3: Verify Excess Ltdn Iso Valve, CV-3-387, is Closed
Standard:	Recognize that CV-3-387 is closed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical : No	3-OP-047, Step 7.12.2.4: Verify Excess Ltdn Divert to WDS, CV-3-389, is aligned to the VCT (Switch to Normal)
Standard:	Recognize that CV-3-389 is aligned to the VCT.
Evaluator Note:	Switch will be in the VCT-NORM position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical : No	3-OP-047, Step 7.12.2.5: Slowly Open Excess Letdown Flow Controller, HCV-3-137, to allow excess letdown lines to backfill
Standard:	Slowly open HCV-3-137 by turning the controller's potentiometer clockwise.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical : No	3-OP-047, Step 7.12.2.6: <u>WHEN</u> a minimum of 5 minutes have elapsed, <u>THEN</u> Close Excess Letdown Flow Controller, HCV-3-137
Standard:	When 5 minutes have elapsed, close HCV-3-137 by turning the controller's potentiometer counterclockwise.
Evaluator Cue:	When the requirement for the 5 minute wait is identified, state "using time compression, 5 minutes have elapsed."
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 8 Critical : Yes	3-OP-047, Step 7.12.2.7: Open Excess Ltdn Isol Valve, CV-3-387, <u>AND</u> observe Containment Sump level for indication that RV-3-304 may have lifted
Standard:	<ul style="list-style-type: none"> • Open CV-3-387 (critical) • Monitor containment sump level and recognize that it is rising (NOT critical)
Evaluator Note:	The examinee may continue with the procedure before noticing that the sump level is rising; this is addressed below. Annunciators G5/3 (CNTMT LEVEL INCREASING > 1 GPM) and G1/2 (CHARGING PUMP HI SPEED) will eventually actuate.
Evaluator Cue:	Acknowledge any communication to the Unit Supervisor.
Booth Operator Cue:	Verify that RV-3-304 Fails Open triggers when the control switch for CV-3-387 is taken to the OPEN position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 9 Critical : No	3-OP-047, Steps 7.12.2.8 and 7.12.2.9: Slowly Open Excess Letdown Flow Controller, HCV-3-137, allowing the heat exchanger to warm up Monitor heat exchanger outlet temperature at Excess Ltdn Hx Temp Indicator, TI-3-139
Standard:	Slowly open HCV-3-137, by turning the controller's potentiometer clockwise, and monitor TI-3-139.
Evaluator Note:	This step may not be performed if the sump level is recognized as rising; if so, mark this step N/A.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 10 Critical : No	Review ARP for G5/3, CNTMT LEVEL INCREASING > 1 GPM
Standard:	<ul style="list-style-type: none"> • Check Cntmt Sump Recorders: R-1418 (VPA), R-6308A/B (behind RCO desk) • Monitor RCS parameters for indications of a RCS leak • Monitor Component Cooling Water parameters for indication of a CCW System Leak • Perform 3-OSP-041.1, Reactor Coolant System Leak Rate Calculation, to determine RCS leak rate • Go to 3-ONOP-041.3, Excessive Reactor Coolant System Leakage, and take actions as directed • Refer To Tech Spec 3.4.6.2
Evaluator Note:	<ul style="list-style-type: none"> • This step may be marked N/A if not used • If applicable, state that the STA will perform the OSP leak rate • Examinee may use 0-ADM-211 guidance to close CV-3-387 and attempt to isolate the leak; CV-3-387 is failed open
Evaluator Cue:	Acknowledge any communication to the Unit Supervisor.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 11 Critical : No	Review ARP for G1/2, CHARGING PUMP HI SPEED
Standard:	<ul style="list-style-type: none"> Check individual charging pump controller and the master charging pump controller IF leakage is confirmed, THEN go to 3-ONOP-041.3, Excessive Reactor Coolant System Leakage
Evaluator Note:	<ul style="list-style-type: none"> If requested, provide examinee with a copy of handout 3-ONOP-041.3 This step may be marked N/A if not used Examinee may use 0-ADM-211 guidance to close CV-3-387 and attempt to isolate the leak; CV-3-387 is failed open
Evaluator Cue:	Acknowledge any communication to the Unit Supervisor.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

THIS BEGINS THE ALTERNATE-PATH PORTION OF THE JPM

Performance Step: 12 Critical : No	Close CV-3-387 to isolate RCS leakage
Standard:	Take the control switch for CV-3-387 to CLOSE.
Evaluator Note:	<ul style="list-style-type: none"> Once the leakage is recognized the examinee may attempt to isolate the leak by closing CV-3-387; CV-3-387 is failed open If no attempt is made here to close CV-3-387 then mark the step N/A
Evaluator Cue:	Acknowledge any communication to the Unit Supervisor.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 13 Critical : No	Enter 3-ONOP-041.3, Excessive Reactor Coolant System Leakage
Standard:	Locate and enter 3-ONOP-041.3.
Evaluator Note:	<ul style="list-style-type: none"> Provide the examinee with a copy of HANDOUT 3-ONOP-041.3 If the ONOP was entered previously, mark this step as satisfactory
Evaluator Cue:	Acknowledge any communication to the Unit Supervisor.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 14 Critical : Yes	3-ONOP-041.3, Step 1: Maintain RCS Inventory
Standard:	Start additional charging pumps as necessary to maintain RCS Inventory.
Evaluator Note:	<ul style="list-style-type: none"> The examinee may first attempt to stabilize pressurizer level by taking charging to manual and maximizing output Satisfactory completion of this step requires that pressurizer level is stabilized or trending to program
Evaluator Cue:	Acknowledge any communication to the Unit Supervisor.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 15 Critical : No	3-ONOP-041.3, Step 2: Check RCS Inventory Decreasing
Standard:	Recognize that RCS inventory is NOT lowering and proceed to Step 10 (per RNO).
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When it is recognized that RCS inventory is no longer decreasing, state "This completes the JPM."

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 3 is in Mode 1.
- Personnel are currently being briefed to perform maintenance and calibration on LCV-3-460, Letdown Isolation Valve.

INITIATING CUES:

- In preparation for the isolation of normal letdown to support maintenance, the Unit Supervisor directs you to place excess letdown in service in accordance with Section 7.12 of 3-OP-047, CVCS Charging and Letdown.
- All applicable prerequisites in Section 3.0 are satisfied.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

Control Room - JPM C



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Establish Auxiliary Pressurizer Spray

JPM NUMBER: 01041052100

REV. 0-0

TASK NUMBER(S) / TASK TITLE(S): 01041052100 /
Initiate Pressurizer Auxiliary Spray

K/A NUMBERS: EPE 038 EA1.04

K/A VALUE: RO 4.3 / SRO 4.1

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 20 Minutes Time Critical: No

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

Developed by: <u>Brian Clark</u> Instructor/Developer	<u>8/4/16</u> Date
---	-----------------------

Reviewed by: <u>Tim Hodge</u> Instructor (Instructional Review)	<u>8/4/16</u> Date
---	-----------------------

Validated by: <u>Sean Bloom</u> SME (Technical Review)	<u>8/5/16</u> Date
--	-----------------------

Approved by: <u>Mark Wilson</u> Training Supervision	<u>8/4/16</u> Date
--	-----------------------

Approved by: <u>Sean Bloom</u> Training Program Owner	<u>8/5/16</u> Date
---	-----------------------

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

SIMULATOR SETUP INSTRUCTIONS:

_____	1.	Reset to IC 180 or saved IC.
_____	2.	Place simulator in RUN.
_____	3.	Ensure applicable portions of Simulator Operator Checklist are complete.
_____	4.	<p><i>N/A if using saved IC</i></p> <p>Open and execute L-16-1 NRC JPM C.Isn</p> <ul style="list-style-type: none"> • Verify PORVs FAILED CLOSE auto triggers • Verify both WINDUP RESET triggers are in CONDITION state
_____	5.	Allow plant to stabilize.
_____	6.	Acknowledge alarms and place simulator in FREEZE.
_____	7.	Save as temporary IC, if JPM will be repeated.
_____	8.	When ready to begin, then place Simulator in RUN.

SIMULATOR MALFUNCTIONS:

- TFHV456C: PORVs failed closed
- TFHV55CC: PORVs failed closed

SIMULATOR OVERRIDES:

- N/A

SIMULATOR REMOTE FUNCTIONS:

- N/A



01041052100, Establish Auxiliary Pressurizer Spray, Rev. 0-0
L-16-1 NRC EXAM SECURE INFORMATION

JPM
Page 6 of 15

Required Materials:	<ul style="list-style-type: none">• HANDOUT 3-EOP-E-3
General References:	<ul style="list-style-type: none">• 3-EOP-E-3, Steam Generator Tube Rupture
Task Standards:	<ul style="list-style-type: none">• During RCS depressurization, recognize that the PORVs are NOT functional and, alternatively, establish auxiliary spray

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- Unit 3 tripped from full power, due to a tube failure in the 3A Steam Generator.
- After the trip, a LOOP occurred and both EDGs started and loaded onto their respective bus.
- The crew is performing 3-EOP-E-3, Steam Generator Tube Rupture.
- The 3A Steam Generator is isolated.
- The RCS cooldown has been completed.

INITIATING CUE:

- The Unit Supervisor directs you to perform Step 18 of 3-EOP-E-3 to depressurize the RCS.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical : No	Obtain required reference materials.
Standard:	Obtain 3-EOP-E-3, Steam Generator Tube Rupture.
Evaluator Note:	If a peer check is requested for any of the following steps, then acknowledge the request and allow the operator to continue.
Evaluator Cue:	Provide examinee with a copy of HANDOUT 3-EOP-E-3.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical : No	<p>3-EOP-E-3, prior to Step 18:</p> <p style="text-align: center;"><u>CAUTION</u></p> <ul style="list-style-type: none"> <i>If a PRZ PORV is used to depressurize the RCS, the PRT rupture disk may rupture. This may result in abnormal Containment conditions.</i> <i>Cycling of the PRZ PORV shall be minimized.</i> <p style="text-align: center;"><u>NOTE</u></p> <p><i>If RCPs are NOT running, the upper head region may void during RCS depressurization. This will result in a rapidly increasing PRZ level.</i></p>
Standard:	Read CAUTION/NOTE and determine it is satisfactory to proceed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical : No	<p>3-EOP-E-3, Step 18:</p> <p>Depressurize RCS Using PRZ PORV To Minimize Break Flow And Refill PRZ</p> <p>a. Check PRZ PORV – AT LEAST ONE AVAILABLE</p>
Standard:	Check the pressurizer PORV light indications and recognize that both are available.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

THIS BEGINS THE ALTERNATE-PATH PORTION OF THE JPM

Performance Step: 4 Critical : No	3-EOP-E-3, Step 18: Depressurize RCS Using PRZ PORV To Minimize Break Flow And Refill PRZ b. Open <u>one</u> PRZ PORV <u>until</u> any of the following conditions satisfied...(NO) → (RNO) <u>IF NO</u> PORV can be opened, <u>THEN</u> establish Auxiliary Spray using Attachment 4 and return to Step 17.b.
Standard:	Recognize that neither PORV will open and transition to Attachment 4.
Evaluator Cue:	If examinee asks <u>which</u> PORV to manipulate, respond as the Unit Supervisor and state, "Use your own judgment."
Evaluator Note:	When examinee takes <u>either</u> PORV's handswitch to OPEN, the valve will NOT respond (i.e., it will remain closed).
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical : Yes	3-EOP-E-3, Attachment 4, Step 1: Verify Pressurizer Spray valves – OPEN <ul style="list-style-type: none"> PCV-3-455A, Loop C PCV-3-455B, Loop B
Standard:	Open PCV-3-455B and PCV-3-455A, Pressurizer Spray Control Valves,
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical : No	3-EOP-E-3, Attachment 4, Step 2: Verify Aux Spray TI-3-123 And PRZ Temperature TI-3-454 Temperature Difference – LESS THAN 320°F
Standard:	Verify that the difference between the indications on TI-3-123, RHX Outlet Temperature Indicator, and TI-3-454, Pressurizer Steam Space Temperature Indicator, are within 320°F.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical : Yes	3-EOP-E-3, Attachment 4, Step 3: Open CV-3-311, Aux Spray Isolation
Standard:	Take the handswitch for CV-3-311, Auxiliary Spray Control Valve, to OPEN and verify that the red indicating light is lit and the green indicating light is extinguished.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 8 Critical : Yes	3-EOP-E-3, Attachment 4, Step 4: Close CV-3-310A, Loop A Charging Isolation
Standard:	Take the handswitch for CV-3-310A, Charging to RCS Loop A Control Valve, to CLOSE and verify that the green indicating light is lit and the red indicating light is extinguished.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 9 Critical : No	3-EOP-E-3, Attachment 4, Step 5: Verify CV-3-310B, Loop C Charging Isolation, is CLOSED
Standard:	Recognize that CV-3-310B, Charging to RCS Loop B Control Valve, is closed (i.e., the green indicating light is lit and the red indicating light is NOT lit).
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 10 Critical : Yes	3-EOP-E-3, Attachment 4, Step 6: Control Aux Spray as Follows: <ul style="list-style-type: none"> * Increase Auxiliary Spray flow by closing PCV-3-455A, Pressurizer Loop C, and/or PCV-3-455B, Pressurizer Loop B * Reduce Auxiliary Spray flow by opening PCV-3-455A, Pressurizer Loop C, and/or PCV-3-455B, Pressurizer Spray Loop B
Standard:	Close PCV-3-455A/B as needed to increase spray flow and reduce pressurizer pressure.
Evaluator Note:	Only reducing pressurizer pressure is critical.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When RCS pressure is observed to be lowering, state "This completes the JPM."

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 3 tripped from full power, due to a tube failure in the 3A Steam Generator.
- After the trip, a LOOP occurred and both EDGs started and loaded onto their respective bus.
- The crew is performing 3-EOP-E-3, Steam Generator Tube Rupture.
- The 3A Steam Generator is isolated.
- The RCS cooldown has been completed.

INITIATING CUE:

- The Unit Supervisor directs you to perform Step 18 of 3-EOP-E-3 to depressurize the RCS.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

Control Room - JPM D



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Respond to Loss of RHR

JPM NUMBER: 01050004301

REV. 2-0

**TASK NUMBER(S) /
TASK TITLE(S):** 01050004300 /
Respond to Loss of RHR

K/A NUMBERS: APE 025 AA1.03

K/A VALUE: RO 3.4 / SRO 3.3

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 20 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by: _____ Instructor/Developer	Brian Clark 8/4/16 Date
--	--------------------------------------

Reviewed by: _____ Instructor (Instructional Review)	Tim Hodge 8/4/16 Date
--	------------------------------------

Validated by: _____ SME (Technical Review)	Sean Bloom 8/5/16 Date
--	-------------------------------------

Approved by: _____ Training Supervision	Mark Wilson 8/4/16 Date
---	--------------------------------------

Approved by: _____ Training Program Owner	Sean Bloom 8/5/16 Date
---	-------------------------------------

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A



01050004301, Respond to Loss of RHR, Rev. 2-0
L-16-1 NRC EXAM SECURE INFORMATION

JPM
Page 4 of 18

UPDATE LOG: Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER	DATE
				SUPERVISOR	DATE
1-0	Updated to fleet template; text/grammar changes	Updated for 2014 LOIT Annual Exam	1982463	N/A	N/A
				N/A	N/A
1-1	Validation time, Formatting, Enhance cues	NRC Validation	N/A	Hodge	12/19/14
				Wilson	12/22/14
2-0	Formatting; text/grammar changes	L-16-1 NRC Exam	N/A	N/A	N/A
				N/A	N/A

SIMULATOR SET-UP:

SIMULATOR SETUP INSTRUCTIONS:

_____	1.	Reset to IC 30 or saved IC.
_____	2.	NO-OP Cond & Feedwater and Steam Generators.
_____	3.	Place simulator in RUN.
_____	4.	Verify MODE 4 valve placards are in place.
_____	5.	Ensure applicable portions of Simulator Operator Checklist are complete.
_____	6.	Open and execute L-16-1 NRC JPM D.Isn.
_____	7.	Allow plant to stabilize (allow auto makeup to complete).
_____	8.	Acknowledge alarms and place simulator in FREEZE.
_____	9.	Save as temporary IC, if JPM will be repeated.
_____	10.	When ready to begin, then place Simulator in RUN.

SIMULATOR MALFUNCTIONS:

- TFMUM01S: 3A RHR Pump Shaft Shear
- IMM1S03C: MOV-3-750 Drifts Closed

SIMULATOR OVERRIDES:

- N/A

SIMULATOR REMOTE FUNCTIONS:

- N/A

Required Materials:	<ul style="list-style-type: none">• HANDOUT 3-ONOP-050
General References:	<ul style="list-style-type: none">• 3-ONOP-050, Loss of RHR• 3-ARP-097.CR, Annunciator Response Procedures
Task Standards:	<ul style="list-style-type: none">• Re-open MOV-3-750• Restart 3B RHR Pump• Open FCV-3-605 to restore RHR flow to the core

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- Unit 3 is in Mode 4.
- The 3A RHR Pump is in service and providing core cooling.

INITIATING CUE:

- The Unit Supervisor has directed the crew to maintain current conditions.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

NOTE: 0-ADM-211, Emergency and Off-Normal Operating Procedure Usage (Prudent Operator Actions) – If redundant standby equipment is available and ready, the operator is permitted to start the redundant equipment for failed or failing operating equipment. Immediate follow-up of applicable ARPs or ONOPs shall occur as required.

Performance Step: 1 Critical: No	Recognize closure of MOV-3-750
Standard:	Recognize closure of MOV-3-750 and enter 3-ONOP-050, Loss of RHR.
Evaluator Note:	<ul style="list-style-type: none"> If a peer check is requested for any of the following steps, then acknowledge the request and allow the operator to continue When ready to begin, have booth operator trigger MOV-3-750 DRIFTS CLOSED Annunciator H 6/2 (RHR HX HI/LO FLOW) will eventually actuate; if the ARP is used, it will direct the use of 3-ONOP-050
Evaluator Cue:	<ul style="list-style-type: none"> Provide operator with a copy of HANDOUT 3-ONOP-050 If auto makeup occurs, state that “Another operator will monitor”
Booth Operator Cue:	After triggering MOV-3-750 DRIFTS CLOSED , verify that ALLOW MOV-3-750 TO REOPEN triggers.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: No	3-ONOP-050, Step 1: Check If RHR Pumps Should Be Stopped <ul style="list-style-type: none"> a. RCS level – GREATER THAN 10% PRESSURIZER COLD CAL b. RHR pumps – ANY RUNNING c. RHR pumps – NOT CAVITATING
Standard:	Stop the 3A RHR Pump, if desired.
Evaluator Note:	<ul style="list-style-type: none"> • The examinee may observe the running pump with little or no flow and elect to stop the pump as a prompt/prudent action; if this occurs, mark Step 4 below as complete (i.e., securing the 3A RHR Pump is the critical step, but <u>when</u> this happens is NOT critical) • Alternatively, the examinee may elect to depress the MOV-3-750 “interrupt” pushbutton at this time (or earlier); if this occurs, a 3A RHR Pump shaft shear will be triggered → the examinee may interpret the results as a non-running pump and proceed to Step 2, per the Step 1.b RNO
Booth Operator Note:	If the “interrupt” pushbutton is depressed, verify 3A RHR PUMP SHAFT SHEAR triggers .
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: No	3-ONOP-050, Step 2: Check Loop 3C RHR Pump Suction Stop Valves – OPEN <ul style="list-style-type: none"> • MOV-3-750 • MOV-3-751
Standard:	Recognize that MOV-3-750 is closed/closing and enter the RNO step.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical: Yes	3-ONOP-050, Step 2.a (RNO): Stop RHR Pumps
Standard:	Secure the 3A RHR Pump.
Evaluator Note:	This action may have been performed in Step 2 above; in either case, record the completion here.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical: Yes	3-ONOP-050, Step 2.b (RNO): IF a momentary pressure spike has caused either or both valves to start closing, THEN perform the following at the Pushbutton Interrupt switches: <ol style="list-style-type: none"> 1) Determine affected valve(s) → Yellow light – ON 2) Verify over pressure signal <u>NOT</u> present → Blue light – ON 3) Push Interrupt Pushbutton for affected valve(s) 4) Verify yellow light – DEENERGIZES 5) <u>WHEN</u> blue light DEENERGIZES, <u>THEN</u> verify affected valve(s) – OPEN 6) <u>IF</u> both valves are open, <u>THEN</u> go to Step 3
Standard:	Reopen MOV-3-750.
Evaluator Note:	<ul style="list-style-type: none"> The examinee may have reopened the valve previously (prior to entering the ONOP) as a prompt/prudent action In either case, record the completion here; opening the valve is the critical step, but <u>when</u> this happens is NOT critical
Booth Operator:	<ul style="list-style-type: none"> When the “interrupt” pushbutton is depressed, verify 3A RHR PUMP SHAFT SHEAR triggers. If “interrupt” pushbutton is never pressed, trigger will NOT auto trigger. If this is the case, manually activate the trigger when the valve is taken to OPEN position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical: No	3-ONOP-050, Step 3: Dispatch An Operator To Monitor RHR Pumps
Standard:	Direct a field operator to locally monitor the RHR pumps.
Booth Operator Cue:	Acknowledge request to monitor RHR pumps and report that both RHR pumps are secured.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical: No	3-ONOP-050, Step 4: Monitor RCS Heatup Rate
Standard:	Per the NOTE prior to Step 4, direct the STA or available operator to monitor RCS heatup rate.
Evaluator Cue:	Acknowledge request to monitor RCS heatup rate.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 8 Critical: No	3-ONOP-050, Step 5: Verify RHR Discharge to Cold Leg Isolation Valves – OPEN <ul style="list-style-type: none"> MOV-3-744A MOV-3-744B
Standard:	Verify that MOV-3-744A and MOV-3-744B are OPEN.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 9 Critical: Yes	3-ONOP-050, Step 6: Establish Conditions For Restarting An RHR Pump <ul style="list-style-type: none"> a. RHR Pumps – BOTH STOPPED b. Close RHR Heat Exchanger Outlet Flow valve, HCV-3-758 c. Close RHR Heat Exchanger Bypass Flow valve, FCV-3-605 d. Verify MOV-3-750 and MOV-3-751 – OPEN
Standard:	Close HCV-3-758 and FCV-3-605.
Evaluator Note:	Only the valve closures are critical.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 10 Critical: No	3-ONOP-050, Step 6: Establish Conditions For Restarting An RHR Pump e. Start the previously running RHR pump
Standard:	Start the 3A RHR Pump, recognize that its shaft is sheared, secure the pump, and proceed to the RNO step.
Evaluator Note:	<ul style="list-style-type: none"> • If shaft shear recognized prior to this step, examinee may choose not to attempt to start the pump, this is acceptable • Motor amps will be low (due to the sheared shaft) and flow will be zero (due to the pump discharge valves being closed); the examinee may not recognize the sheared shaft until Step 6.f below, when MOV-3-605 is opened and no flow is observed • If the 3A RHR Pump is secured, the examinee may also elect to place the pump in PTL
Booth Operator Cue:	<p>If asked about the 3A RHR Pump's status, report the following:</p> <ul style="list-style-type: none"> • If the examinee has recognized the sheared shaft, then report that the motor is running but no flow noise is heard • Otherwise, report that there is nothing obviously wrong with the pump
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 11 Critical: Yes	3-ONOP-050, Step 6.e (RNO): Start the Standby RHR pump
Standard:	Start the 3B RHR Pump.
Booth Operator Cue:	If contacted, report a satisfactory start of the 3B RHR Pump.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 12 Critical: Yes	3-ONOP-050, Step 6.f: Return RHR Heat Exchanger Bypass Flow valve, FCV-3-605, to AUTOMATIC operation increasing flow in increments of 500 gpm until desired flow is established
Standard:	Reopen FCV-3-605 and raise RHR flow until annunciator H6/2 clears.
Evaluator Note:	<ul style="list-style-type: none"> The examinee may not recognize until this point that the 3A RHR Pump's shaft has sheared The setpoints for annunciator H6/2 are <3000 gpm and >3750 gpm Opening the valve and clearing the alarm are critical, but NOT the incremental operation
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 13 Critical: No	3-ONOP-050, Step 6.g: Open RHR Heat Exchanger Outlet Flow valve, HCV-3-758, as necessary to maintain desired RCS temperature
Standard:	Maintain RCS temperature.
Evaluator Note:	The examinee may leave HCV-3-758 closed or throttle it open to establish a slight cooldown; either is acceptable.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When examinee has restored core cooling, state "This completes the JPM."

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES
CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

*NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If
unsatisfactory performance is demonstrated, the entire JPM should be retained.*



TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 3 is in Mode 4.
- The 3A RHR Pump is in service and providing core cooling.

INITIATING CUE:

- The Unit Supervisor has directed the crew to maintain current conditions.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

Control Room - JPM E



JOB PERFORMANCE MEASURE

L-16-1 NRC EXAM SECURE INFORMATION

JPM

JPM TITLE: Manually Initiate Containment Spray

JPM NUMBER: 01068007502

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01068007500 /
Manually Initiate Containment Spray

K/A NUMBERS: 026 A3.01

K/A VALUE: RO 4.3 / SRO 4.5

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by: <u>Brian Clark</u>	8/4/16
Instructor/Developer	Date

Reviewed by: <u>Tim Hodge</u>	8/4/16
Instructor (Instructional Review)	Date

Validated by: <u>Sean Bloom</u>	8/5/16
SME (Technical Review)	Date

Approved by: <u>Mark Wilson</u>	8/4/16
Training Supervision	Date

Approved by: <u>Sean Bloom</u>	8/5/16
Training Program Owner	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

SIMULATOR SETUP INSTRUCTIONS:

_____	1.	Reset to IC 1 or saved IC.
_____	2.	Place simulator in RUN.
_____	3.	Ensure applicable portions of Simulator Operator Checklist are complete.
_____	4.	<p>N/A if using saved IC</p> <p>Open and execute L-16-1 NRC JPM E:</p> <ul style="list-style-type: none"> a. Trigger lesson step LBLOCA WITH CTMT SPRAY FAILURE b. Wait 5 minutes for other triggers to auto trigger c. Place Main Feedwater Pump switches to STOP
_____	5.	Allow plant to stabilize.
_____	6.	Acknowledge alarms and place simulator in FREEZE.
_____	7.	Save as temporary IC, if JPM will be repeated.
_____	8.	When ready to begin, then place Simulator in RUN.

SIMULATOR MALFUNCTIONS:

- TFL3S1 & TFL3S2: L3-S1 & L3-S2 Fails to Actuate
- TFL3B11 & TFL3B1: L3-CIB11 & L3-CIB1 Fails to Actuate
- TVHHCLB: Large Break LOCA

SIMULATOR OVERRIDES:

- N/A

SIMULATOR REMOTE FUNCTIONS:

- N/A



01068007502, Manually Initiate Containment Spray, Rev. 1-0
L-16-1 NRC EXAM SECURE INFORMATION

JPM
Page 6 of 16

Required Materials:	<ul style="list-style-type: none">• HANDOUT Attachment 3
General References:	<ul style="list-style-type: none">• 3-EOP-E-0, Reactor Trip or Safety Injection
Task Standards:	<ul style="list-style-type: none">• Manually initiate at least one train of containment spray, by starting at least one CSP and opening its associated discharge isolation valve• Manually close MOV-3-716B, MOV-3-626, and MOV-3-730• Stop all RCPs• Secure the Unit 4 HHSI pumps

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- The Unit 3 reactor tripped due to a LOCA inside containment.
- Safety injection has actuated.
- Phase A containment isolation has actuated.
- The crew has completed Step 5 of 3-EOP-E-0, Reactor Trip or Safety Injection.

INITIATING CUE:

- You are directed to complete Attachment 3, Prompt Action Verifications, of 3-EOP-E-0 starting with Step 8.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

NOTE: Annunciators will be continuously coming in during the performance of this JPM. Determine and coordinate with the Booth Operator how this will be handled prior to administering the JPM.

Performance Step: 1 Critical: No	Obtain required materials.
Standard:	Obtain Attachment 3, Prompt Action Verifications, of 3-EOP-E-0, Reactor Trip or Safety Injection.
Evaluator Note:	<ul style="list-style-type: none"> If a peer check is requested for any of the following steps, then acknowledge the request and allow the operator to continue Examinee may notice at any time that phase B failed to actuate and may choose to manually initiate it; phase B will NOT initiate, but it is acceptable for them to attempt it
Evaluator Cue:	Provide examinee with a copy of HANDOUT Attachment 3.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 2 Critical: No	3-EOP-E-0, Attachment 3, Step 8: Verify Containment Cooling: a. Check Emergency Containment Coolers – <u>ONLY</u> TWO RUNNING
Standard:	Recognize that two ECCs are running.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: No	3-EOP-E-0, Attachment 3, Step 9: Verify Containment Ventilation Isolation: a. Unit 3 Containment Purge Exhaust And Supply Fans – OFF
Standard:	Recognize that the containment purge supply and exhaust fans are OFF.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical: No	3-EOP-E-0, Attachment 3, Step 10: Verify Containment Spray NOT Required: <ul style="list-style-type: none"> a. Containment pressure – HAS REMAINED LESS THAN 20 PSIG <ul style="list-style-type: none"> • PR-3-6306A • PR-3-6306B
Standard:	Recognize that containment pressure has NOT remained <20 psig and proceed to Step 10.a (RNO).
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical: Yes	3-EOP-E-0, Attachment 3, Step 10.a (RNO): Perform the following: <ul style="list-style-type: none"> 1) <u>IF</u> Containment Spray NOT initiated, <u>THEN</u> manually initiate Containment Spray
Standard:	<ul style="list-style-type: none"> • Start at least one CSP by taking its control switch to START • Open the associated discharge valve, MOV-3-880A/B, by taking its control switch to OPEN
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical: No	3-EOP-E-0, Attachment 3, Step 10.a (RNO): Perform the following: 2) Verify Containment Isolation Phase B has actuated
Standard:	Recognize that Phase B containment isolation did NOT actuate and depress both Phase B Isolation pushbuttons.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical: Yes	3-EOP-E-0, Attachment 3, Step 10.a (RNO): Perform the following: 3) Verify Containment Isolation Phase B Valve white lights on VPB are <u>all</u> bright 4) <u>IF any</u> Containment Isolation Phase B Valve did NOT close, <u>THEN</u> manually or locally isolate affected Containment Penetration
Standard:	Recognize that the following valves did NOT close and take their control switches to CLOSE: <ul style="list-style-type: none"> • MOV-3-716B, CCW to RCP Inlet • MOV-3-626, RCP Seal Cooling Water Outlet • MOV-3-730, RCP Bearing Cooling Water Outlet
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 8 Critical: Yes	3-EOP-E-0, Attachment 3, Step 10.a (RNO): Perform the following: 5) Stop <u>all</u> RCPs
Standard:	Secure all running RCPs.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 9 Critical: No	3-EOP-E-0, Attachment 3, Step 11: Verify SI – RESET
Standard:	Recognize that SI is NOT reset and reset SI by depressing BOTH reset pushbuttons.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 10 Critical: No	3-EOP-E-0, Attachment 3, Step 12: Verify SI Valve Amber Lights On VPB – <u>ALL</u> BRIGHT
Standard:	Recognize that all SI status lights are bright.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 11 Critical: No	3-EOP-E-0, Attachment 3, Step 13: Verify SI Flow: <ul style="list-style-type: none"> a. RCS pressure – LESS THAN 1625 PSIG[1950 PSIG] b. High-Head SI Pump flow indicator – CHECK FOR FLOW c. RCS pressure – LESS THAN 275 PSIG[575 PSIG] d. RHR Pump flow indicator – CHECK FOR FLOW
Standard:	Recognize that all pressure and flow conditions are met.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 12 Critical: No	3-EOP-E-0, Attachment 3, Step 14: Realign SI System: <ul style="list-style-type: none"> a. Check Procedure Entry Status – E-0 ENTERED FROM 3-ONOP-047.1, LOSS OF CHARGING FLOW IN MODES 1 THROUGH 4
Standard:	Recognize that the condition is NOT met and proceed to the RNO step.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 13 Critical: No	3-EOP-E-0, Attachment 3, Step 14.a (RNO): Go to Attachment 3, Step 14.e
Standard:	Proceed to Step 14.e.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 14 Critical: No	3-EOP-E-0, Attachment 3, Steps 14.e and 14.f: Verify Unit 3 High-Head SI Pumps – <u>TWO</u> RUNNING Stop <u>both</u> Unit 4 High-Head SI Pumps and place in Standby
Standard:	Recognize that both Unit 3 HHSI pumps are running and secure both Unit 4 HHSI pumps by taking their control switches to STOP.
Booth Operator Cue:	If contacted as the Unit 4 RCO, state that Unit 4 does NOT require its HHSI pumps to be running.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When the Unit 4 HHSI pumps have been secured, state “This completes the JPM.”

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET

INITIAL CONDITIONS:

- The Unit 3 reactor tripped due to a LOCA inside containment.
- Safety injection has actuated.
- Phase A containment isolation has actuated.
- The crew has completed Step 5 of 3-EOP-E-0, Reactor Trip or Safety Injection.

INITIATING CUE:

- You are directed to complete Attachment 3, Prompt Action Verifications, of 3-EOP-E-0 starting with Step 8.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

Control Room - JPM F



JOB PERFORMANCE MEASURE

L-16-1 NRC EXAM SECURE INFORMATION

JPM

JPM TITLE: Restore Power to the 3A 4KV Bus

JPM NUMBER: 03005032300

REV. 0-0

TASK NUMBER(S) /
TASK TITLE(S): 03005032300 /
Cross-Tie 3D and 4D 4KV Buses

K/A NUMBERS: EPE 055 EA1.07

K/A VALUE: RO 4.3 / SRO 4.5

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: Yes

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

Developed by: <u>Brian Clark</u>	8/4/16
Instructor/Developer	Date

Reviewed by: <u>Tim Hodge</u>	8/4/16
Instructor (Instructional Review)	Date

Validated by: <u>Sean Bloom</u>	8/5/16
SME (Technical Review)	Date

Approved by: <u>Mark Wilson</u>	8/4/16
Training Supervision	Date

Approved by: <u>Sean Bloom</u>	8/5/16
Training Program Owner	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

SIMULATOR SETUP INSTRUCTIONS:

_____	1.	Reset to IC 1 or saved IC.
_____	2.	Place simulator in RUN.
_____	3.	Ensure applicable portions of Simulator Operator Checklist are complete.
_____	4.	<p>N/A if using saved IC</p> <p>Open and execute lesson L-16-1 NRC JPM F:</p> <ul style="list-style-type: none"> a. Trigger SETUP – 3A EDG FAILURE & RX TRIP b. Verify SETUP – LOOP & BUS LOCKOUTS auto triggers (60 sec delay) c. Reduce total AFW flow to between 400 and 450 gpm d. Select “Silence All” in Main Menu of Orchid to disable the Annunciators
_____	5.	Allow plant to stabilize.
_____	6.	Acknowledge alarms and place simulator in FREEZE.
_____	7.	Ensure Key 82 is available and functions to operate SBO Tie Breaker.
_____	8.	Ensure Key Log is clean and a fresh logout page is available.
_____	9.	Save as temporary IC, if JPM will be repeated.
_____	10.	When ready to begin, then place Simulator in RUN.

SIMULATOR MALFUNCTIONS:

- TFQ5GAFS: 3A EDG START FAILURE
- TFE2Z51S: 3B BUS LOCKOUT
- TFE2Z53S: 3D BUS LOCKOUT (reset enabled)
- TFP8D6MT & TFP8D6BT: LOSS OF UNIT 3 STARTUP TRANSFORMER
- TFP8D8MT & TFP8D8BT: LOSS OF UNIT 4 STARTUP TRANSFORMER
- TFP8D3MT & TFP8D3BT: LOSS OF 3C TRANSFORMER
- TFH2FTRA/B/C: TRIP RCPS (setup)

SIMULATOR OVERRIDES:

- A302_A1_S14_3: FAILURE OF EDG EMERGENCY CONTROL SWITCH

SIMULATOR REMOTE FUNCTIONS:

- TCE2E33C: CLOSE 4AD07



03005032300, Restore Power to the 3A 4KV Bus, Rev. 0-0
L-16-1 NRC EXAM SECURE INFORMATION

JPM
Page 6 of 27

Required Materials:	<ul style="list-style-type: none">• HANDOUT 3-EOP-ECA-0.0• Key 82
General References:	<ul style="list-style-type: none">• 3-EOP- ECA-0.0, Loss of All AC Power• 3-EOP-E-0, Reactor Trip or Safety Injection
Task Standards:	<ul style="list-style-type: none">• Reset lockout on 3D 3kV bus.• Realign 3D bus to 3A bus.• Close SBO tie breaker 3AD07.• Restore power to 3A 4kV bus within 10 minutes. (0-ADM-232)

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- Unit 3 tripped from full power, due to a loss of offsite power.
- The plant is in a normal electrical alignment.
- While performing the IOAs of 3-EOP-E-0, Reactor Trip or Safety Injection, the crew recognized the following:
 - The 3A EDG did NOT start.
 - The 3B EDG started but did not energize the 3B 4kv bus.
- The crew transitioned to 3-EOP-ECA-0.0, Loss of All AC Power, and have completed through Step 4.

INITIATING CUE:

- The Unit Supervisor directs you to perform Step 5 of 3-EOP-ECA-0.0, with a priority on the 3B EDG.
- Some elements of this JPM are time-critical.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain 3-EOP-ECA-0.0, Loss of All AC Power.
Evaluator Note:	If a peer check is requested for any of the following steps, then acknowledge the request and allow the operator to continue.
Evaluator Cue:	Provide examinee with a copy of HANDOUT 3-EOP-ECA-0.0.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: No	3-EOP-ECA-0.0, prior to Step 5: NOTE <i>The Unit Supervisor shall evaluate plant conditions and establish EDG Priority.</i>
Standard:	Read NOTE and recognize that it is safe to proceed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: No	3-EOP-ECA-0.0, Step 5: Try To Restore Power To 3A <u>OR</u> 3B 4KV Bus a. Check EDG Priority – 3A (NO) → (RNO) Go to Step 5.o.
Standard:	Recognize, from the Initial Conditions, that the priority is on the <u>3B EDG</u> and transition to Step 5.o.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical: No	3-EOP-ECA-0.0, Step 5: Try To Restore Power To 3A <u>OR</u> 3B 4KV Bus o. Check 3B Bus Lockout Relay – RESET (NO) → (RNO) Perform the following: 1) Reset Lockout Relay. 2) <u>IF</u> Lockout relay can NOT be reset, <u>AND</u> EDG Priority was 3A, <u>THEN</u> go to Step 5.y. 3) <u>IF</u> Lockout relay can NOT be reset, <u>THEN</u> return to Step 5.b.
Standard:	<ul style="list-style-type: none"> Recognize that the blue light for 4KV BUS 3B LOCKOUT RELAY is <u>blinking</u> and depress the associated reset pushbutton. Recognize that the lockout relay for the 3B 4kV Bus will NOT reset, recall that the existing priority is on the 3B EDG, and transition to Step 5.b.
Evaluator Note:	<ul style="list-style-type: none"> Under normal conditions (i.e., when the 3B 4kV Bus is NOT locked out), the blue light will be solid and NOT blinking. When examinee attempts to reset the lockout relay for the 3B 4kV Bus, it will NOT reset (due to a fault on the 3B 4kV Bus).
Booth Operator Cue:	Ensure LOCKOUT RELAY DOES NOT RESET is triggered.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical: No	3-EOP-ECA-0.0, Step 5: Try To Restore Power To 3A <u>OR</u> 3B 4KV Bus b. Check 3A Bus Lockout Relay – RESET
Standard:	Recognize that the blue light for 4KV BUS 3A LOCKOUT RELAY is <u>NOT flashing</u> (i.e., the lockout relay for the 3A 4kv Bus is reset).
Evaluator Note:	If the 3AB 4kv Bus was locked out, the blue light would be <u>flashing</u> .
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical: No	3-EOP-ECA-0.0, Step 5: Try To Restore Power To 3A <u>OR</u> 3B 4KV Bus c. Check 3A EDG Lockout – RESET (NO) → (RNO) Perform the following: <ol style="list-style-type: none"> 1) Locally reset 3A EDG Start Failure relay by pressing Alarm RESET pushbutton. 2) Reset Lockout Relay. 3) <u>IF</u> Lockout relay can NOT be maintained reset, <u>AND</u> EDG Priority was 3B, <u>THEN</u> go to Step 5.y. 4) <u>IF</u> Lockout relay can NOT be maintained reset, <u>THEN</u> go to Step 5.o.
Standard:	<ul style="list-style-type: none"> • Recognize that the blue light for 3A EDG is <u>flashing</u> and go to RNO. • Dispatch operator to locally reset Start Failure and Lockout Relay. • Recognize EDG will NOT reset and 3B was priority and go to Step 5.y.
Booth Operator Cue:	When directed to reset EDG start failure, state that relay will NOT reset.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical: No	3-EOP-ECA-0.0, Step 5: Try To Restore Power To 3A <u>OR</u> 3B 4KV Bus y. Check 3A <u>AND</u> 3B 4KV Buses – AT LEAST <u>ONE</u> ENERGIZED (NO) → (RNO) Observe CAUTION and NOTE prior to Step 6 and go to Step 6.
Standard:	Recognize that <u>neither</u> of Unit 3's 4kV buses is energized and transition to Step 6.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 8 Critical: No	3-EOP-ECA-0.0, prior to Step 6: <p style="text-align: center;"><u>CAUTION</u></p> <p><i>When power is restored to 3A <u>OR</u> 3B 4KV Bus from a <u>non-FLEX</u> source, then recovery actions should continue by performing Step 26.</i></p> <p style="text-align: center;"><u>NOTE</u></p> <p><i>The following constitutes an <u>available</u> 4KV bus:</i></p> <ul style="list-style-type: none"> • <i>Bus Lockout reset</i> • <i>If bus stripping verification has been performed, then all loads are stripped</i>
Standard:	Read CAUTION/NOTE and recognize that it is safe to proceed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 10 Critical: No	3-EOP-ECA-0.0, Step 6: Dispatch Personnel To Restore AC Power b. Initiate restoring AC power to <u>available</u> 4KV bus(es) using the following: * Attachment 6, 3A 4KV Bus Restoration <u>OR</u> * Attachment 7, 3B 4KV Bus Restoration
Standard:	Recall that the lockout relay for the 3B 4kV Bus could NOT be reset, recognize that the 3B 4kV Bus is NOT available, and transition to Attachment 6.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 11 Critical: No	3-EOP-ECA-0.0, Attachment 6, Step 1: Confirm Bus Stripping On 3A 4KV Bus a. Check if 3A 4KV Bus Stripping was verified in Section 3.0 (NO) → (RNO) Verify 3A 4KV Bus Stripping per Attachment 1.
Standard:	Recognize that stripping of the 3A 4kV Bus was NOT previously verified in Section 3 (i.e., Step 5.i) and transition to Attachment 1.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 12 Critical: No	3-EOP-ECA-0.0, Attachment 1, Step 1: <u>IF</u> 3A 4KV Bus is de-energized <u>AND</u> 3D 4KV Bus is aligned to 3A 4KV Bus...
Standard:	Recognize that the 3D 4kV Bus is NOT aligned to the 3A 4kV Bus (i.e., it is aligned to the 3B 4kV Bus) and this step is NOT applicable.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 13 Critical: No	3-EOP-ECA-0.0, Attachment 1, Step 2: <u>IF</u> 3A 4KV Bus is de-energized <u>AND</u> 3D 4KV Bus is NOT aligned to 3A 4KV Bus <u>OR</u> Station Blackout Tie permissive blue light is OFF, <u>THEN</u> perform the following: a. <u>IF</u> 3AA16 closed, <u>THEN</u> ... b. <u>IF</u> 3AA18 closed, <u>THEN</u> ...
Standard:	Recognize that the 3A 4kV Bus is de-energized (and the 3D 4kV Bus is NOT aligned to this bus) and the Station Blackout Tie permissive blue light is NOT lit, but breakers 3AA16 and 3AA18 are <u>open</u> (hence this step is NOT applicable).
Evaluator Note:	Breakers 3AA16 and 3AA18 will have <u>automatically</u> opened, due to the LOOP-induced bus stripping process.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

<p>Performance Step: 14 Critical: No</p>	<p>3-EOP-ECA-0.0, Attachment 1, Step 2:</p> <p>IF 3A 4KV Bus is de-energized <u>AND</u> 3D 4KV Bus is NOT aligned to 3A 4KV Bus <u>OR</u> Station Blackout Tie permissive blue light is OFF, <u>THEN</u> perform the following:</p> <p>c. Verify the following breakers open:</p> <ul style="list-style-type: none"> • 3AA22, 3A 4KV BUS EMERGENCY TIE TO UNIT 4 STARTUP TRANSFORMER • 3AA09, 3A 4KV BUS TIE TO 3B OR 3C 4KV BUS • 3AA05, STARTUP TRANSFORMER 3A 4KV BUS SUPPLY • 3AA02, AUXILIARY TRANSFORMER 3A BUS SUPPLY • 3AA03, STEAM GENERATOR FEED PUMP 3A • 3AA07, HEATER DRAIN PUMP 3A • 3AA21, CONDENSATE PUMP 3A • 3AA13, SAFETY INJECTION PUMP 3A • 3AA15, RESIDUAL HEAT REMOVAL PUMP 3A • 3AA12, COMPONENT COOLING WATER PUMP 3A • 3AA01, REACTOR COOLANT PUMP 3A • 3AA19, INTAKE COOLING WATER PUMP 3A • 3AA11, TURBINE PLANT COOLING WATER PUMP 3A • 3AA16, CIRCULATING WATER PUMP 3A1 (90 sec delay if MOV > 5% OPEN) • 3AA18, CIRCULATING WATER PUMP 3A2 (90 sec delay if MOV > 5% OPEN) • 3AA08, 3A LOAD CENTER • 3AA14, 3C LOAD CENTER
<p>Standard:</p>	<p>Recognize that the 3A 4kV Bus is de-energized (and the 3D 4kV Bus is NOT aligned to this bus), the Station Blackout Tie permissive blue light is NOT lit, and the listed breakers are <u>open</u>.</p>
<p>Evaluator Note:</p>	<ul style="list-style-type: none"> • The listed breakers will have <u>automatically</u> opened, due to the LOOP-induced bus stripping process. • Breakers 3AA16 and 3AA18 were verified open in the previous step.
<p>Performance:</p>	<p>SATISFACTORY _____ UNSATISFACTORY _____</p>
<p>Comments:</p>	

Performance Step: 15 Critical: No	3-EOP-ECA-0.0, Attachment 1, Step 3: IF 3AD01, SUPPLY FROM 4KV BUS 3A, is open, <u>THEN</u> verify 3AA17, FEEDER TO 4KV BUS 3D, is open.
Standard:	Recognize that breakers 3AD01 and 3AA17 are <u>open</u> .
Evaluator Note:	These breakers are <u>open</u> , as the 3D 4kV Bus is currently aligned to the 3B 4kV Bus.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 16 Critical: No	3-EOP-ECA-0.0, Attachment 1, Step 4: IF 3AD01, SUPPLY FROM 4KV BUS 3A, is closed, <u>THEN</u> perform the following...
Standard:	Recognize (as in the previous step) that 3AD01 is <u>open</u> and this step is NOT applicable.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 17 Critical: No	3-EOP-ECA-0.0, Attachment 1, Step 5: Notify Unit Supervisor that 3A 4KV Bus stripping is complete.
Standard:	Make the appropriate notification and return to Attachment 6.
Evaluator Cue:	If addressed as the Unit Supervisor or Shift Manager, acknowledge the communication.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 18 Critical: No	3-EOP-ECA-0.0, Attachment 6, Step 2: Verify SI – RESET
Standard:	Recognize that a safety injection was NOT actuated and this step is NOT applicable.
Evaluator Note:	Some examinees may elect to depress the SAFETY INJECTION RESET pushbuttons to ensure it's reset, despite the absence of an automatic actuation. This is acceptable.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 19 Critical: No	3-EOP-ECA-0.0, Attachment 6, Step 3: Energize 3A 4KV Bus From Unit 3 Startup Transformer a. Check Unit 3 Startup Transformer Potential white light is ON (NO) → (RNO) Go to Attachment 6, Step 4.
Standard:	Recognize that the white potential light for the Unit 3 Startup Transformer is NOT lit and transition to Step 4.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 20 Critical: No	3-EOP-ECA-0.0, Attachment 6, Step 4: Energize 3A 4KV Bus From Opposite Unit Startup Transformer a. Check opposite unit Startup Transformer Potential white light – ON (NO) → (RNO) Observe NOTE prior to Attachment 6, Step 5 and go to Attachment 6, Step 5.
Standard:	Recognize that the white potential light for the Unit 4 Startup Transformer is NOT lit and transition to Step 5.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

THIS BEGINS THE TIME-CRITICAL PORTION OF THE JPM

Performance Step: 21 Critical: No	3-EOP-ECA-0.0, Attachment 6, prior to Step 5: NOTE <i>Power needs to be restored to at least one 4KV bus (3A <u>OR</u> 3B) within 10 minutes to satisfy station blackout requirements. (Record Current Time: _____)</i>
Standard:	Read NOTE, record current time, and recognize that it is safe to proceed.
Evaluator Note:	Record current time: _____
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 22 Critical: No	3-EOP-ECA-0.0, Attachment 6, Step 5: Check At Least <u>One</u> Of The Following – ENERGIZED * Opposite Unit A 4KV Bus * Opposite Unit B 4KV Bus
Standard:	Contact the Unit 4 RCO and determine that <u>both</u> of Unit 4's 4kV buses are energized.
Booth Operator Cue:	When contacted as the Unit 4 RCO, state "The 4A and 4B 4kV Buses are energized from their respective EDGs."
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 23 Critical: Yes	3-EOP-ECA-0.0, Attachment 6, Step 6: Check 3D 4KV Bus Lockout Relay – RESET (NO) → (RNO) Reset 3D 4KV Bus Lockout Relay
Standard:	Recognize that the blue light for 4KV BUS 3D LOCKOUT RELAY is <u>blinking</u> and depress the associated reset pushbutton.
Evaluator Note:	Under normal conditions (i.e., when the 3D 4kV Bus is NOT locked out), the blue light will be solid and NOT blinking.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 24 Critical: Yes	3-EOP-ECA-0.0, Attachment 6, Step 7: Check 3D 4KV Bus – ALIGNED TO 3A 4KV BUS (NO) → (RNO) Perform the following: <ul style="list-style-type: none"> a. Open 3AB19, Feeder To 4KV Bus 3D. b. Open 3AD06, Supply From 4KV Bus 3B. c. Close 3AD01, Supply From 4KV Bus 3A. d. Close 3AA17, Feeder To 4KV Bus 3D.
Standard:	<ul style="list-style-type: none"> • Recognize, per the Initial Conditions, that the 3D 4kV Bus is aligned to the 3B 4kV Bus. • Recognize breakers 3AB19 and 3AD06 are open. • Close breakers 3AD01 and 3AA17.
Evaluator Note:	Examinee may match flags for breakers 3AB19 and 3AD06.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 25 Critical: No	3-EOP-ECA-0.0, Attachment 6, Step 8: Check Station Blackout Permissive Blue Light For 3AD07, Station Blackout Breaker – ON
Standard:	Recognize that the blue PERMISSIVE light for STATION BLACKOUT BREAKER 3AD07 is <u>lit</u> .
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 26 Critical: No	3-EOP-ECA-0.0, Attachment 6, Step 9: Check 4D 4KV Bus – ENERGIZED
Standard:	Contact the Unit 4 RCO and determine that the 4D 4kV Bus is energized.
Booth Operator Cue:	When contacted as the Unit 4 RCO, state “The 4D 4kV Bus is energized from the 4B 4kV Bus.”
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 27 Critical: No	3-EOP-ECA-0.0, Attachment 6, Step 10: Check 4KV Bus Supplying Power To 4D 4KV Bus – ENERGIZED BY OFFSITE POWER (NO) → (RNO) Perform the following: a. <u>IF</u> only <u>one</u> <u>opposite</u> Unit 4KV Bus (4A OR 4B) is energized... b. Direct Unit 4 RO to align <u>non-running</u> safeguards equipment switches powered from opposite Unit 4KV bus supplying 4D 4KV Bus as follows: <ul style="list-style-type: none"> • Unit 4 High Head SI Pumps – PULL-TO-LOCK • Containment Spray Pumps – PULL-TO-LOCK • Emergency Containment Coolers – STOP • RHR Pumps – PULL-TO-LOCK • CCW Pumps – PULL-TO-LOCK
Standard:	<ul style="list-style-type: none"> • Contact the Unit 4 RCO and determine that the 4D 4kv Bus is NOT energized by offsite power and <u>both</u> the 4A and 4B 4kv Buses are energized (i.e., Step 10.a is NOT applicable). • Direct the Unit 4 RCO to place all non-running Unit 4 HHSI pumps, CSPs, ECCs, RHR pumps, and CCW pumps in pull-to-lock.
Booth Operator Cue:	<ul style="list-style-type: none"> • When contacted as the Unit 4 RCO, state “The 4A and 4B 4kv Buses remain energized from their respective EDGs and the 4D 4kv Bus is aligned to the 4B 4kv Bus.” • When directed to place all non-running safeguards equipment in pull-to-lock, acknowledge the direction and state “all non-running safeguards equipment are in pull-to-lock or stop.”
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 28 Critical: Yes	3-EOP-ECA-0.0, Attachment 6, Step 11: Energize 3A 4KV Bus From Station Blackout Tie Line <ol style="list-style-type: none"> Close 3AD07, Station Blackout Breaker, using keylock switch (Key 82) Direct opposite Unit RO to close 4AD07, Station Blackout Breaker, using keylock switch (Key 82)
Standard:	<ul style="list-style-type: none"> Obtain Key 82, insert it into the keylock at STATION BLACKOUT BREAKER 3AD07, and turn the switch to CLOSE. Contact the Unit 4 RCO and direct that breaker 4AD07 be closed.
Evaluator Note:	<ul style="list-style-type: none"> Only Step 11.a is critical. When 4AD07 is closed, record current time: _____ (Refer to Performance Step 22; time differential may NOT exceed 10 minutes)
Booth Operator Cue:	When directed to close breaker 4AD07, acknowledge the direction and trigger CLOSE 4AD07 . Report when complete.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 29 Critical: No	3-EOP-ECA-0.0, Attachment 6, Step 9: Check 3A 4KV Bus – ENERGIZED
Standard:	Observe that the A 4KV BUS KILOVOLTS meter is indicating ~4160 volts.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: After 3A 4kv bus voltage is checked, state “This completes the JPM.”

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 3 tripped from full power, due to a loss of offsite power.
- The plant is in a normal electrical alignment.
- While performing the IOAs of 3-EOP-E-0, Reactor Trip or Safety Injection, the crew recognized the following:
 - The 3A EDG did NOT start.
 - The 3B EDG started but did not energize the 3B 4kv bus.
- The crew transitioned to 3-EOP-ECA-0.0, Loss of All AC Power, and have completed through Step 4.

INITIATING CUE:

- The Unit Supervisor directs you to perform Step 5 of 3-EOP-ECA-0.0, with a priority on the 3B EDG.
- Some elements of this JPM are time-critical.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

Control Room - JPM G



JOB PERFORMANCE MEASURE

L-16-1 NRC EXAM SECURE INFORMATION

JPM

JPM TITLE: Place N-3-42 Power Range Drawer in Service

JPM NUMBER: 01059016200

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01059016200 /
Place N-42 Power Range Drawer in Service

K/A NUMBERS: 015 A4.02 **K/A VALUE:** RO 3.9 / SRO 3.9

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 10 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by: <u>Brian Clark</u>	8/4/16
Instructor/Developer	Date

Reviewed by: <u>Tim Hodge</u>	8/4/16
Instructor (Instructional Review)	Date

Validated by: <u>Sean Bloom</u>	8/5/16
SME (Technical Review)	Date

Approved by: <u>Mark Wilson</u>	8/4/16
Training Supervision	Date

Approved by: <u>Sean Bloom</u>	8/5/16
Training Program Owner	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

SIMULATOR SETUP INSTRUCTIONS:

_____	1.	Reset to IC 1 or saved IC.
_____	2.	Place simulator in RUN.
_____	3.	Ensure applicable portions of Simulator Operator Checklist are complete.
_____	4.	N/A if using saved IC Perform switch manipulations in accordance with 3-OSP-059.4, steps 7.2.2.1-23.
_____	5.	Allow plant to stabilize.
_____	6.	Acknowledge alarms and place simulator in FREEZE.
_____	7.	Save as temporary IC, if JPM will be repeated.
_____	8.	When ready to begin, then place Simulator in RUN.

SIMULATOR MALFUNCTIONS:

- N/A

SIMULATOR OVERRIDES:

- N/A

SIMULATOR REMOTE FUNCTIONS:

- N/A



Required Materials:	<ul style="list-style-type: none">HANDOUT 3-OSP-059.4
General References:	<ul style="list-style-type: none">3-OSP-059.4, Power Range Nuclear Instrumentation Analog Channel Operational Test
Task Standards:	<ul style="list-style-type: none">Place the N-3-42 Power Range drawer in service

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- Unit 3 is at 100% power.
- Unit 4 is in Mode 1.
- 3-OSP-059.4, Power Range Nuclear Instrumentation Analog Channel Operational Test, is in progress for N-3-42 and is complete through Step 7.2.2.23.

INITIATING CUE:

- You have been directed to place the N-3-42 power range drawer in service using 3-OSP-059.4, beginning at step 7.2.2.24.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain 3-OSP-059.4, Power Range Nuclear Instrumentation Analog Channel Operational Test.
Evaluator Note:	If a peer check is requested for any of the following steps, then acknowledge the request and allow the operator to continue.
Evaluator Cue:	Provide examinee with a copy of HANDOUT 3-OSP-059.4.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: No	3-OSP-059.4, Step 7.2.2.24: At the N-42, Drawer A, perform the following: a. Verify the DROPPED ROD ROD STOP Light is OFF
Standard:	Recognize that the DROPPED ROD ROD STOP light is NOT lit.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: Yes	3-OSP-059.4, Step 7.2.2.24: At the N-42, Drawer A, perform the following: b. Place the DROPPED ROD MODE switch to NORMAL
Standard:	Place the DROPPED ROD MODE switch in the NORMAL position.
Evaluator Cue:	Annunciator B 7/3, NIS CHANNEL IN TEST, will clear.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 4 Critical: No	3-OSP-059.4, Step 7.2.2.25: Verify the N-42 ROD DROP IN BYPASS status light (VPA) is OFF
Standard:	Recognize that the ROD DROP IN BYPASS status light is NOT lit.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical: No	3-OSP-059.4, Step 7.2.2.26: Verify Annunciator B 8/4, NIS TRIP BYPASSED, is OFF. Mark N/A if Annunciator B 8/4 is ON due to another NIS channel in BYPASS
Standard:	Recognize that annunciator B 8/4 is NOT actuated.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical: Yes	3-OSP-059.4, Step 7.2.2.27: At the COMPARATOR AND RATE Drawer, perform the following: <ol style="list-style-type: none"> Place the COMPARATOR CHANNEL DEFEAT switch to NORMAL Verify COMPARATOR DEFEAT light is OFF
Standard:	Place the COMPARATOR CHANNEL DEFEAT switch in the NORMAL position and recognize that the COMPARATOR DEFEAT light is NOT lit.
Evaluator Note:	Only the switch manipulation is critical.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical: Yes	3-OSP-059.4, Step 7.2.2.28: At the MISCELLANEOUS CONTROL AND INDICATION PANEL (NIS panel), perform the following: <ol style="list-style-type: none"> Place the ROD STOP BYPASS switch associated with PRN42 to OPERATE
Standard:	Place the N-42 ROD STOP BYPASS switch in the OPERATE position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 8 Critical: Yes	3-OSP-059.4, Step 7.2.2.28: At the MISCELLANEOUS CONTROL AND INDICATION PANEL (NIS panel), perform the following: b. Place the POWER MISMATCH BYPASS switch associated with PRN42 to OPERATE
Standard:	Place the N-42 POWER MISMATCH BYPASS switch in the OPERATE position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 9 Critical: Yes	3-OSP-059.4, Step 7.2.2.29: At the DETECTOR CURRENT COMPARATOR panel, perform the following: a. Place the UPPER SECTION defeat switch to NORMAL 1) Verify CHANNEL DEFEAT light is OFF
Standard:	Place the UPPER SECTION defeat switch in the NORMAL position and recognize that the CHANNEL DEFEAT light is NOT lit.
Evaluator Note:	Only the defeat switch manipulation is critical.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 10 Critical: Yes	3-OSP-059.4, Step 7.2.2.29: At the DETECTOR CURRENT COMPARATOR panel, perform the following: b. Place the LOWER SECTION defeat switch to NORMAL 1) Verify CHANNEL DEFEAT light is OFF
Standard:	Place the LOWER SECTION defeat switch in the NORMAL position and recognize that the CHANNEL DEFEAT light is NOT lit.
Evaluator Note:	Only the defeat switch manipulation is critical.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 11 Critical: Yes	3-OSP-059.4, Step 7.2.2.30: At Protection Channel II, Rack No. 11, place the Protection Channel bistable test switches in the NORMAL (Left) position: a. BS-3-422B-1, Overpower ΔT Trip b. BS-3-422C-1, Overtemperature ΔT Trip
Standard:	Place the BS-3-422B-1 and BS-3-422C-1 bistable test switches in the NORMAL (left) positions.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When examinee places the bistable test switches in NORMAL, state "This completes the JPM."

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 3 is at 100% power.
- Unit 4 is in Mode 1.
- 3-OSP-059.4, Power Range Nuclear Instrumentation Analog Channel Operational Test, is in progress for N-3-42 and is complete through Step 7.2.2.23.

INITIATING CUE:

- You have been directed to place the N-3-42 power range drawer in service using 3-OSP-059.4, beginning at step 7.2.2.24.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

Control Room - JPM H



JOB PERFORMANCE MEASURE

L-16-1 NRC EXAM SECURE INFORMATION

JPM

JPM TITLE: Respond To Control Room Evacuation Condition – Unit 3 RO

JPM NUMBER: 01200011301

REV. 2-0

TASK NUMBER(S) / TASK TITLE(S): 01200011300 /
Respond To Control Room Evacuation Condition – Unit 3 RO

K/A NUMBERS: APE 068 AA1.23

K/A VALUE: RO 4.3 / SRO 4.4

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 10 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by: <u>Brian Clark</u>	8/4/16
Instructor/Developer	Date

Reviewed by: <u>Tim Hodge</u>	8/4/16
Instructor (Instructional Review)	Date

Validated by: <u>Sean Bloom</u>	8/5/16
SME (Technical Review)	Date

Approved by: <u>Mark Wilson</u>	8/4/16
Training Supervision	Date

Approved by: <u>Sean Bloom</u>	8/5/16
Training Program Owner	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A



01200011301, Respond to CR Evacuation – Unit 3 RO, Rev. 2-0
L-16-1 NRC EXAM SECURE INFORMATION

JPM
Page 4 of 14

UPDATE LOG: Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER	DATE
				SUPERVISOR	DATE
1-0	New JPM	Update for 2014 Annual Exam	01982473	N/A	N/A
				N/A	N/A
2-0	Formatting; text/grammar changes	L-16-1 NRC Exam	N/A	N/A	N/A
				N/A	N/A

SIMULATOR SET-UP:

SIMULATOR SETUP INSTRUCTIONS:

_____	1.	Reset to IC 1 or equivalent IC.
_____	2.	Place simulator in RUN.
_____	3.	Ensure applicable portions of Simulator Operator Checklist are complete.
_____	4.	Acknowledge alarms and place simulator in FREEZE.
_____	5.	Save as temporary IC, if JPM will be repeated.
_____	6.	When ready to begin, then place Simulator in RUN.

SIMULATOR MALFUNCTIONS:

- N/A

SIMULATOR OVERRIDES:

- N/A

SIMULATOR REMOTE FUNCTIONS:

- N/A

Required Materials:	<ul style="list-style-type: none"> HANDOUT Attachment 14
General References:	<ul style="list-style-type: none"> 0-ONOP-105, Control Room Evacuation 3-EOP-E-0, Reactor Trip or Safety Injection
Task Standards:	<ul style="list-style-type: none"> Trip Unit 3 reactor Close Unit 3 MSIVs Trip Unit 3 Main Feedwater Pumps Place Unit 3 SDTA controllers in manual and close the valves Close both PORV block valves Trip the Unit 3 RCPs

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- Both units are at 100% power.
- A fire in the North-South Breezeway has compromised Control Room habitability.

INITIATING CUE:

- The Shift Manager/Unit Supervisor directs you to perform the Unit 3 Reactor Operator immediate actions as required by Attachment 14 of 0-ONOP-105, Control Room Evacuation.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain Attachment 14 of 0-ONOP-105, Control Room Evacuation.
Evaluator Note:	Although the following steps are immediate actions and normally performed from memory, the examinee may use the procedure during the performance of this JPM. If the procedure is NOT used, mark this step N/A.
Evaluator Cue:	Provide operator with a copy of HANDOUT Attachment 14.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: Yes	0-ONOP-105, Attachment 14, Step 1: Perform the following: A. TRIP Unit 3 Reactor
Standard:	Trip the reactor at the operator console or VPB and verify the following: <ul style="list-style-type: none"> • Rod Bottom Lights – ON • Reactor Trip <u>AND</u> Bypass Breakers – OPEN • Rod Position Indicators – AT ZERO • Neutron flux – DECREASING
Evaluator Note:	Only the switch manipulation is critical.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: No	0-ONOP-105, Attachment 14, Step 1: Perform the following: B. TRIP Unit 3 Main Turbine
Standard:	Trip the main turbine at the operator console and verify the following: <ul style="list-style-type: none"> • <u>All</u> Turbine Stop <u>OR</u> associated Control Valves – CLOSED • Moisture Separator Reheater Steam Valves – CLOSED: <ul style="list-style-type: none"> • MSR Main Steam Supply Stop MOVs • Reheater Timing Valves • MSR Purge Steam Valves • Mid and East GCBs – OPEN (Normally 30-second delay)
Evaluator Note:	Only the pushbutton manipulation is critical.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 4 Critical: Yes	0-ONOP-105, Attachment 14, Step 2: CLOSE Unit 3 MSIVs and Bypass Valves
Standard:	Close the Unit 3 MSIVs and their bypass valves.
Evaluator Note:	Only the MSIV closures are critical.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

<p>Performance Step: 5 Critical: Yes</p>	<p>0-ONOP-105, Attachment 14, Step 3:</p> <p>PERFORM as many of the following Manual Actions as possible prior to leaving the Control Room:</p> <ul style="list-style-type: none"> A. TRIP Unit 3 Main Feedwater Pumps <ul style="list-style-type: none"> • 3A Main Feedwater Pump • 3B Main Feedwater Pump B. TRIP A Standby S/G Feedwater Pump C. PLACE Unit 3 Steam Dump to Atmosphere Controllers in MANUAL and CLOSE the Steam Dump Valves <ul style="list-style-type: none"> • CV-3-1606 • CV-3-1607 • CV-3-1608 D. ENSURE 3B Charging Pump TRIPPED E. CLOSE <u>both</u> PORV Block Valves <ul style="list-style-type: none"> • MOV-3-536 • MOV-3-535 F. TRIP Unit 3 Reactor Coolant Pumps <ul style="list-style-type: none"> • 3A RCP • 3B RCP • 3C RCP G. OBTAIN the following: <ul style="list-style-type: none"> • Set of prints • Radio
<p>Standard:</p>	<p>Trip the main feedwater pumps, trip the A SSGFP, manually close the SDTAs, verify that the 3B Charging Pump is tripped, close the PORV block valves, trip the RCPs, and obtain a set of prints and a radio.</p>
<p>Evaluator Note:</p>	<p>Only the main feedwater pump trips, SDTA closures, PORV block valve closures, and RCP trips are critical.</p>
<p>Evaluator Cue:</p>	<p>If asked how many steps must be completed, state "There is no immediate danger; complete all steps."</p>
<p>Performance:</p>	<p>SATISFACTORY _____ UNSATISFACTORY _____</p>
<p>Comments:</p>	

Performance Step: 6 Critical: No	0-ONOP-105, Attachment 14, Step 4: EVACUATE Control Room as follows: A. PROCEED to Turbine Deck Work Station
Standard:	Evacuate the Control Room and report to the Turbine Deck Work Station.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When the examinee begins to exit the Control Room, state “This completes the JPM.”

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.



TURNOVER SHEET

INITIAL CONDITIONS:

- Both units are at 100% power.
- A fire in the North-South Breezeway has compromised Control Room habitability.

INITIATING CUE:

- The Shift Manager/Unit Supervisor directs you to perform the Unit 3 Reactor Operator immediate actions as required by Attachment 14 of 0-ONOP-105, Control Room Evacuation.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.



JOB PERFORMANCE MEASURE

NRC EXAM SECURE INFORMATION

JPM

JPM TITLE: Respond to Control Bank D Demanded Past ARO

JPM NUMBER: 01028916302

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01028916300 / Respond to Control Bank D Demanded Past ARO

K/A NUMBERS: 001 A4.14

K/A VALUE: RO 3.0 / SRO 3.4

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

Developed by: Brian Clark
Instructor/Developer

8/4/16
Date

Reviewed by: T. M.
Instructor (Instructional Review)

8/4/16
Date

Validated by: LEB
SME (Technical Review)

8/5/16
Date

Approved by: [Signature]
Training Supervision

8/4/16
Date

Approved by: LEB
Training Program Owner

8/5/16
Date



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Place Excess Letdown in Service

JPM NUMBER: 01047016102

REV. 2-0

TASK NUMBER(S) /
TASK TITLE(S): 01047016100 /
Initiate Excess Letdown

K/A NUMBERS: 004 A4.06

K/A VALUE: RO 3.6 / SRO 3.1

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

Developed by:	<u>Brian Chan</u>	<u>8/4/16</u>
	Instructor/Developer	Date
Reviewed by:	<u>Ti V</u>	<u>8/4/16</u>
	Instructor (Instructional Review)	Date
Validated by:	<u>LEB</u>	<u>8/5/16</u>
	SME (Technical Review)	Date
Approved by:	<u>[Signature]</u>	<u>8/4/16</u>
	Training Supervision	Date
Approved by:	<u>LEB</u>	<u>8/5/16</u>
	Training Program Owner	Date



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Establish Auxiliary Pressurizer Spray

JPM NUMBER: 01041052100

REV. 0-0

TASK NUMBER(S) / TASK TITLE(S): 01041052100 /
Initiate Pressurizer Auxiliary Spray

K/A NUMBERS: EPE 038 EA1.04

K/A VALUE: RO 4.3 / SRO 4.1

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 20 Minutes Time Critical: No

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

Developed by: Brian Clark
Instructor/Developer

8/4/16
Date

Reviewed by: TJH
Instructor (Instructional Review)

8/4/16
Date

Validated by: LEB
SME (Technical Review)

8/5/16
Date

Approved by: [Signature]
Training Supervision

8/4/16
Date

Approved by: LEB
Training Program Owner

8/5/16
Date



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Respond to Loss of RHR

JPM NUMBER: 01050004301

REV. 2-0

TASK NUMBER(S) /
TASK TITLE(S): 01050004300 /
Respond to Loss of RHR

K/A NUMBERS: APE 025 AA1.03

K/A VALUE: RO 3.4 / SRO 3.3

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 20 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by: Brian Clark
Instructor/Developer

8/4/16
Date

Reviewed by: [Signature]
Instructor (Instructional Review)

8/4/16
Date

Validated by: [Signature]
SME (Technical Review)

8/5/16
Date

Approved by: [Signature]
Training Supervision

8/4/16
Date

Approved by: [Signature]
Training Program Owner

8/5/16
Date



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Manually Initiate Containment Spray

JPM NUMBER: 01068007502

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01068007500 / Manually Initiate Containment Spray

K/A NUMBERS: 026 A3.01

K/A VALUE: RO 4.3 / SRO 4.5

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by: Brian Clark
Instructor/Developer

8/4/16
Date

Reviewed by: T. H.
Instructor (Instructional Review)

8/4/16
Date

Validated by: le Bl
SME (Technical Review)

8/5/16
Date

Approved by: [Signature]
Training Supervision

8/4/16
Date

Approved by: le Bl
Training Program Owner

8/5/16
Date



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Restore Power to the 3A 4KV Bus

JPM NUMBER: 03005032300

REV. 0-0

TASK NUMBER(S) /
TASK TITLE(S): 03005032300 /
Cross-Tie 3D and 4D 4KV Buses

K/A NUMBERS: EPE 055 EA1.07

K/A VALUE: RO 4.3 / SRO 4.5

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: Yes

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

Developed by: Brian Clark
Instructor/Developer

8/4/16
Date

Reviewed by: T. J. Clark
Instructor (Instructional Review)

8/4/16
Date

Validated by: ABE
SME (Technical Review)

8/5/16
Date

Approved by: [Signature]
Training Supervision

8/4/16
Date

Approved by: ABE
Training Program Owner

8/5/16
Date



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Place N-3-42 Power Range Drawer in Service

JPM NUMBER: 01059016200

REV. 1-0

TASK NUMBER(S) /
TASK TITLE(S): 01059016200 /
Place N-42 Power Range Drawer in Service

K/A NUMBERS: 015 A4.02

K/A VALUE: RO 3.9 / SRO 3.9

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 10 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by: Brian Clark
Instructor/Developer

8/4/16
Date

Reviewed by: [Signature]
Instructor (Instructional Review)

8/4/16
Date

Validated by: [Signature]
SME (Technical Review)

8/5/16
Date

Approved by: [Signature]
Training Supervision

8/4/16
Date

Approved by: [Signature]
Training Program Owner

8/5/16
Date



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Respond To Control Room Evacuation Condition – Unit 3 RO

JPM NUMBER: 01200011301

REV. 2-0

TASK NUMBER(S) / TASK TITLE(S): 01200011300 / Respond To Control Room Evacuation Condition – Unit 3 RO

K/A NUMBERS: APE 068 AA1.23

K/A VALUE: RO 4.3 / SRO 4.4

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 10 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	<u>Brian Chase</u>	<u>8/4/16</u>
	Instructor/Developer	Date
Reviewed by:	<u>[Signature]</u>	<u>8/4/16</u>
	Instructor (Instructional Review)	Date
Validated by:	<u>[Signature]</u>	<u>8/5/16</u>
	SME (Technical Review)	Date
Approved by:	<u>[Signature]</u>	<u>8/4/16</u>
	Training Supervision	Date
Approved by:	<u>[Signature]</u>	<u>8/5/16</u>
	Training Program Owner	Date

L-16-1 NRC Exam

In-Plant - JPM I



JOB PERFORMANCE MEASURE

L-16-1 NRC EXAM SECURE INFORMATION

JPM

JPM TITLE: Locally Trip the Reactor and Turbine

JPM NUMBER: 14028009501

REV. 2-1

TASK NUMBER(S) /
TASK TITLE(S): 14028009500 /
Respond to an ATWS

K/A NUMBERS: EPE 029 EA1.12

K/A VALUE: RO 4.1 / SRO 4.0

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☒ Perform: ☐

EVALUATION LOCATION: In-Plant: ☒ Control Room: ☐

Simulator: ☐ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	Brian Clark	8/4/16
	Instructor/Developer	Date

Reviewed by:	Tim Hodge	8/4/16
	Instructor (Instructional Review)	Date

Validated by:	Sean Bloom	8/5/16
	SME (Technical Review)	Date

Approved by:	Mark Wilson	8/5/16
	Training Supervision	Date

Approved by:	Sean Bloom	8/5/16
	Training Program Owner	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A



SIMULATOR SET-UP:

- N/A

Required Materials:	<ul style="list-style-type: none">• 3(4)-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS
General References:	<ul style="list-style-type: none">• 3(4)-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS
Task Standards:	<ul style="list-style-type: none">• Locally open the reactor trip breakers in the 3(4)B MCC Room• Locally trip the main turbine at the front standard

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- The Unit 3(4) reactor and main turbine could NOT be tripped from the Control Room.
- The crew has entered 3(4)-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS.

INITIATING CUE:

- You are the Admin RO and have been directed to perform RNO Steps 6.a and 6.b of 3(4)-EOP-FR-S.1.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Evaluator Note:	Prior to administering, determine which <u>unit</u> the JPM will be performed on and provide the appropriate procedure and initiating cue.
------------------------	--

Performance Step: 1 Critical: No	Obtain required reference materials and proceed to the 3(4)B MCC Room.
Standard:	Obtain a copy of 3(4)-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS, and proceed to the 3(4)B MCC Room.
Evaluator Note:	If a peer check is requested for any of the following steps, then acknowledge the request and allow the operator to continue.
Evaluator Cue:	Provide examinee with a copy of 3(4)-EOP-FR-S.1.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: No	3(4)-EOP-FR-S.1, prior to Step 6: <p style="text-align: center;"><u>CAUTION</u></p> <p><i>If an SI signal exists or occurs AND the reactor is subcritical, proper safeguards equipment alignment is required to be verified using Attachment 3 of 3(4)-EOP-E-0, REACTOR TRIP OR SAFETY INJECTION, <u>while</u> continuing with this procedure.</i></p>
Standard:	Read CAUTION and recognize that it is safe to proceed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: Yes	3(4)-EOP-FR-S.1, Step 6: Check If The Following Trips Have Occurred: <ol style="list-style-type: none"> a. Reactor Trip (NO) → (RNO) In 3(4)B MCC Room, locally trip reactor as follows: <ul style="list-style-type: none"> • Open 3(4)A and 3(4)B Reactor Trip Breakers.
Standard:	Locally open the reactor trip breakers by pressing the TRIP button on the front of each breaker.
Evaluator Cue:	<ul style="list-style-type: none"> • If asked initially, inform examinee that a red CLOSED flag is showing at each breaker • When the breaker trips are properly simulated, state that the associated green OPEN flags are showing
Evaluator Note:	<ul style="list-style-type: none"> • Breakers may be tripped in <u>any</u> order • Breakers will NOT recharge after opening; only a trip sound will be heard
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical: No	3(4)-EOP-FR-S.1, Step 6: Check If The Following Trips Have Occurred: a. Reactor Trip (NO) → (RNO) In 3(4)B MCC Room, locally trip reactor as follows: <ul style="list-style-type: none"> • Open 3(4)A and 3(4)B Reactor Trip Bypass Breakers.
Standard:	Recognize that both bypass breakers are racked out and the green OPEN flags are showing.
Evaluator Cue:	<ul style="list-style-type: none"> • When checked, state that the breaker face plates are protruding from their cubicle cover plates • If asked, inform examinee that a green flag is showing on each breaker
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical: No	3(4)-EOP-FR-S.1, Step 6: Check If The Following Trips Have Occurred: <ul style="list-style-type: none"> a. Reactor Trip (NO) → (RNO) In 3(4)B MCC Room, locally trip reactor as follows: <ul style="list-style-type: none"> • Open A/B MG Set Generator Output Breakers.
Standard:	Open both motor-generator set output breakers by placing their control switches in the TRIP position.
Evaluator Cue:	<ul style="list-style-type: none"> • If asked initially, inform examinee that the associated red lights are lit and the green lights are NOT lit at each breaker • When the breaker trips are properly simulated, state that the associated green lights are lit and the red lights are extinguished
Evaluator Note:	<ul style="list-style-type: none"> • Breakers may be tripped in <u>any</u> order • The output breakers are located in the MCC Room; the breaker tripping will be heard
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical: No	3(4)-EOP-FR-S.1, Step 6: Check If The Following Trips Have Occurred: <ul style="list-style-type: none"> a. Reactor Trip (NO) → (RNO) In 3(4)B MCC Room, locally trip reactor as follows: <ul style="list-style-type: none"> • Open A/B MG Set Generator Input Breakers.
Standard:	Open both motor-generator set input breakers by placing their control switches in the TRIP position.
Evaluator Cue:	<ul style="list-style-type: none"> • If asked initially, inform examinee that the associated red lights are lit and the green lights are NOT lit at each breaker • When the breaker trips are properly simulated, state that the associated green lights are lit and the red lights are extinguished
Evaluator Note:	<ul style="list-style-type: none"> • Breakers may be tripped in <u>any</u> order • The input breakers are located in the LC Room and will NOT be heard when tripped
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical: Yes	3(4)-EOP-FR-S.1, Step 6: Check If The Following Trips Have Occurred: b. Turbine Trip (NO) → (RNO) Locally trip turbine at Turbine Front Standard.
Standard:	Rotate the RESET/TRIP lever, to the TRIP position.
Evaluator Cue:	<ul style="list-style-type: none"> When the examinee identifies the trip lever box, provide <u>Photo A</u> and have the examinee simulate tripping the turbine When properly simulated, and if asked, use the following cues as applicable: <ul style="list-style-type: none"> Turbine stop and control valves are closing Reheat stop and intercept valves are closing Turbine shaft is slowing down Turbine rpm indicator is lowering Bearing oil pressures are lowering
Evaluator Note:	<ul style="list-style-type: none"> Switch label, HS-3(4)-001, is on outside of box at the front standard (NOT on inside of box or in the procedure) Note any other cues given in the comments section
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When the examinee locally trips the turbine, state “This completes the JPM.”

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES
CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

*NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If
unsatisfactory performance is demonstrated, the entire JPM should be retained.*



TURNOVER SHEET

INITIAL CONDITIONS:

- The Unit 3(4) reactor and main turbine could NOT be tripped from the Control Room.
- The crew has entered 3(4)-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS.

INITIATING CUE:

- You are the Admin RO and have been directed to perform RNO Steps 6.a and 6.b of 3(4)-EOP-FR-S.1.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

In-Plant - JPM J



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Control Steam Generator Level Locally with AFW Control Valve

JPM NUMBER: 04075002300 **REV.** 2-0

TASK NUMBER(S) / TASK TITLE(S): 04075002300 /
Control Steam Generator Level Locally with Auxiliary Feedwater Control Valve

K/A NUMBERS: APE 054 AA1.01 **K/A VALUE:** RO 4.5 / SRO 4.4

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☒ Perform: ☐

EVALUATION LOCATION: In-Plant: ☒ Control Room: ☐
Simulator: ☐ Other: ☐
Lab: ☐

Time for Completion: 20 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	Brian Clark Instructor/Developer	8/4/16 Date
Reviewed by:	Tim Hodge Instructor (Instructional Review)	8/4/16 Date
Validated by:	Sean Bloom SME (Technical Review)	8/5/16 Date
Approved by:	Mark Wilson Training Supervision	8/4/16 Date
Approved by:	Sean Bloom Training Program Owner	8/5/16 Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

UPDATE LOG: Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

[illegible]



SIMULATOR SET-UP:

- N/A

Required Materials:	<ul style="list-style-type: none">• HANDOUT 3-ONOP-075, Auxiliary Feedwater System Malfunction, Attachment 3
General References:	<ul style="list-style-type: none">• 3-ONOP-075, Auxiliary Feedwater System Malfunction
Task Standards:	<ul style="list-style-type: none">• Manipulate appropriate instrument air and drain valves to support local operation of flow control valve.• Locally open CV-3-2818, Train 1 S/G C Feedwater Flow Control Valve

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- Unit 3 is in Mode 3, following a reactor trip with an AFW auto-start.
- All systems responded as designed.
- The plant is in a normal electrical alignment.
- The AFW System is intact.
- CV-3-2833, Train 2 AFW Flow Control Valve to 3C S/G, is OOS for maintenance.
- Control Room operators are unable to establish feedwater flow to the 3C S/G, due to CV-3-2818 NOT responding to the controller.
- All other components operate as designed.

INITIATING CUE:

- The Field Supervisor provides the required key and directs you to restore feedwater flow to the 3C S/G, by manually controlling CV-3-2818 in accordance with Attachment 3 of 3-ONOP-075.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.



JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain Attachment 3 of 3-ONOP-075, Auxiliary Feedwater System Malfunction.
Evaluator Note:	If a peer check is requested for any of the following steps, then acknowledge the request and allow the operator to continue.
Evaluator Cue:	Provide examinee with a copy of HANDOUT 3-ONOP-075, Attachment 3.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: Yes	3-ONOP-075, Attachment 3, Step 1: PERFORM the following for the applicable feed flow control valve: <ul style="list-style-type: none"> TO MANUALLY OPERATE CV-3-2818 (Train 1 AFW Flow Control Valve to 3C S/G), CLOSE VALVES 3-40-268 (Air/N₂ Station #1 Train 1 to AFW CV-3-2818 Root) and 3-40-269 (Air/N₂ Station #1 Train 2 to AFW CV-3-2818 Root)
Standard:	<ul style="list-style-type: none"> Cut seal wire and close valve 3-40-268 Verify that 3-40-269 is closed
Evaluator Note:	<ul style="list-style-type: none"> 3-40-268 is normally sealed open and 3-40-269 is normally sealed closed Closing 3-40-268 is the <u>only</u> critical activity in this step
Evaluator Cue:	<ul style="list-style-type: none"> When examinee properly identifies 3-40-268 and simulates cutting the seal wire and closing the valve, tell examinee that the valve handle turned clockwise ¼ turn and is <u>perpendicular</u> to the piping When examinee properly identifies 3-40-269 and simulates checking the valve closed, tell examinee that the valve handle is <u>perpendicular</u> to the piping
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: Yes	3-ONOP-075, Attachment 3, Step 2: OPEN drain valves below the two pressure regulators associated with each control valve AND BLEED off the air/nitrogen pressure
Standard:	Open both regulator drain valves on CV-3-2818.
Evaluator Note:	The Evaluator Cue may be given for <u>each</u> regulator drain valve or after examinee simulates opening <u>both</u> drain valves.
Evaluator Cue:	When examinee properly identifies/simulates opening the regulator drain valves, tell examinee that flow noise is initially heard from the drain valves and flow eventually stops.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical: Yes	3-ONOP-075, Attachment 3, Step 3: UNLOCK control valve handwheel AND OPEN the valve until flow is detected on <u>either</u> of the following: <ul style="list-style-type: none"> Upper platform: FI-3-1458A1
Standard:	Unlock the handwheel for CV-3-2818, open the valve, and verify flow to the 3C S/G.
Evaluator Cue:	<ul style="list-style-type: none"> When examinee properly identifies/simulates unlocking and opening CV-3-2818, indicate that the position indicator is in the throttled position and flow noise is heard When examinee properly identifies/simulates checking FI-3-1458A1, indicate that flow is approximately 150 gpm (or whatever flow rate examinee targeted) If examinee identifies FI-3-1458A1 and simulates adjusting CV-3-2818 while watching flow indicator, indicate that flow is approximately 150 gpm (or whatever flow rate examinee targeted)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 5 Critical: No	3-ONOP-075, Attachment 3, Step 4: ADJUST AFW flow to maintain S/G levels at approximately 60% wide range, as indicated on <u>any</u> of the following: <ul style="list-style-type: none">LI-3-497B, S/G C Wide Range Level Indicator
Standard:	Observe the 3C S/G level locally on LI-3-497B.
Evaluator Cue:	When examinee properly identifies LI-3-497B, indicate that the 3C S/G's wide range level is 60%.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When examinee attains 60% wide range level in the 3C S/G, state "This completes the JPM."

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES
CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

*NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If
unsatisfactory performance is demonstrated, the entire JPM should be retained.*

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 3 is in Mode 3, following a reactor trip with an AFW auto-start.
- All systems responded as designed.
- The plant is in a normal electrical alignment.
- The AFW System is intact.
- CV-3-2833, Train 2 AFW Flow Control Valve to 3C S/G, is OOS for maintenance.
- Control Room operators are unable to establish feedwater flow to the 3C S/G, due to CV-3-2818 NOT responding to the controller.
- All other components operate as designed.

INITIATING CUE:

- The Field Supervisor provides the required key and directs you to restore feedwater flow to the 3C S/G, by manually controlling CV-3-2818 in accordance with Attachment 3 of 3-ONOP-075.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

In-Plant - JPM K



JOB PERFORMANCE MEASURE

L-16-1 NRC EXAM SECURE INFORMATION

JPM

Page 2 of 16

JPM TITLE: Align Emergency Service Water to the Charging Pumps

JPM NUMBER: 24030009300

REV. 2-1

TASK NUMBER(S) / TASK TITLE(S): 24030009300 /
Align Emergency Service Water to the Charging Pumps

K/A NUMBERS: APE 026 AA1.03

K/A VALUE: RO 3.6 / SRO 3.6

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☒ Perform: ☐

EVALUATION LOCATION: In-Plant: ☒ Control Room: ☐

Simulator: ☐ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by: _____	Brian Clark	8/4/16
	Instructor/Developer	Date

Reviewed by: _____	Tim Hodge	8/4/16
	Instructor (Instructional Review)	Date

Validated by: _____	Sean Bloom	8/5/16
	SME (Technical Review)	Date

Approved by: _____	Mark Wilson	8/4/16
	Training Supervision	Date

Approved by: _____	Sean Bloom	8/5/16
	Training Program Owner	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

UPDATE LOG: Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

[illegible]



SIMULATOR SET-UP:

- N/A

Required Materials:	<ul style="list-style-type: none">• HANDOUT 3(4)-ONOP-030, Component Cooling Water Malfunction, Attachment 1
General References:	<ul style="list-style-type: none">• 3(4)-ONOP-030, Component Cooling Water Malfunction
Task Standards:	<ul style="list-style-type: none">• Establish emergency cooling water to the Unit 3(4) charging pumps

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- Level in the CCW Surge Tank can NOT be maintained.
- The crew has entered 3(4)-ONOP-030, Component Cooling Water Malfunction.

INITIATING CUE:

- You have been directed to perform Attachment 1, Control of Emergency Cooling Water to Charging Pumps, of 3(4)-ONOP-030 for the B Charging Pump.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Evaluator Note:	Prior to administering, determine which <u>unit</u> the JPM will be performed on and provide the appropriate procedure and initiating cue.
------------------------	--

Evaluator Note:	Cam lock fittings are types of quick disconnects. When the procedure refers to a cam lock fitting on one end of the hose and quick disconnect on the other, it is considering the female end to be the “cam lock” and male end to be the “quick disconnect”.
------------------------	--

Performance Step: 1 Critical: No	Obtain required reference materials, proceed to Unit 3(4) Charging Pump Room, and retrieve emergency cooling hoses from the storage box.
Standard:	<ul style="list-style-type: none"> Obtain Attachment 1, Control of Emergency Cooling Water to Charging Pumps, of 3(4)-ONOP-030, Component Cooling Water Malfunction Simulate removing the emergency cooling hoses from the storage box
Evaluator Note:	If a peer check is requested for any of the following steps, then acknowledge the request and allow the operator to continue.
Evaluator Cue:	Provide examinee with a copy of HANDOUT 3(4)-ONOP-030, Attachment 1.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: Yes	3(4)-ONOP-030, Attachment 1, Step 1: CONNECT cam lock fitting end of emergency cooling water supply hose to 3-70-179A (4-70-118B), Service Water Connection Inside (Outside) Unit 3(4) Charging Pump Room.
Standard:	Identify the correct valve and connect the supply hose to the cam lock fitting.
Evaluator Note:	<ul style="list-style-type: none"> 3-70-179A is located inside of the Unit 3 Charging Pump Room; 4-70-118B is located outside of the Unit 4 Charging Pump Room The emergency cooling water supply hose has a <u>quick disconnect</u> fitting on one end and a <u>cam lock</u> fitting on the other end
Evaluator Cue:	When the examinee properly simulates installing the supply hose on the valve, inform the examinee that the hose is connected.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: No	3(4)-ONOP-030, Attachment 1, Step 2: CONSULT with Unit 3(4) Reactor Operator to determine desired charging pump.
Standard:	Recognize from the Initial Conditions that the Unit 3(4) B Charging Pump is to be cooled.
Evaluator Note:	If asked, refer the examinee to the Initiating Cue.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical: No	3(4)-ONOP-030, Attachment 1, Step 3: ENSURE desired Charging Pump is STOPPED OR running at maximum speed.
Standard:	Check the appropriate pump's status.
Evaluator Cue:	When the correct pump is identified/checked, inform the examinee that the shaft is NOT rotating and no pump or motor noise is heard.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical: Yes	3(4)-ONOP-030, Attachment 1, Step 4: CONNECT quick disconnect fitting end of emergency cooling water supply hose to emergency hose connection on desired Charging Pump: <ul style="list-style-type: none"> 3(4)-10-289, Emergency Hose Connection to Charging Pump B Oil Cooler Supply
Standard:	Identify the correct pump and connect the quick disconnect fitting on the supply hose to the pump's quick disconnect <u>supply</u> fitting.
Evaluator Note:	The emergency cooling water supply hose has a <u>quick disconnect</u> fitting on one end and a <u>cam lock</u> fitting on the other end.
Evaluator Cue:	When the examinee identifies the correct fitting and properly simulates installing the supply hose on the pump, inform the examinee that the hose is connected.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical: Yes	3(4)-ONOP-030, Attachment 1, Step 5: CONNECT quick disconnect fitting end of emergency cooling water outlet hose to emergency hose connection on desired Charging Pump: <ul style="list-style-type: none"> 3(4)-10-288, Emergency Hose Connection to Charging Pump B Oil Cooler Return
Standard:	Identify the correct pump and connect the quick disconnect fitting on the outlet hose to the pump's quick disconnect <u>return</u> fitting.
Evaluator Note:	The emergency cooling water outlet hose has a <u>quick disconnect</u> fitting on one end and <u>no</u> fitting on the other end.
Evaluator Cue:	When the examinee identifies the correct fitting, simulates removing the pipe plug, and properly simulates installing the outlet hose on the pump, inform the examinee that the hose is connected.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical: No	3(4)-ONOP-030, Attachment 1, Step 6: REMOVE cover from floor drain to be used in Charging Pump Room.
Standard:	Identify the appropriate floor drain and remove its cover.
Evaluator Cue:	When the examinee identifies the appropriate floor drain and simulates removing its cover, inform the examinee that the cover is removed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 8 Critical: No	3(4)-ONOP-030, Attachment 1, Step 7: ROUTE open end of emergency cooling water outlet hose to floor drain being used in Charging Pump Room.
Standard:	Place the open end of the outlet hose near the appropriate floor drain.
Evaluator Cue:	When the examinee places the open end of the outlet hose near the appropriate floor drain, inform the examinee that the outlet hose is properly routed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 9 Critical: Yes	3(4)-ONOP-030, Attachment 1, Step 8: ISOLATE CCW to hydraulic oil cooler on desired Charging Pump: <ul style="list-style-type: none"> CLOSE 3(4)-825C, CCW to B Charging Pump Oil Cooler Inlet
Standard:	Identify/close the CCW valve to the appropriate charging pump.
Evaluator Cue:	When the examinee identifies the correct valve and properly simulates closing it, inform the examinee that the valve is closed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 10 Critical: Yes	3(4)-ONOP-030, Attachment 1, Step 9: ISOLATE CCW from hydraulic oil cooler on desired Charging Pump: <ul style="list-style-type: none">CLOSE 3(4)-825D, CCW from B Charging Pump Oil Cooler Inlet
Standard:	Identify/close the CCW valve from the appropriate charging pump.
Evaluator Cue:	When the examinee identifies the correct valve and properly simulates closing it, inform the examinee that the valve is closed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 11 Critical: Yes	3(4)-ONOP-030, Attachment 1, Step 10 (10.a): OPEN 3-70-179, Service Water Root Valve Outside Unit 3 Charging Pump Room (4-70-118B, Service Water Connection Outside Unit 4 Charging Pump Room).
Standard:	Identify/open the appropriate service water valve.
Evaluator Cue:	When the examinee identifies the correct valve and properly simulates opening it, inform the examinee that the valve is open.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 12 Critical: Yes	3(4)-ONOP-030, Attachment 1, Step 11 (10.b): OPEN 3-70-179A, Service Water Connection Inside Unit 3 Charging Pump Room (4-70-118, Service Water Root Valve Outside Unit 4 Charging Pump Room).
Standard:	Identify/open the appropriate service water valve.
Evaluator Cue:	When the examinee identifies the correct valve and properly simulates opening it, inform the examinee that the valve is open.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 13 Critical: Yes	3(4)-ONOP-030, Attachment 1, Step 12 (11): ESTABLISH Service Water to desired Charging Pump: <ul style="list-style-type: none"> OPEN 3(4)-10-289, Emergency Hose Connection to Charging Pump B Oil Cooler Supply
Standard:	Identify/open the appropriate service water valve.
Evaluator Cue:	When the examinee identifies the correct valve and properly simulates opening it, inform the examinee that the valve is open.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 14 Critical: Yes	3(4)-ONOP-030, Attachment 1, Step 13 (12): ADJUST Service Water flow from desired charging pump to provide maximum flow: <ul style="list-style-type: none"> OPEN 3(4)-10-288, Emergency Hose Connection to Charging Pump B Oil Cooler Return
Standard:	Identify/open the appropriate service water valve.
Evaluator Cue:	When the examinee identifies the correct valve and properly simulates opening it, inform the examinee that the valve is open.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 15 Critical: No	3(4)-ONOP-030, Attachment 1, Step 14 (13): IF Service Water flow is NOT obtained, THEN PLACE Service Water System in service per 0-NOP-012, Service Water System, using any available pump including the diesel driven SWP D.
Standard:	Verify that service water flow is obtained.
Evaluator Cue:	When the examinee checks the open end of the discharge hose at the floor drain, inform the examinee that service water flow is observed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When service water flow has been verified, state "This completes the JPM."

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES
CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

*NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If
unsatisfactory performance is demonstrated, the entire JPM should be retained.*

TURNOVER SHEET

INITIAL CONDITIONS:

- Level in the CCW Surge Tank can NOT be maintained.
- The crew has entered 3(4)-ONOP-030, Component Cooling Water Malfunction.

INITIATING CUE:

- You have been directed by the Unit 3(4) RCO to perform Attachment 1, Control of Emergency Cooling Water to Charging Pumps, of 3(4)-ONOP-030 for the B Charging Pump.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Locally Trip the Reactor and Turbine

JPM NUMBER: 14028009501

REV. 2-1

TASK NUMBER(S) /
TASK TITLE(S): 14028009500 /
Respond to an ATWS

K/A NUMBERS: EPE 029 EA1.12

K/A VALUE: RO 4.1 / SRO 4.0

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☒ Perform: ☐

EVALUATION LOCATION: In-Plant: ☒ Control Room: ☐

Simulator: ☐ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by: Brian Clark
Instructor/Developer

8/4/16
Date

Reviewed by: T. H.
Instructor (Instructional Review)

8/4/16
Date

Validated by: lell
SME (Technical Review)

8/5/16
Date

Approved by: [Signature]
Training Supervision

8/5/16
Date

Approved by: lell
Training Program Owner

8/5/16
Date



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Control S/G Level Locally with AFW Control Valve

JPM NUMBER: 04075002300

REV. 2-0

TASK NUMBER(S) / TASK TITLE(S): 04075002300 /
Control Steam Generator Level Locally with Auxiliary Feedwater Control Valve

K/A NUMBERS: APE 054 AA1.01

K/A VALUE: RO 4.5 / SRO 4.4

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☒ Perform: ☐

EVALUATION LOCATION: In-Plant: ☒ Control Room: ☐

Simulator: ☐ Other: ☐

Lab: ☐

Time for Completion: 20 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by: Brian Clark

Instructor/Developer

8/4/16
Date

Reviewed by: T. H.

Instructor (Instructional Review)

8/4/16
Date

Validated by: LEBL

SME (Technical Review)

8/5/16
Date

Approved by: [Signature]

Training Supervision

8/4/16
Date

Approved by: LEBL

Training Program Owner

8/5/16
Date

JOB PERFORMANCE MEASURE

L-16-1 NRC EXAM SECURE INFORMATION

JPM
Page 2 of 16

JPM TITLE: Align Emergency Service Water to the Charging Pumps

JPM NUMBER: 24030009300

REV. 2-1

TASK NUMBER(S) / TASK TITLE(S): 24030009300 / Align Emergency Service Water to the Charging Pumps

K/A NUMBERS: APE 026 AA1.03

K/A VALUE: RO 3.6 / SRO 3.6

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☒ Perform: ☐

EVALUATION LOCATION: In-Plant: ☒ Control Room: ☐

Simulator: ☐ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	<u>Brian Clark</u>	<u>8/4/16</u>
	Instructor/Developer	Date
Reviewed by:	<u>T. K.</u>	<u>8/4/16</u>
	Instructor (Instructional Review)	Date
Validated by:	<u>LEB</u>	<u>8/5/16</u>
	SME (Technical Review)	Date
Approved by:	<u>[Signature]</u>	<u>8/4/16</u>
	Training Supervision	Date
Approved by:	<u>LEB</u>	<u>8/5/16</u>
	Training Program Owner	Date

L-16-1 NRC Exam

Admin - JPM RO A1a



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Calculate a Manual Makeup to the VCT

JPM NUMBER: 01046046101

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01046046100/
Calculate a Manual Makeup to the VCT

K/A NUMBERS: 2.1.25

K/A VALUE: RO 3.9 / SRO 4.2

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☐ Other: ☒

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	<u>Alan Schilk</u> Instructor/Developer	<u>8/4/16</u> Date
Reviewed by:	<u>Luis Sagion</u> Instructor (Instructional Review)	<u>8/4/16</u> Date
Validated by:	<u>Sean Bloom</u> SME (Technical Review)	<u>8/5/16</u> Date
Approved by:	<u>Mark Wilson</u> Training Supervision	<u>8/4/16</u> Date
Approved by:	<u>Sean Bloom</u> Training Program Owner	<u>8/5/16</u> Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

- N/A

Required Materials:

- 0-OP-046, CVCS – Boron Concentration Control
- Plant Curve Book, Section III
- Calculator

General References:

- 0-OP-046, CVCS – Boron Concentration Control
- Plant Curve Book, Section III

Task Standards:

- Calculate the boric acid and primary water flow rates, volumes, and controller settings as required to makeup to the VCT, using Method 2 of the Plant Curve Book (Section III)

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Unit 4 is at 100% steady-state power.
- VCT level is 20%.
- Boron concentrations in the RCS and BAST are 874 ppm and 5687 ppm, respectively.
- A manual makeup to the VCT is to be performed, with a desired boric acid flow rate of 11.0 gpm.
- All relevant prerequisites, precautions/limitations, and associated attachments in 0-OP-046, CVCS – Boron Concentration Control, have been addressed.

INITIATING CUES:

- VCT level is to be raised to 37%, while maintaining a constant VCT/RCS boron concentration.
- You are directed to perform Section 5.4 (Manual Makeup) of 0-OP-046, using Method 2 (Calculation) from Section III of the Plant Curve Book, to calculate the following parameters:
 - Primary water flow rate: _____ (to the nearest tenth of a gpm)
 - Primary water volume: _____ (to the nearest gallon)
 - Boric acid volume: _____ (to the nearest gallon)
- Based on the available information, determine the potentiometer settings for the following controllers:
 - Boric Acid Flow Controller (FC-4-113A): _____
 - Primary Water Flow Controller (FC-4-114A): _____

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain 0-OP-046, CVCS – Boron Concentration Control.
Evaluator Cue:	Provide examinee with a copy of 0-OP-046, CVCS – Boron Concentration Control.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: No	0-OP-046, Step 5.4.1.1: Applicable Prerequisites in Section 3.0 are satisfied.
Standard:	Recognize, from the Initial Conditions, that all relevant prerequisites have been addressed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: No	<p>0-OP-046, prior to Step 5.4.2.1:</p> <p style="text-align: center;"><u>CAUTION</u></p> <p><i>Instrument uncertainties for the Boric Acid and Primary Water flow transmitters can result in the actual amount of Boric Acid or Primary Water added to be either more or less than the amount calculated. Thus, care is needed to ensure that excessive reduction in RCS boron concentration does NOT occur due to the uncertainties.</i></p> <p style="text-align: center;"><u>NOTE</u></p> <p><i>VCT level is 14.15 gallons per percent level indication.</i></p>
Standard:	Read CAUTION/NOTE and recognize that it is safe to proceed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical: No	<p>0-OP-046, Step 5.4.2.1:</p> <p>Determine the approximate boric acid and primary water flows and volumes needed to obtain the desired blend concentration from the boron change tables in Section III of the Plant Curve Book. The primary water flow rate should be determined in order to ensure all primary water is injected prior to completion of the manual make-up.</p>
Standard:	Obtain Section III of the Plant Curve Book and locate Figure 4 (Blended Flow), Method 2 (Calculation).
Evaluator Cue:	Provide examinee with a copy of Section III of the Plant Curve Book.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical: Yes	Determine the appropriate primary water flow needed to obtain the desired blend, using the blended flow calculation in Section III of the Plant Curve Book.
Standard:	Determine the primary water flow rate and record the value on the Turnover Sheet. <ul style="list-style-type: none"> Primary water flow rate: <u>60.6 gpm</u> (59.6 to 61.6 gpm)
Evaluator Note:	<ul style="list-style-type: none"> From Section III of Plant Curve Book: <ul style="list-style-type: none"> $\text{Boron}_{\text{ppm}} = (\text{Acid}_{\text{gpm}})(\text{BAST}_{\text{ppm}})/(\text{Acid}_{\text{gpm}} + \text{Water}_{\text{gpm}})$, where $\text{Boron}_{\text{ppm}}$ is the desired blended boron concentration Therefore, $\text{Water}_{\text{gpm}} = [(\text{Acid}_{\text{gpm}})(\text{BAST}_{\text{ppm}})/(\text{Boron}_{\text{ppm}})] - (\text{Acid}_{\text{gpm}})$: <ul style="list-style-type: none"> $\text{Water}_{\text{gpm}} = [(11.0)(5687)/(874)] - (11.0) = \underline{60.6 \text{ gpm}}$
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical: Yes	Determine the appropriate boric acid and primary water volumes and to raise VCT level from 20% to 37%.
Standard:	<p>Determine the required boric acid and primary water volumes and record the values on Turnover Sheet.</p> <ul style="list-style-type: none"> Primary water volume: <u>204 gallons</u> (±6%; 192 to 216 gallons) Boric acid volume: <u>37 gallons</u> (±6%; 35 to 39 gallons)
Evaluator Note:	<ul style="list-style-type: none"> From NOTE prior to Step 5.4.2.1 of 0-OP-046 (i.e., 14.15 gallons/%): <ul style="list-style-type: none"> $(37\% - 20\%)(14.15 \text{ gallons/\%}) = 240.55 \text{ gallons}$ Therefore, with 11.0 gpm of boric acid and 60.6 gpm of primary water: <ul style="list-style-type: none"> $(240.55 \text{ gallons})[(11.0)/(11.0 + 60.6)] = \underline{37.0 \text{ gallons of boric acid}}$ $(240.55 \text{ gallons})[(60.6)/(11.0 + 60.6)] = \underline{203.6 \text{ gallons of primary water}}$ Various methods may be used to determine the fluid volumes Answer bands are based on potential rounding error (e.g., 14.15 gallons/% rounded up to 15 gallons/% would yield 216 gallons of primary water)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical: Yes	Based on the available information, determine the potentiometer settings for the following controllers: <ul style="list-style-type: none"> Boric Acid Flow Controller (FC-3-113A) Primary Water Flow Controller (FC-3-114A)
Standard:	Determine the associated potentiometer settings and record the values on Turnover Sheet. <ul style="list-style-type: none"> Boric Acid Flow Controller (FC-4-113A): <u>2.2</u> (2.0 to 2.4) Primary Water Flow Controller (FC-4-114A): <u>4.0</u> (3.8 to 4.2)
Evaluator Note:	<ul style="list-style-type: none"> From Step 4.23 of 0-OP-046 (ratio of 5 gpm to 1; i.e., 50 gpm maximum), a boric acid flow rate of 11.0 gpm is equivalent to a controller setting of <u>2.2</u> on the ten-turn potentiometer. From Step 4.24 of 0-OP-046 (ratio of 15 gpm to 1; i.e., 150 gpm maximum), a primary water flow rate of 60.6 gpm is equivalent to a controller setting of <u>4.0</u> on the ten-turn potentiometer.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When the examinee completes Step 7, state “This completes the JPM.”

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET**INITIAL CONDITIONS:**

- Unit 4 is at 100% steady-state power.
- VCT level is 20%.
- Boron concentrations in the RCS and BAST are 874 ppm and 5687 ppm, respectively.
- A manual makeup to the VCT is to be performed, with a desired boric acid flow rate of 11.0 gpm.
- All relevant prerequisites, precautions/limitations, and associated attachments in 0-OP-046, CVCS – Boron Concentration Control, have been addressed.

INITIATING CUES:

- VCT level is to be raised to 37%, while maintaining a constant VCT/RCS boron concentration.
- You are directed to perform Section 5.4 (Manual Makeup) of 0-OP-046, using Method 2 (Calculation) from Section III of the Plant Curve Book, to calculate the following parameters:
 - Primary water flow rate: _____ (to the nearest tenth of a gpm)
 - Primary water volume: _____ (to the nearest gallon)
 - Boric acid volume: _____ (to the nearest gallon)
- Based on the available information, determine the potentiometer settings for the following controllers:
 - Boric Acid Flow Controller (FC-4-113A): _____ turns
 - Primary Water Flow Controller (FC-4-114A): _____ turns

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

Admin - JPM RO A1b



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Determine Heatup of the RCS

JPM NUMBER: 01041046101

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01041046100/
Determine Heatup of the RCS

K/A NUMBERS: 2.1.20

K/A VALUE: RO 4.6 / SRO 4.6

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☐ Other: ☒

Lab: ☐

Time for Completion: 30 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	Alan Schilk Instructor/Developer	8/4/16 Date
Reviewed by:	Luis Sagion Instructor (Instructional Review)	8/4/16 Date
Validated by:	Sean Bloom SME (Technical Review)	8/5/16 Date
Approved by:	Mark Wilson Training Supervision	8/4/16 Date
Approved by:	Sean Bloom Training Program Owner	8/5/16 Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

- N/A

Required Materials:

- HANDOUT 3-OSP-041.7, Reactor Coolant System Heatup and Cooldown Temperature Verification
- Technical Specifications
- Calculator

General References:

- 3-OSP-041.7, Reactor Coolant System Heatup and Cooldown Temperature Verification
- Technical Specifications
- Plant Curve Book, Section V, Figure 3D

Task Standards:

- Identify discrepancy in heatup determination and list any subsequent procedural actions and/or Technical Specification actions that apply

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Operators at Unit 3 have just completed an RCS heatup.
- The RCS is stable at 380°F and 499 psig.
- 3-OSP-041.7, Reactor Coolant System Heatup and Cooldown Temperature Verification, is complete through step 4.2.14.
- All relevant data was recorded on Attachment 2, Heatup Data Sheet.

INITIATING CUES:

- You are directed to review the heatup data, complete the remaining procedural steps, and record any discrepancies and required subsequent actions in Section 5.2.
- [SRO only] Record any relevant Technical Specification actions in Section 5.2.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain 3-OSP-041.7, Reactor Coolant System Heatup and Cooldown Temperature Verification.
Evaluator Cue:	Provide examinee with a copy of HANDOUT 3-OSP-041.7.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: No	Review heatup data (Attachment 2) and identify discrepancy.
Standard:	Recognize that the ΔT value for RCS T_{hot} was miscalculated at 1030 (i.e., the actual value is 101°F, rather than 74°F).
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: Yes	Complete remaining procedural steps and record any discrepancies and required subsequent actions in Section 5.2.
Standard:	<p>Per Step 4.1.1, immediately notify the Unit Supervisor and document the condition in Section 5.2:</p> <ul style="list-style-type: none"> • Mark "Acceptance Criteria of Section 6.1" as UNSAT. • Mark "Functional Criteria of Section 6.2" as UNSAT. • In the "Remarks" section, indicate that the heatup rate exceeded the Administrative (<90°F/hour) and Technical Specification (<100°F/hour) limits at 1030. <p>[SRO only] Identify Technical Specification 3.4.9.1, Action a, with the following requirements:</p> <ul style="list-style-type: none"> • Restore the temperature and/or pressure to within the limit within 30 minutes (effectively accomplished). • Perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the RCS. • Determine that the RCS remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the RCS T_{avg} and pressure to less than 200°F and 500 psig, respectively, within the following 30 hours.
Evaluator Cue:	When requested, provide examinee with a copy of the Technical Specifications.
Evaluator Note:	<p>Examinee may base required subsequent actions on Attachment 1:</p> <ul style="list-style-type: none"> • When the Administrative limit is exceeded, immediately reduce the heatup rate (irrelevant at this time) and notify the Shift Manager or Unit Supervisor – ACTION 1. • When the Technical Specification limit is exceeded, immediately reduce the heatup rate (irrelevant at this time), notify the Shift Manager or Unit Supervisor, and take actions required by the Technical Specifications – ACTION 2.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



01041046101, Determine Heatup of the RCS, Rev. 1-0

L-16-1 NRC EXAM SECURE INFORMATION

JPM

Page 9 of 11

Terminating Cue: **When the examinee completes Step 3, state “This completes the JPM.”**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET

INITIAL CONDITIONS:

- Operators at Unit 3 have just completed an RCS heatup.
- The RCS is stable at 380°F and 499 psig.
- 3-OSP-041.7, Reactor Coolant System Heatup and Cooldown Temperature Verification, is complete through step 4.2.14.
- All relevant data was recorded on Attachment 2, Heatup Data Sheet.

INITIATING CUES:

- You are directed to review the heatup data, complete the remaining procedural steps, and record any discrepancies and required subsequent actions in Section 5.2.
- [SRO only] Record any relevant Technical Specification actions in Section 5.2.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

Admin - JPM RO A2



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Review an ECO for the 3A Heater Drain Pump

JPM NUMBER: 01201013104

REV. 0-0

TASK NUMBER(S) / TASK TITLE(S): 01201013100/
Write Equipment Clearance Orders

K/A NUMBERS: 2.2.13

K/A VALUE: RO 4.1 / SRO 4.3

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☒ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐
Simulator: ☐ Other: ☒
Lab: ☐

Time for Completion: 35 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	<u>Alan Schilk</u> Instructor/Developer	<u>8/4/16</u> Date
Reviewed by:	<u>Luis Sagion</u> Instructor (Instructional Review)	<u>8/4/16</u> Date
Validated by:	<u>Sean Bloom</u> SME (Technical Review)	<u>8/5/16</u> Date
Approved by:	<u>Mark Wilson</u> Training Supervision	<u>8/4/16</u> Date
Approved by:	<u>Sean Bloom</u> Training Program Owner	<u>8/5/16</u> Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

- N/A

Required Materials:

- Handout OP-AA-101-1000-F02
- Drawing 5613-M-3081, Sheet 4
- Drawing 5613-M-3008, Sheet 3
- 3-NOP-081, Heater Drain Pumps
- 3-NOP-008, Turbine Plant Cooling Water (Attachment 1)
- 5610-E-855, Breaker List

General References:

- OP-AA-101-1000, Clearance and Tagging
- Drawing 5613-M-3081
- Drawing 5613-M-3008
- 3-NOP-081, Heater Drain Pumps
- 3-NOP-008, Turbine Plant Cooling Water
- 5610-E-855, Breaker List
- 3-GOP-103, Power Operation to Hot Standby

Task Standards:

- Given a prepared ECO, identify any existing errors

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Power at Unit 3 has been reduced to 35%, to support the replacement of a damaged mechanical seal package on the 3A HDP.
- The 3A HDP is secured.
- The 3B HDP remains running.
- The Admin RCO prepared the attached ECO package and submitted it for review.
- The eSOMS database is NOT available for clearance research and preparation.

INITIATING CUES:

1. The Shift Manager directs you to review the ECO package for the 3A HDP.
2. Identify ALL issues with the ECO, if any, on the following page.
3. If NO issues exist, then sign for review completion:

SIGN: _____
Review complete with NO ISSUES Date

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain the completed ECO package.
Evaluator Cue:	Provide examinee with the following: <ul style="list-style-type: none"> • Handout 5613-M-3081 (Sheet 4), Feedwater Heater Drains & Vents System • Handout 5613-M-3008 (Sheet 3), Turbine Plant Cooling Water System • Handout OP-AA-101-1000-F02, Paper Based Tagging Instructions • 3-NOP-081, Heater Drain Pumps • 3-NOP-008, Turbine Plant Cooling Water (Attachment 1)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: Yes	Review ECO package for completeness/correctness and identify any concerns.
Standard:	<p>Determine the following:</p> <ul style="list-style-type: none"> The <u>wrong supply breaker</u> was selected for tagging (3B HDP); correct breaker is 3AA07. Discharge valves must be closed/tagged <u>prior</u> to suction valve (i.e., they are out of order). The <u>wrong valve</u> was selected for TPCW from the HDP seals; correct valve is 3-30-122. Closure of valve 3-30-862 will <u>isolate all HDP flow</u>, which is NOT consistent with (i.e., supportive of) current plant conditions.
Evaluator Note:	Refer to the key; <u>all</u> of the above elements are critical.
Evaluator Cue:	If requested, provide examinee with a copy of 5610-E-855, Breaker List.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When the examinee completes the ECO revision, state "This completes the JPM."

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



01201013104, Review an ECO for the 3A Heater Drain Pump,
Rev. 0-0

DRAFT L-16-1 NRC EXAM SECURE INFORMATION

JPM
Page 10 of 12

Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES
CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

*NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If
unsatisfactory performance is demonstrated, the entire JPM should be retained.*

TURNOVER SHEET**INITIAL CONDITIONS:**

- Power at Unit 3 has been reduced to 35%, to support the replacement of a damaged mechanical seal package on the 3A HDP.
- The 3A HDP is secured.
- The 3B HDP remains running.
- The Admin RCO prepared the attached ECO package and submitted it for review.
- The eSOMS database is NOT available for clearance research and preparation.

INITIATING CUES:

1. The Shift Manager directs you to review the ECO package for the 3A HDP.
2. Identify ALL issues with the ECO, if any, on the following page.
3. If NO issues exist, then sign for review completion:

SIGN: _____
Review complete with NO ISSUES Date

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Identify ALL issues with the ECO, if any.

[illegible]

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

TR-AA-230-1003-F10, Revision 2

L-16-1 NRC Exam

Admin - JPM RO A3



JOB PERFORMANCE MEASURE

JPM

L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Evaluate Conditions for Restart of Refueling Pre-shuffle in the Spent Fuel Pit

JPM NUMBER: 01038034100

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01038034100/
Evaluate Conditions for Restart of Refueling Pre-shuffle in the Spent Fuel Pit

K/A NUMBERS: 2.3.12

K/A VALUE: RO 3.2 / SRO 3.7

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☐ Other: ☒

Lab: ☐

Time for Completion: 20 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	<u>Alan Schilk</u> Instructor/Developer	<u>8/4/16</u> Date
Reviewed by:	<u>Luis Sagion</u> Instructor (Instructional Review)	<u>8/4/16</u> Date
Validated by:	<u>Sean Bloom</u> SME (Technical Review)	<u>8/5/16</u> Date
Approved by:	<u>Mark Wilson</u> Training Supervision	<u>8/4/16</u> Date
Approved by:	<u>Sean Bloom</u> Training Program Owner	<u>8/5/16</u> Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

- N/A

Required Materials:

- 3-NOP-040.03, Fuel Handling and Insert Shuffle in the Spent Fuel Pit
- Technical Specifications

General References:

- 3-NOP-040.03, Fuel Handling and Insert Shuffle in the Spent Fuel Pit
- Technical Specifications

Task Standards:

- Given a set of plant conditions, identify those that will prevent the recommencement of a refueling pre-shuffle

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Refueling pre-shuffle activities in the Unit 3 Spent Fuel Pit were interrupted and a recommencement is desired.
- The following conditions exist in the Spent Fuel Pit:
 - The associated demineralizer is aligned and water clarity is good.
 - Pool level is 56' 8".
 - 3-12-031 (Unit 3 Fuel Transfer Tube Gate Valve) is closed.
 - Boron concentration is 2330 ppm, per the last sample (taken 36 hours ago).
 - The Spent Fuel Pit's ventilation system is fully operational.
 - RAD-3-6418 [Unit 3 SFP Vent Stack Radiation Monitor (SPING)], RI-3-1407B (Unit 3 SFP Transfer Canal Radiation Indicator), and RI-3-1421B (Unit 3 SFP North Area Radiation Indicator) are operable and in operation.
 - RI-3-1419B (Unit 3 SFP Exhaust Duct Radiation Indicator) is OOS; a non-alarming portable monitor has been substituted in its place.
 - A Radiation Protection technician is present.
 - An FME Monitor has been contacted and is in route to the Spent Fuel Pit.
 - All three communications systems are functional.
- E-16C/E-17C (Control Room Ventilation Air Handling Unit C/Condensing Unit C) are OOS.

INITIATING CUE:

- The Shift Manager directs you to perform Step 4.2.1.20 of 3-NOP-040.03 (Fuel Handling and Insert Shuffle in the Spent Fuel Pit), determine whether refueling pre-shuffle activities may recommence, and document any discrepancies.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.



JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain a copy of 3-NOP-040.03, Fuel Handling and Insert Shuffle in the Spent Fuel Pit.
Evaluator Cue:	Provide examinee with a copy of 3-NOP-040.03, Fuel Handling and Insert Shuffle in the Spent Fuel Pit.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**01038034100, Evaluate Conditions for Restart of Refueling
Pre-shuffle in the Spent Fuel Pit, Rev. 1-0**
L-16-1 NRC EXAM SECURE INFORMATION

JPM
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Performance Step: 2 Critical: No	3-NOP-040.03, Step 4.2.1.20: IF fuel movement is stopped, THEN PERFORM Attachment 2, Restart Minimum Equipment Checklist, prior to restart.
Standard:	Transition to Attachment 2.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: No	3-NOP-040.03, Attachment 2: Spent Fuel Pit Ventilation System – OPERABLE
Standard:	Recognize that the ventilation system is fully operational and initial the table.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 4 Critical: Yes	3-NOP-040.03, Attachment 2: Spent Fuel Pit Level – 57' 0"
Standard:	Recognize that the pool level does NOT meet the minimum level requirement and document this as a reason for NOT restarting the fuel shuffle.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical: No	3-NOP-040.03, Attachment 2: Spent Fuel Pit Water surface and subsurface is clear enough to allow good visibility during refueling operations – CLEAR
Standard:	Recognize that the pool's water clarity is satisfactory and initial the table.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 6 Critical: No	3-NOP-040.03, Attachment 2: Spent Fuel Pool Demin aligned to SFP – In service
Standard:	Recognize that the demineralization system is fully operational and initial the table.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical: Yes	3-NOP-040.03, Attachment 2: RI-3-1407B, RI-3-1419B, and RI-3-1421 Remote/Local Indications and Alarms – OPERABLE (Remarks: IF area monitor is NOT operable, THEN INSTALL a portable monitor with an alarm.)
Standard:	Recognize that RI-3-1419B is OOS and a <u>non-alarming</u> portable monitor has been substituted, which does NOT meet the minimum requirement; document this as a reason for NOT restarting the fuel shuffle.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**01038034100, Evaluate Conditions for Restart of Refueling
Pre-shuffle in the Spent Fuel Pit, Rev. 1-0**
L-16-1 NRC EXAM SECURE INFORMATION

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Performance Step: 8 Critical: No	3-NOP-040.03, Attachment 2: Spent Fuel Pit Boron Concentration – Greater than or equal to 2300 ppm
Standard:	Recognize that the most recent boron concentration is satisfactory and initial the table.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 9 Critical: No	3-NOP-040.03, Attachment 2: Spent Fuel Storage Pool Area High Gaseous Radioactivity Monitor – OPERABLE
Standard:	Recognize that RAD-3-6418 (SPING) is in operation and initial the table.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 10 Critical: No	3-NOP-040.03, Attachment 2: Communication Headsets/other reliable communication system - Control Room to SFP – CONTINUOUS
Standard:	Recognize that communications are sufficient and initial the table.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 11 Critical: No	3-NOP-040.03, Attachment 2: RP Coverage – CONTINUOUS
Standard:	Recognize that a Radiation Protection technician is present and initial the table.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 13 Critical: Yes	3-NOP-040.03, Attachment 2: FME Monitor – CONTINUOUS
Standard:	Recognize that an FME Monitor is NOT present and document this as a reason for NOT restarting the fuel shuffle.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 14 Critical: Yes	3-NOP-040.03, Attachment 2: Control Room Emergency Ventilation System – OPERABLE
Standard:	Recognize that E-16C is OOS, which does NOT meet the minimum Technical Specification requirement of three Control Room air-handling units; document this as a reason for NOT restarting the fuel shuffle.
Evaluator Cue:	Provide examinee with a copy of the Technical Specifications, if requested.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When the examinee completes the attachment, state “This completes the JPM.”

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



01038034100, Evaluate Conditions for Restart of Refueling
Pre-shuffle in the Spent Fuel Pit, Rev. 1-0
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Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES
CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

*NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If
unsatisfactory performance is demonstrated, the entire JPM should be retained.*

TURNOVER SHEET

INITIAL CONDITIONS:

- Refueling pre-shuffle activities in the Unit 3 Spent Fuel Pit were interrupted and a recommencement is desired.
- The following conditions exist in the Spent Fuel Pit:
 - The associated demineralizer is aligned and water clarity is good.
 - Pool level is 56' 8".
 - 3-12-031 (Unit 3 Fuel Transfer Tube Gate Valve) is closed.
 - Boron concentration is 2330 ppm, per the last sample (taken 36 hours ago).
 - The Spent Fuel Pit's ventilation system is fully operational.
 - RAD-3-6418 [Unit 3 SFP Vent Stack Radiation Monitor (SPING)], RI-3-1407B (Unit 3 SFP Transfer Canal Radiation Indicator), and RI-3-1421B (Unit 3 SFP North Area Radiation Indicator) are operable and in operation.
 - RI-3-1419B (Unit 3 SFP Exhaust Duct Radiation Indicator) is OOS; a non-alarming portable monitor has been substituted in its place.
 - A Radiation Protection technician is present.
 - An FME Monitor has been contacted and is in route to the Spent Fuel Pit.
 - All three communications systems are functional.
- E-16C/E-17C (Control Room Ventilation Air Handling Unit C/Condensing Unit C) are OOS.

INITIATING CUE:

- The Shift Manager directs you to perform Step 4.2.1.20 of 3-NOP-040.03 (Fuel Handling and Insert Shuffle in the Spent Fuel Pit), determine whether refueling pre-shuffle activities may recommence, and document any discrepancies.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.



JOB PERFORMANCE MEASURE
L-16-1 NRC EXAM SECURE INFORMATION

JPM

JPM TITLE: Calculate a Manual Makeup to the VCT

JPM NUMBER: 01046046101

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01046046100/
Calculate a Manual Makeup to the VCT

K/A NUMBERS: 2.1.25

K/A VALUE: RO 3.9 / SRO 4.2

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

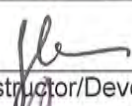
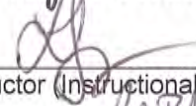
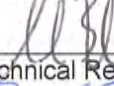
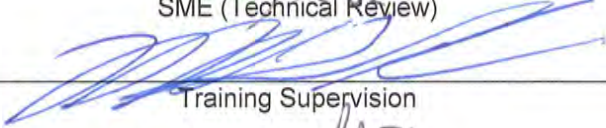
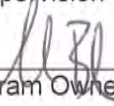
APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐
Simulator: ☐ Other: ☒
Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:		8/4/16
	Instructor/Developer	Date
Reviewed by:		8/4/16
	Instructor (Instructional Review)	Date
Validated by:		8/5/16
	SME (Technical Review)	Date
Approved by:		8/4/16
	Training Supervision	Date
Approved by:		8/5/16
	Training Program Owner	Date



JOB PERFORMANCE MEASURE
L-16-1 NRC EXAM SECURE INFORMATION

JPM

JPM TITLE: Determine Heatup of the RCS

JPM NUMBER: 01041046101

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01041046100/
Determine Heatup of the RCS

K/A NUMBERS: 2.1.20

K/A VALUE: RO 4.6 / SRO 4.6

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

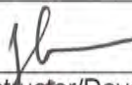
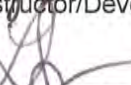
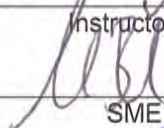
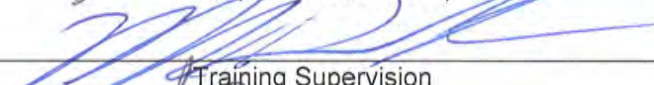
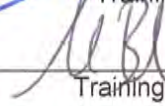
APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐
Simulator: ☐ Other: ☒
Lab: ☐

Time for Completion: 30 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:		8/4/16
	Instructor/Developer	Date
Reviewed by:		8/4/16
	Instructor (Instructional Review)	Date
Validated by:		8/5/16
	SME (Technical Review)	Date
Approved by:		8/4/16
	Training Supervision	Date
Approved by:		8/5/16
	Training Program Owner	Date



JOB PERFORMANCE MEASURE

JPM

DRAFT L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Review an ECO for the 3A Heater Drain Pump

JPM NUMBER: 01201013104

REV. 0-0

TASK NUMBER(S) / TASK TITLE(S): 01201013100/
Write Equipment Clearance Orders

K/A NUMBERS: 2.2.13

K/A VALUE: RO 4.1 / SRO 4.3

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐
Simulator: ☐ Other: ☒
Lab: ☐

Time for Completion: 35 Minutes **Time Critical:** No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	<u>Alan Schilk</u> Instructor/Developer	<u>8/4/16</u> Date
Reviewed by:	<u>[Signature]</u> Instructor (Instructional Review)	<u>8/4/16</u> Date
Validated by:	<u>[Signature]</u> SME (Technical Review)	<u>8/5/16</u> Date
Approved by:	<u>[Signature]</u> Training Supervision	<u>8/4/16</u> Date
Approved by:	<u>[Signature]</u> Training Program Owner	<u>8/5/16</u> Date



JOB PERFORMANCE MEASURE

L-16-1 NRC EXAM SECURE INFORMATION

JPM

JPM TITLE: Evaluate Conditions for Restart of Refueling Pre-shuffle in the Spent Fuel Pit

JPM NUMBER: 01038034100

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01038034100/
Evaluate Conditions for Restart of Refueling Pre-shuffle in the Spent Fuel Pit

K/A NUMBERS: 2.3.12

K/A VALUE: RO 3.2 / SRO 3.7

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐
Simulator: ☐ Other: ☒
Lab: ☐

Time for Completion: 20 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:		8/4/16
	Instructor/Developer	Date
Reviewed by:		8/4/16
	Instructor (Instructional Review)	Date
Validated by:		8/5/16
	SME (Technical Review)	Date
Approved by:		8/4/16
	Training Supervision	Date
Approved by:		8/5/16
	Training Program Owner	Date

L-16-1 NRC Exam

Admin - JPM SRO A1a



JOB PERFORMANCE MEASURE

L-16-1 NRC EXAM SECURE INFORMATION

JPM
Page 2 of 13

JPM TITLE: Calculate a Manual Makeup to the VCT

JPM NUMBER: 01046046101

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01046046100/
Calculate a Manual Makeup to the VCT

K/A NUMBERS: 2.1.25

K/A VALUE: RO 3.9 / SRO 4.2

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☐ Other: ☒

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	<u>Alan Schilk</u> Instructor/Developer	<u>8/5/16</u> Date
Reviewed by:	<u>Luis Sagion</u> Instructor (Instructional Review)	<u>8/5/16</u> Date
Validated by:	<u>Sean Bloom</u> SME (Technical Review)	<u>8/5/16</u> Date
Approved by:	<u>Mark Wilson</u> Training Supervision	<u>8/5/16</u> Date
Approved by:	<u>Sean Bloom</u> Training Program Owner	<u>8/5/16</u> Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

- N/A

Required Materials:

- 0-OP-046, CVCS – Boron Concentration Control
- Plant Curve Book, Section III
- Calculator

General References:

- 0-OP-046, CVCS – Boron Concentration Control
- Plant Curve Book, Section III

Task Standards:

- Calculate the boric acid and primary water flow rates, volumes, and controller settings as required to makeup to the VCT, using Method 2 of the Plant Curve Book (Section III)

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Unit 4 is at 100% steady-state power.
- VCT level is 20%.
- Boron concentrations in the RCS and BAST are 874 ppm and 5687 ppm, respectively.
- A manual makeup to the VCT is to be performed, with a desired boric acid flow rate of 11.0 gpm.
- All relevant prerequisites, precautions/limitations, and associated attachments in 0-OP-046, CVCS – Boron Concentration Control, have been addressed.

INITIATING CUES:

- VCT level is to be raised to 37%, while maintaining a constant VCT/RCS boron concentration.
- You are directed to perform Section 5.4 (Manual Makeup) of 0-OP-046, using Method 2 (Calculation) from Section III of the Plant Curve Book, to calculate the following parameters:
 - Primary water flow rate: _____ (to the nearest tenth of a gpm)
 - Primary water volume: _____ (to the nearest gallon)
 - Boric acid volume: _____ (to the nearest gallon)
- Based on the available information, determine the potentiometer settings for the following controllers:
 - Boric Acid Flow Controller (FC-4-113A): _____
 - Primary Water Flow Controller (FC-4-114A): _____

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain 0-OP-046, CVCS – Boron Concentration Control.
Evaluator Cue:	Provide examinee with a copy of 0-OP-046, CVCS – Boron Concentration Control.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: No	0-OP-046, Step 5.4.1.1: Applicable Prerequisites in Section 3.0 are satisfied.
Standard:	Recognize, from the Initial Conditions, that all relevant prerequisites have been addressed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: No	<p>0-OP-046, prior to Step 5.4.2.1:</p> <p style="text-align: center;"><u>CAUTION</u></p> <p><i>Instrument uncertainties for the Boric Acid and Primary Water flow transmitters can result in the actual amount of Boric Acid or Primary Water added to be either more or less than the amount calculated. Thus, care is needed to ensure that excessive reduction in RCS boron concentration does NOT occur due to the uncertainties.</i></p> <p style="text-align: center;"><u>NOTE</u></p> <p><i>VCT level is 14.15 gallons per percent level indication.</i></p>
Standard:	Read CAUTION/NOTE and recognize that it is safe to proceed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical: No	<p>0-OP-046, Step 5.4.2.1:</p> <p>Determine the approximate boric acid and primary water flows and volumes needed to obtain the desired blend concentration from the boron change tables in Section III of the Plant Curve Book. The primary water flow rate should be determined in order to ensure all primary water is injected prior to completion of the manual make-up.</p>
Standard:	Obtain Section III of the Plant Curve Book and locate Figure 4 (Blended Flow), Method 2 (Calculation).
Evaluator Cue:	Provide examinee with a copy of Section III of the Plant Curve Book.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical: Yes	Determine the appropriate primary water flow needed to obtain the desired blend, using the blended flow calculation in Section III of the Plant Curve Book.
Standard:	Determine the primary water flow rate and record the value on the Turnover Sheet. <ul style="list-style-type: none"> Primary water flow rate: <u>60.6 gpm</u> (59.6 to 61.6 gpm)
Evaluator Note:	<ul style="list-style-type: none"> From Section III of Plant Curve Book: <ul style="list-style-type: none"> $\text{Boron}_{\text{ppm}} = (\text{Acid}_{\text{gpm}})(\text{BAST}_{\text{ppm}})/(\text{Acid}_{\text{gpm}} + \text{Water}_{\text{gpm}})$, where $\text{Boron}_{\text{ppm}}$ is the desired blended boron concentration Therefore, $\text{Water}_{\text{gpm}} = [(\text{Acid}_{\text{gpm}})(\text{BAST}_{\text{ppm}})/(\text{Boron}_{\text{ppm}})] - (\text{Acid}_{\text{gpm}})$: <ul style="list-style-type: none"> $\text{Water}_{\text{gpm}} = [(11.0)(5687)/(874)] - (11.0) = \underline{60.6 \text{ gpm}}$
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical: Yes	Determine the appropriate boric acid and primary water volumes and to raise VCT level from 20% to 37%.
Standard:	<p>Determine the required boric acid and primary water volumes and record the values on Turnover Sheet.</p> <ul style="list-style-type: none"> Primary water volume: <u>204 gallons</u> (±6%; 192 to 216 gallons) Boric acid volume: <u>37 gallons</u> (±6%; 35 to 39 gallons)
Evaluator Note:	<ul style="list-style-type: none"> From NOTE prior to Step 5.4.2.1 of 0-OP-046 (i.e., 14.15 gallons/%): <ul style="list-style-type: none"> $(37\% - 20\%)(14.15 \text{ gallons/\%}) = 240.55 \text{ gallons}$ Therefore, with 11.0 gpm of boric acid and 60.6 gpm of primary water: <ul style="list-style-type: none"> $(240.55 \text{ gallons})[(11.0)/(11.0 + 60.6)] = \underline{37.0 \text{ gallons of boric acid}}$ $(240.55 \text{ gallons})[(60.6)/(11.0 + 60.6)] = \underline{203.6 \text{ gallons of primary water}}$ Various methods may be used to determine the fluid volumes Answer bands are based on potential rounding error (e.g., 14.15 gallons/% rounded up to 15 gallons/% would yield 216 gallons of primary water)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical: Yes	Based on the available information, determine the potentiometer settings for the following controllers: <ul style="list-style-type: none"> Boric Acid Flow Controller (FC-3-113A) Primary Water Flow Controller (FC-3-114A)
Standard:	Determine the associated potentiometer settings and record the values on Turnover Sheet. <ul style="list-style-type: none"> Boric Acid Flow Controller (FC-4-113A): <u>2.2</u> (2.0 to 2.4) Primary Water Flow Controller (FC-4-114A): <u>4.0</u> (3.8 to 4.2)
Evaluator Note:	<ul style="list-style-type: none"> From Step 4.23 of 0-OP-046 (ratio of 5 gpm to 1; i.e., 50 gpm maximum), a boric acid flow rate of 11.0 gpm is equivalent to a controller setting of <u>2.2</u> on the ten-turn potentiometer. From Step 4.24 of 0-OP-046 (ratio of 15 gpm to 1; i.e., 150 gpm maximum), a primary water flow rate of 60.6 gpm is equivalent to a controller setting of <u>4.0</u> on the ten-turn potentiometer.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When the examinee completes Step 7, state “This completes the JPM.”

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 4 is at 100% steady-state power.
- VCT level is 20%.
- Boron concentrations in the RCS and BAST are 874 ppm and 5687 ppm, respectively.
- A manual makeup to the VCT is to be performed, with a desired boric acid flow rate of 11.0 gpm.
- All relevant prerequisites, precautions/limitations, and associated attachments in 0-OP-046, CVCS – Boron Concentration Control, have been addressed.

INITIATING CUES:

- VCT level is to be raised to 37%, while maintaining a constant VCT/RCS boron concentration.
- You are directed to perform Section 5.4 (Manual Makeup) of 0-OP-046, using Method 2 (Calculation) from Section III of the Plant Curve Book, to calculate the following parameters:
 - Primary water flow rate: _____ (to the nearest tenth of a gpm)
 - Primary water volume: _____ (to the nearest gallon)
 - Boric acid volume: _____ (to the nearest gallon)
- Based on the available information, determine the potentiometer settings for the following controllers:
 - Boric Acid Flow Controller (FC-4-113A): _____
 - Primary Water Flow Controller (FC-4-114A): _____

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

Admin - JPM SRO A1b



JOB PERFORMANCE MEASURE

L-16-1 NRC EXAM SECURE INFORMATION

JPM
Page 2 of 11

JPM TITLE: Determine Heatup of the RCS

JPM NUMBER: 01041046101

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01041046100/
Determine Heatup of the RCS

K/A NUMBERS: 2.1.20

K/A VALUE: RO 4.6 / SRO 4.6

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☐ Other: ☒

Lab: ☐

Time for Completion: 30 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	<u>Alan Schilk</u> Instructor/Developer	<u>8/4/16</u> Date
Reviewed by:	<u>Luis Sagion</u> Instructor (Instructional Review)	<u>8/4/16</u> Date
Validated by:	<u>Sean Bloom</u> SME (Technical Review)	<u>8/5/16</u> Date
Approved by:	<u>Mark Wilson</u> Training Supervision	<u>8/4/16</u> Date
Approved by:	<u>Sean Bloom</u> Training Program Owner	<u>8/5/16</u> Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

- N/A

Required Materials:

- HANDOUT 3-OSP-041.7
- Technical Specifications
- Calculator

General References:

- 3-OSP-041.7, Reactor Coolant System Heatup and Cooldown Temperature Verification
- Technical Specifications
- Plant Curve Book, Section V, Figure 3D

Task Standards:

- Identify discrepancy in heatup determination and list any subsequent procedural actions and/or Technical Specification actions that apply

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Operators at Unit 3 have just completed an RCS heatup.
- The RCS is stable at 380°F and 499 psig.
- 3-OSP-041.7, Reactor Coolant System Heatup and Cooldown Temperature Verification, is complete through step 4.2.14.
- All relevant data was recorded on Attachment 2, Heatup Data Sheet.

INITIATING CUES:

- You are directed to review the heatup data, complete the remaining procedural steps, and record any discrepancies and required subsequent actions in Section 5.2.
- [SRO only] Record any relevant Technical Specification actions in Section 5.2.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain 3-OSP-041.7, Reactor Coolant System Heatup and Cooldown Temperature Verification.
Evaluator Cue:	Provide examinee with a copy of HANDOUT 3-OSP-041.7.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: No	Review heatup data (Attachment 2) and identify discrepancy.
Standard:	Recognize that the ΔT value for RCS T_{hot} was miscalculated at 1030 (i.e., the actual value is 101°F, rather than 74°F).
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: Yes	Complete remaining procedural steps and record any discrepancies and required subsequent actions in Section 5.2.
Standard:	<p>Per Step 4.1.1, immediately notify the Unit Supervisor and document the condition in Section 5.2:</p> <ul style="list-style-type: none"> Mark "Acceptance Criteria of Section 6.1" as UNSAT. Mark "Functional Criteria of Section 6.2" as UNSAT. In the "Remarks" section, indicate that the heatup rate exceeded the Administrative (<90°F/hour) and Technical Specification (<100°F/hour) limits at 1030. <p>[SRO only] Identify Technical Specification 3.4.9.1, Action a, with the following requirements:</p> <ul style="list-style-type: none"> Restore the temperature and/or pressure to within the limit within 30 minutes (effectively accomplished). Perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the RCS. Determine that the RCS remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the RCS T_{avg} and pressure to less than 200°F and 500 psig, respectively, within the following 30 hours.
Evaluator Cue:	When requested, provide examinee with a copy of the Technical Specifications.
Evaluator Note:	<p>Examinee may base required subsequent actions on Attachment 1:</p> <ul style="list-style-type: none"> When the Administrative limit is exceeded, immediately reduce the heatup rate (irrelevant at this time) and notify the Shift Manager or Unit Supervisor – ACTION 1. When the Technical Specification limit is exceeded, immediately reduce the heatup rate (irrelevant at this time), notify the Shift Manager or Unit Supervisor, and take actions required by the Technical Specifications – ACTION 2.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



01041046101, Determine Heatup of the RCS, Rev. 1-0

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JPM

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Terminating Cue: **When the examinee completes Step 3, state “This completes the JPM.”**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET

INITIAL CONDITIONS:

- Operators at Unit 3 have just completed an RCS heatup.
- The RCS is stable at 380°F and 499 psig.
- 3-OSP-041.7, Reactor Coolant System Heatup and Cooldown Temperature Verification, is complete through step 4.2.14.
- All relevant data was recorded on Attachment 2, Heatup Data Sheet.

INITIATING CUES:

- You are directed to review the heatup data, complete the remaining procedural steps, and record any discrepancies and required subsequent actions in Section 5.2.
- [SRO only] Record any relevant Technical Specification actions in Section 5.2.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

Admin - JPM SRO A2



JOB PERFORMANCE MEASURE

L-16-1 NRC EXAM SECURE INFORMATION

JPM
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JPM TITLE: Evaluate Technical Specification Conditions While Performing a Valve Operability Test

JPM NUMBER: 02051013101

REV. 1-2

TASK NUMBER(S) / TASK TITLE(S): 02051013100 /
Verify/Set Containment Integrity

K/A NUMBERS: 2.2.40

K/A VALUE: RO 3.4 / SRO 4.7

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☐ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☐ Other: ☒

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	<u>Alan Schilk</u> Instructor/Developer	<u>8/4/16</u> Date
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Reviewed by:	<u>Luis Sagion</u> Instructor (Instructional Review)	<u>8/4/16</u> Date
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Validated by:	<u>Sean Bloom</u> SME (Technical Review)	<u>8/5/16</u> Date
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Approved by:	<u>Mark Wilson</u> Training Supervision	<u>8/4/16</u> Date
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Approved by:	<u>Sean Bloom</u> Training Program Owner	<u>8/5/16</u> Date
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JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A



02051013101, Evaluate TS Conditions While Performing a Valve Operability Test, Rev. 1-2
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UPDATE LOG: Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER	DATE
				SUPERVISOR	DATE
1-0	Updated to fleet template; text/grammar changes	2015 LOCT Annual Exam	N/A	N/A	N/A
				N/A	N/A
1-1	Typos on cover page	Editorial	N/A	Hodge	8/27/15
				Wilson	8/27/15
1-2	Formatting; text/grammar changes	L-16-1 NRC Exam	N/A	N/A	N/A
				N/A	N/A

SIMULATOR SET-UP:

- N/A

Required Materials:

- HANDOUT 4-OSP-047.1E, Letdown Line Isolation Valve Test
- Technical Specifications

General References:

- 4-OSP-047.1E, Letdown Line Isolation Valve Test
- Technical Specifications
- 5614-M-3047, Sheets 1 and 2

Task Standards:

- Determine required Technical Specification actions for accident monitoring instrumentation



02051013101, Evaluate TS Conditions While Performing a Valve Operability Test, Rev. 1-2

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JPM
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JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain 4-OSP-047.1E, Letdown Line Isolation Valve Test.
Evaluator Cue:	Provide examinee with a copy of HANDOUT 4-OSP-047.1E, Letdown Line Isolation Valve Test.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: No	Review Technical Specification 3.3.2, Engineered Safety Features Actuation System Instrumentation, and identify any required actions.
Standard:	<ul style="list-style-type: none"> Review Technical Specification 3.3.2 and Table 3.3-2 (Functional Unit 3a, Phase A Isolation). Recognize that the manual and automatic actuation capabilities are NOT impacted and <u>no actions are required</u>.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: Yes	Review Technical Specification 3.3.3.3, Accident Monitoring Instrumentation, and identify any required actions.
Standard:	<ul style="list-style-type: none"> Review Technical Specification 3.3.3.3 and Table 3.3-5 (Instrument 22). Recognize that the valve-position-indication requirement for CV-4-200A is NOT met and <u>action 39 applies</u>. <ul style="list-style-type: none"> With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, verify position by an alternate means (e.g. administrative controls, ERDADS, alternate position indication, or visual observation) within 2 hours, and restore the inoperable channel(s) within 7 days, or comply with the provisions of Specification 3.6.4 for an inoperable containment isolation valve.
Evaluator Note:	Examinee may summarize the above requirement on the Turnover Sheet or simply identify the appropriate action by number.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical: Yes	Review Technical Specification 3.6.4, Containment Isolation Valves, and identify any required actions.
Standard:	<ul style="list-style-type: none"> Review Technical Specification 3.6.4 and recognize that, if the valve-position indications for CV-4-200A are NOT restored within 7 days, the <u>valve must be declared inoperable</u> and <u>actions a through d apply</u>. <ul style="list-style-type: none"> With one or more isolation valves inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and either: <ol style="list-style-type: none"> Restore the inoperable valve(s) to OPERABLE status within 4 hours, or Isolate each affected penetration within 4 hours by use of at least one deactivated automatic containment isolation valve secured in the isolation position, or Isolate each affected penetration within 4 hours by use of at least one closed manual valve or blind flange, or Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
Evaluator Cue:	If examinee indicates that Technical Specification 3.6.4 does NOT apply <u>at this time</u> (i.e., within 7 days), inform examinee that repairs are expected to take more than one week.
Evaluator Note:	Examinee may summarize the above requirement on the Turnover Sheet or simply identify the appropriate actions by letter.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When the examinee completes Step 4, state “This completes the JPM.”

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

**EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES
CLEANED, AS APPROPRIATE.**

EVALUATOR'S SIGNATURE: _____

*NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If
unsatisfactory performance is demonstrated, the entire JPM should be retained.*

L-16-1 NRC Exam

Admin - JPM SRO A3



JOB PERFORMANCE MEASURE

L-16-1 NRC EXAM SECURE INFORMATION

JPM
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JPM TITLE: Authorize Emergency Exposure Limits

JPM NUMBER: 02200010501

REV. 0-1

TASK NUMBER(S) / 02200010500/
TASK TITLE(S): Direct Emergency Response as the Emergency Coordinator

K/A NUMBERS: 2.3.4

K/A VALUE: RO 3.2 / SRO 3.7

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☐ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☐ Other: ☒

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	<u>Alan Schilk</u> Instructor/Developer	<u>8/4/16</u> Date
Reviewed by:	<u>Luis Sagion</u> Instructor (Instructional Review)	<u>8/4/16</u> Date
Validated by:	<u>Sean Bloom</u> SME (Technical Review)	<u>8/5/16</u> Date
Approved by:	<u>Mark Wilson</u> Training Supervision	<u>8/4/16</u> Date
Approved by:	<u>Sean Bloom</u> Training Program Owner	<u>8/5/16</u> Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

- N/A

Required Materials:

- 0-EPIP-20101, Duties of the Emergency Coordinator
- 0-EPIP-20111, Re-Entry
- Technical Specifications

General References:

- 0-EPIP-20101, Duties of the Emergency Coordinator
- 0-EPIP-20111, Re-Entry
- Technical Specifications

Task Standards:

- Given a set of plant conditions and available personnel, select appropriate individuals to serve as rescue team members and elect to issue them potassium iodide

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Operators at Unit 3 were performing a plant shutdown due to elevated RCS activity (failed fuel), when a LOCA occurred outside of containment.
- A General Emergency was declared and an Owner Controlled Area evacuation was initiated in accordance with Section 5.8 of O-EPIP-20101, Duties of the Emergency Coordinator.
- An RP technician reports that there is an unconscious operator in the Pipe and Valve Room with a life-threatening injury; the rescue will require two individuals and is expected to take 10 minutes.
- The average dose rate in the Pipe and Valve Room is 25 rem/hour; the highest local dose rate near the injured operator is 40 rem/hour.
- The TSC has NOT been activated.

INITIATING CUE:

- As the Emergency Coordinator, you are required to select the two most appropriate individuals from the list of available Rescue Team members and determine whether they should be issued potassium iodide.
 - Selected Rescue Team members: _____
 - Issue potassium iodide? Yes _____ No _____

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	<ul style="list-style-type: none"> Obtain copies of 0-EPIP-20111, Re-Entry, and 0-EPIP-20101, Duties of the Emergency Coordinator. Obtain the list of available Rescue Team members.
Evaluator Cue:	Provide examinee with copies of 0-EPIP-20101, Duties of the Emergency Coordinator; 0-EPIP-20111, Re-Entry; and the list of available Rescue Team members.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: No	Determine whether the rescuers could receive radiation exposures in excess of the regulatory limit (5 rem/year).
Standard:	Recognize that the rescuers may receive radiation exposures in excess of the regulatory limit.
Evaluator Note:	<p>"Average" potential dose: (25 rem/hour)(10 minutes)(1 hour/60 minutes) = <u>4.2 rem per individual</u> (i.e., <u>less</u> than the annual regulatory limit)</p> <p>"Maximum" potential dose: (40 rem/hour)(10 minutes)(1 hour/60 minutes) = <u>6.7 rem per individual</u> (i.e., <u>greater</u> than the annual regulatory limit)</p> <p>From 0-EPIP-20101, Step 3.1.4: The Emergency Coordinator shall authorize any radiation exposures in excess of regulatory limits. This authorization should be in accordance with 0-EPIP-20111, Re-Entry.</p>
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: Yes	Exclude individuals as Rescue Team members, based on volunteer and declared-pregnancy status.
Standard:	<ul style="list-style-type: none"> Exclude member #1, who has chosen NOT to volunteer. Exclude member #5, who is a declared pregnant adult.
Evaluator Note:	<ul style="list-style-type: none"> This and the following steps may be performed in <u>any</u> order. <u>From 0-EPIP-20101, Step 3.1.5:</u> The Emergency Coordinator shall authorize personnel exposures in excess of regulatory limits only for volunteers who are familiar with the risks involved and the tasks to be performed. Declared pregnant adults should not be used as on-site emergency workers. <u>From 0-EPIP-20111, Step 5.1.1.1:</u> Re-entry personnel that have been authorized to exceed regulatory exposure limits should be volunteers, familiar with the risks involved (radiosensitivity of fetuses, effects of acute exposures, etc.), and whose normal duties have trained them for such missions. <u>From 0-EPIP-20111, Step 5.1.1.2:</u> Declared pregnant adults should not be used as on-site emergency workers.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical: Yes	Exclude individuals as Rescue Team members, based on age/youth.
Standard:	Exclude members #3 and #7, who are NOT over 45 years old.
Evaluator Note:	<u>From 0-EPIP-20111, Enclosure 1, Page 1:</u> Rescue of persons from a life-threatening situation (Volunteers should be above the age of 45).
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical: Yes	Determine that the rescuers could receive thyroid exposures as high as 5 rem and exclude individuals as Rescue Team members, based on iodine sensitivity.
Standard:	<ul style="list-style-type: none"> Recognize that the rescuers could receive thyroid exposures (CDEs) of ≥ 5 rem, which warrants the issuance of potassium iodide. Exclude member #8, who has an iodide/iodine sensitivity.
Evaluator Note:	<ul style="list-style-type: none"> From 0-EPIP-20101, Step 3.1.6, and 0-EPIP-20111, Enclosure 1, <u>Item 1</u>: The Emergency Coordinator shall authorize the issuance of Potassium Iodide (KI) to emergency workers...based on a thyroid CDE of greater than or equal to 5 rem actual or estimated. From 0-EPIP-20111, Enclosure 1, <u>Item 9</u>: Caution emergency response personnel of potential KI side effects if they are allergic to iodide. Emergency response personnel who know they have such allergies should be replaced in lieu of directing them to ingest KI. KI should NOT be given to individuals with known iodine sensitivity.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical: Yes	Exclude individuals as Rescue Team members, based on staffing requirements.
Standard:	Exclude member #6, based on the Technical Specification requirements for minimum shift crew composition.
Evaluator Cue:	If requested, provide examinee with a copy of the Technical Specifications.
Evaluator Note:	From Technical Specifications, Table 6.2-1: An STA is required to meet the minimum shift crew composition, as long as at least one unit is in Mode 1, 2, 3, or 4.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical: Yes	Identify selected Rescue Team members and the need to issue potassium iodide to same.
Standard:	<ul style="list-style-type: none"> Identify <u>team members #2 and #4</u> for rescue efforts. Recognize the need to <u>issue potassium iodide</u> to the rescuers.
Evaluator Note:	From 0-EPIP-20101, Step 3.1.6, and 0-EPIP-20111, Enclosure 1, Item 1: The Emergency Coordinator shall authorize the issuance of Potassium Iodide (KI) to emergency workers...based on a thyroid CDE of greater than or equal to 5 rem actual or estimated.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



02200010501, Authorize Emergency Exposure Limits, Rev. 0-1

L-16-1 NRC EXAM SECURE INFORMATION

JPM

Page 12 of 15

Terminating Cue: **When the examinee completes Step 7, state “This completes the JPM.”**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET

INITIAL CONDITIONS:

- Operators at Unit 3 were performing a plant shutdown due to elevated RCS activity (failed fuel), when a LOCA occurred outside of containment.
- A General Emergency was declared and an Owner Controlled Area evacuation was initiated in accordance with Section 5.8 of O-EPIP-20101, Duties of the Emergency Coordinator.
- An RP technician reports that there is an unconscious operator in the Pipe and Valve Room with a life-threatening injury; the rescue will require two individuals and is expected to take 10 minutes.
- The average dose rate in the Pipe and Valve Room is 25 rem/hour; the highest local dose rate near the injured operator is 40 rem/hour.
- The TSC has NOT been activated.

INITIATING CUE:

- As the Emergency Coordinator, you are required to select the two most appropriate individuals from the list of available Rescue Team members and determine whether they should be issued potassium iodide.
 - Selected Rescue Team members: _____
 - Issue potassium iodide? Yes _____ No _____

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

TURNOVER SHEET ADDENDUM**List of Available Rescue Team Members**

1. Non-Licensed Operator, 49-year-old male, fair physical condition, prefers not to volunteer, lifetime exposure of 5.2 rem.
2. Reactor Engineer, 48-year-old female, good physical condition, volunteer, lifetime exposure of 400 mrem.
3. Maintenance Technician, 43-year-old male, fair physical condition, volunteer, lifetime exposure of 35.4 rem.
4. Licensed Operator (no current Control Room duties), 52-year-old male, fair physical condition, volunteer, lifetime exposure of 1.4 rem.
5. Security Supervisor, 32-year-old female, good physical condition, declared pregnant adult, volunteer, lifetime exposure of 65 mrem.
6. Shift Technical Advisor (the only qualified STA on shift), 46-year-old female, good physical condition, volunteer, lifetime exposure of 120 mrem.
7. Licensed Operator (current BOP operator), 34-year-old male, good physical condition, volunteer, lifetime exposure of 1.7 rem.
8. Security Officer, 47-year-old male, good physical condition, iodine sensitivity, volunteer, lifetime exposure of 287 mrem.

NOTE: Ensure the addendum sheet is returned to the evaluator when the JPM is complete.

L-16-1 NRC Exam

Admin - JPM SRO A4



JOB PERFORMANCE MEASURE

L-16-1 NRC EXAM SECURE INFORMATION

JPM
Page 2 of 11

JPM TITLE: Classify Event and Fill Out SNF

JPM NUMBER: 02201052320

REV. 1-0

TASK NUMBER(S) / 02201052300/
TASK TITLE(S): Classify Significant Events

K/A NUMBERS: 2.4.41

K/A VALUE: RO 2.9 / SRO 4.6

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☐ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☐ Other: ☒

Lab: ☐

Time for Completion: 30 Minutes Time Critical: Yes

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:	<u>Alan Schilk</u> Instructor/Developer	<u>8/4/16</u> Date
Reviewed by:	<u>Luis Sagion</u> Instructor (Instructional Review)	<u>8/4/16</u> Date
Validated by:	<u>Sean Bloom</u> SME (Technical Review)	<u>8/5/16</u> Date
Approved by:	<u>Mark Wilson</u> Training Supervision	<u>8/4/16</u> Date
Approved by:	<u>Sean Bloom</u> Training Program Owner	<u>8/5/16</u> Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

N/A

SIMULATOR SET-UP:

- N/A

Required Materials:

- 0-EPIP-20101, Duties of Emergency Coordinator
- 0-EPIP-20134, Offsite Notifications and Protective Action Recommendations
- F439, Florida Nuclear Plant Emergency Notification Form
- F444, Guidance For Determining Protective Action Recommendations (PARS)
- F668, Turkey Point EAL Classification Tables (Hot)
- F669, Turkey Point EAL Classification Tables (Cold)

General References:

- 0-EPIP-20101, Duties of Emergency Coordinator
- 0-EPIP-20134, Offsite Notifications and Protective Action Recommendations

Task Standards:

- Within 15 minutes, declare an Alert (CA3)
- Within 15 minutes of declaration, complete a Florida Nuclear Plant Emergency Notification Form per 0-EPIP-20134 (Offsite Notifications and Protective Action Recommendations) with no errors on required items that are marked with an asterisk (with the exception of Item 2B)

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Unit 4 is at 100% power.
- Unit 3 is shut down, with an RCS temperature of 185°F.
- Wind speed is 10 mph and wind direction is from 180 degrees.

SUBSEQUENT CONDITIONS (UNIT 3):

- At 0800, Unit 3 experienced a loss of the Startup Transformer and the crew entered 3-ONOP-004, Loss of Offsite Power.
- At 0810, both the 3A and 3B EDGs tripped and repair teams began investigating.
- At 0825, no power is available from any source and RCS temperature is 195°F and slowly rising.

INITIATING CUES:

- You are the Emergency Coordinator in the Control Room. Based on the subsequent conditions, classify the event and, if necessary, determine protective action recommendations (do NOT use EC judgment).
- By raising your hand, you signify that you have completed the event declaration. At that time, inform the Examiner of the event classification and the Examiner will provide you with a Florida Nuclear Plant Emergency Notification Form, which you will complete.
- When you have completed the Florida Nuclear Plant Emergency Notification Form, raise your hand to inform the Examiner that you are done.
- There are elements of this task that are Time Critical.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically, cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical: No	Obtain required reference materials.
Standard:	Obtain the following references: <ul style="list-style-type: none"> • 0-EPIP-20101, Duties of Emergency Coordinator • 0-EPIP-20134, Offsite Notifications and Protective Action Recommendations • F668, Turkey Point EAL Classification Tables (Hot) • F669, Turkey Point EAL Classification Tables (Cold)
Evaluator Cue:	Provide examinee with the following: <ul style="list-style-type: none"> • 0-EPIP-20101, Duties of Emergency Coordinator • 0-EPIP-20134, Offsite Notifications and Protective Action Recommendations • F668, Turkey Point EAL Classification Tables (Hot) • F669, Turkey Point EAL Classification Tables (Cold)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical: No	Review Turkey Point EAL Classification Tables (F668 and F669) and 0-EPIP-20101 (Duties of Emergency Coordinator), based on the given conditions.
Standard:	Review F668, F669, and 0-EPIP-20101, based on the given conditions.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical: Yes	Determine the highest emergency classification level and EAL number using F669 (Turkey Point EAL Classification Tables [Cold]).
Standard:	<ul style="list-style-type: none"> Determine that the highest emergency classification level is an <u>Alert</u> and the EAL number is <u>CA3</u>. Examinee raises his/her hand, within <u>15 minutes</u>, to signify completion of the event declaration.
Evaluator Note:	<ul style="list-style-type: none"> Log event declaration <u>time</u> and <u>classification</u>: _____ Declaration time is the <u>start</u> time for completion of the Florida Nuclear Plant Emergency Notification Form.
Evaluator Cue:	Upon receiving the event declaration, provide examinee with the following: <ul style="list-style-type: none"> F439, Florida Nuclear Plant Emergency Notification Form F444, Guidance For Determining Protective Action Recommendations (PARS)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical: Yes	Complete a Florida Nuclear Plant Emergency Notification Form (F439), in accordance with 0-EPIP-20134 (Offsite Notifications and Protective Action Recommendations).
Standard:	Within <u>15 minutes</u> of event declaration, a Florida Nuclear Plant Emergency Notification Form (F439) is completed, in accordance with 0-EPIP-20134 (Offsite Notifications and Protective Action Recommendations), with no errors on required items identified with an asterisk.
Evaluator Note:	<ul style="list-style-type: none"> Log form completion <u>time</u>: _____ In Item 1, examinee <u>must</u> select "This is A Drill". Item 2B is N/A, until offsite agencies are contacted.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Terminating Cue: When the examinee submits the Florida Nuclear Plant Emergency Notification Form (F439), state "This completes the JPM."

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____



Examinee: _____

Evaluator: _____

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT

Date: _____

☐ LOIT RO ☐ LOIT SRO

PERFORMANCE RESULTS:

SAT:

UNSAT:

Remediation required:

YES

NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 4 is at 100% power.
- Unit 3 is shut down, with an RCS temperature of 185°F.
- Wind speed is 10 mph and wind direction is from 180 degrees.

SUBSEQUENT CONDITIONS (UNIT 3):

- At 0800, Unit 3 experienced a loss of the Startup Transformer and the crew entered 3-ONOP-004, Loss of Offsite Power.
- At 0810, both the 3A and 3B EDGs tripped and repair teams began investigating.
- At 0825, no power is available from any source and RCS temperature is 195°F and slowly rising.

INITIATING CUES:

- You are the Emergency Coordinator in the Control Room. Based on the subsequent conditions, classify the event and, if necessary, determine protective action recommendations (do NOT use EC judgment).
- By raising your hand, you signify that you have completed the event declaration. At that time, inform the Examiner of the event classification and the Examiner will provide you with a Florida Nuclear Plant Emergency Notification Form, which you will complete.
- When you have completed the Florida Nuclear Plant Emergency Notification Form, raise your hand to inform the Examiner that you are done.
- There are elements of this task that are Time Critical.

NOTE: Ensure the turnover sheet is returned to the evaluator when the JPM is complete.

JOB PERFORMANCE MEASURE
L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Calculate a Manual Makeup to the VCT

JPM NUMBER: 01046046101

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01046046100/
Calculate a Manual Makeup to the VCT

K/A NUMBERS: 2.1.25

K/A VALUE: RO 3.9 / SRO 4.2

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☐ Other: ☒

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by: _____ **8/5/16**
Instructor/Developer Date

Reviewed by: _____ **8/5/16**
Instructor (Instructional Review) Date

Validated by: _____ **8/5/16**
SME (Technical Review) Date

Approved by: _____ **8/5/16**
Training Supervision Date

Approved by: _____ **8/5/16**
Training Program Owner Date

JOB PERFORMANCE MEASURE
L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Determine Heatup of the RCS

JPM NUMBER: 01041046101

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 01041046100/
Determine Heatup of the RCS

K/A NUMBERS: 2.1.20

K/A VALUE: RO 4.6 / SRO 4.6

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

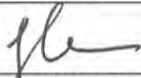
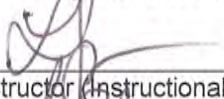

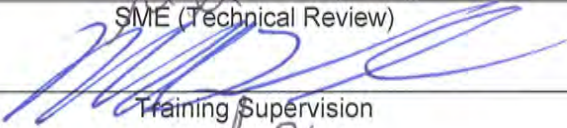
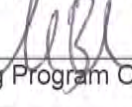
Simulator: ☐ Other: ☒

Lab: ☐

Time for Completion: 30 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:		<u>8/4/16</u>
	Instructor/Developer	Date
Reviewed by:		<u>8/4/16</u>
	Instructor (Instructional Review)	Date
Validated by:		<u>8/5/16</u>
	SME (Technical Review)	Date
Approved by:		<u>8/4/16</u>
	Training Supervision	Date
Approved by:		<u>8/5/16</u>
	Training Program Owner	Date

JOB PERFORMANCE MEASURE
L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Evaluate Technical Specification Conditions While Performing a Valve Operability Test

JPM NUMBER: 02051013101

REV. 1-2

TASK NUMBER(S) / TASK TITLE(S): 02051013100 / Verify/Set Containment Integrity

K/A NUMBERS: 2.2.40

K/A VALUE: RO 3.4 / SRO 4.7

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☐ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

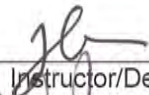
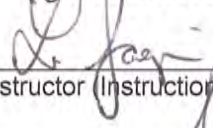
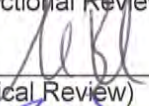

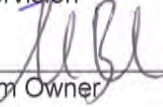
Simulator: ☐ Other: ☒

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:		8/4/16
	Instructor/Developer	Date
Reviewed by:		8/4/16
	Instructor (Instructional Review)	Date
Validated by:		8/5/16
	SME (Technical Review)	Date
Approved by:		8/4/16
	Training Supervisor	Date
Approved by:		8/5/16
	Training Program Owner	Date

JOB PERFORMANCE MEASURE
L-16-1 NRC EXAM SECURE INFORMATION

JPM TITLE: Authorize Emergency Exposure Limits

JPM NUMBER: 02200010501 **REV.** 0-1

TASK NUMBER(S) / TASK TITLE(S): 02200010500/
Direct Emergency Response as the Emergency Coordinator

K/A NUMBERS: 2.3.4 **K/A VALUE:** RO 3.2 / SRO 3.7

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☐ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

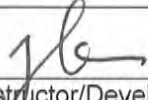
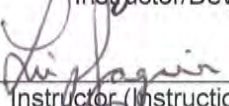
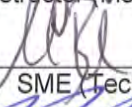
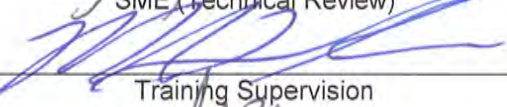
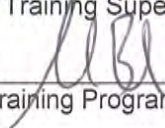
APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐
Simulator: ☐ Other: ☒
Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:		8/4/16
	Instructor/Developer	Date
Reviewed by:		8/4/16
	Instructor (Instructional Review)	Date
Validated by:		8/5/16
	SME (Technical Review)	Date
Approved by:		8/4/16
	Training Supervision	Date
Approved by:		8/5/16
	Training Program Owner	Date

JPM TITLE: Classify Event and Fill Out SNF

JPM NUMBER: 02201052320

REV. 1-0

TASK NUMBER(S) / TASK TITLE(S): 02201052300/
Classify Significant Events

K/A NUMBERS: 2.4.41

K/A VALUE: RO 2.9 / SRO 4.6

Justification (FOR K/A VALUES <3.0): N/A

TASK APPLICABILITY:

☐ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

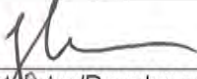
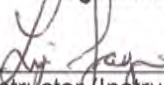
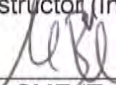
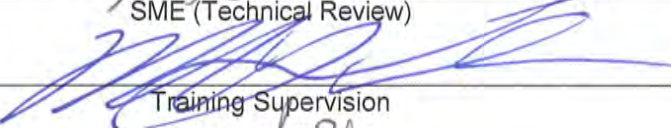
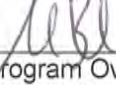
Simulator: ☐ Other: ☒

Lab: ☐

Time for Completion: 30 Minutes Time Critical: Yes

Alternate Path [NRC]: No

Alternate Path [INPO]: No

Developed by:		8/4/16
	Instructor/Developer	Date
Reviewed by:		8/4/16
	Instructor (Instructional Review)	Date
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	Training Program Owner	Date