

KEWAUNEE POWER STATION

PROPOSED OPERATING TEST

APRIL 13-22, 2009

ADMIN JPMs

CONTROL ROOM JPMs

IN-PLANT JPMs

DYNAMIC SIMULATOR SCENARIOS

JOB PERFORMANCE MEASURE (JPM)

SITE: KPS

JPM TITLE: Perform NIS High Flux at Shutdown Alarm Test from Refueling Daily Checklist

JPM NUMBER: RO-053-JP04A **REV. A**

RELATED PRA INFORMATION: None

TASK NUMBER(S) / TASK TITLE(S): 0530040101 / Perform the Refueling Daily Checklist

K/A NUMBERS: 2.1.36 RO / SRO Imp 3.0 / 4.1

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Lab:

Time for Completion: 10 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: RO, SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /S Instructor	1/14/09 Date
Validated by:	Stephen Johnson /S Validation Instructor (See JPM Validation Checklist, Attachment 1)	01/22/2009 Date
Approved by:	Terry Evans /S Training Supervisor	02/10/09 Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. *Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.*
2. *If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.*

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:

- You are the Reactor Operator.
- The plant is in REFUELING Mode.
- The Daily Surveillances using N-FH-53D, Refueling Daily Checklist, is in progress.
- N-FH-53D is complete up through, and including step 2.9.4.
- An AO is stationed in containment to assist in completing the surveillance.

THE STEPS IN THIS JPM SHOULD BE: PERFORMED

THIS TASK IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

Perform the remaining steps of N-FH-53D, section 2.9.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

NOTE: Review GNP-05.16.06, ATTACHMENT A for Time Dependent Operator Actions. If the JPM addresses one of these tasks and the JPM is determined to be time critical or contain time critical performance steps, then GNP-05.16.06 will be included in the General References below. [OTH 12765]

Required Materials: N-FH-53-CLD completed through, and including, step 5.2.9.4

General References: N-FH-53-CLD, Rev. 26

Task Standards: High Flux at Shutdown Containment Alarm tested with High Flux at Shutdown alarm actuated.

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 “Y/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	N-FH-53-CLD, step 5.2.9.5.a:
Critical: <u>No</u>	ESTABLISH communications with an individual in Containment.
Standard:	Contacts AO in Containment using phone, or gaitronics.
Evaluator Note:	Each Step of this procedure has a “SECOND OPERATOR” signoff. Inform the performer that for each step the SECOND OPERATOR will provide confirmation based on the actions taken by the performer. If necessary provide a CUE to the performer after each step performance that the SECOND OPERATOR has signed the step. The FIRST OPER is normally in phone (PCS) contact with the person in the Containment.
Evaluator Cue:	Acknowledge contact and report standing by on 626’ elevation inside Containment. SECOND OPERATOR verifies your action and initials step.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 2	N-FH-53-CLD, step 5.2.9.5.b:
Critical: <u>Yes</u>	PERFORM plant announcement for start of High Flux at Shutdown Alarm Test.
Standard:	Make announcement for starting High Flux at Shutdown Alarm Test using the gaitronics.
Evaluator Cue:	SECOND OPERATOR verifies your action and initials step.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 3	N-FH-53-CLD, step 5.2.9.5.c.1: At N-31 or N-32, PERFORM the following:
Critical: <u>Yes</u>	POSITION Level Trip switch to BYPASS.
Standard:	On N-31 Source Range NIS drawer, Level Trip switch placed to BYPASS position.
Evaluator Note:	When the switch is taken to BYPASS the following will occur: <ul style="list-style-type: none">• On N-31 drawer, LEVEL TRIP BYPASS bistable light comes ON.• Annunciator 47033-L, NI SYSTEM SR/IR TRIP BYPASSED, (SER1675) alarms.• Status Light 44906, N31 SR TRIP BYPASSED, comes ON.
Evaluator Cue:	(Prior to operator taking action) As Unit Supervisor direct that N-31 should be the channel used for the test. SECOND OPERATOR verifies your action and initials step.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 4	N-FH-53-CLD, step 5.2.9.5.c.2: At N-31 or N-32, PERFORM the following:
Critical: <u>No</u>	ROTATE Level Adjust potentiometer fully counter-clockwise.
Standard:	Verify/rotate Level Adjust potentiometer for N-31 to the fully counter-clockwise position.
Evaluator Cue:	SECOND OPERATOR verifies your action and initials step.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 5	N-FH-53-CLD, step 5.2.9.5.c.3: At N-31 or N-32, PERFORM the following:
Critical: <u>Yes</u>	POSITION Operation Selector switch to LEVEL ADJUST.
Standard:	N-31 Operation Selector switch taken to LEVEL ADJUST position.
Evaluator Note:	When the switch is taken to LEVEL ADJUST the following will occur: <ul style="list-style-type: none">• On N-31 drawer, CHANNEL ON TEST bistable light comes ON.• Annunciator 47033-M, NI SYSTEM CHANNEL IN TEST, (SER1676) alarms.• The N-31 indication drops to the bottom of scale.
Evaluator Cue:	SECOND OPERATOR verifies your action and initials step.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 6 Critical: <u>Yes</u>	N-FH-53-CLD, step 5.2.9.5.c.3: At N-31 or N-32, PERFORM the following: ROTATE Level Adjust potentiometer clockwise until High Flux at Shutdown Alarm actuates.
Standard:	Level Adjust potentiometer for N-31 is rotated clockwise until High Flux at Shutdown Alarm is actuated as indicated by: <ul style="list-style-type: none">• HIGH FLUX AT SHUTDOWN bistable on N31 drawer comes ON.• Annunciator 47032-O, SR FLUX AT SHUTDOWN HIGH, (SER1669) alarms.
Evaluator Note:	Normal reading for N-31 in this condition is 14 cps. The HIGH FLUX AT SHUTDOWN actuates at approximately 35 cps.
Evaluator Cue:	SECOND OPERATOR verifies your action and initials step.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 7 Critical: <u>No</u>	N-FH-53-CLD, step 5.2.9.5.d: CHECK High Flux at Shutdown Alarm in Containment ACTUATED.
Standard:	Contact AO in Containment and check that High Flux at Shutdown Alarm in Containment is actuated.
Evaluator Cue:	On phone, "You hear alarm in background." As AO, Acknowledge contact and report Containment alarm is actuated. SECOND OPERATOR verifies your action and initials step.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 8 Critical: <u>Yes</u>	N-FH-53-CLD, step 5.2.9.5.e.1: WHEN High Flux at Shutdown Alarm test complete, THEN PERFORM the following: ROTATE Level Adjust potentiometer fully counterclockwise.
Standard:	Rotate Level Adjust potentiometer for N-31 to the fully counterclockwise position.
Evaluator Note:	The HIGH FLUX AT SHUTDOWN condition clears when the reset value is reached during this operation and the following will clear: <ul style="list-style-type: none">• HIGH FLUX AT SHUTDOWN bistable on N31 drawer.• Annunciator 47032-O, SR FLUX AT SHUTDOWN HIGH, (SER1669).
Evaluator Cue:	On phone, "You hear background noise stop." If required, AO reports Containment alarm clears. SECOND OPERATOR verifies your action and initials step.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 9 Critical: <u>Yes</u>	N-FH-53-CLD, step 5.2.9.5.e.2: WHEN High Flux at Shutdown Alarm test complete, THEN PERFORM the following: POSITION Operation Selector switch to Normal.
Standard:	N-31 Operation Selector switch taken from LEVEL ADJUST to NORMAL position.
Evaluator Note:	When the switch is taken to Normal the following will occur: <ul style="list-style-type: none">• On N-31 drawer, CHANNEL ON TEST bistable light will clear.• Annunciator 47033-M, NI SYSTEM CHANNEL IN TEST, (SER1676) will clear.• N31 indication will return to normal position for neutron level.
Evaluator Cue:	SECOND OPERATOR verifies your action and initials step.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 10 Critical: <u>Yes</u>	N-FH-53-CLD, step 5.2.9.5.e.3: WHEN High Flux at Shutdown Alarm test complete, THEN PERFORM the following: POSITION Level Trip switch to NORMAL.
Standard:	On N-31 Source Range NIS drawer, Level Trip switch placed to NORMAL position.
Evaluator Note:	When the switch is taken to NORMAL the following will occur: <ul style="list-style-type: none">• On N-31 drawer, LEVEL TRIP BYPASS bistable light clears.• Annunciator 47033-L, NI SYSTEM SR/IR TRIP BYPASSED, (SER1675) clears.• Status Light 44906, N31 SR TRIP BYPASSED, clears.
Evaluator Cue:	SECOND OPERATOR verifies your action and initials step.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 11 Critical: <u>No</u>	N-FH-53-CLD, step 5.2.9.5.f: PERFORM plant announcement for completion of High Flux at Shutdown Alarm Test.
Standard:	Make announcement for completion High Flux at Shutdown Alarm Test using the gaitronics.
Evaluator Cue:	SECOND OPERATOR verifies your action and initials step.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When the operator has completed announcement of end of the High Flux at Shutdown Alarm Test, "This JPM is complete."

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: KPS

JPM TITLE: Review completed N-FH-53 CLD, Daily Refueling Checklist

JPM NUMBER: SO-119-JP04A **REV.** A

RELATED PRA INFORMATION: None

TASK NUMBER(S) / TASK TITLE(S): 1190040302 / Maintain the Shift Logs

K/A NUMBERS: 2.1.36 RO / SRO Imp 3.0 / 4.1

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Classroom
 Lab:

Time for Completion: 10 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /S Instructor	1/29/09 Date
Validated by:	Andy Fahrenkrug /S Validation Instructor (See JPM Validation Checklist, Attachment 1)	2/10/09 Date
Approved by:	Terry Evans /S Training Supervisor	2/10/09 Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. *Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.*
2. *If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.*

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:

- You are the Shift Manager.
- The plant is in REFUELING Mode.
- Fuel is in the reactor
- Reactor Building Ventilation is in operation
- All required equipment is OPERABLE.
- The Daily Surveillances using N-FH-53D, Refueling Daily Checklist, has been completed one hour following DAY SHIFT turnover.

THE STEPS IN THIS JPM SHOULD BE: PERFORMED

THIS TASK IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

Perform review of the completed of N-FH-53D, Refueling Daily Checklist.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

NOTE: Review GNP-05.16.06, ATTACHMENT A for Time Dependent Operator Actions. If the JPM addresses one of these tasks and the JPM is determined to be time critical or contain time critical performance steps, then GNP-05.16.06 will be included in the General References below. [OTH 12765]

- Required Materials:** N-FH-53-CLD completed with FIRST & SECOND OPERATOR signatures. Step 2.6.2 will have a value of 4.2 GPM; and, Step 2.18.2 will be missing the SECOND OPER initials.
- KPS Technical Requirements Manual (COLR) available
- ORT-MISC-003 ATTACHMENT A Table 4 (page 4) – 2 copies One completed for previous shifts showing 38.4 min run time for Day and Night Shift.
- ORT-MISC-003 ATTACHMENT A Table 8 (page 7) – Rx Cavity Sump Pump completed with “Minutes Run” reading ‘76.8’ and “Total Gal Pumped” reading ‘3456.0’
- General References:** N-FH-53-CLD, Rev. 26
OP-KW-ORT-MISC-003, Rev. 1
- Task Standards:** N-FH-53-CLD review completed and the two errors identified.

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 “Y/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	N-FH-53-CLD, All appropriate steps have FIRST OPER blanks filled in with initials "SJ."
Critical: <u>No</u>	
Standard:	Check all FIRST OPER blanks filled in with expected initials for steps 1.1 through 4.5 for BT-3B, inclusive, with the following exceptions, which are blank: <ul style="list-style-type: none">• 2.8.3.c.1.A through 2.8.3.c.1.D• 2.10.2.a through 2.10.2.e
Evaluator Cue:	For Step 1.1, if asked to provide N-FH-53-CLC, "N-FH-53-CLC is on file and correctly completed."
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 2	N-FH-53-CLD, All appropriate steps have SECOND OPER blanks filled in with initials "AF" with the exception of step 2.18.2
Critical: <u>No</u>	
Standard:	Check all SECOND OPER blanks filled in with expected initials for steps 1.1 through 2.18.2, and for steps 2.19 through 4.5 for BT-3B, with the following exceptions, which are blank: <ul style="list-style-type: none">• 2.8.3.c.1.A through 2.8.3.c.1.D• 2.10.2.a through 2.10.2.e
Evaluator Note:	Step 2.18.2 is supposed to have been completed during performance of the procedure but was not. This is a CRITICAL step for identification and correction and is covered in a later Performance Step.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 3

Critical: No

N-FH-53-CLD, Steps 1.2 (3), 1.3 (2), 2.1, 2.6.1 and 2.6.2

Steps with blanks for data filled in with data or numbers appropriate to plant conditions

Standard:

Check steps 1.2, 1.3, 2.1, 2.6.1 and 2.6.2 to ensure appropriate numbers are filled in blanks.

Evaluator Note:

The COLR for Cycle 29 Rev. 1, 2.12 identifies the minimum Refueling Boron Concentration as 2500 ppm.

Chemistry provides the updated RCS, RHR and SFP boron concentrations.

Reactor Cavity Sump Leakage and Leak rate will be taken from OP-KW-ORT-MISC-003, ATTACHMENT A, Table 4 - Reactor Cavity Sump Pump Run Time Shift Record, and Table 8, Total Sump Pumped History.

Step 2.6.2 has an incorrect value listed and as listed is above the allowed value. This is a CRITICAL step for identification and correction and is covered in Performance Step 6.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 4 N-FH-53-CLD, Steps 2.4.1, 2.4.2, 2.8.c.1, 2.8.3.c.8, 2.8.3.c.9, 2.9.3, 2.9.4, 2.10.1, 2.10.2, 2.14 and 2.16.
Critical: No

Steps with choices are circled for the appropriate condition or action depending on plant conditions.

Standard: Check steps below are circled as appropriate for plant conditions to indicate to action or non-action (NA) taken:
2.4.1 – OPERABLE circled.
2.4.2 – NA circled.
2.8.3.c.1 – NA circled.
2.8.3.c.8 – NA circled.
2.8.3.c.9 – STARTED circled.
2.9.3 – ALARM SET circled.
2.9.4 – NA circled.
2.10.1 – APPLIES circled.
2.10.2 – NA circled.
2.14 – NA circled.
2.16 – NORMAL circled.
4.1 – CC SYS INTACT TO RXCP A/B circled. (4 locations)

Evaluator Cue: For steps 1.2 and 1.3 if asked about boron concentration, “The values for Reactor Cavity, RHR system, and SFP boron concentrations are current as reported by Chemistry.”
For step 2.1 if asked about the Containment Integrity Tagout, “The listed Tagout # is correct for Containment Integrity Tagout.”

Evaluator Cue: Check steps below are circled as appropriate for plant conditions to indicate to action or non-action (NA) taken:
2.4.1 – OPERABLE circled.
2.4.2 – NA circled.
2.8.3.c.1 – NA circled.
2.8.3.c.8 – NA circled.
2.8.3.c.9 – STARTED circled.
2.9.3 – ALARM SET circled.
2.9.4 – NA circled.
2.10.1 – APPLIES circled.
2.10.2 – NA circled.
2.14 – NA circled.
2.16 – NORMAL circled.
4.1 – CC SYS INTACT TO RXCP A/B circled. (4 locations)

Performance: SATISFACTORY UNSATISFACTORY

Comments:

Performance Step: 5	N-FH-53-CLD, Step 2.6.2
Critical: <u>Yes</u>	Record latest leak rate <u>4.2</u> gpm <3 gpm
Standard:	Identify that listed value of 4.2 gpm is above the allowable leak rate of < 3 gpm. Correct value to read between 2.3 to 2.5 gpm OR direct FIRST OPER and SECOND OPER to correct and verify value reads between 2.3 to 2.5 gpm (line out and initial incorrect data) when correct information is provided.
Evaluator Note:	A Condition Report (CR) is required for this error. The Performer may identify this requirement at this time (NOT Critical). If so, cue, "A CR has been completed."
Evaluator Cue:	As FIRST OPER state, "The value I looked up had the leak rate at 2.4 gpm. I must have written it down wrong." If requested, provide ORT-MISC-003 ATTACHMENT A Table 4 (2 pages) and Table 8 information which supports the total leakage value and the 24-hour leak rate value of 2.4.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 6	N-FH-53-CLD, Step 2.18.2:
Critical: <u>Yes</u>	Charcoal Filters (2) in service (Bypass CLOSED) IN SERVICE: SECOND OPER initial blank
Standard:	Identify that SECOND OPER failed to initial blank for Step 2.18.2. Direct SECOND OPER to correct error and initial blank.
Evaluator Note:	A Condition Report (CR) is required for this error. The Performer may identify this requirement at this time (NOT Critical). If so, cue, " A CR has been completed
Evaluator Cue:	As SECOND OPER, "I forgot to initial the block. I have confirmed that the charcoal filters are in service with Bypass Damper CLOSED."
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 7	N-FH-53-CLD
Critical: <u>No</u>	PERFORMED BY blanks.
Standard:	Check that both FIRST OPER and SECOND OPER have completed a "PERFORMED BY" section, with the name, signature, initials and date blanks filled in.
Evaluator Note:	The "DATE" will be filled-in with "CURRENT DATE". If asked by the Performer indicate that this means today's date is listed in those blanks.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 8	N-FH-53-CLD,
Critical: <u>No</u>	Shift Manager blank.
Standard:	Complete the SHIFT MANAGER blanks by filling in: <ul style="list-style-type: none">• (Performer) Name• Signature• Date
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When the performer has completed review of material, "This JPM is complete."

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: KPS

JPM TITLE: Perform Independent Verification of SI Valve Lineup

JPM NUMBER: RO-033-JP05C **REV. B**

RELATED PRA INFORMATION: None

TASK NUMBER(S) / TASK TITLE(S): 0330050101 / Perform a Pre-Start Checklist of the Safety Injection System
1190180301 / Perform an Independent Verification

K/A NUMBERS: 2.1.29 RO / SRO Imp 4.1 / 4.0

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Lab:

Time for Completion: 8 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: RO, SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /S	1/14/09
	Instructor	Date
Validated by:	Stephen Johnson /S	01/22/2009
	Validation Instructor (See JPM Validation Checklist, Attachment 1)	Date
Approved by:	Terry Evans /S	02/10/09
	Training Supervisor	Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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1. *Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.*
2. *If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.*

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:

- You are the second NCO.
- A plant startup is in progress at Step 5.4.5.b of OP-KW-GOP-103, STARTUP FROM RHR TO HOT SHUTDOWN (ESTABLISH SI valve alignment prior to exceeding 1,000 psig per N-SI-33-CL.).
- The Reactor Operator has just completed the “Control Room Switches” portion of N-SI-33-CL, Appendix A, SI Valve Lineup Prior To Exceeding 1000 psig.

THE STEPS IN THIS JPM SHOULD BE: PERFORMED

THIS TASK IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

The Unit Supervisor directs you to complete the SECOND OPERATOR actions for the “Control Room Switches.”

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

NOTE: Review GNP-05.16.06, ATTACHMENT A for Time Dependent Operator Actions. If the JPM addresses one of these tasks and the JPM is determined to be time critical or contain time critical performance steps, then GNP-05.16.06 will be included in the General References below. [OTH 12765]

- Required Materials:** N-SI-33-CL, Appendix A with **FIRST OPERATOR** section completed, except for the “SI-300B/MV-32112 RWST Supply to RHR Pump B” which is left **BLANK**.
- General References:** N-SI-33, Rev. 31
OP-KW-GOP-103, Rev. 2
- Task Standards:** Second Operator initials complete for “correct” items. **BOTH** incorrect items identified and reported.

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 “Y/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	N-SI-33-CL, APPENDIX A: Control Room Switches
Critical: <u>No</u>	Safety Injection Pump A AUTO
Standard:	Blank under SECOND OPER for SI Pump A initialed.
Evaluator Note:	The order in which the items are addressed is not important. They are listed in the same order as the Appendix.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 2	N-SI-33-CL, APPENDIX A: Control Room Switches
Critical: <u>No</u>	Safety Injection Pump B AUTO
Standard:	Blank under SECOND OPER for SI Pump B initialed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 3	N-SI-33-CL, APPENDIX A: Control Room Switches
Critical: <u>No</u>	SI-20A/MV32091 Accumulator A Isolation OPEN/AUTO
Standard:	Blank under SECOND OPER for SI-20A initialed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 4	N-SI-33-CL, APPENDIX A: Control Room Switches
Critical: <u>No</u>	SI-20B/MV32096 Accumulator B Isolation OPEN/AUTO
Standard:	Blank under SECOND OPER for SI-20B initialed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 5	N-SI-33-CL, APPENDIX A: Control Room Switches
Critical: <u>Yes</u>	SI-11A/MV32092 Safety Injection to Loop A Cold Leg OPEN/AUTO
Standard:	Identify SI-11B as CLOSED. Blank under SECOND OPER for SI-11A NOT initialed.
Evaluator Cue:	As UNIT SUPERVISOR acknowledge report and direct completion of the remainder of the list. Discrepancy will be addressed when the list is completed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 6	N-SI-33-CL, APPENDIX A: Control Room Switches
Critical: <u>No</u>	SI-11B/MV32097 Safety Injection to Loop B Cold Leg OPEN/AUTO.
Standard:	Blank under SECOND OPER for SI-11B initialed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 7	N-SI-33-CL, APPENDIX A: Control Room Switches
Critical: <u>No</u>	SI-9A/MV32094 Safety Injection to RCS Cold Legs OPEN/MP
Standard:	Blank under SECOND OPER for SI-9A initialed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 8	N-SI-33-CL, APPENDIX A: Control Room Switches	
Critical: <u>No</u>	SI-9B/MV32095 Safety Injection to Reactor Vessel	OPEN/MP
Standard:	Blank under SECOND OPER for SI-9B initialed.	
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>	
Comments:	<hr/>	

Performance Step: 9	N-SI-33-CL, APPENDIX A: Control Room Switches	
Critical: <u>No</u>	SI-300A/MV32111 RWST Supply to RHR Pump A	OPEN/MP
Standard:	Blank under SECOND OPER for SI-300A initialed.	
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>	
Comments:	<hr/>	

Performance Step: 10	N-SI-33-CL, APPENDIX A: Control Room Switches	
Critical: <u>Yes</u>	SI-300B/MV32112 RWST Supply to RHR Pump B	OPEN/MP
Standard:	Identify FIRST OPER has not initialed blank for SI-300B. Blank under SECOND OPER for SI-300B NOT initialed.	
Evaluator Cue:	As UNIT SUPERVISOR acknowledge report and direct completion of the remainder of the list. Discrepancy will be addressed when the list is completed.	
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>	
Comments:	<hr/>	

Performance Step: 11	N-SI-33-CL, APPENDIX A: Control Room Switches
Critical: <u>No</u>	SI-302A/MV32100 RHR Pump A Injection to Reactor Vessel OPEN/AUTO
Standard:	Blank under SECOND OPER for SI-302A initialed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 12	N-SI-33-CL, APPENDIX A: Control Room Switches
Critical: <u>No</u>	SI-302B/MV32101 RHR Pump B Injection to Reactor Vessel OPEN/AUTO
Standard:	Blank under SECOND OPER for SI-302B initialed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 13	N-SI-33-CL, APPENDIX A: Control Room Switches
Critical: <u>No</u>	PERFORMED BY _____ DATE _____
Standard:	Signs and dates PERFORMED BY blanks.
Evaluator Note:	This may NOT occur if the operator reports completion of the steps he could perform and notes the two items need to be resolved for completion.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When lineup checklist is returned to the UNIT SUPERVISOR: "This JPM is complete."

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: KPS

JPM TITLE: Review SP-033-065, Reactor Coolant Chemistry Surveillance, Results

JPM NUMBER: SO-119-JP19A **REV.** A

RELATED PRA INFORMATION: None

TASK NUMBER(S) / TASK TITLE(S): 1190190302 / Apply Technical Specifications during plant operations

K/A NUMBERS: 2.1.34 RO / SRO Imp 2.7 / 3.5

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Classroom
 Lab:

Time for Completion: 10 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: SRO

Additional signatures may be added as needed.

Developed by: Stephen Johnson /S	1/28/09
Instructor	Date
Validated by: Stephen Johnson /S	1/28/09
Validation Instructor (See JPM Validation Checklist, Attachment 1)	Date
Approved by: Terry Evans /S	02/10/09
Training Supervisor	Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. *Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.*
2. *If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.*

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:

- You are the Shift Manager.
- The plant has been operating at 100% power for the past 30 days.
- All required equipment is OPERABLE.
- The Form SP-37065-1 has been routed from Chemistry.
- Today is 4/XF/2009.

THE STEPS IN THIS JPM SHOULD BE: PERFORMED

THIS TASK IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

Perform review of Form SP-37-065-1.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK
Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

NOTE: Review GNP-05.16.06, ATTACHMENT A for Time Dependent Operator Actions. If the JPM addresses one of these tasks and the JPM is determined to be time critical or contain time critical performance steps, then GNP-05.16.06 will be included in the General References below. [OTH 12765]

- Required Materials:** Form SP-37-065-1, With 6 blocks worth of information completed (3 samples of pertinent values). Under "4/XF", the value for CHLORIDE will exceed the allowable steady-state value of 0.15 ppm. The value will be listed as "160.8 ppb."
- General References:** KPS Technical Specifications
SP-37-065, Rev. X
CY-KW-040-001, Rev. 1
KPS Technical Specifications
- Task Standards:** Form SP-37-065-1 reviewed and the ACTIONS of Technical Specification 3.1.e.2 and 3.1.e.3 identified.

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 "Y/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	Form SP-37-065-1, All appropriate steps have blanks filled in.
Critical: <u>No</u>	
Standard:	<p>Check all blanks filled in with expected information for:</p> <ul style="list-style-type: none"> • Week of – [4/XA/2009 to 4/XG/2009] • Most recent \bar{E} – [1.314] • Most recent 91 / \bar{E} – [64.26] • Sample Date – [3/30/2009] • All listed blanks under “4/XF” Sample Date, except for “Tritium” [line out]; “Shift Manager”; “AR filed?”; and “AR #”
Evaluator Note:	Chemistry procedure CY-KW-040-001, Primary Chemistry Sample Specifications, provides ACTION levels in response to off-normal Chemistry values. When chloride values exceed 50 ppb, ACTION Level 1 is entered. This would require a Condition Report (CR or AR). This is the reason the AR filed blank is checked ‘YES’ and the ‘number’ listed. The action stated is, “Actions to be taken if a parameter exceeds the Action Level 1 value: Efforts shall be made to bring the parameter to below the Action Level 1 within 7 days.”
Evaluator Cue:	If asked about the Condition Report (AR) listed for 4/XB and 4/XD: This CR was written to address Chemistry entering ACTION LEVEL 1 for Chloride.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 2	Form SP-37-065-1, “Sample Date” 4/XF
Critical: <u>No</u>	Coolant Activity ($\mu\text{Ci/ml}$)
Standard:	Determine value is acceptable in accordance with Technical Specification 3.1.c.1.B [Value is less than or equal to “Most Recent 91 / E”]
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 3	Form SP-37-065-1, "Sample Date" 4/XF
Critical: <u>No</u>	Dose Equivalent I-131 ($\mu\text{Ci}/\text{gram}$)
Standard:	Determine value is acceptable in accordance with Technical Specification 3.1.c.1.A [Value is less than or equal to 1.0 $\mu\text{Ci}/\text{gram}$.]
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 4	Form SP-37-065-1, "Sample Date" 4/XF
Critical: <u>No</u>	Flouride (ppb).
Standard:	Determine value is acceptable in accordance with Technical Specification 3.1.e.1.C [Value is less than or equal to 150 ppb (0.15 ppm).]
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 5

Critical: Yes

Form SP-37-065-1, "Sample Date" 4/XF
Chloride (ppb).

Standard:

Determine value is NOT acceptable in accordance with Technical Specification 3.1.e.1.B [Value is NOT less than or equal to 150 ppb (0.15 ppm).]

Determine the Technical Specification ACTIONS required:

- 3.1.e.2 – Corrective Action shall be taken immediately
- 3.1.e.3 – If concentrations of any contaminants cannot be controlled within the transient limits of TS 3.1.e.1 above (1.50 ppm) or returned to steady-state limit within 24 hours, then the reactor shall be brought to the COLD SHUTDOWN condition, utilizing normal operating procedures, and the cause shall be ascertained and corrected.

Evaluator Note:

A Condition Report (CR or AR as listed on Form SP-37-065) is required for this condition. The Performer may identify this requirement at this time (NOT Critical). If so, cue, "CR 'CR0YYYYY' has been completed."

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 6

Critical: No

Form SP-37-065-1, "Sample Date" 4/XF
Oxygen (ppb).

Standard:

Determine value is acceptable in accordance with Technical Specification 3.1.e.1.A [Value is less than or equal to 100 ppb (0.10 ppm).]

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 7	Form SP-37-065-1, "Sample Date" 4/XF
Critical: <u>No</u>	Boron (ppm).
Standard:	Check boron value filled in and consistent with previous listings.
Evaluator Note:	Boron limit only applies when while loading and unloading fuel from the reactor, or during Reactor Vessel Head removal.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 8	Form SP-37-065-1, "Sample Date" 4/XF
Critical: <u>No</u>	Tritium ($\mu\text{Ci/mL}$)
Standard:	Tritium Sampling is NOT listed [lined out]
Evaluator Note:	Tritium sampling is required only once per week, usually Wednesday. There is no specific limit for RCS tritium concentration.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 9	Form SP-37-065-1, "Sample Date" 4/XF
Critical: <u>No</u>	Chemistry Tech.
Standard:	Check Chemistry Tech. initials in blank.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 10	Form SP-37-065-1, "Sample Date" 4/XF
Critical: <u>No</u>	Shift Manager
Standard:	Complete the SHIFT MANAGER blanks by filling in initials.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 11	Form SP-37-065-1, "Sample Date" 4/XF
Critical: <u>No</u>	AR filed checkbox and AR # blank
Standard:	"YES" checkbox checked. CR# (AR#) listed.
Evaluator Note:	A Condition Report (CR or AR as listed on Form SP-37-065) is required for this condition. The Performer may identify this requirement at this time (NOT Critical). If so, cue, "CR 'CR0YYYYY' has been completed."
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When the performer has completed filling Form SP-37-065-1, "This JPM is complete."

Stop Time: _____

	JOB PERFORMANCE MEASURE (JPM)
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SITE: KPS

JPM TITLE: Perform a Manual Calorimetric / Heat Balance Using SP-87-125

JPM NUMBER: RO-087-JP01B **REV.** A

RELATED PRA INFORMATION: None

TASK NUMBER(S) / TASK TITLE(S): 0870010201 / Perform Shift Instrument Channel Checks - Operating

K/A NUMBERS: 2.2.44 RO / SRO Imp 4.2 / 4.4

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Lab:

Time for Completion: 20 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: RO, SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /S Instructor	1/15/09 Date
Validated by:	Stephen Johnson /S Validation Instructor (See JPM Validation Checklist, Attachment 1)	01/22/2009 Date
Approved by:	Terry Evans /S Training Supervisor	02/10/09 Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. *Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.*
2. *If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.*

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:

- You are the Reactor Operator.
- The plant is operating at 100% steady-state power.
- PPCS Calorimetric Program is NOT functioning, and OP-KW-AOPCP-001, Abnormal Plant Process Computer System, ATTACHMENT A is being performed by the crew.
- ARTO is NOT available.
- Access to the KPS Network is NOT available.

THE STEPS IN THIS JPM SHOULD BE: PERFORMED

THIS TASK IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

The Unit Supervisor directs you to complete a calorimetric per section 6.7.3 of SP 87-125, Shift Instrument Channel Checks – Operating.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

NOTE: Review GNP-05.16.06, ATTACHMENT A for Time Dependent Operator Actions. If the JPM addresses one of these tasks and the JPM is determined to be time critical or contain time critical performance steps, then GNP-05.16.06 will be included in the General References below. [OTH 12765]

Required Materials: SP-87-125.

**General References: SP-87-125, Rev. 97
OP-KW-AOP-CP-001, Rev. 2, ATTACHMENT A**

Task Standards:

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 “Y/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: Yes

SP-87-125, Step 6.7.3.a

On ATTACHMENT A, RECORD data from Operations - Protected 1, SP-87-125 Data OR the Yokogawa recorders R average indications from Control Board meters.

Standard:

On PPCS Main Screen, click the following to get to the Operations - Protected 1, SP-87-125 Data:

- Button for AREA/GROUP DISPLAYS
- (List #) 1. OPERATIONS –PROTECTED 1
- (List #) 3. SP87-125 DATA

Record data on ATTACHMENT A:

- FX51OG OR T0418A (SG A FW Temp) [434.9°F OR 434.89°F]
- P8021G (SG A Pressure) [768.4 psig]
- FX800G (SG A FW Flow) [3833.4 to 3833.5 Klbm/hr]
- F0508K (SG A Blowdown Flow) [40 gpm]
- FX61OG OR T0438A (SG B FW Temp) [434.9°F OR 434.87°F]
- P8022G (SG B Pressure) [757.8 psig]
- FX900G (SG B FW Flow) [3907.1 to 3907.2 Klbm/hr]
- F0509K (SG B Blowdown Flow) [40 gpm]

Evaluator Note:

The performer may choose to review Initial Conditions (Section 1.0), Precautions and Limitations (Section 2.0), and General Instructions (Section 4.0) prior to performing steps.

The NOTES at the beginning of Step 6.7 state:

Operations - Protected 1, SP-87-125 Data may be used in place of, and is preferable to, Yokogawas and Control Board meters for obtaining data.

Yokogawas may be used in place of, and are preferable to, Control Board meters for obtaining data.

Evaluator Cue:

As Unit Supervisor, "Use the preferred source for data information."

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 2 SP-87-125, Step 6.7.3.b: CALCULATE Reactor Thermal Output Using Enthalpy per ATTACHMENT B.
Critical: Yes

1. OBTAIN enthalpy values for FW temperature by using RD 1.6 OR Steam Tables

Standard: Fill in the blanks for the enthalpy value of the FW temperature (h_f at the temp) from either RD 1.6 or Steam Tables:

- Header A _____ BTU/LBM [413.32 to 413.67]
- Header B _____ BTU/LBM [413.30 to 413.67]

Evaluator Note: The following values are calculated from either RD 1.6 or Steam Table h_f values for the feedwater temperature:

RD 1.6 Interpolate

- Header A – Page 21 Steam Pressure 750-775 psig): 434.9 [413.67 BTU/LB] OR 434.89 (between 434.8 and 434.9) [413.66 BTU/LB]
- Header B – Page 21 Steam Pressure 750-775 psig): 434.9 [413.67 BTU/LB] OR 434.87 (between 434.8 and 434.9) [413.64 BTU/LB]

Steam Table interpolation

- Header A – For FW temperature 434.9 or 434.89 interpolate h_f between 432°F (410.12 BTU/LB) and 436°F (414.55 BTU/LB) to calculate values of 413.33 BTU/LB and 413.32 BTU/LB, respectively.
- Header B – For FW temperature 434.9 or 434.87 interpolate h_f between 432°F (410.12 BTU/LB) and 436°F (414.55 BTU/LB) to calculate values of 413.33 BTU/LB and 413.30 BTU/LB, respectively.

Performance: SATISFACTORY UNSATISFACTORY

Comments: _____

Performance Step: 3 SP-87-125, Step 6.7.3.b: CALCULATE Reactor Thermal Output Using Enthalpy per ATTACHMENT B.
Critical: Yes 2. OBTAIN enthalpy values for SG Pressure by using RD 1.6 OR Steam Tables

Standard: Fill in the blanks for the enthalpy value of the SG pressure (h_g at the pressure) from either RD 1.6 or Steam Tables:

- SG A _____ BTU/LBM [1199.80 to 1199.83]
- SG B _____ BTU/LBM [1200.08 to 1200.14]

Evaluator Note: The following values are calculated from either RD 1.7 or Steam Table h_g values for the SG pressure:

RD 1.6 Interpolate

- Header A – Page 1 Steam Pressure between 765 and 770 psig): Interpolate for 768.4 psig to calculate between given values of 1199.9 BTU/LB and 1199.8 BTU/LB and determine 1199.83 BTU/LB.
- Header B – Page 1 Steam Pressure between 755 and 760 psig): Interpolate for 757.8 psig to calculate between given values of 1200.2 BTU/LB and 1200.1 BTU/LB and determine 1200.14 BTU/LB.

Steam Table interpolation includes changing from psig to psia:

- Header A – For steam pressure 783.1 / 783.4 psia interpolate h_g between 780 and 820 psia to calculate values between 1199.9 BTU/LB and 1198.7 BTU/LB, respectively.
- Header B – For steam pressure 772.5 / 772.8 psia interpolate h_g between 740 and 780 psia to calculate values between 1200.9 BTU/LB and 1199.9 BTU/LB, respectively.

Performance: SATISFACTORY UNSATISFACTORY

Comments:

Performance Step: 4 Critical: <u>Yes</u>	SP-87-125, Step 6.7.3.b: CALCULATE Reactor Thermal Output Using Enthalpy per ATTACHMENT B. 3. CALCULATE MWt output for SG A: $MWt(A) = (FW \text{ Flow}) \text{ K-LBM/HR} \times [(ho(A) - hi(A)) \text{ BTU/LBM}] / 3413 \text{ K-BTU/MW-HR}$
Standard:	Determine the MWt for SG A from the calculation using the recorded and computed data. [883.00 to 883.40]
Evaluator Note:	Calculation range is based upon use of highest and lowest values for FW flows and the use of RD or Steam Table values.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 5 Critical: <u>Yes</u>	SP-87-125, Step 6.7.3.b: CALCULATE Reactor Thermal Output Using Enthalpy per ATTACHMENT B. 4. CALCULATE MWt output for SG B: $MWt(B) = (FW \text{ Flow}) \text{ K-LBM/HR} \times [(ho(B) - hi(B)) \text{ BTU/LBM}] / 3413 \text{ K-BTU/MW-HR}$
Standard:	Determine the MWt for SG B from the calculation using the recorded and computed data. [900.30 to 900.75]
Evaluator Note:	Calculation range is based upon use of highest and lowest values for FW flows and the use of RD or Steam Table values.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 6 Critical: <u>Yes</u>	SP-87-125, Step 6.7.3.b: CALCULATE Reactor Thermal Output Using Enthalpy per ATTACHMENT B. 5. CALCULATE Blowdown Correction: Blowdown Correction = 0.0758 MWt/GPM x (Blowdown Flow A + Blowdown Flow B) GPM
Standard:	Determine the MWt for Blowdown Correction from the calculation using the recorded data. [6.06]
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 7 Critical: <u>Yes</u>	SP-87-125, Step 6.7.3.b: CALCULATE Reactor Thermal Output Using Enthalpy per ATTACHMENT B. 6. CALCULATE Reactor Thermal Output: RTO = MWt(A) + MWt(B) – Blowdown Correction – 7.11 MW
Standard:	Determine the MWt for Reactor Thermal Output from the calculation using the recorded data. [1770.13 to 1770.98]
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 8	SP-87-125, Step 6.7.3.c
Critical: <u>Yes</u>	RECORD Reactor Thermal Output from ATTACHMENT B on ATTACHMENT A and SP-87-125, Step 6.7.3.b: CALCULATE Reactor Thermal Output Using Enthalpy per ATTACHMENT B. 7. RECORD Reactor Thermal Output on ATTACHMENT A
Standard:	Reactor Thermal Output recorded in "MWt" box on ATTACHMENT A.
Evaluator Note:	Action to copy the RTO to ATTACHMENT A is a step on ATTACHMENT B. It is also repeated as a step 6.7.3.c in the body of the procedure. ATTACHMENT A "Reactor Thermal Output" directs the performer to circle the method for determining the RTO. The bottom line should be circled to indicate the RTO was determined by "Calculation." Circling the method is NOT a critical action.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 9	SP-87-125, Step 6.7.3.b: CALCULATE Reactor Thermal Output Using Enthalpy per ATTACHMENT B.
Critical: <u>No</u>	8. Performed By:
Standard:	Fill in the "Performed By:" blanks by printing name and signature.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 10	SP-87-125, Step 6.7.3.d
Critical: <u>Yes</u>	CALCULATE AND RECORD Reactor Power Level per ATTACHMENT A. [Reactor Thermal Output x 100] / 1772 MWt
Standard:	Determine the % power for Reactor Power level from the calculation using the recorded data. Reactor Power Level recorded in “%” box on ATTACHMENT A. [99.89 to 99.94]
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 11	SP-87-125, Step 6.7.3.d
Critical: <u>No</u>	ATTACHMENT A: Date and time; Performed By:
Standard:	Fill in the “Date:” and “Time:” blanks by printing current date and time, respectively. Fill in the “Performed By:” blanks by printing name and signature.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 12	SP-87-125, Step 6.7.3.e
Critical: <u>No</u>	IF Heat Balance Calculation results will be used for Nuclear Power Range Daily Calibration, THEN RECORD Reactor Power Level on "Instrument Channel Checks and Nuclear Power Range Daily Calibration" data sheet.
Standard:	Determine step does NOT apply.
Evaluator Cue:	As Unit Supervisor, "This surveillance is being performed hourly as directed by AOP-CP-001 ATTACHMENT A; Not for the NIS calibration."
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 13	SP-87-125, Step 6.7.3.f
Critical: <u>No</u>	ATTACH completed copies of ATTACHMENT A, ATTACHMENT B and ATTACHMENT C to this procedure.
Standard:	Attach completed ATTACHMENT A and ATTACHMENT B to Procedure SP-75-125.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When SP-75-125 is returned to the UNIT SUPERVISOR: "This JPM is complete."

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: KPS

JPM TITLE: Determine Appropriate Actions For System Operations With Inoperable Equipment

JPM NUMBER: SO-119-JP19B **REV. A**

RELATED PRA INFORMATION: Diesel Generator is ranked the 1st system for importance to At-Power CDF & LERF. SI is ranked the 11th system for importance to At-Power CDF & 3rd for LERF.

TASK NUMBER(S) / TASK TITLE(S): 1190190302 / Apply Technical Specifications during plant operations

K/A NUMBERS: 2.2.44 RO / SRO Imp 4.2 / 4.4

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Lab:

Time for Completion: 10 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /S Instructor	1/27/09 Date
Validated by:	Andy Fahrenkrug /S Validation Instructor (See JPM Validation Checklist, Attachment 1)	2/10/09 Date
Approved by:	Terry Evans /S Training Supervisor	02/10/09 Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. *Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.*
2. *If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.*

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:

- You are the Shift Manager.
- The plant operating at 100% power.
- All initial operator actions for the plant conditions have been taken.

THE STEPS IN THIS JPM SHOULD BE: PERFORMED

THIS TASK IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

Determine the applicable Technical Specifications and the ACTIONS required based on the plant conditions.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

NOTE: Review GNP-05.16.06, ATTACHMENT A for Time Dependent Operator Actions. If the JPM addresses one of these tasks and the JPM is determined to be time critical or contain time critical performance steps, then GNP-05.16.06 will be included in the General References below. [OTH 12765]

Required Materials: KPS Technical Specifications

General References: KPS Technical Specifications

Task Standards: OP-KW-NOP-DGM-001B, Rev. 3; N-SI-33, Rev. 31
Identify that SI Accumulator cannot be restored until DG B return to OPERABLE. TS ACTION for Accumulator applies as most limiting – TS 3.3.a.2.B, 24 hour LCO

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 “Y/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

Identify plant conditions:

Standard:

Determine the following:

- D/G B inoperable due to maintenance (tagout).
- SI Accumulator A inoperable due to LOW level below the TS limit.

Evaluator Cue:

If asked about DG B: “DG B has been out of service for 6 hours for fuel pump replacement. The expected outage time for the DG is not known at this time. All required surveillances have been completed up to the current time.”

“Annunciator 47024-A (pressure) and 47024-B (level) has just actuated, and SI Accumulator A level has occurred due to recent Chemistry sampling.”

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 2

Critical: Yes

Diesel Generator B TS:

3.7.a The reactor shall not be made critical unless all of the following requirements are satisfied:

7. Both diesel generators are OPERABLE. The two underground storage tanks combine to supply at least 35,000 gallons of fuel oil for either diesel generator and the day tanks for each diesel generator contain at least 1,000 gallons of fuel oil.

LCO

3.7.b During power operation or recovery from inadvertent trip, any of the following conditions of inoperability may exist during the time intervals specified. If OPERABILITY is not restored within the time specified, then within 1 hour action shall be initiated to achieve HOT STANDBY within the next 6 hours.

2. One diesel generator may be inoperable for a period not exceeding 7 days provided within 24 hours, either:

A. Determine the OPERABLE diesel generator is not inoperable due to common cause failure, or

B. Perform surveillance requirement TS 4.6.a.1.A on the OPERABLE diesel generator

3.7.c When its normal or emergency power source is inoperable, a system, train or component may be considered OPERABLE for the purpose of satisfying the requirements of its applicable LIMITING CONDITION FOR OPERATION, provided:

1. Its corresponding normal or emergency power source is OPERABLE; and
2. Its redundant system, train, or component is OPERABLE.

Standard:

1. Identify 7-day LCO period with DG B inoperable.
2. Affects Train B equipment OPERABILITY in that Train B Electrical Distribution system supplied via the RAT must be OPERABLE, AND Train A required equipment must be OPERABLE.

Evaluator Note:

Item 2 of the STANDARD need NOT be directly identified at the time the DG TS is identified, but will be implicitly addressed in correct identification of actions as stated in PERFORMANCE STEP 4.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 3

Critical: Yes

SI Accumulator TS:

3.3.a Accumulators

1. The reactor shall not be made critical unless the following conditions are satisfied, except for LOW POWER PHYSICS TESTING and except as provided by TS 3.3.a.2.

A. Each accumulator is pressurized to at least 700 psig and contains $1250 \text{ ft}^3 \pm 25 \text{ ft}^3$ of water with a boron concentration of at least 2400 ppm, and is not isolated.

LCO

3.3.a.2 During power operation or recovery from an inadvertent trip, the following conditions of inoperability may exist during the time interval specified:

B. One accumulator may be inoperable for a reason other than TS 3.3.a.2.A [*Boron conc < 2400 ppm*] for 24 hours.

Standard:

1. Determine SI Accumulator A is inoperable due to level less than 40% on LT-938 channel and less than 36% on LT-939 channel. [Volume is $< 1225 \text{ ft}^3$]
2. Identify 24-hour LCO to restore SI Accumulator A volume with level $\geq 40.21\%$ (LT-938) and $\geq 36.61\%$ (LT-939).

Evaluator Note:

The required Technical Specification level in % can be found in either ARP 47024-B, 3.4 Comments or N-SI-33, ATTACHMENT B

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 4

Critical: Yes

Determine corrective actions to restore system OPERABILITY.

Standard:

Determine correct course of action:

1. Restore DG B to OPERABLE AND refill SI Accumulator A to within TS limits within 24 hours (to prevent unit backdown).

OR

2. If 24 hours elapses (in current condition), then initiate a unit backdown and:

- a. Achieve HOT STANDBY within the next 6 hours.
- b. Achieve HOT SHUTDOWN within the following 6 hours.
- c. Achieve COLD SHUTDOWN within an additional 36 hours.

(This timeline is to be met until DG B is restored to OPERABLE and SI Accumulator A is refilled to within TS limits.)

Evaluator Note:

With DG B inoperable application of TS 3.7.c is NOT allowed for using an SI Pump to fill the accumulator. An SI Pump used for filling the accumulator is inoperable during the time of filling. The other SI Pump is also inoperable (due to 3.7.c) during this time.

Wording provided by performer does not have to exactly match that given in the STANDARD as long as the action and key times are addressed.

Evaluator Cue:

Cue as necessary to elicit plan of action: (Suggested cues)

“What is required if the ‘component’ is NOT restored to OPERABLE within the listed time?”

“How would the ‘component’ be restored?”

“What is required to allow restoration of the ‘component?’”

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Terminating Cues:

When the performer has reported the identified the actions he/she identifies as required, “This JPM is complete.”

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: KPS

JPM TITLE: Don Class 2 Protective Clothing

JPM NUMBER: RO-119-JP12A **REV. A**

RELATED PRA INFORMATION: None

TASK NUMBER(S) / TASK TITLE(S): 1190120301 / Demonstrate an understanding of the responsibilities and requirements for the Nuclear Control Operator

K/A NUMBERS: 2.3.7 RO / SRO Imp 3.5 / 3.6

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:

Simulator: Other:

Classroom /

Lab:

Time for Completion: 10 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: AO / RO / SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /S	2/05/09
	Instructor	Date
Validated by:	Andy Fahrenkrug /S	02/09/09
	Validation Instructor (See JPM Validation Checklist, Attachment 1)	Date
Approved by:	Terry Evans /S	02/10/09
	Training Supervisor	Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. *Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.*
2. *If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.*

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:

- You are an extra operator on shift.
- Conditions require local action by the operator in a contaminated area.
- The RWP-XX provides coverage for this task.
- Class 2 Protective Clothing is specified in the RWP to include: 1 pair PC's (coveralls); Glove liners, Rubber gloves; Shoe covers; Rubber footwear, and Head cover (hood).
- All actions required prior to dressing out have been completed including obtaining TLD and dosimetry; and, logging into the RCA Access System.
- The clothes you are currently wearing will meet the identified “modesty garments” required underneath the Class 2 Protective Clothing.

THE STEPS IN THIS JPM SHOULD BE: PERFORMED

THIS TASK IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

Complete dress out in the specified Protective Clothing for entry into the contaminated area.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

NOTE: Review GNP-05.16.06, ATTACHMENT A for Time Dependent Operator Actions. If the JPM addresses one of these tasks and the JPM is determined to be time critical or contain time critical performance steps, then GNP-05.16.06 will be included in the General References below. [OTH 12765]

Required Materials: RWP-XX, specifying Class 2 Protective Clothing including a hood. Class 2 Protective Clothing, one set for each size. (Including Hood) Sign with dress out description that is usually posted at dress out area.

General References: RP-KW-001-005, Rev. 0
TR-AA-TPG-100, NET-APM #1-ANTI-CONTAMINATION CLOTHING

Task Standards: Protective Clothing donned as directed by RP-KW-001-005 and/or posted directions.

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 “Y/Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

NOTE: As allowed by NOTE in RP-KW-001-005:
Sequential variation in the steps for donning and removing protective clothing is permitted when that variation does not affect the intent of the procedure and is performed with Radiation Protection concurrence and/or involvement.

Performance Step: 1

Critical: No

RP-KW-001-005, Step 5.2.2:

COLLECT protective clothing required by the RWP from the storage racks.

Standard:

Obtain the following:

- 1 pair PCs (coveralls)
- 1 set of glove liners
- 1 set of rubber gloves
- 1 pair of shoe covers
- 1 pair rubber footwear
- 1 head cover (hood)

Evaluator Note:

The designated dressout area will be supplied with a selection of dressout items including labcoats which are designated for Class 1 Protective Clothing.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 2

Critical: No

RP-KW-001-005, Step 5.2.3:

INSPECT articles of protective clothing for rips, cuts, proper fit, and general integrity prior to donning the articles of protective clothing selected.

Standard:

Inspect all selected Protective Clothing for

- Rips or cuts
- Fit
- General integrity

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 3	RP-KW-001-005, Step 5.2.4:
Critical: <u>Yes</u>	DON shoe covers over your shoes, as appropriate.
Standard:	Place shoe covers over shoes.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 4	RP-KW-001-005, Step 5.2.5:
Critical: <u>Yes</u>	DON a pair of glove liners
Standard:	Place cotton glove (liners) over each hand.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 5

Critical: Yes

RP-KW-001-005, Step 5.2.6:

DON a pair of coveralls as follows:

- a. STEP into the coveralls making sure that the tops of the shoe covers are inside the pant legs.
- b. INSERT arms into the sleeves of the coveralls.

Standard:

Don coveralls:

- Tops of shoe covers are inside the coverall pant legs.
- Arms are inserted into sleeves with glove liners inside sleeves.
- The zipper on the coveralls is zipped all the way up

Evaluator Note:

The zipper may not be zipped all the way prior to the completion of the dressout to allow access to TLD and dosimetry.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 6

Critical: Yes

RP-KW-001-005, Step 5.2.7:

DON a second pair of shoe covers (i.e., rubber overshoes, plastic shoe covers).

Standard:

Rubber shoe covers placed over first set of shoe covers.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 7 Critical: <u>Yes</u>	RP-KW-001-005, Step 5.2.8: DON a pair of rubber gloves over the disposable glove liners, pulling the cuffs up over the sleeves of the coveralls.
Standard:	Rubber glove placed on each hand: <ul style="list-style-type: none">• Over glove liners.• Over the sleeves of the coverall.
Evaluator Note:	The coveralls are equipped with “oversleeves” that can be pulled down over the outer-most set of gloves.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 8 Critical: <u>No</u>	RP-KW-001-005, Step 5.2.9: PULL outer sleeves of coveralls over rubber gloves.
Standard:	Outer sleeve of coverall pulled down over outer-most (rubber) glove opening for each sleeve.
Evaluator Note:	The coveralls are equipped with “oversleeves” that can be pulled down over the outer-most set of gloves.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 9	RP-KW-001-005, Step 5.2.10:
Critical: <u>Yes</u>	DON head cover. This is normally a hard hat, but may include additional items (e.g., hood) if required by RWP.
Standard:	Hood is placed on head with bottom draped over coveralls.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 10	RP-KW-001-005, Step 5.2.11:
Critical: <u>No</u>	Unless otherwise directed by HP, PLACE dosimetry on upper torso with TLD and ED or DRD within one hands width of each other.
Standard:	Dosimetry and TLD placed on upper torso within one hands width.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 11	RP-KW-001-005, Step 5.2.12:
Critical: <u>No</u>	ENSURE that proper respiratory equipment is available, if required by the RWP
Standard:	Respiratory Equipment is NOT required by RWP.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When the performer has completed dress out, "This JPM is complete. You may remove the Protective Clothing."

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: KPS

JPM TITLE: Review Emergency Exposure Authorization

JPM NUMBER: SO-119-JP66A **REV.** A

RELATED PRA INFORMATION: None

TASK NUMBER(S) / TASK TITLE(S): 1190660302 / Control Emergency Radiation to achieve ALARA

K/A NUMBERS: 2.3.7 RO / SRO Imp 3.5 / 3.6

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:

Simulator: Other: Classroom

Lab:

Time for Completion: 10 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: SRO

Additional signatures may be added as needed.

Developed by: Stephen Johnson /S	1/28/09
Instructor	Date
Validated by: Andy Fahrenkrug /S	02/10/09
Validation Instructor (See JPM Validation Checklist, Attachment 1)	Date
Approved by: Terry Evans /S	02/10/09
Training Supervisor	Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. *Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.*
2. *If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.*

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:

- You are the Shift Manager / Emergency Director.
- An accident has occurred at the plant.
- A SITE AREA EMERGENCY has been declared.
- Radiation levels are elevated in the Aux Building.
- The task is to CLOSE SI-8A and SI-8B to stop leakage past SI-38, SI Pmp 1A/1B Disch X-Connect Line Drain, that is threatening to flood the RHR Pits.
- Two individuals have volunteered for the job.
- Emergency Exposure Authorizations and an Emergency Radiation Work Permit have been prepared.

THE STEPS IN THIS JPM SHOULD BE: PERFORMED

THIS TASK IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

Review Forms EPIPF-AD-11-04, Emergency Exposure Authorization, and EPIPF-AD-11-01, Emergency Radiation Work Permit, for approval.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

NOTE: Review GNP-05.16.06, ATTACHMENT A for Time Dependent Operator Actions. If the JPM addresses one of these tasks and the JPM is determined to be time critical or contain time critical performance steps, then GNP-05.16.06 will be included in the General References below. [OTH 12765]

Required Materials: Form EIPF-AD-11-01 completed through the “APPROVAL” blocks except for E.D blank. Form EIPF-AD-11-04 (2) for two individuals completed up to the Emergency Director Approval block which is blank.

General References: EIP-AD-11, Rev. 22

Task Standards: Approval of the Forms EIPF-AD-11-01 and EIPF-AD-11-04 is withheld since the exposure exceeds that allowable for the protection of valuable property.

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 “Y/Yes” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

NOTE: The Performance Steps of this JPM are arranged to match the layout of procedure EIP-AD-11. This procedure provides guidance related to requirements related to Emergency Radiation Controls but is not required to be performed step-by-step. Therefore, the Performance Steps may be addressed in any order.

Performance Step: 1

Critical: No

EPIP-AD-11, 5.1.1

The requirements of the Health Physics Procedures shall be applicable during all radiological emergencies with the following exceptions:

5.1.1.1 Exceptions authorized by the Radiological Protection Director (RPD) or Emergency Director (ED).

5.1.1.2 Exceptions documented and authorized using "Emergency Radiation Work Permit," Form EPIPF-AD-11-01.

5.1.1.3 Exceptions outlined in this procedure.

Standard:

- Recognize the authority of Emergency Director
- Determine Form EPIPF-AD-11-01 is exception to normal HP Procedures.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 2

Critical: No

EPIP-AD-11, 5.1.2

For RCA entries, if any 10CFR20 dose limit is likely to be exceeded, an "Emergency Radiation Work Permit," Form EPIPF-AD-11-01, shall be completed. Otherwise, use an existing Radiation Work Permit (RWP) or fill out a RWP in accordance with NAD-08.03, "Radiation Work Permit."

Standard:

Determine that Form EPIPF-AD-11-01 is being used since dose limits are likely to exceed 10CFR20 dose limit(s).

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 3

Critical: No

EPIP-AD-11, 5.1.3

A PRIORITY ENTRY can be used for quick action to expedite the entry of emergency response personnel into the RCA in accordance with EPIP-RET-02D, "Emergency Radiation Entry Controls and Implementation" and should NOT exceed 10CFR20 dose limits.

Standard:

Determine condition is not PRIORITY ENTRY.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 4

Critical: No

EPIP-AD-11, 5.1.4

For any task where an exposure greater than 10CFR20 dose limits is likely, an "Emergency Exposure Authorization," Form EPIP-AD-11-04, shall be completed. All exposures which could exceed 10CFR20 dose limits shall be approved by the ED.

Standard:

Determine Form EPIP-AD-04 is to be completed, and if exposures which could exceed 10CFR20 dose limits, approval by the ED (Performer) is required.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 5

Critical: No

Form EPIPF-AD-11-04 , Emergency Exposure Authorization
Emergency Exposure Authorization blocks completed through RPD
recommendation

Standard:

Determine that blanks are completed for form(s):

- Individual Name, SS# and age
- Reason for exposure. [Wording for task involving “protection of valuable property.”]
- Estimated Dose values listed TEDE, LDE and SDE/TODE
- Authorized Emergency Dose values listed. [Values listed are from life-saving section of table 5.1b, EPIP-AD-11.
- Individual signature and date
- RPO/Shift HP signature and date

Evaluator Note:

Two Form EPIPF-AD-11-04 forms are provided for the two individuals that will be performing the “task” in plant. Each Form reads the same except for the Individual name, SS# and age. It does not matter which form (or both) is reviewed to determine the error identified in the next PERFORMANCE STEP.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 6

Critical: Yes

Form EPIPF-AD-11-04 , Emergency Exposure Authorization

Qualitative evaluation of information.

Standard:

1. Determine values for Authorized Emergency Dose are those for “*Emergency workers’ exposure should be controlled below these levels when their mission involves life saving or protection of large populations.*”
2. Determine task is for “*mission involves protecting valuable property.*”
3. Refuse to / does not sign ED Authorization on either Form EPIPF-AD-11-04 since the Authorized Emergency Dose values are greater than the recommended for the task of protecting valuable property.
4. Identify the correct limits for Authorized Emergency Dose from Form EPIPF-AD-11-04 (Emergency Exposure Guidelines: 3) or EPIP-AD-11, Table 5.1b second row.
 - TEDE – 10 Rem (< 10 Rem)
 - LDE – 30 Rem (< 30 Rem)
 - SDE/TODE – 100 Rem (< 100 Rem)

Evaluator Cue:

If Performer identifies error(s) in Authorized Emergency Dose values, but does not identify/report the CORRECT values, “What are the proper dose limits?”

If Form EPIPF-AD-11-04 reviewed first and Performer indicates NO further action, “Continue with review of the Emergency Radiation Work Permit.”

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 7

Critical: No

Form EPIPF-AD-11-01 , Emergency Radiation Work Permit

Emergency Radiation Work Permit blocks completed through RPD Approval.

Standard:

Determine that blanks are completed for form:

- Date Prepared
- Effective Dates
- RWP No., ALARA No.
- System No. [33]
- Estimated Dose
- Estimated Man-hours
- Job Description and location [Wording for task involving “protection of valuable property.”]
- Assigned Workers Name, TLD Init
- Contact Radiation
- Gen Area Radiation
- Contamination Levels
- Instrument Used and Serial Number
- Individual Requirements marked [Dosimetry, TLD Badge, Coveralls, Hood/Cap, Shoe Covers, Glove Liners, Rubber Gloves]
- Special Instructions [Action based on condition]
- Work Supervisor Approval signature
- RPD Approval signature

Evaluator Note:

The following will not be marked or indicated: DCR No., MWR No., Lab Coat, Paper Suit, Plastic Suit, Any Respiratory requirements.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 8

Critical: Yes

Form EPIPF-AD-11-01, Emergency Radiation Work Permit
ED Approval

Standard:

Emergency Radiation Work Permit not signed for authorization based on review of Form EPIPF-AD-11-04, Emergency Exposure Authorization, errors.

Evaluator Note:

The review of the two Emergency Exposure Authorization forms should occur prior to approval of the Emergency Radiation Work Permit to ensure the ASSIGNED WORKERS are properly identified and authorized.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Terminating Cues:

When the performer has completed review of Forms EPIPF-AD-11-04 and EPIPF-AD-11-01, "This JPM is complete."

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: KPS

JPM TITLE: Classify an Emergency Event (Small-Break LOCA)

JPM NUMBER: SO-119-JP03L REV. A

RELATED PRA INFORMATION: None

TASK NUMBER(S) / TASK TITLE(S): 1190030502 / Determine Emergency Classification

K/A NUMBERS: 2.4.419 RO / SRO Imp 2.9 / 4.6

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Lab:

Time for Completion: 7 Minutes Time Critical: Yes
15 minutes

Alternate Path / Faulted: No

TASK APPLICABILITY: SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /s Instructor	1/16/09 Date
Validated by:	Stephen Johnson /s Validation Instructor (See JPM Validation Checklist, Attachment 1)	1/28/09 Date
Approved by:	Terry Evans /s Training Supervisor	02/10/09 Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. *Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.*
2. *If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.*

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:

- You are the Shift Manager.
- The plant has experienced the transient based on the just-run scenario
- Plant conditions are as you see them.

THE STEPS IN THIS JPM SHOULD BE: PERFORMED

THIS TASK IS TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

Classify the event based on current conditions. (Notification paperwork is NOT required.)

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

NOTE: Review GNP-05.16.06, ATTACHMENT A for Time Dependent Operator Actions. If the JPM addresses one of these tasks and the JPM is determined to be time critical or contain time critical performance steps, then GNP-05.16.06 will be included in the General References below. [OTH 12765]

Required Materials: EPIP-AD-02; EAL Matrix

General References: EPIP-AD-02, Rev. AS
Emergency Action Level Matrix, Rev. 4

Task Standards: Time critical.
The event is classified as a **SITE AREA EMERGENCY** per EAL Matrix FA-1 within 15 minutes from the Start Time.

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 “Y/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 Assess the plant conditions.

Standard:

Check events that occurred:

- RCS leak exceeding Charging Pump capacity (with reactor trip and SI initiation)
- Bus 5 lockout
- Failure of SI pump B to auto start. (Manual start satisfied.)
- ICCMS subcooling LESS THAN 30°F with reactor tripped.

Performance: SATISFACTORY UNSATISFACTORY

Comments:

Performance Step: 2
Critical: Yes
(TIME CRITICAL)

Determine the highest level of Emergency Classification for event.

Standard:

Refer to EAL Matrix – HOT CONDITIONS (RCS > 200°F)

Under Table F-1 determine:

RCS Barrier – Loss exists:

2. RCS Leak Rate – GREATER THAN available makeup capacity as indicated by a loss of RCS subcooling: - LESS THAN 30°F if the reactor is subcritical

OR

RCS Barrier – Potential Loss exists:

2. RCS Leak Rate – Unisolable leak GREATER THAN 60 gpm, the capacity of one charging pump in the charging mode

In Matrix determine FA1: ANY Loss or ANY Potential Loss of EITHER Fuel Clad OR RCS (Table F-1), applies.

Declare ALERT.

Evaluator Note:

In accordance with EPIP-AD-02 Emergency Class Determination step 3.3, Once indication is available that an emergency action level has been met, classification must be made as soon as possible and must not exceed 15 minutes.

Therefore, the examinee has 15 minutes from the Start Time to classify the ALERT per EAL Matrix.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Terminating Cues: When the performer has completed classification, “This JPM is complete.”

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: KPS

JPM TITLE: Classify an Emergency Event (Automatic Reactor Trip Failure)

JPM NUMBER: SO-119-JP03M **REV.** A

RELATED PRA INFORMATION: None

TASK NUMBER(S) / TASK TITLE(S): 1190030502 / Determine Emergency Classification

K/A NUMBERS: 2.4.419 RO / SRO Imp 2.9 / 4.6

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Lab:

Time for Completion: 7 Minutes Time Critical: Yes
15 minutes

Alternate Path / Faulted: No

TASK APPLICABILITY: SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /s Instructor	1/20/09 Date
Validated by:	Stephen Johnson /s Validation Instructor (See JPM Validation Checklist, Attachment 1)	1/28/09 Date
Approved by:	Terry Evans /s Training Supervisor	02/10/09 Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. *Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.*
2. *If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.*

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:

- You are the Shift Manager.
- The plant has experienced the transient based on the just-run scenario
- Plant conditions are as you see them.

THE STEPS IN THIS JPM SHOULD BE: PERFORMED

THIS TASK IS TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

Classify the event based on current conditions. (Notification paperwork is NOT required.)

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

NOTE: Review GNP-05.16.06, ATTACHMENT A for Time Dependent Operator Actions. If the JPM addresses one of these tasks and the JPM is determined to be time critical or contain time critical performance steps, then GNP-05.16.06 will be included in the General References below. [OTH 12765]

Required Materials: EPIP-AD-02; EAL Matrix

General References: EPIP-AD-02, Rev. AS
Emergency Action Level Matrix, Rev. 4

Task Standards: Time critical.
The event is classified as a **SITE AREA EMERGENCY** per EAL Matrix FA-1 within 15 minutes from the Start Time.

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 “Y/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

Assess the plant conditions.

Standard:

Check events that occurred:

- SW Pump 1A1 tripped and SW Pump 1B2 failed to automatically start.
- Steam leak inside Containment from SG A.
- Reactor Trip Breakers fail to open on automatic or manual reactor trip. Rods insert when both Bus 33 and Bus 43 Supply breakers are opened.
- AFW Pump B fails to auto start and is manually started.
- Containment Spray fails to automatically actuate, and the operator must perform ICS valve alignment and manually start ICS pumps.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 2
Critical: Yes
(TIME CRITICAL)

Determine the highest level of Emergency Classification for event.

Standard:

Refer to EAL Matrix – HOT CONDITIONS (RCS > 200°F)

Under System Malfunct. determine RPS Failure:

SA2.1

Indications(s) exist that a Reactor Protection System setpoint was exceeded

AND

RPS automatic trip did not reduce power to LESS THAN 2%

AND

Any of the following operator actions are successful in reducing power to LESS THAN 2%:

- Use of Manual; Reactor Trip push buttons
- De-energizing Busses 33 and 43

Declare ALERT.

Evaluator Note:

In accordance with EPIP-AD-02 Emergency Class Determination step 3.3, Once indication is available that an emergency action level has been met, classification must be made as soon as possible and must not exceed 15 minutes.

Therefore, the examinee has 15 minutes from the Start Time to classify the ALERT per EAL Matrix.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Terminating Cues: When the performer has completed classification, “This JPM is complete.”

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: KPS

JPM TITLE: Operate Safety Injection System in the Recirc Mode

JPM NUMBER: RO-E01-JP041 **REV.** C

RELATED PRA INFORMATION:

TASK NUMBER(S) / TASK TITLE(S): E010040501 / Perform a Transfer to Containment Sump Recirculation

K/A NUMBERS: 011EA1.11, RO/SRO IMP 4.2/4.2

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:

Simulator: Other:

Lab:

Time for Completion: 20 Minutes Time Critical: YES

Alternate Path / Faulted: YES

TASK APPLICABILITY: RO/SRO

Additional signatures may be added as needed.

Developed by: Stephen Johnson /s	12/15/08
Instructor	Date
Validated by: Stephen Johnson /s	01/08/09
Validation Instructor (See JPM Validation Checklist, Attachment 1)	Date
Approved by: Terry Evans /s	2/10/09
Training Supervisor	Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.
2. If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.

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:

1. You are the Reactor Operator.
2. A large break LOCA has occurred.
3. RCS pressure is at Containment pressure.
4. RWST level is at approximately 27%.

The steps in this JPM should be performed.

THIS JPM CONTAINS TIME CRITICAL ELEMENTS.

INITIATING CUES (IF APPLICABLE):

You are directed by the Unit Supervisor to align SI system for recirculation using ES-1.3, “Transfer to Containment Sump Recirculation”, starting at step 12.

INFORM the evaluator when you have completed the task.

Do you have any questions before we begin? – Answer any questions

Performance Step: 2 Critical <u>No</u>	Step 13.a ALIGN Train B RHR Pump for Recirculation: CHECK Containment Sump B Supply to RHR Pump B - OPEN <ul style="list-style-type: none">• SI-350B
Standard:	CHECK red light ON, green light OFF.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 3 Critical <u>Yes</u>	Step 13.b ALIGN Train B RHR Pump for Recirculation: CLOSE RWST Supply to RHR Pump B <ul style="list-style-type: none">• SI-300B
Standard:	POSITION control switch for SI-300B to CLOSE. VERIFY green light ON, red light OFF.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 4 Critical <u>No</u>	Step 13.c ALIGN Train B RHR Pump for Recirculation DO NOT CONTINUE until RWST Supply to RHR Pump B is closed <ul style="list-style-type: none">• SI-300B
Standard:	Do not continue until SI-300B is closed with green light ON and red light OFF.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 5 Critical <u>No</u>	Step 13.d ALIGN Train B RHR Pump for Recirculation: OPEN Containment Sump B Supply to RHR Pump B <ul style="list-style-type: none">• SI-351B
Standard:	Take SI-351B to OPEN. VERIFY red light ON, green light OFF.
Evaluator Note:	Step is NOT critical since Train B RHR Pump fails to start later.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 6 Critical <u>No</u>	Step 13.e ALIGN Train B RHR Pump for Recirculation: CLOSE RHR Heat Exchanger B Flow CV <ul style="list-style-type: none">• RHR-8B
Standard:	POSITION RHR-8B Hand Station flow controller to 100% CLOSE.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 7 Critical <u>No</u>	Step 13.f ALIGN Train B RHR Pump for Recirculation: START RHR Pump B
Standard:	POSITION RHR pump B C/S to START/AUTO. OBSERVE RHR Pump B red light OFF, green light ON and white light ON. Perform "Response Not Obtained" and go to step 16 for aligning Train A RHR using alternate method.
Evaluator Note:	Starting RHR Pump is NOT critical but attempting to start does provide the operator the CUE to apply RNO for aligning Train A Alternate Path.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

NOTE: The BOOTH OPERATOR will check RWST level and when directed by EVALUATOR (“TIME COMPRESSION” statement completed), INSERT Remote Function SI131 (RWST Level) set to 10%. When value has changed to 10%, then DELETE SI131.

Performance Step: 8 Critical <u>No</u> TIME CRITICAL START: _____	Step 16.a ALIGN Train A RHR Using Alternate Method: CHECK RWST Level – LESS THAN or EQUAL to 10%
Standard:	Checks RWST level indication \leq 10%. When RWST level indication is \leq 10%, continues actions of procedure.
Evaluator Note:	The TIME CRITICAL portion of the JPM begins at the point when RWST level is less than or equal to 10%. Record the time above when the OPERATOR acknowledges that RWST is less than nor equal to 10%.
Evaluator Cue:	After operator notes that RNO directs “DO NOT CONTINUE...” then inform operator, “ TIME COMPRESSION – RWST level is now 10%. ”
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 9 Critical <u>No</u>	Step 16.b ALIGN Train A RHR Using Alternate Method: VERIFY SI Pump A – Running
Standard:	Checks SI pump A running: Red light ON, Green light OFF.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 10 Critical <u>No</u>	Step 16.c ALIGN Train A RHR Using Alternate Method: STOP SI Pump B
Standard:	Verify SI pump B stopped. Green light ON, Red light OFF
Evaluator Note:	SI Pump B was stopped at Step 4.b
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 11 Critical <u>Yes</u>	Step 16.d ALIGN Train A RHR Using Alternate Method: STOP both RHR Pumps <ul style="list-style-type: none">• RHR Pump A• RHR Pump B
Standard:	Position RHR pump A C/S to Stop/Auto. Green light ON, Red light OFF.
Evaluator Note:	Stopping RHR Pump A is critical prior to performing Step 16.g where the suction from the RWST to RHR Pump A is isolated. If NOT stopped Pump would be operating without adequate suction source. RHR Pump B was stopped at Step 4.c and failed to start at Step 13.f.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 12 Critical <u>No</u>	Step 16.e ALIGN Train A RHR Using Alternate Method: STOP Both ICS pumps <ul style="list-style-type: none">• ICS Pump A• ICS Pump B
Standard:	Position ICS pump A C/S in Stop/Auto. Green light ON, Red light OFF.
Evaluator Note:	This action maximizes time to reaching RWST level less than 4%. ICS Pump B was stopped at Step 8.b.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 13 Critical <u>No</u>	Step 16.f ALIGN Train A RHR Using Alternate Method: CHECK Containment Sump B Supply to RHR Pump A - OPEN <ul style="list-style-type: none">• SI-350A
Standard:	VERIFY red light ON, green light OFF.
Evaluator Note:	SI-350A was opened in Step 7.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 14 Critical <u>Yes</u>	16.g ALIGN Train A RHR Using Alternate Method: CLOSE RWST Supply to RHR Pump A <ul style="list-style-type: none">• SI-300A
Standard:	POSITION control switch for SI-300A to CLOSE. VERIFY green light ON, red light OFF.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 15 Critical <u>No</u>	Step 16.h ALIGN Train A RHR Using Alternate Method: DO NOT CONTINUE until RWST Supply TO RHR Pump A is closed <ul style="list-style-type: none">• SI-300A
Standard:	Do not continue until SI-300A is closed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 16 Critical <u>Yes</u>	Step 16.i ALIGN Train A RHR Using Alternate Method: OPEN Containment Sump B Supply to RHR Pump A <ul style="list-style-type: none">• SI-351A
Standard:	Position control switch for SI-351A to OPEN. VERIFY red light ON, green light OFF.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 17 Critical <u>No</u>	Step 16.j ALIGN Train A RHR Using Alternate Method: CLOSE RHR Heat Exchanger A Flow CV <ul style="list-style-type: none">• RHR-8A
Standard:	POSITION RHR-8A Hand Station flow controller to 100% CLOSE.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 18 Critical <u>Yes</u>	Step 16.k ALIGN Train A RHR Using Alternate Method: START RHR Pump A
Standard:	POSITION RHR pump A C/S to START/AUTO. <ul style="list-style-type: none">• VERIFY RHR Pump A red light ON, green light OFF.• VERIFY RHR Pump A Motor Current meter pegs high then returns to nominal amps. (Not critical) OR <ul style="list-style-type: none">• VERIFY RHR Pump A Disch Press meter PI-626 indicates 100-175 psig. (Not critical)
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 19 Critical <u>No</u>	Step 17.a VERIFY Train A RHR Recirculation Flow CHECK RCS pressure – LESS THAN 270 PSIG [300 PSIG]
Standard:	OBSERVE RCS WR pressure indicator PI-420 or Yokogawa recorder 42556 pressure less than 270 psig.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

<p>Performance Step: 20 Critical <u>Yes</u> TIME CRITICAL STOP:</p> <hr/> <p>Standard:</p>	<p>Step 17.b VERIFY Train A RHR Recirculation Flow TROTTLER RHR Heat Exchanger A Flow CV as necessary to maintain RHR recirculation flow at 1500 GPM</p> <p>ESTABLISH at least 500 gpm recirculation flow with RHR pump A:</p> <ul style="list-style-type: none"> • Throttle open RHR-8A. • Maintain flow at least 1500 gpm. (Not critical) <p>Time from RWST level at 10% to RHR flow greater than or equal to 500 gpm is equal to or less than 8.7 minutes.</p>
<p>Evaluator Note:</p>	<p>The TIME CRITICAL portion of the JPM ends at the point when RHR recirculation flow is established at greater than 500 gpm. Record the time above when the OPERATOR acknowledges that RWST is less than or equal to 10%. The difference between this time and that recorded in Performance Step 8 must be equal to or less than 8.7 minutes (8 min, 42 sec). Time Stop (Step 21) _____ - Time Start (Step 8) _____ = _____</p> <p>Using ES-1.1 ATTACHMENT A, Required SI Flow Versus Time After Trip, at 30 minutes following the trip (0.5 hours) 230 gpm of SI flow is required for heat removal. Based upon this and the range for RHR flow indicator (FI-626), 500 gpm is selected as the value for minimum ECCS recirculation flow, while the procedure directs establishing 1500 gpm flow.</p>
<p>Performance:</p> <p>Comments:</p> <hr/>	<p>SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/></p>

<p>Performance Step: 21 Critical <u>No</u></p> <p>Standard:</p>	<p>Step 17.c GO TO Step 20</p> <p>Go to Step 20.</p>
<p>Evaluator Note:</p>	<p>Step 20 directs, CHECK Running RHR PUMPS – NOT CAVITATING.</p>
<p>Performance:</p> <p>Comments:</p> <hr/>	<p>SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/></p>

Terminating Cues: When transition has been made to Step 20, Check Running RHR PUMPS – NOT CAVITATING, CUE: “This JPM is complete.”

Stop Time: _____

NOTE: This JPM covers a portion of one of the Time Critical Operator Actions in GNP-05.16.06, ATTACHMENT A (Item 1.2). Before using this JPM, review GNP-05.16.06, ATTACHMENT A to ensure this JPM correctly reflects the current value(s) for Required Time, and is based on the information from the Scenario Real Time Event Log (Form GNP-05.16.06) kept during the TIME VALIDATION performed in accordance with GNP-05.16.06.

JOB PERFORMANCE MEASURE (JPM)

SITE: Kewaunee Power Station

JPM TITLE: Depressurize the RCS during Cooldown

JPM NUMBER: RO-036-JP25A **REV. A**

RELATED PRA INFORMATION:

TASK NUMBER(S) / TASK TITLE(S): 0360250101 / Operate the Pressurizer Pressure Control System to control pressure during a cooldown

K/A NUMBERS: 010A1.07 RO/SRO Imp 3.7 / 3.7

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:

Simulator: Other:

Lab:

Time for Completion: 10 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: RO/SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /S	12/15/08
	Instructor	Date
Validated by:	Stephen Johnson /S	01/08/09
	Validation Instructor (See JPM Validation Checklist, Attachment 1)	Date
Approved by:	Terry Evans /S	02/10/09
	Training Supervisor	Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.
2. If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.

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:

1. You are the Reactor Operator.
2. The plant has begun a cooldown and depressurization from HOT SHUTDOWN conditions.
3. RCS pressure is to be maintained within limitations of RD-11.1 during cooldown by adjusting PRZR Spray Master Controller setpoint as directed in Step 5.2.6 of OP-KW-GOP-203, SHUTDOWN FROM HOT SHUTDOWN TO RHR.
4. OP-KW-GOP-203 is currently in progress at Step 5.2.17, INITIATE RCS depressurization to 925-975 psig.

THIS JPM IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

The US directs you to continue the RCS depressurization by performing Steps 5.2.17 and 5.2.18.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

Required Materials: **GOP-203, Steps 5.2.17 through 5.2.20 (pages 16 and 17)**
 RD 11.1.1 graph

General References: **OP-KW-GOP-203, Rev. 4**
 RD 11.1.1 Rev. 04/30/07

Task Standards: **RCS pressure between 1950 and 1975 psig with safety injection blocked AND**
 RCS pressure and temperature maintained within limits of RD 11.1.1.

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 “Y” or “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	GOP-203, Step 5.2.17
Critical <u>Yes</u>	INITIATE RCS depressurization to 925-975 psig.
Standard:	Lower PRZR Spray Master Controller setpoint to lower PRZR (RCS) pressure.
Evaluator Note:	The operator should rotate the setpoint dial clockwise to lower the desired pressure setpoint, and verify PS-1B opens to lower PRZR pressure. Pressurizer pressure may be monitored using the recorder 42301 and/or indicators PI-429, PI-430, PI-431 and PI-449A until PRZR pressure reaches 1700 psig. Below 1700 psig, wide range RCS pressure is monitored on PI-419, PI-420 and/or recorder 42556. The rate of pressure decrease is NOT significant as long as temperature-pressure is maintained within limits of RD11.1.1.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 2	GOP-302, Step 5.2.18.a
Critical <u>No</u>	WHEN RCS pressure is 1950-1975 psig, THEN PERFORM the following to block safety injection: VERIFY permissive status light 44905 1101, Pressurizer Perm Block SI, ON.
Standard:	Check Permissive Status Light 44905-1101, PRESSURIZER PERM BLOCK SI, lit.
Evaluator Note:	Annunciator 47024-E, SI ACMTR A/B ISOLATION VALVE ABNORMAL, alarms when RCS pressure falls below 2000 psig (SER0919 - LOCK OPEN ACCUMULATOR VALVES). This is an expected alarm for RCS conditions.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 3	GOP-302, Step 5.2.18.b
Critical <u>Yes</u>	WHEN RCS pressure is 1950-1975 psig, THEN PERFORM the following to block safety injection: POSITION Safety Injection Train A Block/Unblock switches to BLK.
Standard:	Safety Injection Train A Block/Unblock control switch taken to BLK position and released to neutral (center) position.
Evaluator Note:	The Safety Injection Train A/B Block/Unblock switches are on MCC just above the ICS section. BOTH switches MUST be operated to BLK in order to satisfactorily block the low PRZR pressure SI and low steam line pressure SI signals.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 4	GOP-302, Step 5.2.18.c
Critical <u>Yes</u>	WHEN RCS pressure is 1950-1975 psig, THEN PERFORM the following to block safety injection: POSITION Safety Injection Train B Block/Unblock switches to BLK.
Standard:	<ol style="list-style-type: none">1. Safety Injection Train B Block/Unblock control switch taken to BLK position and released to neutral (center) position.2. Pressurizer SI signal BLOCKED when Permissive Status Light 44905-1102, PRESSURIZER SI BLOCKED after BOTH Safety Injection Block /Unblock switches operated.
Evaluator Note:	The Safety Injection Train A/B Block/Unblock switches are on MCC just above the ICS section. BOTH switches MUST be operated to BLK in order to satisfactorily block the low PRZR pressure SI and low steam line pressure SI signals.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 5	GOP-302, Step 5.2.18.d
Critical <u>No</u>	WHEN RCS pressure is 1950-1975 psig, THEN PERFORM the following to block safety injection: VERIFY permissive status light, 44905 1102, Pressurizer SI Blocked, ON.
Standard:	Checks Permissive Status Light 44905-1102, PRESSURIZER SI BLOCKED, lit.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Terminating Cues: When RCS pressure is lowered to between 1950 and 1975 psig and actions to block Pressurizer SI signal have been taken per GOP-302 step 5.2.18: This JPM is complete.

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: Kewaunee Power Station

JPM TITLE: Shutdown RHR for At Power Operation

JPM NUMBER: RO-034-JP06A **REV. A**

RELATED PRA INFORMATION:

TASK NUMBER(S) / TASK TITLE(S): 0340060101 / Shutdown the Residual Heat Removal System for At Power Operation

K/A NUMBERS: 004A4.01 RO/SRO Imp: 3.6 / 3.4
2.1.23 RO/SRO Imp: 4.3 / 4.4

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
Simulator: Other:
Lab:

Time for Completion: 15 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: RO/SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /s	02/11/09
	Instructor	Date
Validated by:	Andy Fahrenkrug /s	02/11/09
	Validation Instructor (See JPM Validation Checklist, Attachment 1)	Date
Approved by:	Terry Evans /s	02/12/09
	Training Supervisor	Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.
2. If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.

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:

- You are the Reactor Operator.
- The plant is heating up from COLD SHUTDOWN to HOT SHUTDOWN.
- RHR is being shutdown as directed by OP-KW-GOP-103, STARTUP FROM RHR TO HOT SHUTDOWN (Step 5.3.1.b), and in accordance with N-RHR-34, Residual Heat Removal System Operation.
- N-RHR-34 sections 2.0, Precautions and Limitations and 3.0, Initial Conditions have been reviewed and completed.

THIS JPM IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

The US directs you to shutdown the RHR system using N-RHR-34, Section 4.3, Shutdown of RHR System for At Power Operation.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

Required Materials: N-RHR-034 with section 2.0 marked and all of section 3.0 initialed.

General References: N-RHR-034, Rev. 71
OP-KW-GOP-103, Rev. 2

Task Standards: RHR aligned for recirculation cooldown with RHR-8A and RHR-8B open and RHR-11 closed.

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	N-RHR-34, Step 4.3.1
Critical <u>No</u>	(CR/L) CLOSE the following: <ul style="list-style-type: none">• RHR-210, RHR/CVC Inlet Isolation• RHR-211, RHR/CVC Outlet Isolation
Standard:	Contact AO to close RHR-210 and RHR-211. Receive report from AO that RHR-210 and RHR-211 are closed. Initial 1 st blank in INITIALS column.
Evaluator Note:	Closing these valves isolates the 2 in. line from RHR Hx A outlet to CVCS letdown line upstream of the LTDN Hx (RHR Cleanup). RHR-210 and RHR-211 were previously closed during performance of OP-KW-GOP-102 at step 5.5.7, when establishing a bubble in the PRZR.
Evaluator Cue:	As AO; Acknowledge request. [TIME COMPRESSION] Report back that RHR-210 and RHR-211 are closed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 2	N-RHR-34, Step 4.3.2
Critical <u>No</u>	STATION an operator at Component Cooling Hx to monitor outlet temperature.
Standard:	Contact AO to monitor CCW Hx outlet temperature.
Evaluator Cue:	As AO, acknowledge request.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 3	N-RHR-34, Step 4.3.3
Critical <u>Yes</u>	CLOSE the following: <ul style="list-style-type: none">• RHR-8A/CV-31114, RHR Flow Control Hx A Outl• RHR-8B/CV-31115, RHR Flow Control Hx B Outl
Standard:	RHR-8A controller dial rotated fully counter-clockwise to 100 position, RHR-8A controller output indicator pointer is at CLOSE (100) indication. AND RHR-8B controller dial rotated fully counter-clockwise to 100 position, RHR-8B controller output indicator pointer is at CLOSE (100) indication.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 4 Critical <u>Yes</u>	N-RHR-34, Step 4.3.4 POSITION RHR-101/CV-31116, RHR Flow Control Bypass to MAN. 1. ADJUST RHR-101 to 5-10% OPEN.
Standard:	Check RHR-101 controller switch in MAN. RHR-101 output meter reads at or between 5 (second mark from left) and 10 (third mark from left).
Evaluator Note:	RHR-101 is normally operated in MAN. Annunciator 47021-G, RHR TO RCS COOLDOWN FLOW LOW, may alarm as RHR flow falls below 1250 gpm. This is an expected alarm for these plant conditions.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 5 Critical <u>No</u>	N-RHR-34, Step 4.3.5 IF both RHR Pumps are running, THEN STOP one RHR Pump as follows:
Standard:	Determine both RHR Pumps running and mark APPLIES.
Evaluator Cue:	As Unit Supervisor: RHR Pump A is to remain running. Stop RHR Pump B
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 6 Critical <u>No</u>	N-RHR-34, Step 4.3.5.1 IF both RHR Pumps are running, THEN STOP one RHR Pump as follows: IF RHR Pump A is operating AND is NOT required, THEN PERFORM the following:
Standard:	Determine step does NOT apply and mark NA.
Evaluator Cue:	(If not given before), As Unit Supervisor: RHR Pump A is to remain running. Stop RHR Pump B.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 7 Critical <u>No</u>	N-RHR-34, Step 4.3.5.2 IF both RHR Pumps are running, THEN STOP one RHR Pump as follows: IF RHR Pump B is operating AND is NOT required, THEN PERFORM the following:
Standard:	Determine step applies and mark APPLIES.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 8
Critical Yes

N-RHR-34, Step 4.3.5.2.a

IF both RHR Pumps are running, THEN STOP one RHR Pump as follows:

IF RHR Pump B is operating AND is NOT required, THEN PERFORM the following:

POSITION Residual Heat Removal Pump B control switch to STOP/AUTO.

Standard:

Take RHR Pump B control switch to STOP position and allow to return to AUTO position.

Observe RHR Pump B red light OFF; green light lit.

Evaluator Note:

Operator may also check other indications for pump stopping such as amps at ZERO (MTR CURRENT 41336); May also observe SI ACTIVE Status Light 44910-0207, RHR PUMP B ON, NOT lit

Annunciator 47021-G, RHR TO RCS COOLDOWN FLOW LOW, may alarm (reflash) as RHR flow falls below 1250 gpm. This is an expected alarm for these plant conditions.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 9 Critical <u>No</u>	N-RHR-34, Step 4.3.5.2.b IF both RHR Pumps are running, THEN STOP one RHR Pump as follows: IF RHR Pump B is operating AND is NOT required, THEN PERFORM the following: (CR/L) IF Pump Pit Fan Coil Unit is operating, THEN STOP RHR Pump B Pump Pit Fan Coil Unit.
Standard:	Direct AO to locally stop RHR Pump B Pump Pit Fan Coil Unit. Observe RHR Pump B Pump Pit Fan Coil Unit green light lit; red light OFF on MCC; and/or observe SI ACTIVE Status Light 44910-0307, RHR PUMP FAN COIL B ON, NOT lit. Initial 1 st blank in INITIALS column. (Not Critical)
Evaluator Note:	The BOOTH OPERATOR will stop RHR Pump B Pump Pit FCU by entering REMOTE FUNCTION CH104 (to TOGGLE then back to AUTO).
Evaluator Cue:	As AO acknowledge and report stopping RHR Pump B Pump Pit Fan Coil Unit.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 10 Critical <u>No</u>	N-RHR-34, Step 4.3.6 IF solid, THEN REDUCE LD-10/CV-31099 Letdown Cont Pressure setpoint to maintain RCS NR Pressure (PI-420).
Standard:	Determine step does NOT apply and mark NA.
Evaluator Note:	The operator may check recorder 42302 and PRZR level instruments LI-426, LI-427, LI-428 to determine PZRZ liquid level does exist with a stem bubble.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 11 Critical <u>Yes</u>	N-RHR-34, Step 4.3.7 CLOSE RHR-11/MV-32118, RHR Discharge To RCS Loop B.
Standard:	Take RHR-11 control switch to CLOSE position and release to center. Observe RHR-11 Green light lit; red light out.
Evaluator Note:	In accordance with the NOTE prior to the step, the Operator may observe an increase in letdown flow as indicated on FI-134. (See next Performance Step.)
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 12 Critical <u>No</u>	N-RHR-34, Step 4.3.7 NOTE Closing RHR-11 will cause an increase in letdown flow.
Standard:	Adjust LD-10 setpoint upward (increase pressure) to lower flow and maintain Przr level.
Evaluator Note:	Annunciator 47045-K, LETDOWN FLOW HIGH, will alarm if letdown flow rises above 90 gpm. The operator may adjust LD-10 prior to closing RHR-11 to prevent exceeding 90 gpm letdown flow.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 13	N-RHR-34, Step 4.3.8
Critical <u>Yes</u>	OPEN the following: <ul style="list-style-type: none">• RHR-8A• RHR-8B
Standard:	RHR-8A controller dial rotated fully clockwise to 0 position, RHR-8A controller output indicator pointer is at OPEN (0) indication. AND RHR-8B controller dial rotated fully clockwise to 0 position, RHR-8B controller output indicator pointer is at OPEN (0) indication.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 14	N-RHR-34, Step 4.3.9
Critical <u>No</u>	IF RHR System boron concentration has NOT been obtained within the last 24 hours, THEN REQUEST Chemistry obtain boron concentration for RHR System.
Standard:	Determine RHR System boron concentration NOT required to be obtained and mark NA.
Evaluator Cue:	As Unit Supervisor: Chemistry had sampled the RHR system on the previous shift (less than 12 hours).
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 15	N-RHR-34, Step 4.3.10
Critical <u>No</u>	RECIRCULATE RHR System until RHR Heat Exchanger Outlet Temperatures are less than 200°F (TI-12075 and 12076 locally).
Standard:	Direct AO to locally monitor RHR Hx Outlet Temperatures (for reading less than 200°F) Determine system needs to be in recirculation.
Evaluator Cue:	As AO acknowledge request. (If directed to provide local temperature readings: [TIME COMPRESSION – 5 minutes]: TI-12075 reads 275°F and TI-12076 reads 280°F.)
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When the operator determines recirculation is to be continued until RHR Hx Outlet temperatures cool less than 200°F: This JPM is complete.

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: Kewaunee Power Station

JPM TITLE: Rapid Power Reduction to Approximately 570 MWe

JPM NUMBER: RO-054-JP061 **REV.** C

RELATED PRA INFORMATION: None

TASK NUMBER(S) / TASK TITLE(S): 0540060101 / Change Turbine and Generator Load

K/A NUMBERS: 045 2.1.23 RO 3.9 / SRO 4.0

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Lab:

Time for Completion: 15 Minutes Time Critical: NO

Alternate Path / Faulted: YES

TASK APPLICABILITY: RO/SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /S	12/15/08
	Instructor	Date
Validated by:	Stephen Johnson /S	01/30/09
	Validation Instructor (See JPM Validation Checklist, Attachment 1)	Date
Approved by:	Terry Evans /S	02/10/09
	Training Supervisor	Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

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AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

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- 1. Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.**
- 2. If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.**

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:

1. You are the BOP Operator
2. The Unit Supervisor has directed a load backdown to LESS THAN OR EQUAL TO 570 MWe at 1% per minute.
3. The turbine is selected to TURBINE MANUAL due to cycling noted on the turbine control valves when in OPER AUTO.
4. Actions of OP-KW-AOP-GEN-002, Rapid Power Reduction, are in progress.
5. AOP-GEN-002 Steps 1 through 10 have been completed.
6. A normal boration using AOP-GEN-002 Attachment G has been completed and Tave is being monitored by the RO.
7. Initial Tave was 571.7°F.

THIS JPM IS NOT TIME CRITICAL.

INITIATING CUES:

You have been directed to complete the load reduction to LESS THAN OR EQUAL TO 570 MWe beginning at Step 10 of AOP-GEN-002.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

Required Materials: **AOP-GEN-002**

General References:

Task Standards: **Reduce turbine load to at or below 570 MWe using the CV DOWN pushbutton in accordance with OP-KW-AOP-GEN-002, Rapid Power Reduction.**

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 “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1	AOP-GEN-002, Step 10
Critical: <u>No</u>	Check Turbine – NOT on Valve Position Limiter.
Standard:	Check VALVE POS LIMIT green light NOT lit. Determine TURBINE MODE TURBINE MANUAL amber light lit.
Evaluator Note:	Turbine comes off VPL when TURBINE MANUAL operation is selected. This mode of operation is given in the Initial Conditions.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 2	AOP-GEN-002, Step 11.a
Critical: <u>No</u>	Check Turbine load reduction desired.
Standard:	Determine turbine load reduction is desired.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 3	AOP-GEN-002, Step 11.b
Critical: <u>No</u>	Check Turbine MODE – OPER AUTO.
Standard:	Determine turbine control is in TURBINE MANUAL.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 4	AOP-GEN-002, Step 11.e
Critical: <u>No</u>	Check either of the following: 1. Rapid Boration per ATTACHMENT E in progress OR 2. Immediate Turbine load reduction required.
Standard:	Determine neither condition applies.
Evaluator Cue:	As Unit Supervisor, Immediate load reduction is NOT required.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 5	AOP-GEN-002, Step 11.e (RNO)
Critical: <u>No</u>	When Tave lowers by greater than 1.0°F due to boration, THEN GO TO Step 12.
Standard:	Monitor Tave (Recorder 42554) and when Tave lowers to or below 570.7°F, and then proceed with turbine load reduction.
Evaluator Note:	The initial conditions have Tave more than 1°F below Tref. Operator should check recorder 42554, TAVE – TREF, and determine Tave is adequately below Tref for initiating load reduction.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 6	AOP-GEN-002, Step 12.a
Critical: <u>No</u>	Check Turbine MODE – OPER AUTO.
Standard:	Determine turbine control is in TURBINE MANUAL.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 7	AOP-GEN-002, Step 12.a (RNO)
Critical: <u>Yes</u>	Intermittently PRESS CV DOWN pushbutton. GO TO Step 12.c.
Standard:	Load decrease using CV DOWN pushbutton until load is equal to or less than 570 MWe with the following constraints: <ul style="list-style-type: none"> • Load reduction is performed in discrete steps of at least 3 steps. • Periodic pressing of the CV DOWN pushbutton is used.
Evaluator Note:	The CV DOWN pushbutton is located in the TURBINE CV MANUAL CONTROL section of the turbine control panel.
	
	The operator may remain at this step (12) until load reduction is completed. The procedure is NOT normally performed by a single individual and the Unit Supervisor would follow to ensure all appropriate steps performed.
Evaluator Cue:	As Unit Supervisor, Maintain approximately 1% per minute load rate.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 8	AOP-GEN-002, Step 12.c
Critical: <u>No</u>	Maintain MVAR out loading during power reduction at 0-150 MVAR.
Standard:	MVAR loading maintained between 0 MVAR and 150 MVAR during load reduction.
Evaluator Note:	MVAR loading is maintained by adjusting the GENERATOR #1 VOLTAGE ADJUSTER. The operator may remain at this step (12) until load reduction is completed. The procedure is NOT normally performed by a single individual and the Unit Supervisor would follow to ensure all appropriate steps performed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 9	AOP-GEN-002, Step 12.d
Critical: <u>No</u>	Maintain boration flow rate and power reduction rate as necessary to maintain plant requirements: <ul style="list-style-type: none"> • ΔI • Rod Insertion Limits • Tave within 4°F of Tref
Standard:	Monitors load rate to maintain Tave within 4°F of Tref.
Evaluator Note:	The operator may remain at this step (12) until load reduction is completed. The procedure is NOT normally performed by a single individual and the Unit Supervisor would follow to ensure all appropriate steps performed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When Operator reports turbine load adjustment complete: **THIS JPM IS COMPLETE.**

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: KPS

JPM TITLE: Restore Normal Emergency Bus Lineup Following Blackout

JPM NUMBER: RO-039-JP09A **REV. E**

RELATED PRA INFORMATION: Loss of Offsite Power: 4% contribution to CDF; 5% contribution to LERF
8th Most Important System – 4160 V AC Distribution

TASK NUMBER(S) / TASK TITLE(S): 0390090401 / Respond to a Bus 5 or 6 Voltage LOW Condition

K/A NUMBERS: 062A2.12 RO 3.2 / SRO 3.6 and 062A4.07 RO 3.1 / SRO 3.1

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Lab:

Time for Completion: 12 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: RO/SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /S Instructor	01/05/09 Date
Validated by:	Stephen Johnson /S Validation Instructor (See JPM Validation Checklist, Attachment 1)	01/30/09 Date
Approved by:	Terry Evan /S Training Supervisor	02/10/09 Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

- 1. Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.**
- 2. If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.**

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:

- You are the Balance of Plant Operator.
- The plant had experienced a blackout, and ECA-0.0 was entered.
- Buses 5 and 6 are now being powered from their Emergency Diesel Generators.
- Power to the substation has been restored as directed in OP-KW-NOP-SUB-002, Restoration of Off-site Power.

INITIATING CUES (IF APPLICABLE):

The Unit Supervisor directs you to shift Bus 5 power supply from DG A to TAT per OP-KW-AOP-EHV-005 ATTACHMENT A.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

JPM PERFORMANCE INFORMATION

Required Materials: OP-KW-AOP-EHV-005, Rev 0
General References: OP-KW-AOP-EHV-005, Rev 0
ECA-0.0, Rev 39;
OP-KW-NOP-SUB-002, Rev. 0
Task Standards: Bus 5 powered from the TAT, and DG A shutdown and in-service.

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 “Y” 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: <u>No</u>	AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.a: A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: a. Announce via Gaitronics <ul style="list-style-type: none">• Attention in the plant, Attention in the plant. Shifting 4160 Volt power supplies, Stand Clear of Bus 5 Shifting 4160 Volt power supplies, Stand Clear of Bus 5
Standard:	Make Plant Announcement
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

RO-039-JP09A, Restore Normal Emergency Bus Lineup Following Blackout, Rev. E

Performance Step: 2 Critical: <u>No</u>	AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.b: A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: b. VERIFY BKR 1-501 43 SWITCH in MAN
Standard:	Bkr 1-501 43 Switch is in MAN
Evaluator Note:	This switch is placed in MAN as directed by NOP-SUB-002 when restoring offsite power to switchyard.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 3 Critical: <u>Yes</u>	AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.c: A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: c. Position BKR 1-501 SYNC SWITCH to ON.
Standard:	Bkr 1-501 Sync Switch is in ON.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 4 Critical: <u>No</u>	AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.d: A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: d. LOG Diesel Generator A INOPERABLE
Standard:	States need to log DG A INOPERABLE.
Evaluator Cue:	As Unit Supervisor, state the Reactor Operator will log DG A INOPERABLE
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

RO-039-JP09A, Restore Normal Emergency Bus Lineup Following Blackout, Rev. E

Performance Step: 5 Critical: <u>Yes</u>	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.e: A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: e. Locally SET Governor Droop Setting to 30
Standard:	Contact EO to Set DG A Governor Speed Droop to 30.
Evaluator Cue:	As EO, acknowledge and state that DG A Governor Speed Droop is set to 30.
Evaluator Note:	The Booth Operator will use REMOTE FUNCTION EG105, DIESEL A DROOP PARALLEL SETTING 0UNIT/30PAR, Remote Value selection "30+PAR" to set droop to 30.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 6 Critical: <u>Yes</u>	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.f: A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: f. Locally position Parallel-Unit switch to PARALLEL.
Standard:	Contacts EO to Set DG A Parallel-Unit switch to PARALLEL position.
Evaluator Cue:	As EO, acknowledge and state that DG A Parallel Unit Switch is in PARALLEL.
Evaluator Note:	The Booth Operator will use REMOTE FUNCTION EG105, DIESEL A DROOP PARALLEL SETTING 0UNIT/30PAR, Remote Value selection "30+PAR" to set switch to PARALLEL. (This was already selected by the Booth Operator action from Performance Step 6)
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

RO-039-JP09A, Restore Normal Emergency Bus Lineup Following Blackout, Rev. E

Performance Step: 7 Critical: <u>Yes</u>	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.g: A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: g. ADJUST diesel generator voltage with Voltage Control switch until Incoming and Running voltages are matched.
Standard:	Voltage on Incoming meter and voltage on Running meter are equal ± 2 volts.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 8 Critical: <u>Yes</u>	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.h: A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: h. ADJUST Diesel Generator speed with Speed Control switch until Synchroscope rotates slowly (4 – 6 rpm) in FAST (clockwise) direction.
Standard:	Synchroscope is rotating slowly (2 – 10 rpm) in FAST (clockwise) direction.
Evaluator Cue:	If necessary, Synchroscope is rotating at 5 rpm.
Evaluator Note:	It has been noted that adjusting DG speed to within 4 to 6 rpm on the Synchroscope in the Simulator is extremely difficult as the Speed Control switch does not respond well to fine adjustment. Therefore after several adjustments have been made and speed is the 2 to 10 rpm, the above cue should be used.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

RO-039-JP09A, Restore Normal Emergency Bus Lineup Following Blackout, Rev. E

Performance Step: 9 Critical: <u>Yes</u>	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.i: A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: i. VERIFY Incoming and Running voltages matched.
Standard:	Voltage Control switch for DG A operated, if necessary, until voltage on Incoming meter and voltage on Running meter are equal ± 2 volts.
Evaluator Note:	Step is not critical if operation of Voltage Control switch operation NOT required.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 10 Critical: <u>Yes</u>	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.j: A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: j. VERIFY Synchroscope rotating slowly in the FAST direction.
Standard:	Speed Control switch for DG A operated, if necessary, until Synchroscope is rotating slowly (2 – 10 rpm) in FAST (clockwise) direction
Evaluator Cue:	If necessary, Synchroscope is rotating at 5 rpm.
Evaluator Note:	Step is not critical if operation of Speed Control switch operation NOT required. It has been noted that adjusting SG speed to within 4 to 6 rpm on the Synchroscope in the Simulator is extremely difficult as the Speed Control switch does not respond well to fine adjustment. Therefore after several adjustments have been made and speed is the 2 to 10 rpm, the above cue should be used .
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 11	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.k:
Critical: <u>Yes</u>	A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: k. At 1157 o'clock close Bkr 1-501 1. <u>WHEN</u> syncroscope passes 12 o'clock position, <u>THEN</u> release the breaker 2. <u>IF</u> Bkr 1-501 did <u>NOT</u> close, <u>THEN</u> REPEAT Steps A1.g thru A1.k
Standard:	1. Brk 1-501 Control Switch taken to CLOSE with Synchroscope needle indicating between 1155 and 1200 on meter. 2. Brk 1-501 closed with red light lit.
Evaluator Note:	Performer should check: 1. Tertiary Aux XFMR power meter reads on-scale. 2. Tertiary Aux XFMR current meter reads on-scale
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 12	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.l:
Critical: <u>No</u>	A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: l. Slowly REDUCE DG load to 200-300 KW <u>AND</u> reactive load to 120-190 KVAR.
Standard:	1. Speed Control switch operated (to LOWER) until load reads between 200 and 300 KW on power meter 4461103. 2. Voltage Control switch operated (to LOWER) until reactive load reads between 120 and 190 KVAR on react pwr meter 4461104
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

RO-039-JP09A, Restore Normal Emergency Bus Lineup Following Blackout, Rev. E

Performance Step: 13	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.m:
Critical: <u>Yes</u>	A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: m. Open Bkr 1-509, DG A To Bus 5.
Standard:	1. Brk 1-509 Control Switch taken to TRIP. 2. Brk 1-509 open with green light lit.
Evaluator Note:	Performer should check: 1. DG A power meter power meter reads ZERO KW. 2. DG A reactive power meter power meter reads ZERO KVAR.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 14	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.n:
Critical: <u>No</u>	A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: n. ADJUST diesel generator voltage to 4200 volts.
Standard:	Operates Voltage Control switch for DG A until voltage indicates between 4000 and 4400 on DG A Voltage meter 4461102.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

RO-039-JP09A, Restore Normal Emergency Bus Lineup Following Blackout, Rev. E

Performance Step: 15	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.o:
Critical: <u>No</u>	A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: o. ADJUST diesel generator frequency to 59 Hz.
Standard:	Operates Speed Control switch for DG A until frequency indicates between 58.8 and 59.2 on DG A Frequency meter 4461101.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 16	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.p:
Critical: <u>No</u>	A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: p. OPERATE Diesel Generator A unloaded for greater than or equal to 5 minutes
Standard:	Determines DG has run unloaded for at least 5 minutes.
Evaluator Cue:	After performer notes that DG is required to be run for at least 5 minutes unloaded, state, FIVE minutes has elapsed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

RO-039-JP09A, Restore Normal Emergency Bus Lineup Following Blackout, Rev. E

Performance Step: 17	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.q:
Critical: <u>Yes</u>	A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: q. Stop Diesel Generator A and POSITION control switch to AUTO.
Standard:	1. Place Diesel Engine A control switch to STOP. 2. DG A stopped with control switch in AUTO and green light lit.
Evaluator Note:	Performer should check when control switch taken to STOP: <ul style="list-style-type: none">• DG A Frequency 4461101 goes to bottom of scale.• DG A Voltage 4461102 goes to bottom of scale.• DG A Speed 44611204 goes to ZERO.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 18	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.r:
Critical: <u>Yes</u>	A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: r. POSITION Bkr 1-501 43 switch to AUTO.
Standard:	Bkr 1-501 43 Switch is in AUTO.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

RO-039-JP09A, Restore Normal Emergency Bus Lineup Following Blackout, Rev. E

Performance Step: 19 Critical: <u>No</u>	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.s: A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: s. POSITION Bkr 1-501 sync switch to OFF.
Standard:	Bkr 1-501 sync switch is in OFF.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 20 Critical: <u>Yes</u>	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.t: A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: t. Locally PERFORM the following for Diesel Generator A: 1. Position Parallel-Unit switch to UNIT 2. Set Governor Speed Droop to ZERO 3. Place setting on Governor for EDG A Speed Setting dial at 2.6 4. Verify Governor Motor off (shaft not turning) 5. Stop DG A Room Vent Fan 6. Verify Lube Oil Circulating Pump and Turbo Oil Pump running 7. Verify total underground D/G Fuel Oil Storage Tank level \geq 39,000 gal 8. Verify DG A Fuel Oil Day Tank \geq 5.5 ft
Standard:	Contacts EO to perform individual actions as listed above.
Evaluator Cue:	As EO, acknowledge and based on directions, report OP-KW-AOP-EHV-005 ATTACHMENT A step A1.t, complete.
Evaluator Note:	The Booth Operator will use REMOTE FUNCTION EG105, DIESEL A DROOP PARALLEL SETTING 0UNIT/30PAR, selection "0+UNIT" to set Parallel-Unit switch to UNIT and droop to 0. The Booth Operator will use REMOTE FUNCTION CH120, DG VENT FAN A LOCAL CONTROL SWITCH ON/AUTO/OFF, selection "OFF", and then "AUTO" to stop and reset DG A Room Vent Fan.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 21 Critical: <u>No</u>	OP-KW-AOP-EHV-005 ATTACHMENT A, Shifting Bus 5 Power Supply From DG A to TAT Step A1.u: A1. <u>WHEN</u> TAT is restored, <u>THEN</u> SHIFT Bus 5 power supply to TAT as follows: u. LOG Diesel Generator A In-Service.
Standard:	States need to log DG A In-service (Returned to Service).
Evaluator Cue:	As Unit Supervisor, state the Reactor Operator will log DG A In- Service.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When action OP-KW-AOP-EHV-005 ATTACHMENT A Step A1.u complete: This completes this JPM.

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: Kewaunee Power Station

JPM TITLE: Realign Containment Sampling from R-21

JPM NUMBER: RO-045-JP08A **REV.** D

RELATED PRA INFORMATION:

TASK NUMBER(S) / TASK TITLE(S): 0450050101 / Perform Containment Gaseous Monitoring using R-21

K/A NUMBERS: 073A4.02 RO/SRO Imp: 3.7 / 3.7

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:

Simulator: Other:

Lab:

Time for Completion: 10 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: RO/SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /S Instructor	10/20/08 Date
Validated by:	Stephen Johnson /S Validation Instructor (See JPM Validation Checklist, Attachment 1)	01/30/09 Date
Approved by:	Terry Evans /S Training Supervisor	02/10/09 Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.
2. If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.

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:

- You are the Reactor Operator.
- R-21, Contmt Sys Vent Monitor, is aligned to Containment.
- The AO has been briefed on the task and is standing by to perform actions as necessary.

THIS JPM IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

The Unit Supervisor directs you to align R-11/12, Contmt Air Particulate Monitor, to Containment using N-RM-45, Radiation Monitoring System, step 4.2.13.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

Required Materials: N-RM-45, verified to latest revision and Sections 2.0 and 3.0 marked.

General References: N-RM-45, Rev 54.

Task Standards: R-11/R-12 aligned to containment air sampling with R-11/R-12 Sample Pump running.

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 “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 N-RM-45, 4.2.13.a.
Critical No RESTORE Containment Gaseous Monitoring From R-21 to R-11/12 as follows:
VERIFY R-11/12 Sample Pump OFF.

Standard: Determine R-11/R-12 Sample Pump Off.

Evaluator Note: On MCV the operator will observe the following for R-11/R-12 Pump Control:

- R-11/R-12 Pump Control switch in OFF/RESET position
- Green light lit, red light out above control switch
- FLOW HIGH/LOW amber light lit to right of control switch
- Annunciator 47013-A, RAD MONITOR SAMPLING FLOW HIGH / LOW lit with SER point 0390 active.

Performance: SATISFACTORY UNSATISFACTORY

Comments: _____

Performance Step: 2
Critical Yes (SEQ-1)

N-RM-45, 4.2.13.b.

RESTORE Containment Gaseous Monitoring From R-21 to R-11/12 as follows:
STOP R-21 Sample Pump.

Standard:

Place control switch for R-21 Pump Control to OFF/RESET position.

Evaluator Note:

The operator will observe the following:

- Green light lit, red light out above control switch
- FLOW HIGH/LOW amber light lit to right of control switch
- Annunciator 47013-A, RAD MONITOR SAMPLING FLOW HIGH / LOW alarms with SER point 0396 active

Evaluator Cue:

If required cue operator to continue with actions of identified procedure.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 3
Critical Yes (SEQ-2)

N-RM-45, 4.2.13.c.

RESTORE Containment Gaseous Monitoring From R-21 to R-11/12 as follows:
Locally CLOSE AS-16.

Standard:

Contact Aux Operator to align identified valve(s).

Receive report from Aux Operator that valves are in correct position.

Evaluator Note:

Steps 4.2.13.c through 4.2.13.h are local actions and may be directed to be performed (sequentially) at one time by the operator or individually. Operator actions in the control room resume at Performance Step 9.

BOTH OPERATOR will change Remote Function **RM101** to **VENT** to realign valves from R-21 sampling CNTMT to R-11/12 and align R-21 to normal vent sampling.

Evaluator Cue:

As AO: Acknowledge request to align valve(s) and then report [**TIME COMPRESSION**] valve(s) is/are in open/closed position.

Valve order and position are

- AS-16 CLOSED
- AS-11 CLOSED
- AS-31-1 OPEN
- AS-4 OPEN
- AS-15 OPEN
- AS-10 OPEN

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 4 Critical <u>Yes (SEQ-2)</u>	N-RM-45, 4.2.13.d. RESTORE Containment Gaseous Monitoring From R-21 to R-11/12 as follows: Locally CLOSE AS-11.
Standard:	Contact Aux Operator to align identified valve. Receive report from Aux Operator that valves are in correct position.
Evaluator Cue:	As AO: Acknowledge request to align valve and then report [TIME COMPRESSION] valve is in (closed) position.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 5 Critical <u>Yes (SEQ-2)</u>	N-RM-45, 4.2.13.e. RESTORE Containment Gaseous Monitoring From R-21 to R-11/12 as follows: Locally OPEN AS-31-1.
Standard:	Contact Aux Operator to align identified valve. Receive report from Aux Operator that valves are in correct position.
Evaluator Cue:	As AO: Acknowledge request to align valve and then report [TIME COMPRESSION] valve is in (open) position.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 6 Critical <u>Yes (SEQ-2)</u>	N-RM-45, 4.2.13.f. RESTORE Containment Gaseous Monitoring From R-21 to R-11/12 as follows: Locally OPEN AS-4.
Standard:	Contact Aux Operator to align identified valve. Receive report from Aux Operator that valves are in correct position.
Evaluator Cue:	As AO: Acknowledge request to align valve and then report [TIME COMPRESSION] valve is in (open) position.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 7 Critical <u>Yes (SEQ-2)</u>	N-RM-45, 4.2.13.g. RESTORE Containment Gaseous Monitoring From R-21 to R-11/12 as follows: Locally OPEN AS-15.
Standard:	Contact Aux Operator to align identified valve. Receive report from Aux Operator that valves are in correct position.
Evaluator Cue:	As AO: Acknowledge request to align valve and then report [TIME COMPRESSION] valve is in (open) position.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 8 Critical <u>Yes (SEQ-2)</u>	N-RM-45, 4.2.13.h. RESTORE Containment Gaseous Monitoring From R-21 to R-11/12 as follows: Locally OPEN AS-10.
Standard:	Contact Aux Operator to align identified valve. Receive report from Aux Operator that valves are in correct position.
Evaluator Cue:	As AO: Acknowledge request to align valve and then report [TIME COMPRESSION] valve is in (open) position.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 9 Critical <u>No</u>	N-RM-45, 4.2.13.i. RESTORE Containment Gaseous Monitoring From R-21 to R-11/12 as follows: START R-21 Sample Pump.
Standard:	Place control switch for R-21 Pump Control to ON position.
Evaluator Note:	The operator will observe the following: <ul style="list-style-type: none">• Green light out, red light lit above control switch• FLOW HIGH/LOW amber light out to right of control switch• SER point 0396 clears
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 10 Critical <u>Yes (SEQ-3)</u>	N-RM-45, 4.2.13.j. RESTORE Containment Gaseous Monitoring From R-21 to R-11/12 as follows: START R-11/12 Sample Pump.
Standard:	Place control switch for R-11/12 Pump Control to ON position.
Evaluator Note:	The operator will observe the following: <ul style="list-style-type: none">• Green light out, red light lit above control switch• FLOW HIGH/LOW amber light out to right of control switch• SER point 0390 and annunciator 47013-A, RAD MONITOR SAMPLING FLOW HIGH / LOW clear
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 11 Critical <u>No</u>	N-RM-45, 4.2.13.k. RESTORE Containment Gaseous Monitoring From R-21 to R-11/12 as follows: VERIFY R-11/12 and R-21 Flow High/Low light OFF.
Standard:	Checks : <ul style="list-style-type: none">• R-11/R-12 Pump Control FLOW HIGH/LOW amber light out to right of control switch.• R-21 Pump Control FLOW HIGH/LOW amber light out to right of control switch.
Evaluator Note:	This may have been check when the sample pumps were started above.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step:	N-RM-45, 4.2.13.I.
Critical <u>No</u>	RESTORE Containment Gaseous Monitoring From R-21 to R-11/12 as follows: NOTIFY Radiation Protection containment air sampling is returned to R-11/12.
Standard:	Contacts Radiation Protection and notifies them containment gaseous sampling is aligned to R-11/12 OR Notifies Unit Supervisor that Radiation Protection needs to be notified that R-11/12 is now aligned for containment gaseous sampling.
Evaluator Cue:	If contacted as Radiation Protection: Acknowledge report. If notified as Unit Supervisor: I will contact Radiation Protection to report R-11/12 aligned for containment gaseous sampling.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When notification requirements are addressed (Step 4.2.13 completed): This JPM is complete.

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: Kewaunee Power Station

JPM TITLE: Respond to Trip of Circulating Water Pump

JPM NUMBER: RO-004-JP031 **REV.** A

RELATED PRA INFORMATION:

TASK NUMBER(S) / TASK TITLE(S): 0040030501 / Respond to Low Condenser Vacuum due to loss of Circulating Water

K/A NUMBERS: 051AA2.02 RO/SRO Imp: 3.9 / 4.1

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:

Simulator: Other:

Lab:

Time for Completion: 3 Minutes Time Critical: No

Alternate Path / Faulted: Yes

TASK APPLICABILITY: RO/SRO

Additional signatures may be added as needed.

Developed by: Stephen Johnson /S	10/20/08
Instructor	Date
Validated by: Stephen Johnson /S	01/30/09
Validation Instructor (See JPM Validation Checklist, Attachment 1)	Date
Approved by: Terry Evans /S	02/10/09
Training Supervisor	Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.
2. If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.

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.

NOTE: Do NOT allow the JPM Performer to review any procedures prior to starting task.

INITIAL CONDITIONS:

- You are currently the ONLY Nuclear Control Operator in the At-The-Controls area.
- Plant power is stable.

THIS JPM IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

The EO reports hearing a loud noise coming from Circ Water Pump B.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

NOTE: Circ Water Pump B will trip 3 seconds after the Simulator is taken to RUN.

JPM PERFORMANCE INFORMATION

Required Materials: None

General References: OP-KW-AOP-GEN-001, Rev. 3, ATTACHMENT E

Task Standards: Both Circulating Water Pumps tripped, reactor tripped and E-0 Step 1 complete.

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 “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1	AOP-GEN-001, ATTACHMENT E, E1.
Critical <u>No</u>	CHECK Loss Of Circulating Water Flow: <ul style="list-style-type: none">• Turbine latched AND <ul style="list-style-type: none">• NO CW Pumps
Standard:	Determine loss of Circ Water flow has occurred.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 2	AOP-GEN-001, ATTACHMENT E, E2.a
Critical <u>No</u>	CHECK If Standby CW Pump Should Be Started: CHECK annunciator 47051-M, CW PUMPS LOW LOW LEVEL TRIP, - CLEAR
Standard:	Determine 47051-M annunciator clear.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 3 Critical <u>No</u>	AOP-GEN-001, ATTACHMENT E, E2.b CHECK If Standby CW Pump Should Be Started: CHECK annunciator 47051-N, CW PUMPS FLOOD LEVEL TRIP, - CLEAR.
Standard:	Determine 47051-N annunciator clear.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 4 Critical <u>No</u>	AOP-GEN-001, ATTACHMENT E, E2.c CHECK If Standby CW Pump Should Be Started: CHECK forebay level – GREATER THAN 64%
Standard:	Determine forebay level is greater than 64%.
Evaluator Note:	Forebay level is read on MVA on meter 41551 Forebay Level.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 5 Critical <u>No</u>	AOP-GEN-001, ATTACHMENT E, E2.d CHECK If Standby CW Pump Should Be Started: START standby circulating water pump CW Pump 1A.
Standard:	Take control switch for CW Pump 1A from PULLOUT to STOP. Take control switch for CW Pump1A to START and release. Determine CW Pump 1A failed to start/tripped.
Evaluator Note:	Normally this action would be critical; however, since the Pump trips upon start, it is NOT critical that this action be performed if the operator addresses the RNO for failure of the standby pump to start.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 6 Critical <u>Yes</u>	AOP-GEN-001, ATTACHMENT E, E2.d.1 RNO PERFORM the following: Manually TRIP Reactor.
Standard:	Depress the REACTOR TRIP pushbutton on MCB or MCA.
Evaluator Note:	The operator may review the actions of AOP-GEN-001 before proceeding to or beyond this point.
Evaluator Cue:	As US, if required, concur with identified actions.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 7 Critical <u>No</u>	AOP-GEN-01, ATTACHMENT E, E2.d.2 RNO PERFORM the following: GO TO E-0, REACTOR TRIP OR SAFETY I NJECTION.
Standard:	Determine need to perform E-0 Immediate Operator Actions
Evaluator Cue:	If identified by operator, as Unit Supervisor: Perform immediate actions of E-0.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 8	E-0 Step 1.a
Critical No	VERIFY Reactor Trip: CHECK reactor trip and bypass breakers - ALL OPEN.
Standard:	Determine and report reactor trip and bypass breakers open.
Evaluator Note:	Operator will check the Reactor Trip Breaker A red light OUT green light lit for A and B Reactor Trip Breakers on VBB. Operator will check neither red nor green light lit on Bypass A and Bypass B (normal condition).
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 9	E-0 Step 1.b
Critical No	VERIFY Reactor Trip: CHECK Reactor – SUBCRITICAL <ul style="list-style-type: none"> • Reactor power - LESS THAN 5% • Neutron flux - STABLE OR DECREASING
Standard:	Determine and report <ul style="list-style-type: none"> • Reactor NI power less than 5% for PR NIS – MCB meters NI-41B through NI-44B; NI drawer indicators N41A through N44A on MVB; NR-45 recorder. • Neutron flux decreasing on MCB Intermediate Range SUR meters NI-35D and NI-36D, OR Source Range SUR meters NI-31D and NI-32D. Report reactor tripped.
Evaluator Cue:	As Unit Supervisor: Acknowledge reactor trip.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When reactor trip has been verified (Completion of E-0 step 1): This JPM is complete.

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: Kewaunee Power Station

JPM TITLE: Perform Boration Of The RWST

JPM NUMBER: RO-035-JP23A **REV. C**

RELATED PRA INFORMATION: None

TASK NUMBER(S) / TASK TITLE(S): 0350230101 / Perform a Manual Makeup to the SFP, RWST, VCT, or CVCS Holdup Tanks

K/A NUMBERS: 004A4.12 RO/SRO Imp: 3.8 / 3.3

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Lab:

Time for Completion: 20 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: RO/SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /S Instructor	01/06/2009 Date
Validated by:	Stephen Johnson /S Validation Instructor (See JPM Validation Checklist, Attachment 1)	01/30/09 Date
Approved by:	Terry Evans /S Training Supervisor	02/10/09 Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.
2. If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.

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:

- You are the Reactor Operator.
- The plant is at 100% power.
- Chemistry reports have indicated lowering boron concentration in the RWST.
- The source of the inleakage has been identified and corrected.
- Operations Management has decided to raise the born concentration of the RWST.

THIS JPM IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

The US directs you directs you to add 36 gallons of boric acid to the RWST at the rate of 12 gpm using OP-KW-NOP-CVC-001, Boron Concentration Control, Section 5.10.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

Required Materials: Copy of NOP-CVC-001
Completed NOP-CVC-001, ATTACHMENT F showing 36 gallons of boric acid required.

General References: OP-KW-NOP-CVC-001, Rev. 13

Task Standards: 36 gallons of boron added to RWST from CVC Makeup System.

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 “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1	NOP-CVC-001
Critical <u>No</u>	Review of PREREQUISITES
Standard:	Reviews and initials PREREQUISITE steps 3.1 and 3.2
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 2	NOP-CVC-001
Critical <u>No</u>	Review of PRECAUTIONS AND LIMITATIONS
Standard:	Reviews and initials PRECAUTIONS AND LIMITATIONS steps 4.1 through 4.13
Evaluator Cue:	If required, inform operator that all P&L’s are satisfied.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 3	NOP-CVC-001, Step 5.10.1
Critical <u>No</u>	VERIFY current plant conditions will NOT require an automatic makeup for the anticipated duration of this addition.
Standard:	Determine plant is in steady-state condition. Check VCT level (LI-112 and LI-141B) stable and above 18% such that makeup would not be required during performance of boration to RWST.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 4	NOP-CVC-001, Step 5.10.2
Critical <u>No</u>	IF desired to add inventory to the RWST without diluting OR borating the RWST, THEN CALCULATE Boric Acid and Rx Makeup totalizer settings using ATTACHMENT C.
Standard:	Determine step does NOT apply since boration is desired.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 5	NOP-CVC-001, Step 5.10.3
Critical <u>No</u>	IF desired to raise RWST boron concentration, THEN CALCULATE Boric Acid totalizer setting using ATTACHMENT F.
Standard:	Refer to ATTACHMENT F.
Evaluator Note:	A completed ATTACHMENT F should be provided to operator.
Evaluator Cue:	ATTACHMENT F has been previously completed, verified, and supports adding 36 gallons boric acid.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 6	NOP-CVC-001, Step 5.10.4
Critical <u>No</u>	IF desired to lower RWST boron concentration, THEN CALCULATE Makeup Water Totalizer setting using ATTACHMENT H.
Standard:	Determine step does NOT apply since boration is desired.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 7	NOP-CVC-001, Step 5.10.5
Critical <u>Yes</u>	Position Reactor Makeup Mode Selector to MANUAL
Standard:	Places Reactor Makeup Mode Selector to MANUAL position.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 8
Critical Yes

NOP-CVC-001, Step 5.10.6

SET Boric Acid Totalizer to the number of gallons required as determined on:
0.0 gallons for lowering RWST boron concentration.

OR

Value determined using ATTACHMENT F

OR

Value determined using ATTACHMENT C

Standard:

On Boric Acid Totalizer:

- Depress black pushbutton at 44559/YIC-110 and lifts red cover,
- Rotate thumbwheels so as to read "000360" as read from left (36.0).
- Lower red cover.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 9
Critical Yes

NOP-CVC-001, Step 5.10.7

SET Makeup Totalizer to either:

50 gallons less than the number of gallons of makeup water required on ATTACHMENT H.

OR

50 gallons less than the number of gallons of makeup water required on ATTACHMENT C

OR

to 0 gallons, if using ATTACHMENT F

Standard:

On Rx Makeup Totalizer:

- Depress black pushbutton at 44560/YIC-111 and lifts red cover,
- Rotate thumbwheels so as to read "000000" as read from left (ZERO).
- Lower red cover.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 10
Critical No

NOP-CVC-001, Step 5.10.8

VERIFY CVC-403/CV-31092, Boric Acid To Blender, hand controller set to provide makeup at desired rate.

Standard:

Rotate CVC-403 Controller setpoint dial to 12.0 (± 0.2)

Evaluator Note:

Although the desired flow rate is given, it is not critical for the operator to set this value exactly as it will only affect the amount of time taken to complete the boration.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 11	NOP-CVC-001, Step 5.10.9
Critical <u>No</u>	VERIFY MU-1022/CV-31095, Blender Control Rx Mu Flow, hand controller set at 60 gpm.
Standard:	Check MU-1022 Controller setpoint dial to 60.0 (± 2.0)
Evaluator Note:	MU-1022 Controller Setpoint dial is normally set to 60.0. Makeup flow is NOT used for control during this evolution.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	 <hr/>

Performance Step: 12	NOP-CVC-001, Step 5.10.10
Critical <u>Yes</u>	Locally OPEN the following to establish blender flowpath: <ul style="list-style-type: none"> • CVC-410, Blended Makeup To Alternate Services Isol • CVC-412, Blended Makeup To Refueling Water Storage Tank Isol
Standard:	Contact AO and direct him to OPEN CVC-410 and CVC-412. Receive report from AO that CVC-410 and CVC-412 are OPEN.
Evaluator Note:	The BOOTH OPERATOR will enter REMOTE FUNCTION CV165 to 100 to open CVC-410, and CV120 to open CVC-412.
Evaluator Cue:	As Auxiliary Operator: Acknowledge request, and then report CVC-410 and CVC-412 are open.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	 <hr/>

Performance Step: 13	NOP-CVC-001, Step 5.10.11
Critical <u>No</u>	IF maximum flow rate is required, THEN VERIFY the following setpoints: <ul style="list-style-type: none">• CVC-403 hand controller set at 15.0• MU-1022 hand controller set at 80.0
Standard:	Determine step does NOT apply.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 14	NOP-CVC-001, Step 5.10.12
Critical <u>Yes</u>	POSITION Reactor Makeup Control switch to START.
Standard:	Reactor Makeup Control switch taken to START position and allowed to return to center with red flag present.
Evaluator Note:	Operator should observe that red light for Reactor Makeup Control lights and green light extinguishes. Other items that may be observed are included in next Performance Step.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 15
Critical No

NOP-CVC-001, Step 5.10.13
VERIFY makeup flow to RWST.

Standard:

Observe the following:

- Boric Acid Transfer Pumps start and run
- CVC-403, Boric Acid to Blender, throttles as indicated by red and green lights lit
- CVC-408, BA Blender to Charging Pumps, and CVC-406, BA Blender to VCT, remain CLOSED
- VCT level on LI-112 and LI141B remains stable.
- Recorder 42552 red pen indicates BA flow at selected rate (12 gpm)
- Boric Acid Totalizer counter is counting up.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 16
Critical No

NOP-CVC-001, Step 5.10.14

During manual makeup, VERIFY proper boron concentration as follows:

- CVCS BA & MU flow recorder
- Rx Makeup and Boric Acid Totalizers
- Boric Acid Tank level change to Boric Acid Totalizer change

Standard:

Observe the following:

- Recorder 42552 red pen reading the desired BA flow rate (12 gpm)
- Recorder 42552 green pen reading ZERO
- BA Totalizer counter readings going up
- Rx Makeup Totalizer counter reading NOT changing.
- Boric Acid Tank levels LI-106, 172, 190, 196, 102, 171, 189, and 197 changing together at approximately 0.4%/min for total of 1.2% level change.

Evaluator Note:

The rate of change and total amount of change for BA tanks is based on the information provided in AOP-CVC-001, Emergency Boration, Attachment B, “360 gallons (12% combined level) from the BATs...”

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 17

NOP-CVC-001, Step 5.10.15

Critical No

IF low flow to a single BA transfer pump is suspected during parallel pump operation, THEN PERFORM the following:

Throttle OPEN CVC-712A and CVC-172B during the evolution. .

Standard:

Determine OPENING of CVC-712A and CVC-712B NOT required based on adequate BA flow.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 18
Critical YES, if makeup
stopped prior to 36
gallons

NOP-CVC-001, Step 5.10.16

IF required to manually stop makeup, THEN PERFORM the following:

- a. POSITION Reactor Makeup Control switch to STOP
- b. IF CVC-403 is OPEN, THEN CLOSE CVC-403
- c. IF required to continue makeup, THEN PERFORM the following:
 1. POSITION CVC-403 control switch to AUTO.
 2. POSITION Reactor Makeup Control switch to START
 3. VERIFY makeup flow reestablished to RWST

Standard:

If manual makeup is stopped prior to endpoint of 36 gallons:

- Reactor Makeup switch is taken to STOP with green flag and green light only lit.
- CVC-403 switch is placed in CLOSE position

If makeup is restarted the following steps are critical:

- Reactor Makeup Control switch taken to START position and allowed to return to center with red flag present.
- CVC-403 control switch is placed to AUTO position and throttling of CVC-403 is observed
- Makeup flow is verified:
 1. Boric Acid Transfer Pumps start and run
 2. CVC-408, BA Blender to Charging Pumps, and CVC-406, BA Blender to VCT, remain CLOSED
 3. VCT level on LI-112 and LI-141B remains stable.
 4. Recorder 42552 red pen indicates BA flow at selected rate
 5. Boric Acid totalizer counter is counting up.

Evaluator Note:

It is not expected that this step will be performed, but if boration is manually stopped prior to 36 gallons added, then reestablishing makeup to the RWST is critical.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 19	NOP-CVC-001, Step 5.10.17.a
Critical <u>Yes</u>	WHEN required makeup has been achieved, THEN PERFORM the following: IF CVC-403 is OPEN, THEN CLOSE CVC-403.
Standard:	If red light for CVC-304 is lit, place CVC-304 control switch to CLOSE position and observe red light extinguishes when valve closes.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 20	NOP-CVC-001, Step 5.10.17.b
Critical <u>No</u>	WHEN required makeup has been achieved, THEN PERFORM the following: VERIFY auto stop of Makeup System.
Standard:	Observe the following: a. Reactor Makeup Control switch green light lit and red light out. b. Boric Acid Transfer Pumps stop c. Recorder 42552 red pen indicates BA flow at ZERO d. Boric Acid totalizer counter stops counting.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 21
Critical No

NOP-CVC-001, Step 5.10.17.

WHEN required makeup has been achieved, THEN PERFORM the following:

- c. At 44559/YIC-110, Boric Acid Totalizer, VERIFY correct quantity added
- d. PRESS black pushbutton at 44559/YIC-110 AND VERIFY totalizer output window resets to all zeros
- e. Under red shutter, SET 44559/YIC-110 totalizer setting to 00000.0

Standard:

On Boric Acid Totalizer:

- Determine approximately 36 gallons BA added by change in BA Totalizer counter
- Press black pushbutton at 44559/YIC-110
- Verify ZEROs displayed on counter
- Lift red cover,
- Rotate thumbwheels so as to read "00000.0".
- Lower red cover.

Evaluator Note:

Action is not critical since the totalizer does not affect operation of makeup system in AUTO (to VCT).

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 22
Critical No

NOP-CVC-001, Step 5.10.17.

WHEN required makeup has been achieved, THEN PERFORM the following:

- f. At 44560/YIC-111, Rx Makeup Totalizer, VERIFY correct quantity added
- g. PRESS black pushbutton at 44560/YIC-111 AND VERIFY totalizer output window resets to all zeros

Standard:

On Rx Makeup Flow Totalizer:

- Determine NO makeup flow at Rx Makeup Totalizer counter
- Depress black pushbutton at 44560/YIC-111.
- Verify ZEROs displayed on counter.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 23
Critical No

NOP-CVC-001, Step 5.10.18

FLUSH fill line with Reactor makeup water as follows:

- a. VERIFY MU-1002 hand controller set to provide makeup at 60 gpm.

Standard:

Check MU-1022 Controller setpoint dial to 60.0 (± 2.0)

Evaluator Note:

Flush of line is NOT required but is desired to ensure all 36 gpm of BA is flushed to RWST.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 24	NOP-CVC-001, Step 5.10.18
Critical <u>No</u>	FLUSH fill line with Reactor makeup water as follows: b. SET RX Makeup Totalizer to 50
Standard:	On Rx Makeup Flow Totalizer: <ul style="list-style-type: none">• Lift red cover,• Rotate thumbwheels so as to read "000050".• Lower red cover.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 25	NOP-CVC-001, Step 5.10.18
Critical <u>No</u>	FLUSH fill line with Reactor makeup water as follows: c. POSITION Reactor Makeup Control switch to START.
Standard:	Reactor Makeup Control switch taken to START position and allowed to return to center with red flag present. Observe the following: <ul style="list-style-type: none">• Recorder 42552 red pen reading 0.0 the desired BA flow rate (ZERO gpm)• Recorder 42552 green pen reading the desired Makeup flow rate (~ 60 gpm)• BA Totalizer counter reading NOT changing• Rx Makeup Totalizer counter reading going up.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 26
Critical No

NOP-CVC-001, Step 5.10.19

WHEN flush is complete, THEN RESET Rx Makeup Totalizer as follows:

- a. VERIFY expected quantity added.
- b. At 445560/YIC-111, Rx makeup Totalizer, VERIFY correct quantity added.
- c. PRESS black pushbutton at 445560/YIC-111 AND VERIFY totalizer output window resets to all zeros.

Standard:

On Rx Makeup Totalizer:

- Determine approximately 500 gallons Makeup water added by change in Rx Makeup Totalizer counter
- Press black pushbutton at 44560/YIC-111
- Verify ZEROs displayed on counter

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 27
Critical Yes

NOP-CVC-001, Step 5.10.20

CLOSE CVC-410

Standard:

Contact AO and direct him to CLOSE CVC-410.

Receive report from AO that CVC-410 is closed and independent verification performed.

Evaluator Note:

The **BOOTH OPERATOR** will change **REMOTE FUNCTION CV165** to 0 to close CVC-410.

Evaluator Cue:

As Auxiliary Operator: Acknowledge request, and then report CVC-410 is closed. Report that Independent Verification is performed.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 28 Critical <u>Yes</u>	NOP-CVC-001, Step 5.10.21 CLOSE CVC-412
Standard:	Contact AO and direct him to CLOSE CVC-412. Receive report from AO that CVC-412 is closed and independent verification performed.
Evaluator Note:	The BOOTH OPERATOR will change REMOTE FUNCTION CV120 to close CVC-412.
Evaluator Cue:	As Auxiliary Operator: Acknowledge request, and then report CVC-412 is closed. Report that Independent Verification is performed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 29 Critical <u>No</u>	NOP-CVC-001, Step 5.10.22 VERIFY CVC-403 control switch in AUTO.
Standard:	Place CVC-403 control switch to AUTO position.
Evaluator Note:	This is a portion required to return the makeup system to normal operations but is NOT required to complete the task of makeup to the RWST for raising boron concentration.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 30
Critical No

NOP-CVC-001, Step 5.10.23

VERIFY CVC-403/CV31092 hand controller set for current RCS boron concentration.

Standard:

Determine setting for current RCS boron concentration:

- Use Operator Aid 96-3, RMW Blender Flow Curves
- Determine required Boric Acid Flow at intersection of RED curve (60 gpm @ 8.0 w%) and current RCS boron concentration.
- Set CVC-403 hand controller setpoint dial to determined value ± 0.2 .

Evaluator Note:

For Cycle 100% power MOC the RCS boron concentration is 967 ppm. 967 ppm intersects the RED curve at approximately 4.43 at min boric acid flow. CVC-403 had controller setpoint would then be set to approximately 4.4-4.5 to establish the desired blended flow during automatic makeup.

This is a portion required to return the makeup system to normal operations but is NOT required to complete the task of makeup to the RWST for raising boron concentration.

Performance:

SATISFACTORY **UNSATISFACTORY**

Comments:

Performance Step: 31	NOP-CVC-001, Step 5.10.24
Critical <u>No</u>	POSITION Reactor Makeup Mode Selector switch to AUTO
Standard:	Reactor Makeup Mode Selector switch taken to AUTO position.
Evaluator Note:	This is a portion required to return the makeup system to normal operations but is NOT required to complete the task of makeup to the RWST for raising boron concentration.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	 <hr/>

Performance Step: 32	NOP-CVC-001, Step 5.10.24
Critical <u>No</u>	POSITION Reactor Makeup Mode Selector switch to START
Standard:	Reactor Makeup Control switch taken to START position and allowed to return to center with red flag present. Check the Reactor Makeup Mode Selector switch red light lit and green light off.
Evaluator Note:	This is a portion required to return the makeup system to normal operations but is NOT required to complete the task of makeup to the RWST for raising boron concentration.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	 <hr/>

Terminating Cues: When the Makeup System is aligned for normal operations at step 5.10.25: This JPM is complete.

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: Kewaunee Power Station

JPM TITLE: Align Alternate Instrument Header To Containment With A Fire In A Dedicated Zone

JPM NUMBER: RO-E07-JP013 **REV. D**

RELATED PRA INFORMATION: N/A

TASK NUMBER(S) / TASK TITLE(S): E070010501 / Respond To A Fire In A Dedicated Fire Zone

K/A NUMBERS: 067 2.1.30 RO/SRO Imp 4.4 / 4.0

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Lab:

Time for Completion: 10 Minutes Time Critical: NO

Alternate Path / Faulted: YES

TASK APPLICABILITY: RO/SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /S Instructor	01/26/09 Date
Validated by:	Stephen Johnson /S Validation Instructor (See JPM Validation Checklist, Attachment 1)	01/08/09 Date
Approved by:	Terry Evans /S Training Supervisor / Facility Rep	02/10/09 Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.
2. If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.

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:

- You are Control Operator B.
- The plant has been tripped due to a fire in a dedicated fire zone.
- OP-KW-AOP-FP-003, FIRE IN DEDICATED FIRE ZONE, is being performed.
- You have been dispatched to perform AOP-FP-003, ATTACHMENT B.
- ATTACHMENT B has been completed through step B14.
- You have an Emergency Key Ring and two-way radio.
- It has been determined that the air accumulators inside containment are depleted.

THE STEPS IN THIS JPM SHOULD BE: SIMULATED

THIS JPM IS NOT TIME CRITICAL.

INITIATING CUES (IF APPLICABLE):

Implement step B15 ATTACHMENT B of AOP-FP-003.

JPM PERFORMANCE INFORMATION

Required Materials: AOP-FP-003, ATTACHMENT B marked up with procedure placekeeping (circle/slash) for steps B1 through B14.
General References: OP-KW-AOP-FP-003, Fire In Alternate Fire Zone, Rev. 1
Task Standards: Alternate Instrument Air Header to Containment aligned with IA-101 CLOSED, and both IA-101-1 and IA-310 open.

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 “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1	AOP-FP-003 ATTACHMENT B, step B15
Critical <u>No</u>	(CAS) Check Air Accumulators for Valves Located Inside Containment NOT Depleted.
Standard:	Determine that Air Accumulators in containment are depleted.
Evaluator Note:	Given in Initial Conditions that air accumulators are depleted.
Evaluator Cue:	If contacted as control room operator: Valve operation of valves in containment indicate that air accumulators are depleted.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 2 Critical <u>Yes</u>	AOP-FP-003 ATTACHMENT B, step B15.a RNO When air accumulators for valves located inside Containment depleted, THEN ALIGN the Alternate Instrument Air Header to Containment as follows: In BAST Room, LOOSEN jam nut on handwheel for IA to Cntmt Isol IA-101.
Standard:	Jam nut has been rotated counter-clockwise to free handwheel.
Evaluator Note:	The valve is located in the Boric Acid Tank room along the west wall. A ladder will be required to operate IA-101 and jam nut on valve operator. The nearest ladders are located outside the BAST room on elevation 626' to the north-east by the wall of the Hot Tool Crib. Examinee will need a wrench in order to loosen the jam nut. There is a wrench hanging on the wall near the valve. Valve handwheel will NOT operate until handwheel is free (jam nut loosened).
Evaluator Cue:	(If actual use of ladder NOT desired) When ladder is located, cue, "You have obtained the ladder." When examinee indicates wrench location, cue, "The wrench has been obtained." When examinee indicates jam nut operation, cue, "Nut is loosened and screw threads are visible between nut and operator."
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 3 Critical <u>Yes</u>	AOP-FP-003 ATTACHMENT B, step B15.b RNO When air accumulators for valves located inside Containment depleted, THEN ALIGN the Alternate Instrument Air Header to Containment as follows: Locally CLOSE IA-101.
Standard:	Rotate handwheel clockwise until valve is closed.
Evaluator Cue:	(As clockwise handwheel operation is indicated) The handwheel rotates until NO further motion occurs.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 4 Critical <u>Yes</u>	AOP-FP-003 ATTACHMENT B, step B15.c RNO When air accumulators for valves located inside Containment depleted, THEN ALIGN the Alternate Instrument Air Header to Containment as follows: In BAST Room, OPEN Ded & Alt Hdr to Cntmt Isol, IA-101-1.
Standard:	Rotate handwheel counter-clockwise until IA-101-1 is open.
Evaluator Note:	The valve is located in the Boric Acid Tank room along the west wall.
Evaluator Cue:	(As counter-clockwise handwheel operation is indicated) The handwheel rotates until NO further motion occurs. The valve stem rises during operation.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 5 Critical <u>Yes</u>	AOP-FP-003 ATTACHMENT B, step B15.d RNO When air accumulators for valves located inside Containment depleted, THEN ALIGN the Alternate Instrument Air Header to Containment as follows: In ICS Pump Area, OPEN Alternate IA Hdr to Cntmt Isol, IA-310.
Standard:	Rotate handwheel counter-clockwise until IA-310 is open.
Evaluator Note:	The valve is located behind the support I-beam just north of ICS Pump A.
Evaluator Cue:	(As counter-clockwise handwheel operation is indicated) The handwheel rotates until NO further motion occurs. The valve stem rises during operation.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When operator has completed the step to align the alternate IA header to Containment: This completes this JPM.

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: KPS

JPM TITLE: Operate and Monitor the Post-LOCA Hydrogen Control System

JPM NUMBER: AO-018-JP01A **REV.** C

RELATED PRA INFORMATION: None

TASK NUMBER(S) / TASK TITLE(S): 0180010104 / Startup the Post-LOCA Hydrogen Control System for Hydrogen Dilution of Containment with Instrument Air Available

K/A NUMBERS: 028A1.01 RO/SRO Imp 3.4 / 3.8
(028) 2.1.30 - RO/SRO Imp 4.4 / 4.0

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Simulator DSP
 Lab:

Time for Completion: 13 Minutes Time Critical: No

Alternate Path / Faulted: No

TASK APPLICABILITY: RO, SRO

Additional signatures may be added as needed.

Developed by: Stephen Johnson /s	01/13/09
Instructor	Date
Validated by: Andrew Fahrenkrug /s	02/11/09
Validation Instructor (See JPM Validation Checklist, Attachment 1)	Date
Approved by: Terry Evans /s	02/12/09
Training Supervisor	Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. *Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.*
2. *If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.*

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:

- You are the Auxiliary Operator.
- A LOCA has occurred.
- Chemistry has reported Containment hydrogen concentration has reached 1.0% by volume.
- The crew has decided to implement N-RBV-18C, Post-LOCA Hydrogen Control, to reduce hydrogen concentration.
- A copy of N-RBV-18C has been provided.
- All procedural PRECAUTIONS AND LIMITATIONS and Initial Conditions are currently satisfied.
- Instrument Air system is available.

THE STEPS IN THIS JPM SHOULD BE: SIMULATED

**THIS TASK IS NOT TIME CRITICAL
INITIATING CUES (IF APPLICABLE):**

The Unit Supervisor has directed you to the Train B Hydrogen Dilution of Containment per N-RBV-18C, section 4.1.1.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK
Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

NOTE: Review GNP-05.16.06, ATTACHMENT A for Time Dependent Operator Actions. If the JPM addresses one of these tasks and the JPM is determined to be time critical or contain time critical performance steps, then GNP-05.16.06 will be included in the General References below. [OTH 12765]

Required Materials: N-RBV-18C

General References: N-RBV-18C, Rev. K

Task Standards: Instrument air aligned for Train B Containment dilution with flow adjusted to approximately 25 scfm.

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 “Y/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	N-RBV-18C, step 4.1.1.a.1: Locally OPEN SA-7003B/MV-32148, Hydrogen Dilution to Containment:
Critical: <u>Yes</u>	REMOVE sealing device from SA-7003B LOCAL/REMOTE switch.
Standard:	SA-7003 LOCAL/REMOTE switch tie-wrap cut or undone. SA-7003 LOCAL/REMOTE switch sealing device removed.
Evaluator Note:	Panel with SA-7003B controls is located on 606’ elev. of the Auxiliary Building. The panel is located on the south wall at the east end of the CC Heat Exchangers area. Sealing device is a cover plate over the switch that is secured by a tie-wrap.
Evaluator Cue:	Sealing device has been removed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 2	N-RBV-18C, step 4.1.1.a.2: Locally OPEN SA-7003B/MV-32148, Hydrogen Dilution to Containment:
Critical: <u>Yes</u>	REMOVE sealing device from SA-7003B control switch.
Standard:	SA-7003 control switch tie-wrap cut or undone. SA-7003 control switch sealing device removed
Evaluator Note:	Sealing device is a cover plate over the switch that is secured by a tie-wrap.
Evaluator Cue:	Sealing device has been removed.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 3	N-RBV-18C, step 4.1.1.a.3: Locally OPEN SA-7003B/MV-32148, Hydrogen Dilution to Containment:
Critical: <u>Yes</u>	POSITION SA-7003B LOCAL/REMOTE switch to LOCAL.
Standard:	Switch is taken to LOCAL position.
Evaluator Cue:	Initially, "Switch is as you see it (in REMOTE position)." When switch operation indicated, "Switch is in LOCAL position."
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 4	N-RBV-18C, step 4.1.1.a.4: Locally OPEN SA-7003B/MV-32148, Hydrogen Dilution to Containment:
Critical: <u>Yes</u>	OPEN SA-7003B.
Standard:	Take control switch from AUTO to OPEN. Verify valve open with red light ON and green light OFF.
Evaluator Cue:	Initially, "Switch is as you see it (in AUTO position)." When switch operation from AUTO to OPEN is indicated, "Switch goes to OPEN and red light goes on; green light goes off."
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 5	N-RBV-18C, step 4.1.1.b.1: ESTABLISH Instrument Air flow to Containment :
Critical: <u>Yes</u>	OPEN IA-1002B, Instrument Air Supply - Post LOCA Hydrogen.
Standard:	IA-1002B knife handle is moved from the horizontal position (perpendicular to piping) to the vertical position (parallel to piping).
Evaluator Note:	The valve is located on the 606' elev. of the Auxiliary Building in the Train A Main Steam Penetration area. The valve is located in the south corner past the SG A PORV platform next to the Shield Building wall.
Evaluator Cue:	Initially, "(Knife) handle is as you see it (perpendicular to the piping)." When valve handle operation is indicated, "Valve handle is now in the vertical position."
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	<hr/>

Performance Step: 6	N-RBV-18C, step 4.1.1.b.2: ESTABLISH Instrument Air flow to Containment :
Critical: <u>Yes</u>	OPEN IA-1001B/CV-31392, Post LOCA Air Supply Control Valve, and ESTABLISH 25 SCFM air flow as indicated by FI-18238, Post LOCA Instrument Air Supply flow indication.
Standard:	Rotate counterclockwise the knob on top of IA-1001B until FI18238 indication reads approximately 25 scfm.
Evaluator Note:	The control valve knob is accessible from and the flow meter can be read from the SG A PORV platform in the Train A Main Steam Penetration area.
Evaluator Cue:	Initially, "The valve is closed and the flow meter reads ZERO." When operation indicated, "The knob rotates counter-clockwise." When flow meter is checked indicate flow (plug float) reads about 20 scfm. When further operation indicated, "The knob rotates counter-clockwise." When flow meter is checked indicate flow reads about 25 scfm.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When the operator indicates the air flow is adequate, "This JPM is complete."

Stop Time: _____

JOB PERFORMANCE MEASURE (JPM)

SITE: Kewaunee Power Station
JPM TITLE: Operate The Emergency Borate Valve Locally
JPM NUMBER: AO-035-JP011 **REV.** C

RELATED PRA INFORMATION:

TASK NUMBER(S) / TASK TITLE(S): 0350010504 / Perform an Emergency Boration

K/A NUMBERS: 024AA1.17 RO/SRO Imp 3.9/3.9
 2.1.30 RO/SRO Imp 4.4 / 4.0

APPLICABLE METHOD OF TESTING:

Discussion: Simulate/walkthrough: Perform:

EVALUATION LOCATION: In-Plant: Control Room:
 Simulator: Other:
 Lab:

Time for Completion: 10 Minutes Time Critical: No

Alternate Path / Faulted: Yes

TASK APPLICABILITY: AO/RO/SRO

Additional signatures may be added as needed.

Developed by:	Stephen Johnson /S Instructor	01/07/09 Date
Validated by:	Stephen Johnson /S Validation Instructor (See JPM Validation Checklist, Attachment 1)	01/29/09 Date
Approved by:	Terry Evans /S Training Supervisor	02/10/09 Date

JPM BRIEFING/TURNOVER

Read to Examinee:

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

You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.

AOP and EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.

If this JPM is performed on the simulator, the JPM administrator should only give cues that are not indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should not have to give a cue to the trainee to continue the evolution.

1. Human Performance attributes should be visible. The student may use STAR and or request Peer Checks.
2. If peer checks are requested, the Instructor should reply – “Peer Check Acknowledged”. The instructor will acknowledge use of the human performance tool and not validate the proper component manipulation.

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:

- You are the Auxiliary Operator
- An Emergency Condition exists
- The plant has just tripped from 100% power
- 2 Control Rods have NOT inserted
- CVC-440/MV-32127, Emergency Boration To Charging Pumps, has failed to operate from the Control Room
- CVC-403, CVC-408 and CVC-405 failed to operate.

THE STEPS IN THIS JPM SHOULD BE: SIMULATED

THIS TASK IS NOT TIME CRITICAL

INITIATING CUES (IF APPLICABLE):

The RO directs you to locally OPEN CVC-440/MV-32127, Emergency Boration To Charging Pumps, per AOP-CVC-001, ATTACHMENT A beginning at Step A4.

INFORM THE EVALUATOR WHEN YOU HAVE COMPLETED THE TASK

Do you have any questions before we begin? - Answer applicable questions

JPM PERFORMANCE INFORMATION

Required Materials: OP-KW-AOP-CVC-001, Rev. 1, ATTACHMENT A

General References: OP-KW-AOP-CVC-001, Rev. 1

Task Standards: CVC-302, RWST Emergency Suction Isol, is OPEN locally and CVC-3, Charging Pump Suction Line X-Connect, is closed locally.

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 “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 AOP-CVC-001, ATTACHMENT A, A4.
Critical No Locally OPERATE declutch lever to DISENGAGE motor and ENGAGE handwheel.

Standard: DEPRESS the valve de-clutching lever.
Slowly rotate handwheel until the handwheel engages.

Evaluator Note: CVC-440 location: South of SI Pumps, boric acid blender area.

Evaluator Cue: Once actions are simulated properly state: “The handwheel is engaged”

Performance: SATISFACTORY UNSATISFACTORY

Comments: _____

Performance Step: 2 Critical <u>No</u>	AOP-CVC-001, ATTACHMENT A, A5. Locally OPERATE handwheel to OPEN CVC-440.
Standard:	TURN CVC-440 handwheel in the counter-clockwise direction to attempt to OPEN valve.
Evaluator Cue:	Once simulated properly state: "The handwheel freely turns and valve stem position does NOT change. (The valve will not open)"
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 3 Critical <u>No</u>	Inform the Control Room CVC-440 will not open.
Standard:	Contact and report to Control Room Operator that CVC-440 will not open.
Evaluator Cue:	As Control Room Operator: Acknowledge report and then direct operator to locally open CVC-302, RWST Emergency Suction Isol.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 4 Critical <u>Yes</u>	AOP-CVC-001, Step 5.b.2 RNO Locally open CVC-302, RWST Emergency Suction Isol.
Standard:	Rotate handwheel counter-clockwise until CVC-302 is open.
Evaluator Note:	Valve is located in the Aux Bldg 586' elevation in the Charging Pump room along the south wall between Charging Pumps B and C.
Evaluator Cue:	(As counter-clockwise handwheel operation is indicated) The handwheel rotates until NO further motion occurs. The valve stem rises during operation.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 5 Critical <u>No</u>	Inform the Control Room CVC-302 is open.
Standard:	Contact and report to Control Room Operator that CVC-302 is open.
Evaluator Cue:	As Control Room Operator: Acknowledge report, and then direct operator to locally close CVC-3, Charging Pump Suction Line X-Connect.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 6 Critical <u>Yes</u>	AOP-CVC-001, Step 5.b.3 RNO Locally CLOSE CVC-3, Charging Pump Suction Line X-Connect.
Standard:	Rotate handwheel clockwise until CVC-3 is closed.
Evaluator Note:	Valve is located in the Aux Bldg 586' elevation in the Charging Pump room along the south wall between Charging Pumps B and C.
Evaluator Cue:	(As clockwise handwheel operation is indicated) The handwheel rotates until NO further motion occurs. The valve stem lowers during operation.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 7 Critical <u>No</u>	Inform the Control Room CVC-302 is closed.
Standard:	Contact and report to Control Room Operator that CVC-3 is close.
Evaluator Cue:	As Control Room Operator: Acknowledge report.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: When RWST to Charging Pump local alignment complete (Completion of AOP-CVC-001 step 5.b.3 RNO): This JPM is complete.

Stop Time: _____

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SITE:	Kewaunee Power Station	
PROGRAM:	Reactor Operator Program/Senior Reactor Operator Program	
PROGRAM No.		
COURSE:	2009 NRC License Exam	Course #: ROI-06-SE-SC01 / SOI-06-SE-SC01
Total Time	2 Hours	

Prepared by:	<u>Andrew Fahrenkrug</u>	<u>/S</u>	<u>01/28/09</u>
	Printed Name	Instructor's Signature	Date
Reviewed by:	<u>Steve Johnson</u>	<u>/S</u>	<u>01/30/09</u>
(Optional)	Printed Name	Simulator Development Checklist Instructor Signature	Date
Reviewed by:	<u>Andrew Fahrenkrug</u>	<u>/S</u>	<u>01/23/09</u>
(Optional)	Printed Name	Simulator Validation Checklist Signature	Date
Approved by:	<u>Terry Evans</u>	<u>/S</u>	<u>02/10/09</u>
	Printed Name	Training Manager	Date
Approved by:	<u>Mark Goolsbey</u>	<u>/S</u>	<u>02/12/09</u>
	Printed Name	Facility Representative	Date

REQUIREMENTS

Goal of Training:

Evaluate the operators response and performance to the following events:

- High Turbine Vibrations and Rapid Plant Backdown.
- Reactivity Manipulations
- Failure of P-485, 1st Stage Turbine Impulse Pressure, during a power reduction (Passive Failure).
- RCS Leak, RCS A loop Hot Leg.
- Failure of SG B narrow range level instrument, LT-471 controlling channel.
- Small Break LOCA
- Bus 5 Lockout during Reactor Trip and Small Break LOCA
- Failure of SI Pump B to Auto Start with a valid ESF signal, SI Pump A has no power
- SRO/US analysis of plant conditions for Technical Specification application

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Learning Objectives:

While responding as the RO/BOP satisfactorily MEET the performance requirements in TR-AA-400 for the following competencies

- a. Understand and Interpret Annunciator and Alarm Signals
- b. Diagnose Events and Conditions based on Signals and Reading
- c. Understand Plant and System Response
- d. Comply with and Use Procedures and Technical Specifications
- e. Operate the Control Board
- f. Communicate and Interact with Other Crew Members

(RO4-06-SED01.002) ROI-06-SE-SC01.001 / SOI-06-SE-SC01.001

While responding as the US satisfactorily MEET the performance requirements in TR-AA-400 for the following competencies

- a. Understand and Interpret Annunciator and Alarm Signals
- b. Diagnose Events and Conditions based on Signals and Reading
- c. Understand Plant and System Response
- d. Comply with and Use Procedures and Technical Specifications
- e. Operate the Control Board
- f. Communicate and Interact with Other Crew Members
- g. Direct Shift Operations
- h. Comply with and Use Technical Specifications

(RO4-06-SED01.003) SOI-06-SE-SC01.002

As the US **DETERMINE** the appropriate event classification in accordance with EPIP-AD-02, "Emergency Classification Determination". *This objective will be completed at the end of the scenario and may be waived at the lead evaluators discretion* SOI-06-SE-SC01.003.

Prerequisites:

Enrolled in current ILT class and recommended by station management to take an NRC license exam

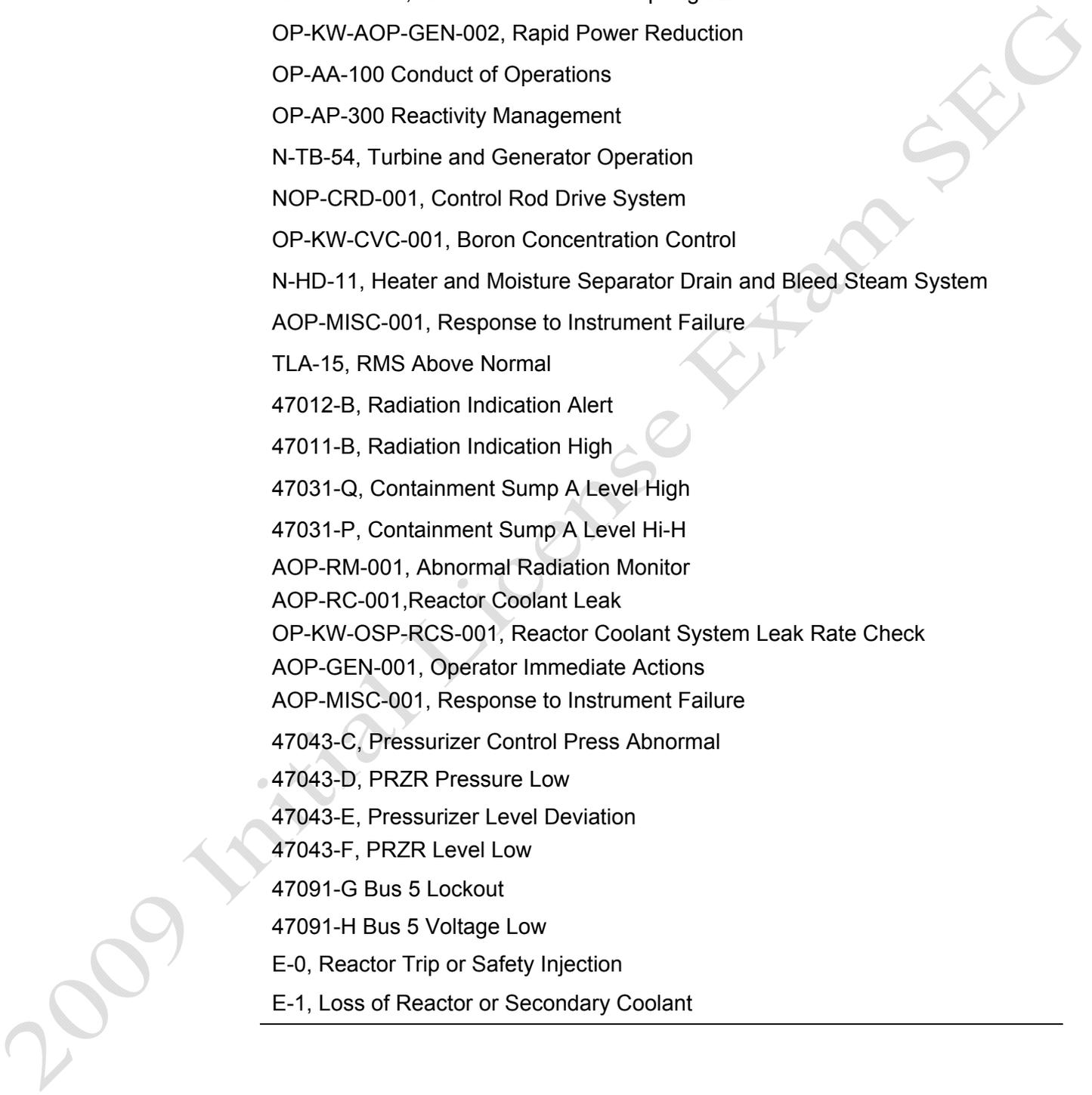
Training Resources:

Simulator
 KPS Exam Team Member
 NRC Examiners

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References:

OP-KW-GOP-307, Hold at Power Greater than 35%
 ARP-47051-U, Turbine Vibration High
 ARP 47054-T, Turbine Oil Cooler Temp High/Low
 OP-KW-AOP-GEN-002, Rapid Power Reduction
 OP-AA-100 Conduct of Operations
 OP-AP-300 Reactivity Management
 N-TB-54, Turbine and Generator Operation
 NOP-CRD-001, Control Rod Drive System
 OP-KW-CVC-001, Boron Concentration Control
 N-HD-11, Heater and Moisture Separator Drain and Bleed Steam System
 AOP-MISC-001, Response to Instrument Failure
 TLA-15, RMS Above Normal
 47012-B, Radiation Indication Alert
 47011-B, Radiation Indication High
 47031-Q, Containment Sump A Level High
 47031-P, Containment Sump A Level Hi-H
 AOP-RM-001, Abnormal Radiation Monitor
 AOP-RC-001, Reactor Coolant Leak
 OP-KW-OSP-RCS-001, Reactor Coolant System Leak Rate Check
 AOP-GEN-001, Operator Immediate Actions
 AOP-MISC-001, Response to Instrument Failure
 47043-C, Pressurizer Control Press Abnormal
 47043-D, PRZR Pressure Low
 47043-E, Pressurizer Level Deviation
 47043-F, PRZR Level Low
 47091-G Bus 5 Lockout
 47091-H Bus 5 Voltage Low
 E-0, Reactor Trip or Safety Injection
 E-1, Loss of Reactor or Secondary Coolant



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Commitments: Per Outline submitted to NRC for 2009 Operating exam

Evaluation Method: Dynamic Simulator

Historical Record: Initial Issue

Operating Experience: Not required for evaluations

Related PRA Information: Initiating Event with Core Damage Frequency:
 Total CDF/LERF (4.8E-5/yr)/(6.5E-06/yr)
 Small Break LOCA percentage of CDF/LERF (2%)/(0%)
 Transient with Feed water Available percentage of CDF/LERF (19%)/(7%)
 Other percentage of CDF/LERF (3%)/(2%)

Important Components:

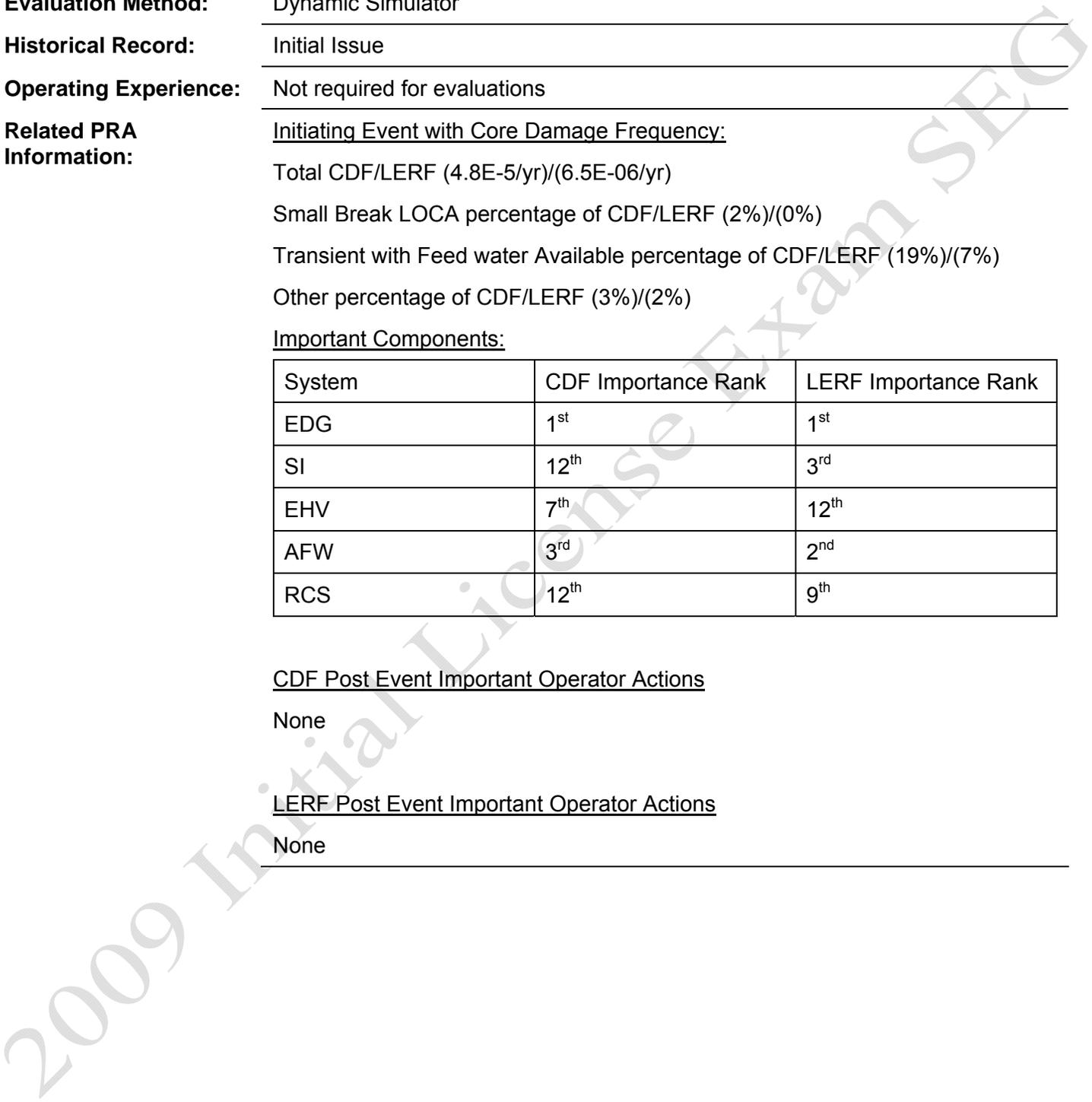
System	CDF Importance Rank	LERF Importance Rank
EDG	1 st	1 st
SI	12 th	3 rd
EHV	7 th	12 th
AFW	3 rd	2 nd
RCS	12 th	9 th

CDF Post Event Important Operator Actions

None

LERF Post Event Important Operator Actions

None



OVERVIEW

INITIAL CONDITIONS:

1. Standard IC-12 (100% power MOL)
2. The following equipment is OOS:
 - a. TD AFW Pump: Auxiliary Lube Oil Pump Overhaul per CMP-05B-03
 - b. NI Channel N43: Failed and removed from service per AOP-GEN-MISC-001 4 hours ago
 - c. Standard cycle OOS items

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Simulator Exercise Guide

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QUANTITATIVE ATTRIBUTES

Event No.	Malf. No.	Event Type*	Event Description
Preload	SI05B	C	Failure to Auto Start, SI Pump 1B
Preload	RX222 579.8	I	PT-485 HP Turbine Impulse Pressure fails as-is (~ 579.6 psig)
1	TU03A, 40	C (BOP)	Turbine Bearing High Temperature (Front Bearing) [Turbine High Vibrations, Bearing #1]
		N	Load backdown due to turbine high vibrations
		R	Power reduction due to turbine high vibrations
2	RX222 579.8	I (Both)	PT-485, Turbine First Stage Pressure instrument fails as-is affecting steam dumps and auto rod control (Tref) during backdown
3	RC08 0.5	C (RO)	RCS System Leaks. 15 gpm RCS leak develops at RCS Loop A RHR line tap.
4	FW207 0, 1:00	I (BOP)	LT-471 SG B level transmitter 24046 Yellow. SG B controlling level channel fails low over 60 seconds
5	RC03A 0.2	M (Both)	Loss of Coolant – Hot Leg (1A). RCS leak becomes small break LOCA resulting in reactor trip and Safety Injection
6	ED08E	C (BOP)	Loss of 4160 (Bus 1-5). Bus 5 lockout resulting in loss of Train A ECCS/ESF equipment. DG starts on SI signal
7	SI05B	C (RO)	Failure to Auto Start, SI Pump B requiring manual start of SI Pump
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Malfunctions:

Before EOP Entry:

1. Turbine High Vibrations, Bearing #1
2. PT-485, Turbine first stage pressure failure
3. RCS Loop A Hot Leg Leak
4. LT-471, SG B controlling level channel failure

After EOP Entry:

1. Small Break LOCA
2. Bus 5 Lockout at time of reactor trip
3. SI Pump B failure to auto start

Abnormal Events:

1. Turbine High Vibrations, Bearing #1
2. PT-485, Turbine first stage pressure failure
3. RCS Loop A Hot Leg Leak
4. LT-471, SG B controlling level channel failure

Major Transients:

1. Small Break LOCA, Reactor Trip with Bus 5 Lockout at time of reactor trip and failure of SI Pump B to auto start

Critical Tasks:

1) Manual Start of SI Pump B

- a) **SAFETY SIGNIFICANCE:** No safety injection with a LOCA in progress
- b) **CUE** No SI pumps running with indications of a LOCA and SI required.
- c) **MEASURABLE PERFORMANCE INDICATOR:** Evaluator observes the crew recognizing the need to manually start SI pump B and observes the RO starting SI Pump B before transitioning from E-0 or stopping RXCP Pumps
- d) **PERFORMANCE FEEDBACK:** SI Pump B running with SI flow indicated

2) "A" EDG to PULLOUT

- a) **SAFETY SIGNIFICANCE:** Degrade Emergency Power Capacity by allowing the EDG to run without service water
- b) **CUE:** "A" EDG running without service water. SI signal and BUS 5 lockout
- c) **MEASURABLE PERFORMANCE INDICATOR:** Crew places "A" EDG to pullout before damage to EDG as indicated by a mechanical lockout on EDG A
- d) **PERFORMANCE FEEDBACK:** "A" EDG stopped

3) : STOP RXCPs

- a) **SAFETY SIGNIFICANCE:** The purpose of tripping the RXCPs during SBLOCA accident conditions is to prevent unnecessary depletion of the RCS water inventory through at the break in the RCS which could lead to severe core uncover if the RXCPs were tripped for some reason later in the accident.
- b) **CUE:** RXCPs running during small break LOCA and Subcooling less than 15 °F [37 °F] with at least one SI pump running and capable of delivering flow.
- c) **MEASURABLE PERFORMANCE INDICATOR:** Crew Stops RXCPs before transitioning from E-0 and after verifying at least one SI pump is running and capable of delivering flow
- d) **PERFORMANCE FEEDBACK:** RXCPs stopped

SEQUENCE OF EVENTS:

Event 1: At the direction of the Lead Examiner, Turbine Bearing High Temperature/High Vibration.

Turbine Bearing High Temperature on Bearing #1 results in increased turbine vibration. Alarm 47051-U, TURBINE VIBRATION HIGH, actuates. The ARP will direct the crew to lower turbine load to reduce vibration level. Engineering will report that the condition appears to be caused by a steam imbalance and recommends a power reduction to 90% within 20 minutes. The US will direct the load reduction using AOP-GEN-002, Rapid Load Reduction. The RO will perform a boration and monitor reactivity parameters for the load reduction. The BOP will manipulate the turbine controls and monitor secondary plant parameters during the load reduction. Vibrations will lower and stabilize as load is reduced.

Event 2: Passive failure, inserted at the start of the scenario, PT-485 fails as-is when turbine power is at 100%.

Turbine first stage pressure fails as-is, PT-485. The instrument is stuck when the crew takes the shift; passive failure. Tref will remain constant during the load reduction. Tave-Tref meter will not be consistent with other plant indications, PPCS will alarm for P-486/P-485 deviation and rod motion will not be consistent with expectations for a rapid power reduction. The crew will diagnose the failure of the instrument. The US will direct entry into OP-KW-AOP-MISC-001, Response to Instrument Failure. The RO will be required to take manual rod control and insert rods as necessary to maintain Tave. Steam Dump control is also affected as steam dumps will not respond correctly to high RCS Tave since with Tref elevated. The BOP will be required to place steam dump controls to STEAM PRESSURE mode. Actions for manual rod control and steam dumps are directed by OP-KW-AOP-MISC-001, Response to Instrument Failure.

Event 3: At direction of Lead Examiner, RCS Hot Leg Leak of 15-20 gpm.

A RCS leak of approximately 15 to 20 gpm will develop on the RCS Loop A Hot Leg at the RHR piping weld. Containment humidity and pressure will rise. The speed of charging pump in AUTO will increase to maintain PRZR level on program. Containment sump A level will rise and annunciators 47031-Q, Containment Sump A Level High and 47031-P, Containment Sump A Level Hi-Hi will activate. The crew will diagnose a RCS leak and per ARPs OP-KW-ARP-47031-Q, Containment Sump A Level High, and OP-KW-ARP-47031-P, Containment Sump A Level Hi-Hi, and the US will direct entry into OP-KW-AOP-RC-001, Reactor Coolant Leak. The crew will stabilize the plant and determine a leak rate. Technical Specification 3.1.d.1.B limits unidentified leakage to 1 gpm. ACTION statement 3.1.d.2 requires the leakage be reduced to within limits within 4 hours. ACTION statement 3.1.d.3 requires action to achieve HOT SHUTDOWN within 6 hours and COLD SHUTDOWN within an additional 30 hours, if the time limit of 3.1.d.2 is exceeded. EAL classification SU5.1, Unidentified or pressure boundary leakage > 10 gpm.

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Steam Generator B controlling level channel (LT-471) will fail low (from 44%) over 60 seconds. The failure will result in an increase in feed flow to Steam Generator B. Steam Generator B level and feed flow alarms will rise and alert the BOP to the abnormal condition. Per OP-KW-AOP-GEN-001, Immediate Operator Actions (for abnormal SG level), the BOP will take FW-7B to manual and maintain SG level between 30% and 50%. The crew will transition to OP-KW-AOP-MISC-001, Response to Instrument Failure, to address the failed channel. Technical Specification 3.5.b is addressed. Table TS 3.5-2, item 12 (Lo-Lo SG water level reactor trip) is verified satisfied with the two other level channels (LT-472 & LT-473) for SG B OPERABLE. Table TS 3.5-3, items 4.a and 5.a (SG Lo-Lo level AFW auto start) is verified satisfied with the two other level channels for SG B OPERABLE. TS Table 3.3-4, item 4.a (Hi-Hi SG level FW Isolation) level of redundancy is not satisfied until the bistable for Hi-Hi SG Level associated with LT-471 is tripped. This requires implementation TS 3.5.c to place the plant in hot shutdown. The note in OP-KW-AOP-MISC-001 defines the time requirement as soon as practical in TS 3.5.c as using the time requirements of TS 3.0.c. The crew has one hour to trip the Hi-Hi SG level bistable associated with LT-471 or commence a plant shutdown to hot shutdown. TS 3.0.c time requirements are within one hour action shall be taken to place the plant in a mode in which the specification does not apply by placing it, as applicable, in: Hot standby within the next 6 hours, at least hot shutdown within the following 6 hours.

Event 5: At direction of Lead Examiner, RCS leak becomes a SBLOCA exceeding charging capacity.

The RCS leak worsens and becomes a small-break LOCA exceeding charging capability. A reactor trip and safety injection will occur. RXCPs will be stopped using the E-0 Foldout Page RXCP Trip Criteria when subcooling and SI injection capability conditions are satisfied. (NOTE: Event 7 involves NO SI Pumps running and no SI flow when SI flow should occur. Tripping RXCPs should NOT occur until after SI Pump B is started.) EAL escalation FA1, ALERT: Any Loss or any potential loss of either the fuel clad or RCS (Table F-1). Table F-1 Fission product barrier reference table: RCS Barrier, Potential Loss, RCS leak rate un-isolable > 60 gpm the capacity of charging pump in normal charging mode.

Event 6: Initiated with Reactor Trip, Bus 5 Lockout due to ground fault.

At the time of the reactor trip, Bus 5 will lockout due to ground fault. This will remove power from the Train A Safeguards (ECCS/ESF) equipment. DG A will start on the Safety Injection signal but will run with no cooling water supplied from Service Water System. The BOP operator will stop DG A and place its control switch in PULLOUT using ARP OP-KW-ARP-47091-G, Bus 5 Lockout, to prevent damage to DG A.

Event 7: Initiated with SBLOCA, SI Pump B fails to auto start.

SI Pump B will fail to auto start on the Safety Injection. This will result NO SI Pumps running for the small break LOCA. The RO will start SI Pump B as directed in E-0 while performing ATTACHMENT A (NOTE: The step may be brought forward using guidance of UG-0 and started when the failure to run is noted.)

Scenario Termination:

The crew will continue the actions of E-0 to ensure Safeguards equipment is operating as required. Diagnosis will be made of an RCS leak and transition will be made to E-1. Termination of the scenario will be made in E-1 at the point the crew completes evaluation of SI Termination Criteria (SI cannot be terminated) and/or at the direction of the Lead Examiner.

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TASKS

Task Number	Task Title
SRO Tasks:	
1190190302	Apply Technical Specifications During Plant Operations
1190030502	Determine Emergency Classification
1190070502	Coordinate the Implementation of the IPEOPs
A030010402	Perform a Rapid Power Reduction
1190330302	Demonstrate an understanding of the responsibility and requirements for the Control Room Supervisor
RO Tasks:	
0540030401	Respond to Abnormal Turbine Vibration Annunciator
0540110401	Respond to a Failure to a P-485 Instrument Failure
A030010401	Perform a Rapid Power Reduction
0360030401	Respond to an unidentified RCS leak
0450090401	Respond to an abnormal condition with R-11 containment particulate monitor
0450100401	Respond to an abnormal condition with R-12 containment gas monitor
1190020001	Demonstrate and understanding of sensors and detectors
05A0030401	Transfer Feedwater Control from Automatic to Manual Control during Abnormal Feedwater System Operation
0390060401	Respond to a Bus 5 or 6 Lockout
0100010401	Respond to abnormal Diesel Generator Operation A(B)
E010010501	Respond to a loss of Primary or Secondary coolant
E000010501	Respond to a Reactor Trip Condition with Safety Injection
1190110301	Operate the plant IAW technical specifications
0350070101	Operate the Charging and Volume Control System during Steady State Conditions
0350230101	Control the RCS Boron Concentration by the use of Boration
0360180101	Stop a RXCP

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>1. INITIAL CONDITIONS:</p> <ul style="list-style-type: none"> • Standard IC-12 • Mode: Operating • Exposure: 10, 000 MWD/MTU • Power: 99.5% • Boron: (CB): 968 ppm • Temperature 572°F • Pressure: 2236 • Xenon: EQU • Rods: ARO • Generator: 601 MWe 		
<p>2. SIMULATOR SETUP:</p> <p>The following forms are needed during the scenario and are to be placed in the booth.</p> <p>No Additional Material Need For Booth Operator</p>	<ol style="list-style-type: none"> 1. Reset to IC# 12 and go to run 2. Insert DVD for recording 3. Remove T/D AFW Pump from SERVICE by aligning the following equipment and placing tags on the equipment <ul style="list-style-type: none"> • MS-102 – PULLOUT • MS100A – CLOSE • MS100B – CLOSE <p>Note: Alignment is per CMP-05B-03, AFW Auxiliary Feedwater Turbine Driven Pump and Auxiliary Lube Oil Pump Overhaul Section 3.2</p> <ol style="list-style-type: none"> 4. Position the following switches to N43 channel <ul style="list-style-type: none"> ○ Upper Section switch on Detector Current Comparator 	

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>Shift Manager Status board information</p> <p><u>Equipment OOS</u></p> <p>T/D AFW Pump for Aux Lube Oil Pump Overhaul TS 3.4.b.4.A. 72 hour LCO.</p> <p>N43 Failed and Removed from Service per MISC-001 at XX:XX (four hours prior to the start of the scenario) TS Table 3.5-2 item 2, 5, and 6 condition are met.</p> <p>3.1.a.5.A.1 D For PR-2A Seat Leakage. PR-1A closed with Power Available</p> <p>Standard Cycle OOS items</p> <p><u>Remarks</u></p> <p>Protected train = A</p> <p>Risk CDF/LERF= Yellow</p> <p><u>SPER / WRs</u></p> <p>None</p>	<ul style="list-style-type: none"> ○ Lower Section switch on Detector Current Comparator ○ Rod Stop Bypass switch on Miscellaneous Control and Indicating Panel ○ Power Mismatch Bypass switch on Miscellaneous Control and Indication Panel ○ Comparator Channel Defeat switch on Comparator And Rate drawer ○ N43A drawer Control Power breaker to OFF <p>5. Position AS-31/AS-35, R-11 and R-12 Sample return to return to the containment.</p> <p>6. OPEN and Run CAEP file. ILT-09-SEE01.cae. After file has run <u>for one minute</u> close CAE file.</p> <p>7. Verify the following Status Lights are lit: PR N43 P8 (44907-0403)</p> <ul style="list-style-type: none"> ○ PR N43 P10 (44907-0503) ○ PR N43 Low Range Hi Flux (44907-0603) ○ PR N43 Hi Range Hi Flux (44907-0703) ○ Loop B OTΔT (44907-0507) ○ PR N43 Hi Flux Rate (44907-0803) ○ N43 Rod Stop bypassed (44906-0601) ○ Loop B Chan 3 OTΔT (44904-0202) 	

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>GENERAL</p> <p>Consecutive days of operation <u> 30 </u></p> <p>G-1 Closed (<u>indicate date last month</u>) JD_ <u> xxx </u></p> <p>Burn up <u>10,000 MWD/MTU</u></p> <p>Sirens Lost Coverage % <u> 0 </u></p> <p>Sirens OOS <u> 0 </u></p> <p>RCS and Pressurizer boron = 968 ppm</p> <p><i>All other entries are standard</i></p>	<p>8. Verify the following annunciator lights are lit:</p> <ul style="list-style-type: none"> ○ OTΔT High (47033-C) ○ OTΔT Channel RNBACK/RDSTP Alert (47041-R) ○ Power Range Positive Rate Channel Alert (47032-K) ○ Power Range Negative Rate Channel Alert (47032-J) ○ Power Range High Flux (47031-M) ○ Power Range Detector Voltage Low (47033J) <p>9. Verify the Instructor Station Summary IAW instructions at the beginning of the input summary in this SEG</p> <p>10. Second verification of the Instructor IAW instructions at the beginning of the input summary in this SEG</p> <p>11. Start the Monitor File using the NRC Extended Value Monitor File.</p> <p>12. COMPLETE Simulator Exam Setup Checklist</p> <p>NOTE: If called to the Control Room then wear the badge identifying who you are.</p>	

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>3. PRE-SCENARIO:</p> <p>a) <u>IF</u> this is the first simulator scenario of the week, <u>THEN</u> review the Simulator Differences List with the crew.</p> <p>b) Provide crew with:</p> <ul style="list-style-type: none"> • Turnover sheets and plant information • Marked Up Copy of AOP-MISC-001 Attachment J for N43 failure • Copy of CMP-05B-03 <p>c) Cover Simulator Scenario Briefing Sheet in Job Aid 04-01 with the crew</p> <ul style="list-style-type: none"> • Inform the crew that the Lead Evaluator will take response for the Shift Manager. They will acknowledge communications, but their acknowledgment does not mean agreement or disagreement. <p>d) Brief the crew IAW NUREG 1021 Appendix E (Simulator Test Guidelines)</p> <p>e) Lead Evaluator perform a Pre-Job brief per Job Aid 04-03</p>		

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>4. TURNOVER: PROVIDE Shift Turnover Information.</p> <p>After ~5 minute walk down of boards by the crew. Give the crew the shift.</p> <p><u>Shift Direction:</u></p> <p>Maintain 100% power.</p>	<p>When Crew enters the simulator than begin recording on the DVD.</p>	<p>(All) Walk down control boards~ 5 minutes</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
5. SCENARIO:		
EVENT 1: HIGH TURBINE VIBRATIONS Human Performance Tools: Procedure Compliance, Clear Communications, Peer Checking Operator Fundamentals: Closely Monitoring Plant Conditions, Precisely controlling plant evolutions, Teamwork Component BOP		
<p>After the crew takes the shift and directed by the Lead Examiner. TU03A, Front Bearing High Temperature will be inserted. It will take ~ 2.5 minutes for 47041-U to alarm.</p> <p>Turbine bearings 1, 2, & 3 vibrations will all increase. Only Bearing #1 will alarm.</p> <p>(HU Tool Clear Communications)</p> <p>Vibrations on the #1 bearing will max out at 8 mils for this failure. The crew will commence a back down based on Engineering recommendation. At approximately 95% power the vibrations will begin to lower.</p>	<p>When directed by the Lead Evaluator insert TRIGGER 1 .</p> <p>Verify that TU03A, Front Bearing High inserts</p> <p>Verify RX222, PT-485 HP Turbine Impulse Press is preloaded</p>	<p>CREW</p> <ul style="list-style-type: none"> - Respond to and Diagnose an increase in turbine vibration above the alert set point, as indicated by the following: <ul style="list-style-type: none"> - 47051-U TURBINE VIBRATION HIGH. (approximately 2 minutes from start of event) - Turbine Supervisory panel indicates increase in bearing vibrations. - T2051A Turb BRG #1 Metal Temp (approximately 4 minutes after the start of the event)
No transient should be in progress at this time.		US Direct implementation of ARP 47051-U
NOTE: Max vibrations will be 8 mils on bearing #1		BOP CHECK Turbine Vibrations < 13 mils
		US CHECK Turbine Load > 90%

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
No transient should be in progress at this time.		US VERIFY no transient in progress to stop.
Operator Fundamental: Crew should be monitoring all bearing temperatures for any increase to 13 mils, required trip		BOP MONITOR the Turbine Supervisory Panel
NOTE: The US should contact SM and ask engineering to investigate. If the crew decides to reduce turbine load at this time turbine vibrations will decrease with load decrease. If the crew only monitors the turbine and does not start a load reduction, 10 minutes or at the direction of the Lead Examiner.	<p>ROLE: SM (if contacted by the US)</p> <p>REQUEST: Acknowledge high turbine vibrations and contact WWC/Engineering</p> <p>RESPOND: Wait 5 minutes and direct the US to perform a back down to 90% in the next 20 minutes.</p> <p>ROLE: SM (if NOT contacted by the US)</p> <p>RESPOND: Wait 10 minutes from the start of the event then, inform the US you were contacted by Engineering and direct the US to perform a back down to 90% in the next 20 minutes.</p>	US REDUCE Turbine Load to Reduce Turbine Vibration
	<p>ROLE: EO</p> <p>NOTE: The crew may call the EO to the Control Room to brief and give a copy of the ARP.</p> <p>REQUEST: Locally Monitor the Turbine and inform of Bearing #1 high vibrations</p> <p>RESPONSE: Acknowledge knowledge direction to locally monitor the turbine.</p>	CREW DIRECT EO to locally monitor Turbine for abnormalities.

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
	<p>ROLE: SM</p> <p>REQUEST: Acknowledge high vibrations on turbine</p> <p>RESPONSE: Acknowledge the Turbine Bearing problem. After 10 minutes inform US that you were contacted by Engineering. They recommend a 10% power reduction in 20 minutes and you agree with Engineering's recommendation.</p>	<p>US Contact SM</p>
	<p>Role: EO</p> <p>REQUEST: Locally check Turbine Lube Oil Temperatures</p> <ul style="list-style-type: none"> • TI-12065, Turbine oil cooler outlet temperature • TI-12371, Turbine #6 bearing oil temperature <p>RESPONSE: Acknowledge direction, after 3 minutes report</p> <ul style="list-style-type: none"> • TI-12065, Turbine oil cooler outlet temperature 109⁰F • TI-12371, Turbine #6 bearing oil temperature 106⁰F 	<p>CREW Direct EO to locally check Turbine Lube Oil Temperatures 106-110⁰F</p> <ul style="list-style-type: none"> • TI-12065, Turbine oil cooler outlet temperature • TI-12371, Turbine #6 bearing oil temperature

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
	<p>ROLE: EO</p> <p>REQUEST: Locally check Turbine Seal Oil Temperatures</p> <ul style="list-style-type: none"> • Air Side and H2 Side Seal Oil Temperature 110-122⁰F <ul style="list-style-type: none"> ➤ TI-12333 ➤ TI-12334 • Air Side and H2 Side Seal Oil Temperatures 3-5⁰F greater than #6 bearing oil temperature <ul style="list-style-type: none"> ➤ TI-12371 <p>RESPONSE: Acknowledge direction. Then after 5 minutes report that</p> <ul style="list-style-type: none"> ➤ TI-12333 = 112⁰F ➤ TI-12334 = 113⁰F ➤ TI-12371 is 4⁰F greater than # 6 bearing oil temperature 	<p>CREW Direct EO to check Turbine Seal Oil Temperatures</p> <ul style="list-style-type: none"> • Air Side and H2 Side Seal Oil Temperature 110-122⁰F <ul style="list-style-type: none"> ➤ TI-12333 ➤ TI-12334 • Air Side and H2 Side Seal Oil Temperatures 3-5⁰F greater than #6 bearing oil temperature <ul style="list-style-type: none"> ➤ TI-12371

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
Power Reduction per AOP-GEN-002 Normal BOP Reactivity RO		
If the crew elects to VPL down then 47042-Q, Control bank Low limit may come in.	If the crew reduces power by use of the VPL then manually insert TRIGGER 30 to change malfunction TU003A to a ramp from 40 to 20 over 10 minutes	US Review AOP-GEN-002 for power reduction.
Operator Fundamental - Teamwork	The EO/AO may be called to the control room for a brief. If so acknowledge any direction given. But add no other information	US DETERMINE loading rate.—Should be 1% per minute according the table. US Should delay the Brief until after load reduction in order to reduce vibrations.
		(CAS) US/RO VERIFY Rods in Auto
Human Performance: Peer Checking & Procedure Compliance Operator Fundamental: Precisely Controlling Plant evolutions The crew should use a standard reactivity plan. A crew brief should be performed for the back down and reactivity plan. All reactivity calculations and manipulations must be peer checked IAW standards.		US/RO DETERMINE reactivity plan
		(CAS) US/RO BORATE the RCS per Attachment G
		RO SET Boric Acid Totalizer to required quantity
		RO PLACE CVC-403 hand controller in manual

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FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
		RO SET CVC-403 hand controller setpoint to 15
		RO SET CVC-403 hand controller output to 65
		RO POSITION Reactor Makeup Mode Selector switch to BORATE
		RO POSITION Reactor Makeup Control switch to START
		RO ADJUST boric acid flowrate as required to null deviation meter
		RO/BOP PLACE all Pressurizer heaters on
		(CAS) US/RO CONTROL Charging and Letdown Flow to maintain RCS inventory
If the VPL was used to reduce load then the crew proceeds.		BOP TAKE turbine off VPL
		(CAS) US/BOP PREPARE for Turbine Load Reduction—Immediate Load reduction is required.
	VERIFY that trigger 30 inserts and TU03A changes to a ramp from 40 to 20 over 10 minutes when the power reduction is started	US/BOP PERFORM Turbine Load Reduction
	ROLE: DEMI REQUEST: Informing Power Reduction RESPONSE: Acknowledge Power Reduction.	(CAS)US INFORM DEMI of Power Reduction
		(CAS) RO CHECK Rod Position
		(CAS) RO CONTROL Tave-Tref Deviation

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
		US REVIEW of SER points
		(CAS) US/RO/BOP VERIFY Control Systems operating in Automatic.

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>EVENT 2: PT-485 Fails AS-IS</p> <p>Human Performance Tools: Clear Communications, Self Checking, Peer Checking</p> <p>Operator Fundamentals: Closely Monitoring Plant Conditions, Precisely Controlling Plant Evolutions</p> <p>Instrument Failure RO & BOP</p>		
Operator Fundamental – closely monitoring plant conditions		CREW Recognizes PT-485 is failed as-is based on turbine load reduction and no change in PT-485, and Tref not changing during the down power
Human Performance Clear Communications		- PO487G, PPCS point P486 Deviation in alarm
		US Direct implementation of AOP-MISC-001 Attachment M
Human Performance- Self Checking and Peer Checking		US/RO POSITION Control Rod Bank Selector to MAN
Human Performance- Self Checking and Peer Checking		US/BOP SHIFT steam dumps to Steam Pressure Mode
Operator Fundamental – Precisely controlling plant evolutions		US/RO REFER to RD 11.3.4.1 for RCS Tavg versus % Plant Power
	<p>ROLE: SM</p> <p>REQUEST: Acknowledge failure of PT-485 as-is</p>	US Inform SM of failure

SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>EVENT 3: RCS Loop Hot Leg Leak</p> <p>Human Performance Tools: Procedure Compliance, Questioning Attitude</p> <p>Operator Fundamentals: Teamwork, Closely monitoring plant Conditions, Understand plant design and theory</p> <p>Component RO</p> <p>Technical Specification SRO</p>		
<p>Crew may implement ARP-47031-Q or ARP-47031-P which will direct a transition to AOP-RC-001</p> <p>ARP 47012-B, 47011-B, and TLA-15 will direct the crew to AOP-RM-001</p> <p>Operator Fundamental – Understanding Plant Design and Theory/Closely monitoring plant conditions</p>	<p>When directed by the Lead Evaluator insert TRIGGER 3 .</p> <p>Verify that RC08, Reactor Coolant System Leaks inserts</p>	<p>Annunciators:</p> <p>TLA-15, RMS Above Normal</p> <p>47012-B, Radiation Indication Alert</p> <p>47011-B, Radiation Indication High</p> <p>47031-Q, Containment Sump A Level High</p> <p>47031-P, Containment Sump A Level Hi-Hi</p>
	<p>ROLE: HP</p> <p>REQUEST: Survey the (____) area based on radiation monitor R-XX indications.</p> <p>RESPONSE: Acknowledge request for survey, you will call back when the survey(s) are completed.</p>	<p>Parameters Identified by Crew</p> <ul style="list-style-type: none"> • Containment humidity rising • Charging Speed increasing • PRZR level lowering slowly • Containment Pressure Rising. • Rad Monitors Increasing

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>ACTIONS of AOP-RM-001</p> <p>Operator Fundamental: Teamwork</p> <p>Human Performance: Procedure Use and Adherence</p> <p>During the crews performance of the ARPs/AOPs the US should call a brief to ensure crew is aligned and develop plan to execute both AOP-RM-001 and AOP-RC-001.</p>		<p>(CAS)US/BOP CHECK if personnel should be evacuated</p>
		<p>US/BOP CHECK radiation monitors none failed downscale</p>
<p>ACTIONS for R-2</p>		<p>BOP CHECK R-2</p>
<p>ACTIONS for R-7</p>		<p>BOP CHECK R-7</p>
<p>ACTIONS for R-11</p>		<p>BOP POSITION paper drive to FAST for 15 seconds, then to OPERATE</p>
		<p>BOP CHECK R-11 indication lowering</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
		<p>BOP VERIFY the following dampers and valves close</p> <ul style="list-style-type: none"> • TAV-12, Cntmt Purge/Vent Supply • RBV-2, Cntmt Purge/Vent Supply B • RBV-5, Cntmt Purge/Vent Exhaust • RBV-3, Cntmt Purge/Vent Exhaust B • SA-7003B, Hydrogen dilution to Cntmt • LOCA-2B, Post LOCA H2 Cntmt Vent Isol B
ACTIONS for R-12		<p>BOP CHECK R-12 radiation levels normal</p>
		<p>BOP VERIFY the following dampers and valves close</p> <ul style="list-style-type: none"> • TAV-12, Cntmt Purge/Vent Supply • RBV-2, Cntmt Purge/Vent Supply B • RBV-5, Cntmt Purge/Vent Exhaust • RBV-3, Cntmt Purge/Vent Exhaust B • SA-7003B, Hydrogen dilution to Cntmt <p>LOCA-2B, Post LOCA H2 Cntmt Vent Isol B</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
		CREW Recognizes RCS leak based on the above indications alarm
		US Direct implementation of AOP-RC-001
		US/RO CHECK RHR not in service for RCS cool down
		(CAS)US/RO CHECK Reactor Trip NOT required
Based on current plant conditions the AUTO charging pump should keep up with the leakage.		(CAS)US/RO CHECK PRZR Level Stable or Trending to Program Level
		(CAS)US/RO CHECK PRZR Pressure Stable at or trending to desired pressure
		US/RO VERIFY Automatic Makeup Control
NOTE: Steps 6-21 are diagnostic and may be performed in any order		US/RO/BOP CHECK Steam Generator Tubes Intact
		US/RO CHECK Component Cooling System Intact
		US/RO/BOP CHECK RXCP #1 Seal Leakoff Normal/Stable
		US/RO CHECK Annunciators RXCP Standpipe High/Low – Clear
	ROLE: AO	CREW Direct AO to Check Charging Pump Leakage normal

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
	<p>REQUEST: Acknowledge direction to check charging pump leakage normal</p> <p>RESPONSE: After 5 minutes report all charging pump leakage is normal.</p>	
		<p>US/RO DETERMINE if Leak is on RXCP Seal Injection Lines</p>
		<p>US/RO DETERMINE if leak is on Letdown Line</p>
		<p>US/RO DETERMINE if leak is on Charging Line</p>
<p>R-2, R-7, R-11, R-12, R-21, and containment humidity should not be stable or normal,</p>		<p>US/RO/BOP CHECK RCS Intact Inside Containment</p> <ul style="list-style-type: none"> ○ US/RO Check R-2, R-7 Normal and Stable ○ US/BOP CHECK containment humidity Normal and Stable ○ US/RO CHECK R-11, R21 Normal ○ US/RO CHECK R-12 Normal and Stable <ul style="list-style-type: none"> ○ US DIRECT SM to Consult with RP to perform a containment entry
		<p>US Direct the implementation of OSP-RCS-001</p>
<p>Technical Specification 3.1.d.1.B limits unidentified leakage to 1 gpm. ACTION statement 3.1.d.2 requires the leakage be</p>		<p>US DETERMINE if Plant Shutdown is required</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>reduced to within limits within 4 hours. ACTION statement 3.1.d.3 requires action to achieve HOT SHUTDOWN within 6 hours and COLD SHUTDOWN within an additional 30 hours, if the time limit of 3.1.d.2 is exceeded.</p> <p>EAL classification SU5.1, Unidentified or pressure boundary leakage > 10 gpm.</p>		<ul style="list-style-type: none"> ○ US RCS Operational leakage does NOT comply with TS 3.1.d. RCS Operational Leakage
	<p>ROLE: SM</p> <p>RESPOND: Acknowledge RCS leak rate and need to shutdown will consult with station management</p>	<p>US INFORM SM of need to shutdown</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>EVENT 4: Steam Generator B controlling Level Channel LT-471 Fails Low</p> <p>Human Performance Tools: Procedure Compliance</p> <p>Operator Fundamentals: Closely Monitoring Plant Conditions</p> <p>Instrument BOP</p> <p>Technical Specification SRO</p>		
<p>ARP 47062-D, 47062-E and 47064-D will direct the manual control of FW-7B and direct transition to AOP-MISC-001</p>	<p>When directed by the Lead Evaluator insert TRIGGER 5 .</p> <p>Verify that FW207 LT-471 SG B Level Transmitter 24046 Yellow inserts</p>	<p>Annunciators:</p> <p>47062-D, S/G B Program Level Deviation</p> <p>47062-E, S/G B Bypass CV Level Deviation</p> <p>47064-D, S/G B Level Low</p>
<p>Operator Fundamentals: Closely Monitoring Plant Conditions</p>		<p>BOP Identify B Steam Generator level changing</p>
<p>Human Performance Tools: Procedure Compliance</p>		<p>US/BOP Implement the Immediate action of AOP-GEN-001</p>
		<p>BOP CHECK B Steam Generator Narrow Range Level – Stable at Program</p> <ul style="list-style-type: none"> ○ SHIFT FW-7B SG Feedwater flow controller to MANUAL ○ THROTTLE FW-7B to maintain SG Narrow Range Level stable between 33 and 50%

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
		BOP CHECK Initiating Event – Instrument Failure <ul style="list-style-type: none"> ○ Identity failure of LT-471
		US Direct the implementation of AOP-MISC-001
		US/BOP VERIFY Immediate action of Steam Generator Level Control failure per AOP-GEN-001 are complete
		US/BOP VERIFY B Steam Generator Feed Regulating Bypass Valve controller is in MANUAL
		US/BOP RESTORE B Steam Generator level to 44%
	ROLE: SM RESPOND: Acknowledge failure of LT-471 and the required I&C support	US Inform SM of LT-471 failure
		US DIRECT I&C to perform corrective maintenance on LT-471

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>Table TS 3.5-2, item 12 (Lo-Lo SG water level reactor trip) is verified satisfied with the two other level channels (LT-472 & LT-473) for SG B OPERABLE. Table TS 3.5-3, items 4.a and 5.a (SG Lo-Lo level AFW auto start) is verified satisfied with the two other level channels for SG B OPERABLE. TS Table 3.3-4, item 4.a (Hi-Hi SG level FW Isolation) level of redundancy is not satisfied until the bistable for Hi-Hi SG Level associated with LT-471 is tripped. This requires implementation TS 3.5.c to place the plant in hot shutdown. The note in OP-KW-AOP-MISC-001 defines the time requirement as soon as practical in TS 3.5.c as using the time requirements of TS 3.0.c. The crew has one hour to trip the Hi-Hi SG level bistable associated with LT-471 or commence a plant shutdown to hot shutdown.</p>		<p>US REFER to TS 3.5.b.</p>
		<p>US DIRECT I&C check existing bistable status to ensure a Reactor trip will not occur</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>EVENT 5: RCS Leak become a SMALL BREAK LOCA</p> <p>Major RO & BOP</p> <p>EVENT 6: BUS 1-5 Lockout when Reactor Trip Breakers Open</p> <p>Component BOP</p> <p>EVENT 7: SI Pump B fails to Auto start</p> <p>Component RO</p> <p>Human Performance Tools: Clear Communications, Self Checking, Procedure use and Adherence</p> <p>Operator Fundamentals: Closely Monitoring Plant Conditions, Conservative Decision Making, Precisely Controlling Plant Evolutions</p>		
<p>A INVALID CFS RED path is possible if feed flow is reduced < 210 gpm AND only the level of the “B” Steam Generator is greater than 4% [13%] (adverse containment)</p> <p>Gaitronics does NOT work with the loss of Bus 1-5 until the power supply has been shifted.</p>	<p>When directed by the Lead Evaluator insert TRIGGER 7.</p> <p>Verify that RC03A Loss of Coolant Accident – Hot Leg (1A) inserts</p> <p>Verify that SI05B Failure to Auto Start, SI Pump 1B already inserted</p>	<p><u>Annunciators for RCS Leak</u></p> <p>47031-P, Containment Sump A Level Hi-Hi</p> <p>47031-Q, Containment Sump A Level High</p> <p>47043-C, Pressurizer Control Press Abnormal</p> <p>47043-D, PRZR Pressure Low</p> <p>47043-E, Pressurizer Level Deviation</p> <p>47043-F, PRZR Level Low</p>
<p>Operator Fundamentals: Closely Monitoring Plant Conditions, Precisely Controlling Plant Evolutions</p> <p>Human Performance Tools: Clear Communications</p>		<p>RO reports that not maintaining PRZR level with letdown isolated and charging maximized – or – may report that VCT level cannot be maintained.</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
Human Performance Tools: Clear Communications		US DIRECT Manual tripping of the reactor and implementation of E-0
	VERIFY that BLIND TRIGGER 29 activates to insert malfunction ED08E Loss of 4160 V Bus 1-5 when the reactor trip breakers open.	US/RO MANUALLY TRIP the Reactor
		RO VERIFY Reactor Trip
		BOP VERIFY Turbine Trip
	Verify Bus 5 Lockout occurred	BOP VERIFY bus 5 or 6 has Power
Operator Fundamentals: Closely Monitoring Plant Conditions SI is actuated but NO SI Pumps are running		RO CHECK if SI is actuated

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FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>Human Performance Tools:, Self Checking</p> <p>CRITICAL TASK - Manual Start of SI Pump B</p> <p>SAFETY SIGNIFICANCE: No safety injection with a LOCA in progress</p> <p>CUE No SI pumps running with indications of a LOCA and SI required.</p> <p>MEASURABLE PERFORMANCE INDICATOR: Evaluator observes the crew recognizing the need to manually start SI pump B and observes the RO starting SI Pump B before transitioning from E-0 or stopping RXCP Pumps</p> <p>PERFORMANCE FEEDBACK: SI Pump B running with SI flow indicated</p>		<p>RO VERIFY automatic actions using ATTACHMENT A</p> <ul style="list-style-type: none"> ○ CHECK both SI Pumps Running ○ START SI Pump B

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FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>RXCP trip criteria actions SHOULD NOT be carried out until an SI pump is running</p> <p>Operator Fundamentals: Precisely Controlling Plant Evolutions</p> <p>Human Performance Tools:, Procedure use and Adherence</p> <p>Critical Task: STOP RXCPs</p> <p>SAFETY SIGNIFICANCE: The purpose of tripping the RXCPs during SBLOCA accident conditions is to prevent unnecessary depletion of the RCS water inventory through at the break in the RCS which could lead to severe core uncover if the RXCPs were tripped for some reason later in the accident.</p> <p>CUE: RXCPs running during small break LOCA and Subcooling less than 15 °F [37 °F] with at least one SI pump running and capable of delivering flow.</p> <p>MEASURABLE PERFORMANCE INDICATOR: Crew Stops RXCPs before transitioning from E-0 and after verifying at least one SI pump is running and capable of delivering flow</p> <p>PERFORMANCE FEEDBACK: RXCPs stopped</p>		<p>US/RO/BOP IDENTIFY RXCP Trip Criteria per Foldout Page</p> <ul style="list-style-type: none"> ○ IDENTIFY 1 SI pump Running ○ IDENTIFY RCS subcooling based on CETs <15⁰F ○ IDENTIFY Operator controlled cooldown NOT in progress <ul style="list-style-type: none"> ○ RO STOP and PLACE BOTH RXCPs in PULLOUT

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
		<p>US/BOP Recognize EDG A is running without SW.</p> <ul style="list-style-type: none"> ○ US Direct the implementation of ARP-47091-G
		<p>BOP VERIFY Bus 5 Breakers Tripped and Locked out</p>
		<p>BOP POSITION Bus 5 voltage Restoring Mode Selector to MAN</p>
<p>Human Performance Tools:, Self Checking</p> <p>Critical Task: "A" EDG to PULLOUT</p> <p>SAFETY SIGNIFICANCE: Degrade Emergency Power Capacity by allowing the EDG to run without service water</p> <p>CUE: "A" EDG running without service water. SI signal and BUS 5 lockout</p> <p>MEASURABLE PERFORMANCE INDICATOR: Crew places "A" EDG to pullout before damage to EDG as indicated by a mechanical lockout on EDG A</p> <p>PERFORMANCE FEEDBACK: "A" EDG stopped</p>		<p>BOP POSITION Diesel Generator 1A control switch to PULLOUT</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
	<p>ROLE: EO</p> <p>REQUEST: Locally close FW-12A, If FW-12A will not close then close FW-6A or FW-8A AND FW-9A or FW-11A</p> <p>RESPONSE: Acknowledge request, wait 5 minutes insert TRIGGER 9 and report FW-12A is closed locally</p>	<p>RO Verify Feedwater Isolation</p>
	<p>ROLE: AO</p> <p>REQUEST: Close CC-654</p> <p>RESPONSE: Acknowledge request wait 3 minutes and report CC-654.</p>	<p>RO VERIFY Containment and Containment Ventilation Isolation</p>
AFW pump A is not running due to Bus 1-5 Lockout		<p>(CAS)US/BOP VERIFY AFW Pumps Running</p> <ul style="list-style-type: none"> o BOP Verify AFW Pump B running
		<p>(CAS)US/BOP CHECK AFW Pump Discharge Pressures</p>
		<p>US/BOP VERIFY Secondary Heat Sink</p>
		<p>US/RO CHECK RXCP Seal Cooling Normal</p>
		<p>(CAS)US/RO/BOP VERIFY RCS Temperature Control</p>
		<p>US/RO CHECK Pressurizer PORVs – BOTH Closed</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
		US/RO CHECK Pressurizer Spray Valves Closed
		US/RO CHECK If RXCPs should remain running – None running
		US/RO/BOP INITIATE monitoring CSF Status Trees
		US/BOP CHECK if any SG Faulted
		US/RO/BOP CHECK if Steam Generator tubes are intact
		US/RO/BOP CHECK if RCS is intact inside of containment <ul style="list-style-type: none"> ○ Transition to E-1

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>EAL Determination shall be conducted as a JPM for the SRO by an examiner if required</p> <p>Emergency Plan</p> <ul style="list-style-type: none"> • A classification of Alert will be determined due to the RCS leak rate greater than 60 gpm. EAL FA1 for Loss of 1 Barrier (Table F-1) • Table F-1 Fission Product Barrier Reference Table <ul style="list-style-type: none"> ○ RCS Barrier – LOSS – Item 2 RCS leak rate greater than makeup capacity as indicated by a loss of subcooling margin. <p>Note: EAL SU5.1 during initial RCS leak</p>		<p>SRO/US identify the current EAL at the END of the scenario using the EAL matrix .</p> <p>Correct Classification is ALERT, FA1</p> <p>Student may refer to EPIP-AD-02 to assist in EAL determination</p>

2009 Initial License Exam Prep

SEG# ROI-06-SE-SC01/SOI-06-SE-SC01 Rev: A

SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
6. SCENARIO END:	<ul style="list-style-type: none"> a. FREEZE simulator at direction of Lead Examiner b. STOP DVD recorder. <u>IF</u> this is the last session of the week, <u>THEN</u> FINALIZE the DVD (optional) c. Ensure all EXAM material is collected 	
7. POST-SCENARIO: <ul style="list-style-type: none"> a. ENSURE simulator problems encountered during the scenario are documented IAW site specific process. b. ENSURE training attendance is documented on, Training Attendance Report. 		

2009 Initial License Exam Site

VERIFICATION INSTRUCTIONS

These Malfunctions/Remotes/Overrides/Blind triggers **SHALL** be verified by two independent checkers prior to the start of the scenario after running the ILT-09-SEE01cae file

INPUT SUMMARY

Description	Delay Time	Ramp Time	Event Trigger	Severity Or Value	Final Value	Relative Order
MALFUNCTIONS						
47034-O SER1670 Source Range High Flux At Shutdown Alarm Blocked	00:00:00	00:00:00	Preload	Block	Block	*
SER0966 47043-P Bank D Rod Withdrawal High Limit	00:00:00	00:00:00	Preload	Block	Block	*
SER0642 47093-H Bus 5 RAT Source Breaker 1-503 43 Control Switch in Manual	00:00:00	00:00:00	Preload	Block	Block	*
SI05B Failure to Auto Start, SI Pump 1B	00:00:00	00:00:00	Preload	False	True	5
RX222 PT-485 HP Turbine Impulse Press	00:00:00	00:00:00	Preload	579.8	579.8	1
TU03A Turbine Bearing High Temperature (Front Bearing)	00:00:00	00:00:00	1	0	40	1
RC08 Reactor Coolant System Leaks	00:00:00	00:00:00	3	0	0.5	2
FW207 LT-471 SG B Level Transmitter 24046 Yellow	00:00:00	00:01:00	5	44	0	3
RC03A Loss of Coolant Accident – Hot Leg (1A)	00:00:00	00:00:00	7	0	0.2	4
* Denotes Malfunctions that preload with ALL IC loads						

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INPUT SUMMARY						
Description	Delay Time	Ramp Time	Event Trigger	Severity Or Value	Final Value	Relative Order
REMOTE FUNCTIONS						
RP141 407C-OVER TEMPERATURE TRIP NORMAL/TRIP	00:00:00	00:00:00	Preload	Norm	Trip	Preload
RP142 407D-ROD STOP NORMAL/TRIP	00:00:00	00:00:00	Preload	Norm	Trip	Preload
IA101 AIR COMPRESSOR 1C LOCAL CONTROL AUTO/OFF/ON	00:00:00	00:00:00	Preload	Auto	Off	Preload
OVERRIDES						
MVC DO-44910-0804 FW TO S/G A FW12A CLOSED	00:00:00	00:00:00	9	Off	On	5
MCA DO-46113-G MS-100A	00:00:00	00:00:00	Preload	Off	Off	Preload
MCA DO-46114-G MS-100B	00:00:00	00:00:00	Preload	Off	Off	Preload
MCC DI-46412-CLOSE PR-1A	00:00:00	00:00:00	Preload	Off	Auto	Preload
MVA DO-44561-C-COUNT CVCS TOTALIZER COUNT	00:00:00	00:00:00	Preload	Off	Off	Preload

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BLIND TRIGGERS (GUN SYMBOL)

Event #29

Event Action: hwzrpg5622==1.0 Command: IMF ed08e

Trigger activates on reactor trip breaker train A opening and will insert ED08E loss of 4160 Volt to bus 1-5

Event #30

Event Action: hwztc1s12==1.0 Command: IMF tu03a 20 00:10:00 40

Modify Malfunction TU03A to Decrease as Power Decreases. Activates upon depression of the Main Turbine GO Button

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SEG# ROI-06-SE-SC01/SOI-06-SE-SC01 Rev: A

CAEP FILE ILT-09-SEE01.cae

IMF SI05B	00:00:00	N/A	N/A	N/A	True	5
IMF RX222 579.8	00:00:00	N/A	N/A	N/A	579.8	1
IMF TU03A (1) 40	00:00:00	N/A	N/A	N/A	40	1
IMF RC08 (3) .5	00:00:00	N/A	N/A	N/A	0.5	2
IMF FW207 (5) 0 60 44	00:00:00	N/A	N/A	N/A	0	3
IMF RC03A (7) .2	00:00:00	N/A	N/A	N/A	0.2	4
IRF RP141 TRIP	00:00:00	N/A	N/A	N/A	TRIP	Preload
IRF RP142 TRIP	00:00:00	N/A	N/A	N/A	TRIP	Preload
IOR DO-44910-0804 (9) ON	00:00:00	N/A	N/A	N/A	ON	5
IOR DO-46113-G OFF	00:00:00	N/A	N/A	N/A	OFF	Preload
IRO DO-46114-G OFF	00:00:00	N/A	N/A	N/A	OFF	Preload
IRF IA101 OFF	00:00:00	N/A	N/A	N/A	OFF	Preload
IOR DI-46412-CLOSE ON	00:00:00	N/A	N/A	N/A	ON	Preload
DOR DI-46412-CLOSE	00:00:16	N/A	N/A	N/A	N/A	N/A
IOR DO-44561-C-COUNT OFF	00:00:00	N/A	N/A	N/A	OFF	Preload
TRGSET 30 'HWZTCS1S12==1.0'	00:00:00	N/A	N/A	N/A	N/A	N/A
TRG 30 'IMF TU03A 20 00:10:00 40'	00:00:00	N/A	N/A	N/A	40	1
TRGSET 29 'HWZPG5622==1.0'	00:00:00	N/A	N/A	N/A	N/A	N/A
TRG 29 'IMF ED08E'	00:00:00	N/A	N/A	N/A	TRUE	5

SIMULATOR SCENARIO DEVELOPMENT CHECKLIST

Mark with an "X" Yes or No for any of the following. If the answer is No, include an explanation after the item.

- | | Yes | No |
|---|-------------------------------------|-------------------------------------|
| 1. The scenario contains objectives for the desired tasks and relevant Human Performance Tools. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. The scenario content adequately addresses the desired tasks, through simulator performance, instructor-led training freezes, or both. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Plant PRA initiating events, important equipment, and important tasks are identified. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Turnover information includes a Daily At Power Risk Assessment provided by the PRA Group. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5. The scenario contains procedurally driven success paths. Procedural discrepancies are identified and corrected before training is given. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 6. The Scenario Guide includes responses for all communications to simulated personnel outside the Control Room, based on procedural guidance and standard operating practices. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. The scenario includes related industry experience. Not Required for Evaluations | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Training elements and specific Human Performance elements are addressed in the Scenario Critique Guide to be used by the Critique Facilitator. The Critique Guide includes standards for expected performance. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9. Any identified Critical Tasks possesses the following elements (NUREG-1021): <ul style="list-style-type: none"> • Essential to safety with adverse consequences or significant degradation, • Cue(s) prompt the Operator to respond. • Defined and measurable performance indicators. • Performance feedback. The use of "N/A" is allowed for item 9 only if this is <u>NOT</u> an evaluated scenario. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10. Technical Specifications including Limiting Conditions for Operation, reactivity briefings, and Emergency-Plan entries are addressed as appropriate. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Developer and Reviewer: Once checklist is completed and deficiencies are corrected, sign the cover page.

2009

SIMULATOR EXERCISE VALIDATION CHECKLIST

Mark with an "X" Yes or No for any of the following. If the answer is No, include an explanation after the item.

- | | Yes | No |
|--|-------------------------------------|--------------------------|
| 1. The desired initial condition(s) could be achieved. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All malfunctions and other instructor interface items were functional and responded to support the simulator Scenario. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. All malfunctions and other instructor interface items were initiated in the same sequence described within the simulator scenario. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. All applicable acceptance criteria were met for procedures that were used to support the simulator scenario. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5. During the simulator scenario, observed changes corresponded to expected plant response. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 6. Did the scenario satisfy the learning or examination objectives without any significant simulator performance issues, or deviations from the approved scenario sequence? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. The simulator is capable of being used to satisfy learning or examination objectives without exceptions, significant performance discrepancies, or deviation from the approved scenario sequence. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 8. Any identified Critical Tasks possesses the following elements (NUREG-1021): | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| • Essential to safety with adverse consequences or significant degradation, | | |
| • Cue(s) prompt the Operator to respond. | | |
| • Defined and measurable performance indicators. | | |
| • Performance feedback. | | |

The use of "N/A" is allowed for item 8 only if this is NOT an evaluated scenario.

Discrepancies noted (Check "none" or list items in comments field) None

Comments: _____

Validator: Sign the cover page only after noted discrepancies are corrected or compensatory actions are taken to ensure quality training.

Simulator Exercise Guide

SEG# ROI-06-SE-SC01/SOI-06-SE-SC01 Rev: A

TS/TRM (PP-1)	Identified All Applicable	Applied & Implemented Correctly As Time Allowed	All Information Passed on to All Crew Members (i.e., briefs)	Any Knowledge or Performance Deficiencies	Corrective Actions if Required
3.1.d.1.B	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3.1.d.2	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3.1.d.3	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3.5.b	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Table TS 3.5-2, item 12	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
. Table TS 3.5-3, item 4.a	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
. Table TS 3.5-3, item 5.a	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
TS Table 3.3-4, item 4.a	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
TS 3.5.c	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
TS 3.0.c	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
EALs (EP Group)	Identified All Applicable	Classified & Notified Timely	All Information Passed on to All Crew Members (i.e., briefs)	Any Knowledge or Performance Deficiencies	Corrective Actions if Required
SU5.1	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
FA!	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Procedure Compliance (PP-3)	Applied & Implemented Correctly As Time Allowed		Any Knowledge or Performance Deficiencies	Corrective Actions if Required	
	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
Human Performance Errors (PP-2)	Identify All HU Errors or Potential HU Errors		Any Knowledge or Performance Deficiencies	Corrective Actions if Required	
Operator Fundamentals	Identify All Operator Fundamental Errors Or Potential Operator Fundamental Errors		Any Knowledge or Performance Deficiencies	Corrective Actions if Required	

SEG# ROI-06-SE-SC02/SOI-06-SE-SC02 Rev: A

SITE:	Kewaunee Power Station	
PROGRAM:	Reactor Operator Program/Senior Reactor Operator Program	
PROGRAM No.		
COURSE:	2009 NRC License Exam	Course #: ROI-06-SE-SC02 / SOI-06-SE-SC02
Total Time	2.0 Hours	

Prepared by:	<u>Andrew Fahrenkrug</u>	<u>/S</u>	<u>1/29/09</u>
	Printed Name	Instructor's Signature	Date
Reviewed by:	<u>Steve Johnson</u>	<u>/S</u>	<u>01/29/09</u>
(Optional)	Printed Name	Simulator Development Checklist Instructor Signature	Date
Reviewed by:	<u>Andrew Fahrenkrug</u>	<u>/S</u>	<u>1/22/09</u>
(Optional)	Printed Name	Simulator Validation Checklist Signature	Date
Approved by:	<u>Terry Evans</u>	<u>/S</u>	<u>02/10/09</u>
	Printed Name	Training Manager	Date
Approved by:	<u>Mark Goolsbey</u>	<u>/S</u>	<u>02/12/09</u>
	Printed Name	Facility Representative	Date

REQUIREMENTS

Goal of Training:

Evaluate crew response and performance for the following events:

- Controlling channel for PRZR fails high, PT-431 (Blue Channel)
- Normal Power Reduction
- Reactivity Manipulations
- Trip of 1A1 Service Water Pump with Failure of 1B2 Service Water Pump to Auto Start.
- Steam Line Break in Containment
- Failure of the RPS system to cause an Automatic Reactor Trip
- Failure of B AFW Pump to Automatically Start after receiving a valid start signal
- Isolate Feed to a faulted Steam Generator
- Failure of the ICS system to initiate with a valid Hi-Hi containment pressure signa
- SRO/US analysis of plant conditions for Technical Specification application

2009 Initial License Exam SEG

SEG# ROI-06-SE-SC02/SOI-06-SE-SC02 Rev: A

Learning Objectives:

While responding as the RO/BOP satisfactorily MEET the performance requirements in TR-AA-400 for the following competencies

- a. Understand and Interpret Annunciator and Alarm Signals
- b. Diagnose Events and Conditions based on Signals and Reading
- c. Understand Plant and System Response
- d. Comply with and Use Procedures and Technical Specifications
- e. Operate the Control Board
- f. Communicate and Interact with Other Crew Members

(RO4-06-SED01.002) ROI-06-SE-SC02.001 / SOI-06-SE-SC02.001

While responding as the US satisfactorily MEET the performance requirements in TR-AA-400 for the following competencies

- a. Understand and Interpret Annunciator and Alarm Signals
- b. Diagnose Events and Conditions based on Signals and Reading
- c. Understand Plant and System Response
- d. Comply with and Use Procedures and Technical Specifications
- e. Operate the Control Board
- f. Communicate and Interact with Other Crew Members
- g. Direct Shift Operations
- h. Comply with and Use Technical Specifications

(RO4-06-SED01.003) SOI-06-SE-SC02.002

As the US **DETERMINE** the appropriate event classification in accordance with EPIP-AD-02, "Emergency Classification Determination". *This objective will be completed at the end of the scenario and may be waived at the lead evaluators discretion* SOI-06-SE-SC02.003

Prerequisites:

Enrolled in current ILT class and recommended by station management to take an NRC license exam

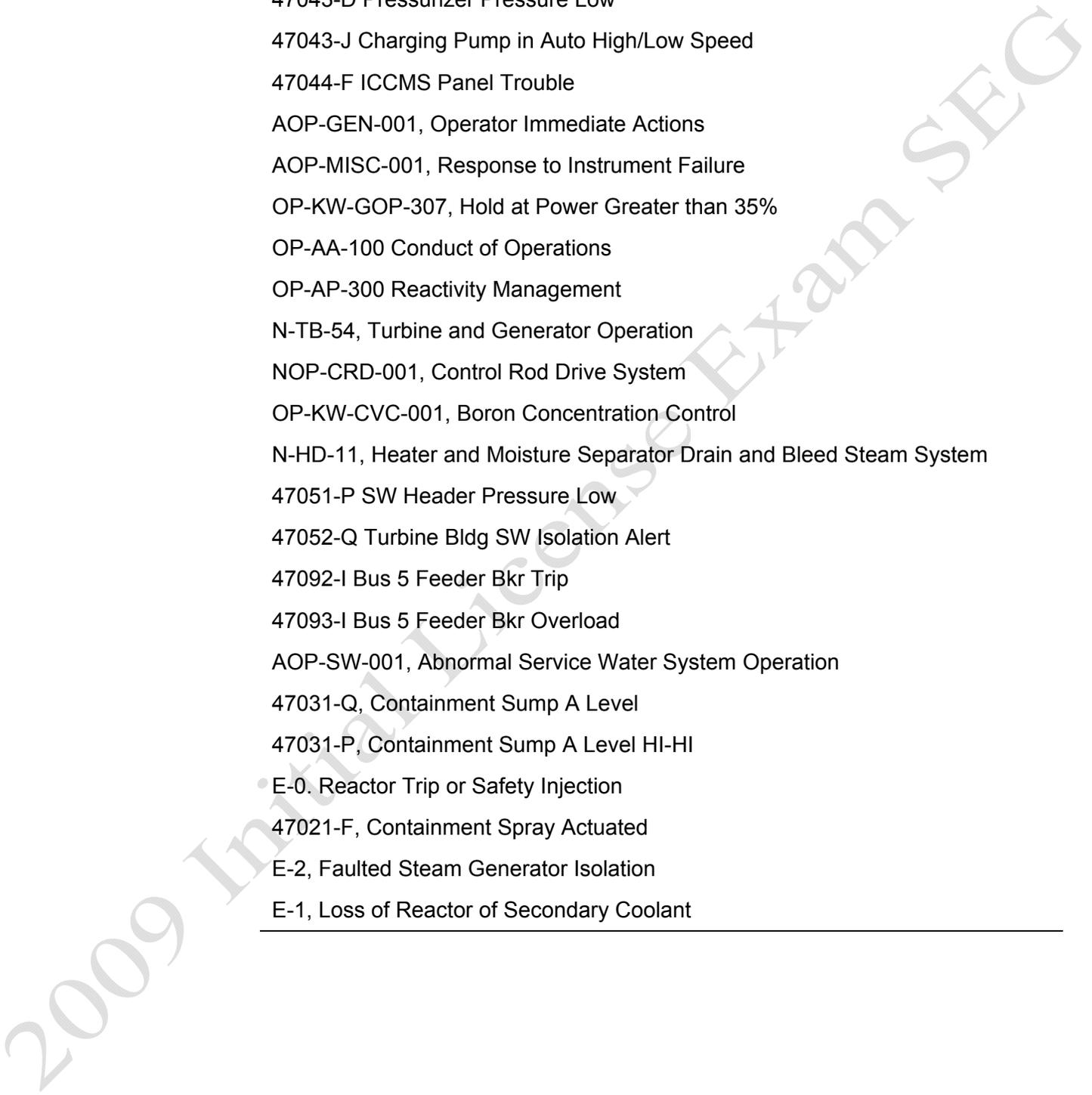
Training Resources:

Simulator
 KPS Exam Team Member
 NRC Examiners

SEG# ROI-06-SE-SC02/SOI-06-SE-SC02 Rev: A

References:

47041-C Pressurizer Pressure 2385
 47043-C Pressurizer Control Pressure Abnormal
 47043-D Pressurizer Pressure Low
 47043-J Charging Pump in Auto High/Low Speed
 47044-F ICCMS Panel Trouble
 AOP-GEN-001, Operator Immediate Actions
 AOP-MISC-001, Response to Instrument Failure
 OP-KW-GOP-307, Hold at Power Greater than 35%
 OP-AA-100 Conduct of Operations
 OP-AP-300 Reactivity Management
 N-TB-54, Turbine and Generator Operation
 NOP-CRD-001, Control Rod Drive System
 OP-KW-CVC-001, Boron Concentration Control
 N-HD-11, Heater and Moisture Separator Drain and Bleed Steam System
 47051-P SW Header Pressure Low
 47052-Q Turbine Bldg SW Isolation Alert
 47092-I Bus 5 Feeder Bkr Trip
 47093-I Bus 5 Feeder Bkr Overload
 AOP-SW-001, Abnormal Service Water System Operation
 47031-Q, Containment Sump A Level
 47031-P, Containment Sump A Level HI-HI
 E-0, Reactor Trip or Safety Injection
 47021-F, Containment Spray Actuated
 E-2, Faulted Steam Generator Isolation
 E-1, Loss of Reactor of Secondary Coolant



SEG# ROI-06-SE-SC02/SOI-06-SE-SC02 Rev: A

Commitments: Per Outline submitted to NRC for 2009 Operating exam

Evaluation Method: Dynamic Simulator

Historical Record: Initial Issue

Operating Experience: Not required for evaluations

Related PRA Information: Initiating Event with Core Damage Frequency:
 Total CDF/LERF (4.8E-5/yr)/(6.5E-06/yr)
 Transient with Feed water Available percentage of CDF/LERF (19%)/(7%)
 Other percentage of CDF/LERF (3%)/(2%)

Important Components:

System	CDF Importance Rank	LERF Importance Rank
RPS	6 th	7 th
AFW	3 rd	2 nd

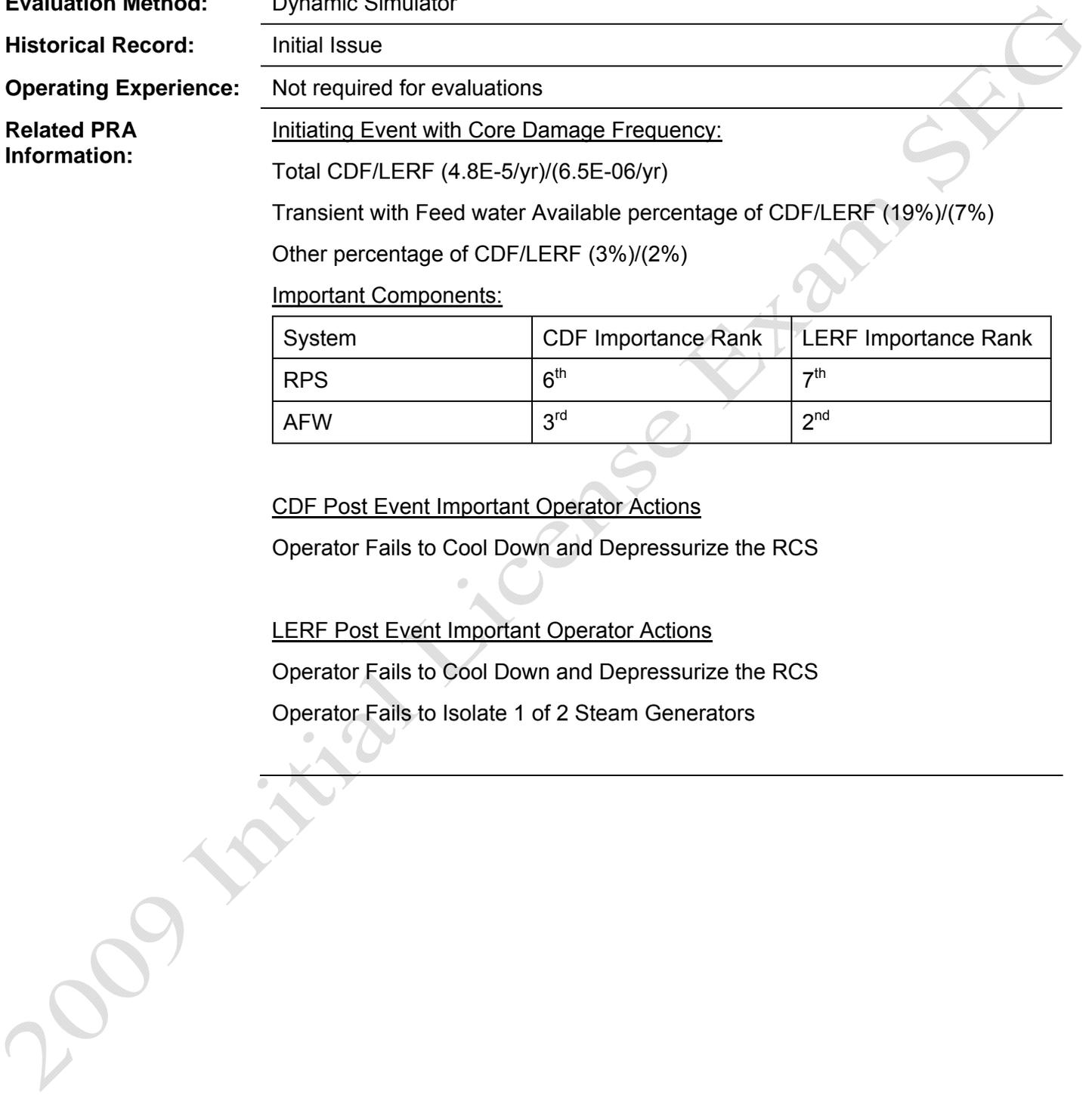
CDF Post Event Important Operator Actions

Operator Fails to Cool Down and Depressurize the RCS

LERF Post Event Important Operator Actions

Operator Fails to Cool Down and Depressurize the RCS

Operator Fails to Isolate 1 of 2 Steam Generators



OVERVIEW

INITIAL CONDITIONS:

1. Standard IC-12 (100% power (MOL))
2. The following equipment is OOS:
 - a. TD AFW Pump: Auxiliary Lube Oil Pump Overhaul per CMP-05B-03
 - b. NI Channel N43: Failed and removed from service per AOP-GEN-MISC-001 4 hours ago
 - c. B Emergency Diesel Generator is OOS for Oil Leak
 - d. Standard cycle OOS items

2009 Initial License Exam SEG

Simulator Exercise Guide

SEG# ROI-06-SE-SC02/SOI-06-SE-SC02 Rev: A

QUANTITATIVE ATTRIBUTES

Event No.	Malf. No.	Event Type*	Event Description
1	RX203 100%	I (RO)	Failure of Pressurizer Pressure Instrument, Controlling Channel (BLUE)
2		N	Load Reduction requested by ATC for Line Work
2		R	Power Reduction as requested by ATC
3	SW05A 99%	C (BOP)	SW pump 1A1 trip on over current
3	SW06D	C (BOP)	Failure to Auto Start SW pump 1B2
4	MS02A 0.1- .03% over 10 minutes	M (Both)	Main Steam Line Break Inside containment, Header "A"
5	RD11A	C (BOP)	Failure Train "A" Reactor Trip Breakers to Open
5	RD11B	C (BOP)	Failure Train "B" Reactor Trip Breakers to Open
6	FW16B	C (BOP)	Failure "B" AFW pump to Auto Start
7	CS03A	C (RO)	Failure to Auto Start ICS pump "A"
7	CS03B	C (RO)	Failure to Auto Start ICS pump "B"
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Malfunctions:

Before EOP Entry:

1. PT-431 Pressurizer Pressure Instrument failure
2. SW Pump 1A1 Trip
3. SW Pump 1B2 failure to auto start
4. Steam Leak Inside of Containment

After EOP Entry:

1. Small Main Steam Line break in Containment with ATWS
2. AFW Pump B failure to auto start
3. ICS failure to initiate

Abnormal Events:

1. PT-431 Pressurizer Pressure Instrument failure
2. SW Pump 1A1 Trip
3. SW Pump 1B2 failure to auto start
4. AFW Pump B failure to auto start
5. ICS failure to initiate

Major Transients:

1. Small Main Steam Line break in Containment with ATWS

2009 Initial License Exam SEG

Critical Tasks:

1. Open Bus 33 and 43 Feed Breakers:
 - a. **SAFETY SIGNIFICANCE:** Required to remove power from Rod Drive MG Set "A/B" to drop control rods and shutdown the reactor
 - b. **CUE:** Reactor did not automatically trip on rate and Reactor trip push buttons on the operator panels did not work
 - c. **MEASURABLE PERFORMANCE INDICATOR:**
 - 1) Evaluator observes the BOP opening Bus 33 and 43 feeder breakers during immediate actions of E-0.
 - d. **PERFORMANCE FEEDBACK:** Rods Insert and Reactor Power < 5% and decreasing

NOTE: GNP-05.16.06 Attachment A section 8, isolation of feed flow to a faulted S/G, the 10 minutes time criteria applies to a MSLB inside containment of design basis size and is not applicable to this scenario.

NOTE: E-0 background document specifies that while isolating AFW flow to the faulted S/G, AFW flow to the intact S/G must be maintained until level is >5% in order to maintain a secondary heat sink.

NOTE: GNP-05.16.06 Attachment A section 4, Restore AFW flow to steam generators following any design basis accident, time requirement is 10 minutes.

NOTE: T.S. bases 3.4 adequate heat removal is provided by one AFW pump and S/G safeties.

NOTE: If "A" AFW pump is running, the preferred sequence of critical tasks is to start "B" AFW pump prior to isolating feed flow to "A" S/G (E-0 background). As long as total feed flow does not decrease to less than 210 gpm for greater than 10 minutes with both S/G NR levels <5%, the two critical tasks of starting "B" AFW pump and Isolating Feed flow to S/G "A" can be performed in any order

2. Start AFW pump "B" and establish feed flow greater than 210 gpm to S/G "B" from AFW pump "B" with both S/G levels less than 5% NR.
 - a. **SAFETY SIGNIFICANCE:** Maintain Heat Sink Available.
 - b. **CUE:** TD & AFW Pump "B" not running with indications of faulted S/G "A"
 - c. **MEASURABLE PERFORMANCE INDICATOR:** AFW pump "B" running and feed establish to S/G "B" from AFW pump "B". Loss of Feed Flow to S/G does not exceed 10 minutes while S/G Narrow range level in both S/Gs is less than 5%
 - d. **PERFORMANCE FEEDBACK:** AFW pump "B" running, delivering feed flow to S/G "B" as indicated by AFW header "B" flow greater than 210 gpm and AFW pump "B" discharge header pressure

3. Isolate Feed Flow faulted S/G "A"
 - a. **SAFETY SIGNIFICANCE:** Prevent excessive RCS cooldown by isolating AFW flow to the faulted S/G as soon as it is identified
 - b. **CUE:** Excessive RCS cooldown, Steam Flow Indication, Steam Generator Depressurizing
 - c. **MEASURABLE PERFORMANCE INDICATOR:** AFW crossover valve AFW-10A or AFW-10B CLOSED, and AFW flow control valve AFW-2A CLOSED, before or during faulted SG feed isolation step in E-2
 - d. **PERFORMANCE FEEDBACK:** Zero flow indication on AFW header "A" and no main feed water flow.

4. Establish ICS Flow to containment
 - a. **SAFETY SIGNIFICANCE:** Containment pressure > 23 psig ICS is required to reduce containment pressure
 - b. **CUE:** Containment Pressure > 23 psig and ICS has not actuated
 - c. **MEASURABLE PERFORMANCE INDICATOR:** Flow Path Established for at least one train of ICS and ICS Pump started in the train that the flow path was established for. As indicated by flow from the ICS Pump
 - d. **PERFORMANCE FEEDBACK:** At least one ICS Pump running and delivering flow. Containment Pressure lowering..

SEQUENCE OF EVENTS:

Event 1: At the direction of the Lead Examiner, PT-431 Pressurizer Pressure (Blue) Channel fail high.

Controlling channel for PRZR pressure fails high, PT-431(Blue Channel). The failure will cause PRZR and RCS pressure to drop as PRZR heaters turn off and PRZR spray valves open (PS-1A & PS-1B). The RO will manually shut the spray valves per OP-KW-AOP-GEN-001, Immediate Operator Actions. The US will direct transition to OP-KW-AOP-MISC-001, Response To Instrument Failure. Per OP-KW-AOP-MISC-001 the RO will select an operable PRZR pressure channel for PRZR pressure control and input to the PRZR pressure recorder. The US will evaluate Technical Specifications (TS) and tripping bistables. TS for the plant transient are 3.10.l for RCS pressure and 3.10.n for DNBR parameters. TS for failed pressurizer pressure instrument PT-431 include table 3.5-2 item #5-OTΔT, table 3.5-2 item #7-Low Pressurizer Pressure, table 3.5-2 item #8-High Pressurizer Pressure, and table 3.5-3 item #1d-Pressurizer Low Pressure. All TS requirements for continued operation will be met.

Event 2: At direction of Lead Examiner, ATC requests 6% (36 MWe) back down.

ATC will contact KPS requesting a 36 MWe back down (6%) in the next 90 minutes for emergent transmission line work on Q-303, Q-303 hot. The back down is to ensure post trip grid contingencies are met. The US will direct the back down per OP-KW-GOP-307 section 5.2. The RO will use NOP-CVC-001 and NOP-CRD-001 to control reactivity as directed by the standard reactivity plan. The BOP will lower Turbine Load per N-TB-54.

Event 3: At direction of Lead Examiner, SW Pump 1A1 trips and SW Pump 1B2 fails to auto start.

After the 6% back down is complete, service water pump 1A1 will trip and service water pump 1B2 will fail to auto start. The BOP will manually start service water pump 1B2 per OP-KW-ARP-47051-P. After Completion of the ARP the crew will perform AOP-SW-001 to verify system operation. Per TS 3.7.c the crew identifies in TS 3.0.c for two trains of equipment listed in TRM 3.3.1 as OOS. TRM 3.3.1 when a train of service water is declared inoperable then the following administrative limiting conditions for operations apply: TS 3.3.e for an inoperable service water system, TS 3.7.b.2 for an inoperable emergency diesel generator, TS 3.3.d for an inoperable component cooling train, TS 3.3.b for an inoperable safety injection train, TS 3.3.c for an inoperable containment fan coil units train, TS 3.3.b for an inoperable residual heat removal train, and TS 3.4.b for an inoperable auxiliary feed water train. Three trains of AFW inoperable apply TS 3.4.b.2, when the Reactor Coolant Temperature is > 350⁰F, if three auxiliary Feedwater trains are discovered to be inoperable, initiate immediate action to restore one auxiliary Feedwater train to operable status and suspend all Limiting Conditions For Operations requiring mode changes until one auxiliary Feedwater train is restored to operable status.

Event 4: At direction of Lead Examiner, small steam leak in containment initiates.

A small steam line break in containment will build over 10 minutes. Containment Pressure will slowly build to 3.6 psi causing a Reactor Trip and SI signal to be generated. The crew should decide to manually trip the reactor. TS 3.6.d, if the internal pressure of the reactor containment vessel exceeds 2 psi, the condition shall be corrected within 8 hours or the reactor shall be placed in a subcritical condition.

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Event 5: Automatic reactor trip fails, ATWS.

Automatic reactor trip will fail. The operators will attempt to manually trip the reactor with the push buttons on the control boards, this will fail. Rod insertion will be successful when the BOP de-energizes bus 33 and 43 from the control room. The break size will increase when rods are inserted. EAL Classification SA2.1 ALERT. Failure of reactor protection system instrumentation to complete or initiate an automatic reactor trip once a reactor protection system set point has been exceeded and a manual reactor trip was successful.

Event 6: AFW Pump “B” fails to auto start.

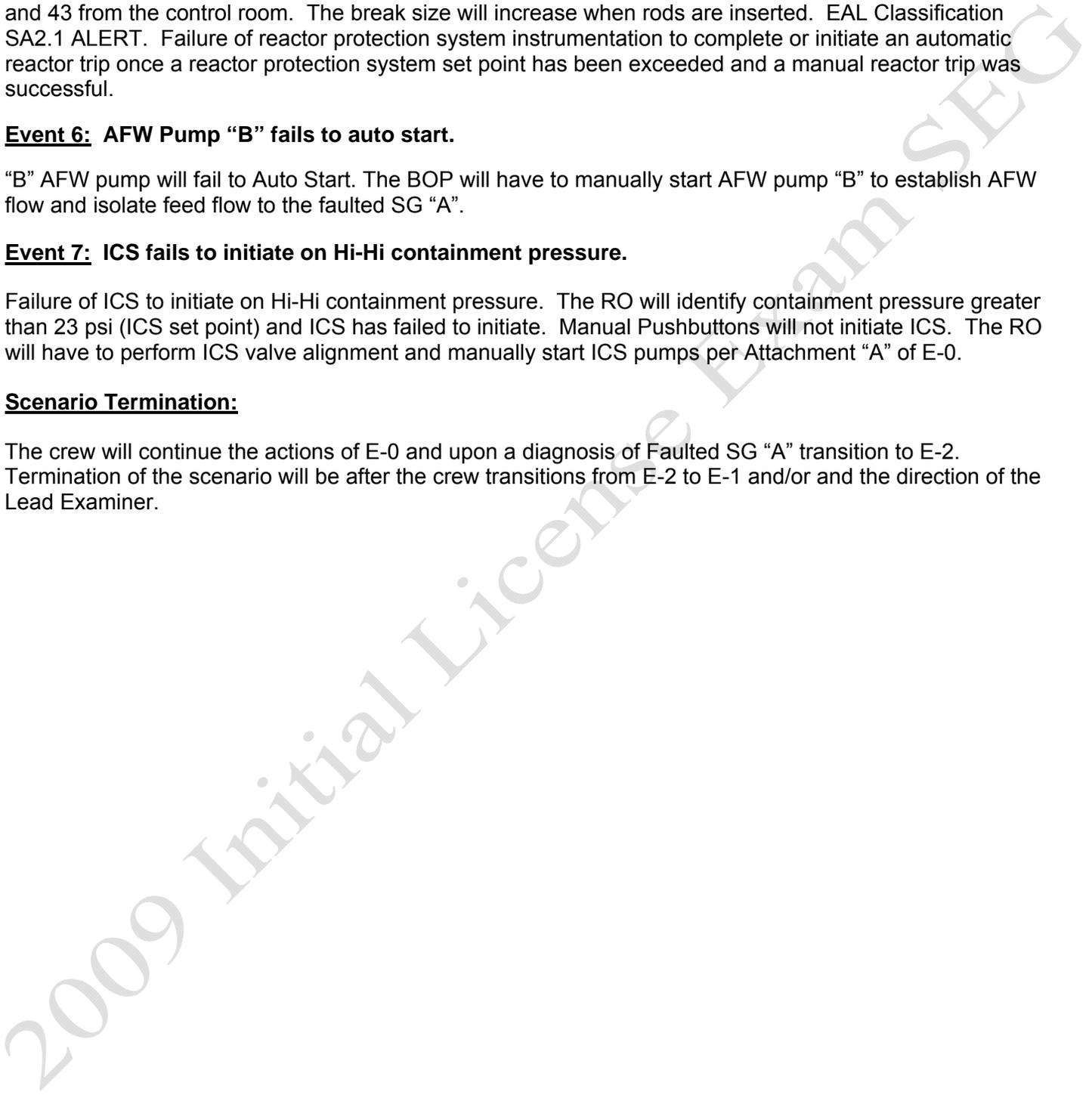
“B” AFW pump will fail to Auto Start. The BOP will have to manually start AFW pump “B” to establish AFW flow and isolate feed flow to the faulted SG “A”.

Event 7: ICS fails to initiate on Hi-Hi containment pressure.

Failure of ICS to initiate on Hi-Hi containment pressure. The RO will identify containment pressure greater than 23 psi (ICS set point) and ICS has failed to initiate. Manual Pushbuttons will not initiate ICS. The RO will have to perform ICS valve alignment and manually start ICS pumps per Attachment “A” of E-0.

Scenario Termination:

The crew will continue the actions of E-0 and upon a diagnosis of Faulted SG “A” transition to E-2. Termination of the scenario will be after the crew transitions from E-2 to E-1 and/or and the direction of the Lead Examiner.



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TASKS

Task Number	Task Title
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SRO Tasks:

1190190302	Apply Technical Specifications During Plant Operations
1190030502	Determine Emergency Classification
1190070502	Coordinate the Implementation of the IPEOPs
1190330302	Demonstrate an understanding of the responsibility and requirements for the Control Room Supervisor

RO Tasks:

0360420401	Respond to a Pressurizer Control Press Abnormal Annunciator
0360410401	Respond to Pressurizer Pressure Low Annunciator
0500020401	Respond to ICCMS Panel Trouble Annunciator
0020070401	Respond to a SW Header Pressure Low Condition
0020080401	Respond to a SW Header Pressure Low Annunciator
0390130401	Respond to a Bus 5(6) Feeder Bkr Overload Annunciator
0390160401	Respond to a Bus 5(6) Feeder Bkr Trip Annunciator
0300040401	Respond to a Containment Sump A High Level
0060100401	Respond to a Steam Gen A(B) pressure low annunciator
1190020001	Demonstrate and understanding of sensors and detectors
E000010501	Respond to a Reactor Trip Condition with Safety Injection
E020010501	Perform a Faulted SG Isolation
1190110301	Operate the plant IAW technical specifications
0350070101	Operate the Charging and Volume Control System during Steady State Conditions
0350230101	Control the RCS Boron Concentration by the use of Boration

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>1. INITIAL CONDITIONS:</p> <ul style="list-style-type: none"> • Standard IC-12 • Mode: Operating • Exposure: 10,000 MWD/MTU • Power: 99.5% 1770.4MWth • Boron: (CB): 968 ppm • Temperature 572°F • Pressure: 2236 • Xenon: EQU • Rods: ARO • Generator: 601MWe 		
<p>2. SIMULATOR SETUP:</p> <p>The following forms are needed during the scenario and are to be placed in the booth.</p> <p>No Additional Material Need For Booth Operator</p>	<ol style="list-style-type: none"> 1. Reset to IC# 12 and go to run 2. Insert DVD for recording 3. Remove T/D AFW Pump from SERVICE by aligning the following equipment and placing tags on the equipment <ul style="list-style-type: none"> • MS-102 – PULLOUT • MS100A – CLOSE • MS100B – CLOSE <p>Note: Alignment is per CMP-05B-03, AFW Auxiliary Feedwater Turbine Driven Pump and Auxiliary Lube Oil Pump Overhaul Section 3.2</p>	

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>Shift Manager Status board information</p> <p><u>Equipment OOS</u></p> <p>T/D AFW Pump for Aux Lube Oil Pump Overhaul TS 3.4.b.4.A. 72 hour LCO.</p> <p>N43 Failed and Removed from Service per MISC-001 at XX:XX (four hours prior to the start of the scenario) TS Table 3.5-2 item 2, 5, and 6 condition are met.</p> <p>EDG B declared OOS @ xxxx (1 hour before scenario) due to oil leak. Expected return to service in 6 hours. Technical Specification 3.7.b.2, 7 day LCO (Unplanned Failure)</p> <p>3.1.a.5.A.1 For PR-2A leakage. PR-1A closed with Power Available</p> <p>Standard Cycle OOS items</p> <p><u>Remarks</u></p> <p>Protected train = A</p> <p>Risk CDF/LERF= RED, Unplanned Entry Because of B EDG Failure.</p> <p><u>SPER / WRs</u></p> <p>None</p>	<p>4. Position the following switches to N43 channel</p> <ul style="list-style-type: none"> ○ Upper Section switch on Detector Current Comparator ○ Lower Section switch on Detector Current Comparator ○ Rod Stop Bypass switch on Miscellaneous Control and Indicating Panel ○ Power Mismatch Bypass switch on Miscellaneous Control and Indication Panel ○ Comparator Channel Defeat switch on Comparator And Rate drawer ○ N43A drawer Control Power breaker to OFF <p>5. Position AS-31/AS-35, R-11 and R-12 Sample return to return to the containment.</p> <p>6. OPEN and Run CAEP file. ILT-09-SEE02.cae. After file has run <u>for one minute</u> close CAE file.</p> <p>7. Verify the following Status Lights are lit: PR N43 P8 (44907-0403)</p> <ul style="list-style-type: none"> ○ PR N43 P10 (44907-0503) ○ PR N43 Low Range Hi Flux (44907-0603) ○ PR N43 Hi Range Hi Flux (44907-0703) ○ Loop B OTΔT (44907-0507) ○ PR N43 Hi Flux Rate (44907-0803) 	

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p><u>GENERAL</u></p> <p>Consecutive days of operation <u> 30 </u></p> <p>G-1 Closed (<u>indicate date last month</u>) JD_ <u> xxx </u></p> <p>Burn up <u>10,000 MWD/MTU</u></p> <p>Sirens Lost Coverage % <u> 0 </u></p> <p>Sirens OOS <u> 0 </u></p> <p>RCS and Pressurizer boron = 968 ppm</p> <p><i>All other entries are standard</i></p>	<ul style="list-style-type: none"> ○ N43 Rod Stop bypassed (44906-0601) ○ Loop B Chan 3 OTΔT (44904-0202) <p>8. Verify the following annunciator lights are lit:</p> <ul style="list-style-type: none"> ○ OTΔT High (47033-C) ○ OTΔT Channel RNBACK/RDSTP Alert (47041-R) ○ Power Range Positive Rate Channel Alert (47032-K) ○ Power Range Negative Rate Channel Alert (47032-J) ○ Power Range High Flux (47031-M) ○ Power Range Detector Voltage Low (47033J) <p>9. Remove B EDG from Service as follows</p> <ul style="list-style-type: none"> ● Place EDG B CS in Pullout ● Place Yellow Caution Tag on EDG B ● Place BKR 1-603 in Pullout ● Place Yellow Caution Tag on BKR 1-603 <p>10. Verify the Instructor Station Summary IAW instructions at the beginning of the input summary in this SEG</p> <p>11. Second verification of the Instructor Station Summary IAW instructions at the beginning of the input summary in this SEG</p> <p>12. Start the Monitor File using the NRC Extended Value Monitor File</p>	

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
	<p>13. COMPLETE Simulator Exam Setup Checklist.</p> <p>NOTE: If called to the Control Room then wear the badge identifying who you are.</p>	

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>3. PRE-SCENARIO:</p> <p>a) <u>IF</u> this is the first simulator scenario of the week, <u>THEN</u> review the Simulator Differences List with the crew.</p> <p>b) Provide crew with:</p> <ul style="list-style-type: none"> • Turnover sheets and plant information • Marked Up Copy of AOP-MISC-001 Attachment J for N43 failure • Copy of CMP-05B-03 <p>c) Cover Simulator Scenario Briefing Sheet in Job Aid 04-01 with the crew</p> <ul style="list-style-type: none"> • Inform the crew that the Lead Evaluator will take response for the Shift Manager. They will acknowledge communications, but their acknowledgment does not mean agreement or disagreement. <p>d) Brief the crew IAW NUREG 1021 Appendix E (Simulator Test Guidelines)</p> <p>e) Lead Evaluator perform a Pre-Job brief per Job Aid 04-03</p>		

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>4. TURNOVER: PROVIDE Shift Turnover Information.</p> <p>After ~5 minute walk down of boards by the crew. Give the crew the shift.</p> <p>Maintain 100% power</p> <p>Repairs Underway to return both TD AFW pump and B EDG ASAP</p>	<p>When Crew enters the simulator than begin recording on the DVD.</p>	<p>(All) Walk down control boards~ 5 minutes</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
5. SCENARIO:		
<p align="center">EVENT 1:Controlling Channel Pressurizer Pressure PT-431 (Blue Channel) Fails High</p> <p align="center">Human Performance Tools: Procedure Compliance, Clear Communications, Peer Checking</p> <p align="center">Operator Fundamentals: Closely Monitoring Plant Conditions, Knowledge of Plant Design and Theory</p> <p align="center">Instrument RO</p> <p align="center">Technical Specification SRO</p>		
	<p>When directed by the Lead Evaluator insert TRIGGER 1</p> <p>Verify that RX203, PT-431 PRZ Press inserts</p>	<p><u>Annunciators:</u></p> <p>47041-C Pressurizer Pressure 2385</p> <p>47043-C Pressurizer Control Pressure Abnormal</p> <p>47043-D Pressurizer Pressure Low</p> <p>47043-J Charging Pump in Auto High/Low Speed</p> <p>47044-F ICCMS Panel Trouble</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>Operator Fundamentals: Closely Monitoring Plant Conditions, Knowledge of Plant Design and Theory</p> <p>Human Performance Tools: Clear Communications</p> <p>ARP 47041-C Pressurizer Pressure 2385, will direct the crew to close spray valves, de-energize pressurizer heaters and transition to AOP-MISC-001</p> <p>ARP 47043-C Pressurizer Control Pressure Abnormal, will direct the crew to remove the failed channel if it effects Pressurizer Pressure Control with the PRZR Pressure Channel Selector Switch</p> <p>ARP 47043-D Pressurizer Pressure Low, will direct the crew to the immediate actions of AOP-GEN-001 if a spray valve is open</p> <p>ARP 47043-J Charging Pump in Auto High/Low Speed, will direct the crew to adjust the speed of the charging pump</p> <p>ARP 47044-F ICCMS Panel Trouble, will direct the crew to restore pressure.</p> <p>AOP-GEN-001 will direct the crew to close spray valves and transition to AOP-MISC-001</p>		<p>CREW Respond to and diagnose Blue channel Pressurizer pressure failing high. Determine need to enter AOP-GEN-001 or ARP 47041-C.</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
Human Performance Tools: Procedure Compliance		RO CHECK Pressurizer Spray valves Closed <ul style="list-style-type: none"> If pressure < 2260 psig, then manually close PS-1A and PS-1B
		RO CHECK Initiating Event – Failed Instrument Recognize PT-431 as failed
		US Direct transition to and implementation of AOP-MISC-001
Human Performance Tools: Procedure Compliance		US/RO VERIFY Immediate actions for Pressurizer Spray Valve Open per AOP-GEN-001 have been completed
Human Performance Tools. Peer Checking		US/RO POSITION PRZR Pressure Control Channel Selector switch to a position that does NOT use PT-431
Human Performance Tools. Peer Checking		US/RO POSITION PRZR Pressure Recorder Input Selector switch to an operable Channel.
		RO RESTORE RCS Pressure 2220-2250 psig
Human Performance Tools. Peer Checking		US/RO RETURN Pressurizer Spray Valves to AUTO
	ROLE: SM RESPONSE: Acknowledge failure of PT-431	US inform SM of PT-431 failure
		US DIRECT I&C to perform corrective maintenance on PT-431

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>TS for the plant transient are 3.10.l for RCS pressure and 3.10.n for DNBR parameters</p> <p>COLR 2.11 pressure shall be > 2217 psig control board and > 2219 psig computer indication</p> <p><i>(May be entered depending upon crew response time for failed instrument)</i></p> <p>TS for failed pressurizer pressure instrument PT-431 include table 3.5-2 item #5-OTΔT, table 3.5-2 item #7-Low Pressurizer Pressure, table 3.5-2 item #8-High Pressurizer Pressure, and table 3.5-3 item #1d-Pressurizer Low Pressure. All TS requirements for continued operation will be met.</p>		<p>US REFER to TS 3.5.b.</p> <p>PT-431</p> <ul style="list-style-type: none"> • Table 3.5-2 item #5-OTΔT • Table 3.5-2 item #7-Low Pressurizer Pressure • Table 3.5-2 item #8-High Pressurizer Pressure • Table 3.5-3 item #1d-Pressurizer Low Pressure <p>All Requirements will be met for T.S.</p> <p>DNBR T.S.</p> <ul style="list-style-type: none"> • 3.10.l for RCS Pressure • 3.10.n for DNBR Parameters • COLR 2.11 pressure shall be > 2217 psig control board and > 2219 psig computer indication

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>EVENT 2: ATC requests a 36 MWe back down in 90 minutes due to emergent work</p> <p>Human Performance Tools: Procedure Compliance, Clear Communications, Peer Checking, Self Checking</p> <p>Operator Fundamentals: Closely Monitoring Plant Conditions, Team work, Precisely Controlling Plant Evolutions, Knowledge of Plant Design and Theory</p> <p>Normal BOP</p> <p>Reactivity RO</p>		
	<p>ROLE: MNO</p> <p>REQUEST: Informed by ATC that a 36 MWE back down in the next 90 minutes is required to facilitate emergent transmission line work on Q-303. Back down the plant 36 MWE at a speed of 1/2% per minute in the next 60 minutes to ensure post trip grid contingencies are met.</p>	<p>US Implement and direct GOP-307</p>
<p>Operator Fundamentals: Team work, Precisely Controlling Plant Evolutions</p> <p>The crew should use a standard reactivity plan.</p> <p>A crew brief should be performed for the back down and reactivity plan. All reactivity calculations and manipulations must be peer checked IAW standards.</p>		<p>US/RO PERFORM reactivity estimate</p>
		<p>US/BOP REDUCE load per N-TB-54</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
Human Performance Tools: Peer Checking N-CRD-49 has been replaced by NOP-CRD-001		US/RO PERFORM reactivity adjustments using NOP-CRD-001 and NOP-CVC-001
		US DETERMINE unloading rate – 1/2% per minute as directed by management
Human Performance Tools: Peer Checking Boration should be conducted per Standard Reactivity Plan		US/RO DETERMINE rate and magnitude of boration
Operator Fundamentals: Knowledge of Plant Design and Theory		US/RO ESTIMATE expected change in Rod Position, boron Concentration, and Reactor Thermal Power
Human Performance: Peer Checking		RO ADJUST CVC-403 to required flow rate
Human Performance: Peer Checking		RO SET Boric acid Totalizer
Human Performance: Peer Checking		RO POSITION Reactor Makeup Mode Selector to BORATE
CREW should wait until boron affects Tave prior to starting the back down.		US/RO POSITION Reactor Makeup Control switch to START
	ROLE: AO REQUEST: Acknowledge order to verify CVC-712A and CVC-712B closed RESPONSE: After 3 minutes report both valves are closed.	RO VERIFY Boric Acid tack recirculation valves closed
Human Performance: Self Checking		RO VERIFY correct amount of boric acid added on Boric Acid Totalizer
		RO RESET Boric Acid Totalizer to zero

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
		RO POSITION CVC-406 to close
		RO PEFORM 20 gallon flush
		RO ADJUST MU-1022 to required flow rate
		RO SET Rx Makeup Totalizer
		RO POSITION Reactor Makeup Mode Selector to ALT DIL
		RO CLOSE CVC-406
		US/RO POSITION Reactor Makeup Control switch to START
		RO SET CVC-403
		RO VERIFY MU-1022 set to 60 gpm
Human Performance: Peer Checking		RO POSITION Rector Makeup Mode Selector switch to auto
Human Performance: Peer Checking		RO POSITION Reactor Makeup Control switch to start
Human Performance: Self Checking		RO VERIFY correct amount of dilution/flush Rx Makeup Totalizer
Operator Fundamentals: Closely Monitoring Plant Conditions, Precisely Controlling Plant Evolutions		(CAS)US/BOP MAINTAIN Valve Pos Limit as close as reasonable possible above actual turbine load
		BOP SET the setter to the desired load
½% per minute as directed by Plant Management		BOP SET required loading rate at 1/2% per minute

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
	ROLE: DEMI REQUEST: Inform of backdown RESPONSE: Acknowledge back down DELAY: None	US Inform DEMI of back down
Human Performance Tools: Peer Checking Crew may energizer Pressurizer heaters per 47043-C		BOP PRESS Go pushbutton
Operator Fundamentals: Closely Monitoring Plant Conditions		BOP MAINTAIN reactive load within limits of Figure 5
		BOP ADJUST heater drain pump speed to maintain equal loading
		US/BOP WHEN planned power level is reached, STOP load decrease per N-TB-54

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>EVENT 3: SW Pump 1A1 trips and 1B2 fails to start</p> <p>Human Performance Tools: Procedure Compliance, Clear Communications, Peer Checking, Self Checking</p> <p>Operator Fundamentals: Closely Monitoring Plant Conditions, Precisely controlling plant evolutions, Teamwork, Knowledge of Plant Design and Theory</p> <p>Component BOP</p> <p>Technical Specification SRO</p>		
<p>Power reduction must be complete and the turbine in hold prior to inserting TRIGGER 3 due to a reduced amount of SW required at a lower power level.</p>	<p>When directed by the Lead Evaluator insert TRIGGER 3</p> <p>Verify that SW05A Timed/Instantaneous Overcurrent, SW Pump A1 insert</p> <p>Verify that SW06D Failure to Auto Start, SW Pump 1B2 is preloaded</p>	<p><u>Annunciators:</u></p> <p>47051-P SW Header Pressure Low</p> <p>47052-Q Turbine Bldg SW Isolation Alert</p> <p>47092-I Bus 5 Feeder Bkr Trip</p> <p>47093-I Bus 5 Feeder Bkr Overload</p>
<p>Operator Fundamentals: Closely Monitoring Plant Conditions, Knowledge of Plant Design and Theory</p> <p>Human Performance Tools: Clear Communications</p>		<p>CREW Respond to and diagnose Low Service Water Pressure.</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>Human Performance Tools: Procedure Compliance</p> <p>Crew may perform 47092-I which will direct starting SW Pump 1B2 then REFER to Tech Spec section 3.3</p> <p>Crew may perform 417093-I which will direct transition to A-SW-02 (AOP-SW-001)</p> <p>Crew may perform 47052-Q after completion of 47051-P doing this will result in RESETTING of Turbine Building SW ESF Isolation</p>		<p>US Direct implementation of ARP-47051-P</p>
		<p>US/BOP CHECK both SW headers > 72 psig</p>
<p>Human Performance. Peer Checking and Self Checking</p>	<p>ROLE: EO</p> <p>REQUEST: SW pump 1A1 tripped and 1B2 was started. Check SW pump 1B2 for normal conditions on startup and investigate the trip of SW pump 1A1</p> <p>RESPONSE: Acknowledge the request wait 5 minutes and report the following: SW Pump 1B2 local indication is normal on startup. SW Pump 1A1 motor is hot to the touch and breaker has over current flag</p>	<p>US/BOP CHECK SW header B pressure > 78 psig – NO</p> <ul style="list-style-type: none"> ○ BOP VERIFY SW pump 1B2 running
		<p>US Direct and implement transition to AOP-SW-001</p>
		<p>BOP CHECK forebay level > 42%</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
	<p>ROLE: AO/EO</p> <p>REQUEST: Acknowledge direction to inspect the SW system and equipment cooled</p> <p>RESPONSE: After 15 minutes report SW system intact and equipment normal</p>	<p>(CAS) CREW Direct EO and AO to locally check SW system INTACT and equipment cooled by SW NORMAL</p>
		BOP CHECK both SW headers > 72 psig
		BOP CHECK SW header isolation valves open
	<p>ROLE: AO/EO</p> <p>REQUEST: Acknowledge direction to inspect the SW system</p> <p>RESPONSE: After 10 minutes report requested SW header intact</p>	<p>(CAS) CREW Direct AO and EO to check headers in Aux building, Screenhouse</p>
		BOP CHECK annunciator 47051-N clear
		BOP CHECK SW pressure on Turb Bldg header > 82.5 psig
		BOP CHECK SW to Turb Bldg Hdr valve one open
		(CAS)BOP CHECK SW Header Supply to Jockey pump > 60 psig
		BOP CHECK SW Header A > 60 psig
		BOP CHECK SW-10A Open
		BOP CHECK SW Header B > 60 psig
		BOP CHECK SW-10B Open

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
		BOP CHECK SW header in Containment intact
		BOP CHECK BOTH SW Headers > 86 psig
		BOP CHECK Turbine Bldg SW Air Acmttr Alarms clear
		BOP CHECK SW Header A operating
		BOP CHECK SW Header B operating
		BOP VERFIY turbine building header operating
		US REFER for addition guidance <ul style="list-style-type: none"> ○ N-SW-02 ○ EP Implementing Procedures ○ Tech Specs ○ PI-KW-200 ○ GNP 11-08-04

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>Per TS 3.7.c the crew identifies in TS 3.0.c for two trains of equipment listed in TRM 3.3.1 as OOS. TRM 3.3.1 when a train of service water is declared inoperable then the following administrative limiting conditions for operations apply: TS 3.3.e for an inoperable service water system, TS 3.7.b.2 for an inoperable emergency diesel generator, TS 3.3.d for an inoperable component cooling train, TS 3.3.b for an inoperable safety injection train, TS 3.3.c for an inoperable containment fan coil units train, TS 3.3.b for an inoperable residual heat removal train, and TS 3.4.b for an inoperable auxiliary feed water train. Three trains of AFW inoperable apply TS 3.4.b.2, when the Reactor Coolant Temperature is > 350°F, if three auxiliary Feedwater trains are discovered to be inoperable, initiate immediate action to restore one auxiliary Feedwater train to operable status and suspend all Limiting Conditions For Operations requiring mode changes until one auxiliary Feedwater train is restored to operable status. Power reduction should begin, but cannot go below 2% (mode change). TS 3.4.b.3 reactor power shall not be increased above 1673 MWt</p>		<p>US Hold Crew Brief and Refer to Technical Specifications</p> <p>T.S.</p> <ul style="list-style-type: none"> • T.S. 3.7.c • TRM 3.3.1 <ol style="list-style-type: none"> 1. T.S. 3.3.e 2. T.S 3.7.b.2 3. T.S 3.3.d 4. T.S 3.3.b 5. T.S 3.4.b.2 6. T.S 3.4.b.3 7. T.S 3.0.c

SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>EVENT 4: Small Steam Line Break in Containment</p> <p>Human Performance Tools: Procedure Compliance, Clear Communications, Peer Checking, Self Checking</p> <p>Operator Fundamentals: Conservative Decision Making, Closely Monitoring Plant Conditions, Precisely controlling plant evolutions, Teamwork, Knowledge of Plant Design and Theory</p> <p>Major RO/BOP</p> <p>Technical Specification SRO</p>		
<p>PPCS Containment Pressure alarms will reach setpoint approximately 5 minutes after insertion of the steam leak</p>	<p>When directed by the Lead Evaluator insert TRIGGER 5</p> <p>Verify that MS02A Main Steam Line Rupture Inside Containment (1A) inserts</p> <p>Verify FW16B Failure to Auto Start, AFW Pump 1B is preloaded</p>	<p>Annunciators</p> <p>47031-Q, Containment Sump A Level High ~7.5 minutes after start of event</p> <p>47031-P, Containment Sump A Level HI-HI ~8 minutes after start of event</p> <p>PPCS Alarms</p> <p>N1901G, Nuclear Thermal Mismatch</p> <p>P0946A, Containment Pressure 1.5 psig</p> <p>P0948A, Containment Pressure 1.5 psig</p> <p>P0950A, Containment Pressure 1.5 psig</p> <p>P1004A, Containment Pressure 1.5 psig</p> <p>Indications</p> <p>“A” Steam Generator Steam Flow will Start to Decrease</p> <p>Containment Pressure and Humidity will rise</p> <p>“A” Loop Temperatures Starting changing</p> <p>Tavg Decreases & Power Increases</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
Operator Fundamentals: Closely Monitoring Plant Conditions		CREW Diagnose and respond to steam leak in containment
<p>The crew should decide to manually trip the reactor. TS 3.6.d, if the internal pressure of the reactor containment vessel exceeds 2 psi, the condition shall be corrected within 8 hours or the reactor shall be placed in a subcritical condition.</p> <p>A valid Reactor Trip and SI signal will generated at a containment pressure of 3.6 psig</p>	<p>Verify that RD11A Reactor Trip Breaker A Fails to Open on Trip Sign is preloaded</p> <p>Verify that RD11B Reactor Trip Breaker B Fails to Open on Trip Sign is preloaded</p>	US Direct tripping the reactor and transitioning to E-0

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>EVENT 5: Failure of Reactor Trip Breakers to OPEN (ATWS)</p> <p>Human Performance Tools: Procedure Compliance, Self Checking</p> <p>Operator Fundamentals: Closely Monitoring Plant Conditions</p> <p>Component BOP</p>		
Human Performance: Clear Communications		RO Attempts to trip the reactor, reports the reactor did NOT trip
		BOP Attempt to trip the reactor from the turbine panel, reports the reactor did NOT trip
<p>Human Performance: Self Checking, Procedure Compliance</p> <p>CRITICAL TASK: Open Bus 33 and 43 Feed Breakers.</p> <p>SAFETY SIGNIFICANCE: Required to remove power from Rod Drive MG Sets” to drop control rods and shutdown the reactor</p> <p>CUE: Reactor did not automatically trip on rate and Reactor trip push buttons on the operator panels did not work</p> <p>MEASURABLE PERFORMANCE INDICATOR: Evaluator observes the BOP opening Bus 33 feeder breaker during immediate actions of E-0.</p> <p>PERFORMANCE FEEDBACK: Rods Insert and Reactor Power < 5% and decreasing</p>	<p>When the rods are inserted VERIFY that that MS02A Main Steam Line Rupture Inside Containment (1A) inserts with an initial valve of 5 , a final value of 20 and a ramp of 5 minutes</p>	<p>BOP OPEN bus 33 and 43 Supply Breakers</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
	<p>ROLE: AO</p> <p>REQUEST: Open Reactor Trip and Bypass Breakers</p> <p>RESPONSE: Acknowledge Direction. Wait 2 minutes then remove the malfunctions RD11A and RD11B by inserting TRIGGER 7 and TRIGGER 9..</p>	<p>CREW Dispatch AO to locally open Reactor Trip and Bypass Breakers</p>
		<p>RO VERIFY Reactor Trip</p>
<p>Operator Fundamentals: Closely Monitoring Plant Conditions</p> <p>Manual trip of the turbine will be required if the containment has not reached ≥ 3.6 psig</p>		<p>BOP VERIFY Turbine Trip</p>
		<p>BOP CHECK 4160V Emergency AC Buses \geq one energized</p>
		<p>RO CHECK if SI is Actuated</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>EVENT 6: Failure of B AFW pump to AUTO Start with Faulted Steam Generator A Inside Containment</p> <p>Human Performance Tools: Procedure Compliance, Clear Communications, Self Checking</p> <p>Operator Fundamentals: Closely Monitoring Plant Conditions, Precisely controlling plant evolutions, Teamwork</p> <p>Component BOP</p>		
<p>Operator Fundamentals: Closely Monitoring Plant Conditions, Teamwork</p> <p>Human Performance: Clear Communications</p>		<p>BOP - Reports foldout page criteria met for SG A which appears to be faulted.</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>Operator Fundamental: Precisely Controlling Plant Evolutions</p> <p>Human Performance: Clear Communications and Self Checking</p> <p>CRITICAL TASK: Start AFW pump “B” and establish feed flow greater than 210 gpm to S/G “B” from AFW pump “B” with both S/G levels less than 5% NR.</p> <p>SAFETY SIGNIFICANCE: Maintain Heat Sink Available.</p> <p>CUE: TD AFW & AFW Pump “B” not running with indications of faulted S/G “A”</p> <p>MEASURABLE PERFORMANCE INDICATOR: AFW pump “B” running and feed establish to S/G “B” from AFW pump “B”. Loss of Feed Flow to S/G does not exceed 10 minutes while S/G Narrow range level in both S/Gs is less than 5%</p> <p>PERFORMANCE FEEDBACK: AFW pump “B” running, delivering feed flow to S/G “B” as indicated by AFW header “B” flow greater than 210 gpm and AFW pump “B” discharge header pressure</p>		<p>(CAS)US/RO VERIFY AFW pump running</p> <ul style="list-style-type: none"> ○ BOP CHECK AFW pump A running ○ BOP CLOSE AFW-2A ○ BOP START AFW pump A when SI sequencer complete ○ BOP CHECK AFW pump B running ○ BOP CLOSE AFW-2B ○ BOP START AFW pump B when SI sequencer complete

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>NOTE: This critical task does not have to be accomplished until the SG feed isolation step of E-2</p> <p>Operator Fundamental: Precisely Controlling Plant Evolutions</p> <p>Human Performance: Clear Communications and Self Checking</p> <p>CRITICAL TASK: Isolate Feed Flow faulted S/G "A"</p> <p>SAFETY SIGNIFICANCE: Prevent excessive RCS cooldown by isolating AFW flow to the faulted S/G as soon as it is identified</p> <p>CUE: Excessive RCS cooldown, Steam Flow Indication, Steam Generator Depressurizing</p> <p>MEASURABLE PERFORMANCE INDICATOR: AFW crossover valve AFW-10A or AFW-10B CLOSED, and AFW flow control valve AFW-2A CLOSED, before or during faulted SG feed isolation step in E-2</p> <p>PERFORMANCE FEEDBACK: Zero flow indication on AFW header "A" and no main feed water flow.</p>		<p>US Directs BOP to isolate feed flow to SG A per the foldout page</p> <p>Faulted SG Isolation Criteria – If any SG is faulted (pressure decreasing in an uncontrolled manner or completely depressurized) AND remaining SG is intact, THEN the following may be performed:</p> <ul style="list-style-type: none"> ○ ISOLATE all feed flow to faulted SG ○ MAINTAIN total feed flow greater than 210 gpm until narrow range level in at least one SG is greater than 5% <p>BOP Actions</p> <p>Close AFW-10A or AFW-10B</p> <p>Close AFW-2A</p> <p>(The Operators may chose to turn off A AFW pump at this time but it is not required)</p> <p>US/BOP MAINTAIN feed flow > 210 gpm</p> <p>BOP THROTTLE AFW-2B to maintain > 210 gpm feed flow</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
Crew should recognize ADVERSE CONTAINMENT criteria of the foldout page		<p>(CAS)US/BOP CHECK all running AFW pump discharge pressure > 1000 psig</p>
		<p>US/BOP VERIFY Secondary heat sink</p> <ul style="list-style-type: none"> ○ BOP VERIFY total AFW flow > 210 gpm ○ BOP THROTTLE open AFW-2A and/or AFW-2B to maintain > 210 gpm

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>EVENT 7: Failure of ICS to Auto Initiate with Valid Containment Hi-Hi pressure Signal</p> <p>Human Performance Tools: Procedure Compliance, Clear Communications, Self Checking</p> <p>Operator Fundamentals: Closely Monitoring Plant Conditions, Teamwork</p> <p>Component RO</p>		
<p>Human Performance Tools: Procedure Compliance, Clear Communications, Self Checking</p> <p>Operator Fundamentals: Closely Monitoring Plant Conditions, Teamwork</p>	<p>Verify CS03A Failure to Auto Start, ICS Pump 1A preloaded</p> <p>Verify CS03B Failure to Auto Start, ICS Pump 1B preloaded</p>	<p>RO VERIFY automatic actions of SI using ATTACHMENT A</p>
		<p>(CAS)RO CHECK Containment spray NOT required</p> <ul style="list-style-type: none"> o RO CHECK Containment pressure remained < 23 psig - NO
		<p>RO CHECK Annunciator 47021-F lit</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>Manual initiation of Containment Spray will NOT work (Push Buttons)</p> <p>CRITICAL TASK: Establish ICS Flow to containment</p> <p>SAFETY SIGNIFICANCE: Containment pressure > 23 psig ICS is required to reduce containment pressure</p> <p>CUE: Containment Pressure > 23 psig and ICS has not actuated</p> <p>MEASURABLE PERFORMANCE INDICATOR: Flow Path Established for at least one train of ICS and ICS Pump started in train that the flow path was established as indicated by flow from the ICS Pump</p> <p>PERFORMANCE FEEDBACK: At least one ICS Pump running and delivering flow. Containment Pressure lowering..</p>		<p>RO IF containment spray has NOT actuated THEN manually ACTUATE containment spray</p>
		<p>RO VERIFY all Containment spray pump discharge valves open</p>
<p>Human Performance: Self Checking:</p>	<p>Verify the following TRIGGERS are activated deleting the following OVERRIDES</p> <p>27 MCC DO-46351-G ICS-5A</p> <p>28 MCC DO-46351-R ICS-5A</p> <p>29 MCC DI-46351-Close ICS-5A</p>	<p>RO OPEN ICS-5A Containment spray pump A Discharge Valve</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
Human Performance: Self Checking	Verify the following TRIGGERS are activated deleting the following OVERRIDES 21 MCC DO-46352-G ICS-6A 22 MCC-DO-46352-R ICS-6A 23 MCC DI-46352-Close ICS-6A	RO OPEN ICS-6A Containment spray pump A Discharge Valve
Human Performance: Self Checking	Verify the following TRIGGERS are activated deleting the following OVERRIDES 24 MCC DO-46353-G ICS-5B 25 MCC DO-46353-R ICS-5B 26 MCC DI-46353-Close ICS-5B	RO OPEN ICS-5B Containment spray pump B Discharge Valve
Human Performance: Self Checking	Verify the following TRIGGERS are activated deleting the following OVERRIDES 18 MCC-DO-46354-G ICS-6B 19 MCC-DO-46354-R ICS-6B 20 MCC-DI-46354-Close ICS-6B	RO OPEN ICS-6B Containment spray pump B Discharge Valve
Human Performance: Self Checking		RO VERIFY ISC Pumps running <ul style="list-style-type: none"> ○ RO START ICS Pump A ○ RO START ICS Pump B
		RO VERIFY both Caustic Additive valves open

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
Human Performance: Self Checking	Verify the following TRIGGERS are activated deleting the following OVERRIDES 15 MCC-DI-46401-Close CI-1001A 16 MCC DO-46401-R CI-1001A 17 MCC DO-46401-G CI-1001A	RO OPEN CI-1001A Caustic Additive to Containment Spray Valve
Human Performance: Self Checking	Verify the following TRIGGERS are activated deleting the following OVERRIDES 12 MCC DI-46402-Close CI-1001B 13 MCC DO-46402-R CI-1001B 14 MCC DO-46402-G CI-1001B	RO OPEN CI-1001B Caustic Additive to Containment Spray Valve
		US/RO CHECK RXCP Seal Cooling Normal
		(CAS)US/RO/BOP VERIFY RCS Temperature Control
		US/RO CHECK Pressurizer PORVs BOTH Closed
		US/RO CHECK Pressurizer Spray Valves Closed
		US/RO CHECK If RXCPs should remain running
		US/RO/BOP INITIATE monitoring CSF Status Trees
Diagnose Steam Generator A as FAULTED		US/BOP CHECK if any SG Faulted <ul style="list-style-type: none"> ○ Transition to E-2

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
		US/BOP VERIFY MSIV and Bypass valves are closed
RO/BOP should diagnose Steam Generator B being INTACT		US/BOP CHECK if any Steam Generator is NOT Faulted
RO/BOP should diagnose/confirm diagnosis of Steam Generator A being FAULTED		US/BOP IDENTIFY faulted Steam Generator
		<p>US/BOP ISOLATE feed to faulted SG</p> <ul style="list-style-type: none"> ○ BOP VERIFY the following valves closed <ul style="list-style-type: none"> ○ FW-12A ○ FW-7A ○ FW-10A ○ AFW-10A ○ AFW-2A ○ BOP STOP AFW Pump A and place in PULLOUT
		<p>US/BOP ISOLATE Steam from faulted Steam Generator</p> <ul style="list-style-type: none"> • Verify SG Blowdown Isolation Valves Closed • Verify SG Sample Isolation Valves Closed • Verify SG PORV closed – SD-3A • CLOSE Seam Supply to T/D AFW Pump – MS-100A
		BOP CHECK CST > 20%

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
	<p>ROLE: Chemistry</p> <p>REQUEST: Sample steam generator and report activity</p> <p>RESPOND: Acknowledge request, stating results will take approximately 30 minutes.</p>	<p>US/RO/BOP CHECK secondary radiation normal</p>
		<p>US/BOP STABILIZE RCS temperature</p> <ul style="list-style-type: none"> • Check Condenser Steam Dump Available • Check Intact SG MSIV OPEN <p>RNO</p> <ul style="list-style-type: none"> • VERIFY Intact SG PORV controller in AUTO – SD-3B • SET Intact SG PORV controller to saturation pressure for faulted RCS loop cold leg temperature – SD-3B
		<p>US TRANSITION to E-1</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>EAL Determination shall be conducted as a JPM for the SRO by an examiner if required</p> <ul style="list-style-type: none"> A classification of Alert will be determined due to Failure of RPS to Trip the Reactor and Manual Trip was successful from the control room (SA2.1) 		<p>SRO/US identify the current EAL at the END of the scenario using the EAL matrix .</p> <p>Correct Classification is ALERT, SA2.1</p> <p>1</p> <p>Student may refer to EPIP-AD-02 to assist in EAL determination</p>

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SCENARIO TIME LINE		
FLOOR INSTRUCTOR	BOOTH INSTRUCTOR	STUDENTS
<p>6. SCENARIO END: Transition from E-2 to E-1 and/or and the direction of the Lead Examiner.</p>	<p>a. FREEZE simulator at direction of Lead Examiner.</p> <p>b. STOP DVD recorder. <u>IF</u> this is the last session of the week, <u>THEN</u> FINALIZE the DVD (optional)</p> <p>c. Ensure all EXAM material is collected</p>	
<p>7. POST-SCENARIO:</p> <p>a. ENSURE simulator problems encountered during the scenario are documented IAW site specific process.</p> <p>b. ENSURE training attendance is documented on, Training Attendance Report.</p> <p>c. SOLICIT/COLLECT trainee feedback</p>		

VERIFICATION INSTRUCTIONS

These Malfunctions/Remotes/Overrides/Blind triggers **SHALL** be verified by two independent checkers prior to the start of the scenario after running the ILT-09-SEE02.cae file

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INPUT SUMMARY						
Description	Delay Time	Ramp Time	Event Trigger	Severity Or Value	Final Value	Relative Order
MALFUNCTIONS						
47034-O SER1670 Source Range High Flux At Shutdown Alarm Blocked	00:00:00	00:00:00	Preload	Block	Block	*
SER0966 47043-P Bank D Rod Withdrawal High Limit	00:00:00	00:00:00	Preload	Block	Block	*
SER0642 47093-H Bus 5 RAT Source Breaker 1-503 43 Control Switch in Manual	00:00:00	00:00:00	Preload	Block	Block	*
RD11A Reactor Trip Breaker A Fails to Open on Trip Sign			Preload	False	True	4
RD11B Reactor Trip Breaker B Fails to Open on Trip Sign			Preload	False	True	4
NI05C Improper Power Range Channel Response (N43)			Preload	1.1	100	Preload
RX203 PT-431 PRZ Press			1	0	2500	1
SW05A Timed/Instantaneous Overcurrent, SW Pump A1			3	0	99	2
SW06D Failure to Auto Start, SW Pump 1B2			Preload	False	True	2
MS02A Main Steam Line Rupture Inside Containment (1A)		00:10:00	5	0	0.3	3
SER0172 47021-F Containment Spray Actuated			Preload	Block	Block	4
CS03A Failure to Auto Start, ICS Pump 1A			Preload	False	True	4
CS03B Failure to Auto Start, ICS Pump 1B			Preload	False	True	4
FW16B Failure to Auto Start, AFW Pump 1B			Preload	False	True	5
* Denotes Malfunctions that preload with ALL IC loads						
REMOTE FUNCTIONS						
RP141 407C-OVER TEMPERATURE TRIP NORMAL/TRIP	00:00:00	00:00:00	Preload	Norm	Trip	Preload
RP142 407D-ROD STOP NORMAL/TRIP	00:00:00	00:00:00	Preload	Norm	Trip	Preload

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INPUT SUMMARY

Description	Delay Time	Ramp Time	Event Trigger	Severity Or Value	Final Value	Relative Order
IA101 AIR COMPRESSOR 1C LOCAL CONTROL AUTO/OFF/ON	00:00:00	00:00:00	Preload	Auto	Off	Preload
OVERRIDES						
MCC DI-46351-Close ICS-5A	00:00:00	00:00:00	Preload	Off	On	6
MCC DO-46351-R ISC-5A	00:00:00	00:00:00	Preload	Off	Off	6
MCC DO-46351-G ISC-5A	00:00:00	00:00:00	Preload	Off	On	6
MCC DI-46352-Close ICS-6A	00:00:00	00:00:00	Preload	Off	On	6
MCC-DO-46352-R ICS-6A	00:00:00	00:00:00	Preload	Off	Off	6
MCC DO-46352-G ICS-6A	00:00:00	00:00:00	Preload	Off	On	6
MCC DI-46353-Close ICS-5B	00:00:00	00:00:00	Preload	Off	On	6
MCC DO-46353-R ICS-5B	00:00:00	00:00:00	Preload	Off	Off	6
MCC DO-46353-G ICS-5B	00:00:00	00:00:00	Preload	Off	On	6
MCC-DI-46354-Close ICS-6B	00:00:00	00:00:00	Preload	Off	On	6
MCC-DO-46354-R ICS-6B	00:00:00	00:00:00	Preload	Off	Off	6
MCC-DO-46354-G ICS-6B	00:00:00	00:00:00	Preload	Off	On	6
MCC DI-467471-01-Initiate Cntmt Spray Train A Start	00:00:00	00:00:00	Preload	Off	Off	6
MCC DI-467474-01-Initiate Cntmt Spray Train B Start	00:00:00	00:00:00	Preload	Off	Off	6
MCC DO-46401-G CI-1001A	00:00:00	00:00:00	Preload	Off	On	6
MCC DO-46401-R CI-1001A	00:00:00	00:00:00	Preload	Off	Off	6
MCC-DI-46401-Close CI-1001A	00:00:00	00:00:00	Preload	Norm	Norm	6
MCC DO-46402-G CI-1001B	00:00:00	00:00:00	Preload	Off	On	6

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INPUT SUMMARY

Description	Delay Time	Ramp Time	Event Trigger	Severity Or Value	Final Value	Relative Order
MCC DO-46402-R CI-1001B	00:00:00	00:00:00	Preload	Off	Off	6
MCC DI-46402-Close CI-1001B	00:00:00	00:00:00	Preload	Norm	Norm	6
MCA DO-46113-G MS-100A	00:00:00	00:00:00	Preload	Off	Off	Preload
MCA DO-46114-G MS-100B	00:00:00	00:00:00	Preload	Off	Off	Preload
MCC DI-46412-CLOSE PR-1A	00:00:00	00:00:00	Preload	Off	Auto	Preload
MVA DO-44561-C-COUNT CVCS TOTALIZER COUNT	00:00:00	00:00:00	Preload	Off	Off	Preload

BLIND TRIGGERS (GUN SYMBOL)

<p>Event# 12 Event Action: hwzcst6401(2)==1.0 Command: DOR DI-46402-Close Trigger activates on CI-1001A switch operation providing indication of valve opening</p>
<p>Event# 13 Event Action: hwzcst6401(2)==1.0 Command: DOR DO-46402-R Trigger activates on CI-1001A switch operation providing indication of valve opening</p>
<p>Event# 14 Event Action: hwzcst6401(2)==1.0 Command: DOR DO-46402-G Trigger activates on CI-1001A switch operation providing indication of valve opening</p>
<p>Event# 15 Event Action: hwzcst6401(1)==1.0 Command: DOR DI-46401-Close Trigger activates on CI-1001B switch operation providing indication of valve opening</p>
<p>Event# 16 Event Action: hwzcst6401(1)==1.0 Command: DOR DO-46401-R Trigger activates on CI-1001B switch operation providing indication of valve opening</p>
<p>Event# 17 Event Action: hwzcst6401(1)==1.0 Command: DOR DO-46401-G Trigger activates on CI-1001B switch operation providing indication of valve opening</p>

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INPUT SUMMARY

Description	Delay Time	Ramp Time	Event Trigger	Severity Or Value	Final Value	Relative Order
Event# 18 Event Action: hwzcst5254(2)==1.0 Command: DOR DO-46354-G <i>Trigger activates on ICS-6B switch operation providing indication of valve opening</i>						
Event# 19 Event Action: hwzcst5254(2)==1.0 Command: DOR DO-46354-R <i>Trigger activates on ICS-6B switch operation providing indication of valve opening</i>						
Event# 20 Event Action: hwzcst5254(2)==1.0 Command: DOR DI-46354-Close <i>Trigger activates on ICS-6B switch operation providing indication of valve opening</i>						
Event# 21 Event Action: hwzcst5254(1)==1.0 Command: DOR DO-46352-G <i>Trigger activates on ICS-6A switch operation providing indication of valve opening</i>						
Event# 22 Event Action: hwzcst5254(1)==1.0 Command: DOR DO-46352-R <i>Trigger activates on ICS-6A switch operation providing indication of valve opening</i>						
Event# 23 Event Action: hwzcst5254(1)==1.0 Command: DOR DI-46352-Close <i>Trigger activates on ICS-6A switch operation providing indication of valve opening</i>						
Event# 24 Event Action: hwzcst5153(2)==1.0 Command: DOR DO-46353-G <i>Trigger activates on ICS-5B switch operation providing indication of valve opening</i>						
Event# 25 Event Action: hwzcst5153(2)==1.0 Command: DOR DO-46353-R <i>Trigger activates on ICS-5B switch operation providing indication of valve opening</i>						
Event# 26 Event Action: hwzcst5153(2)==1.0 Command: DOR DI-46353-Close <i>Trigger activates on ICS-5B switch operation providing indication of valve opening</i>						

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INPUT SUMMARY

Description	Delay Time	Ramp Time	Event Trigger	Severity Or Value	Final Value	Relative Order
Event# 27 Event Action: hwzcst5153(1)==1.0 Command: DOR DO-46351-G <i>Trigger activates on ICS-5A switch operation providing indication of valve opening</i>						
Event# 28 Event Action: hwzcst5153(1)==1.0 Command: DOR DO-46351-R <i>Trigger activates on ICS-5A switch operation providing indication of valve opening</i>						
Event# 29 Event Action: hwzcst5153(1)==1.0 Command: DOR DI-46351-Close <i>Trigger activates on ICS-5A switch operation providing indication of valve opening</i>						
Event #30 Event Action: hwzedxg48a(5)==1.0&&hwzedxg48a(2)==1.0 Command: IMF MS02a 20 00:05:00 5 <i>Trigger activates on rod insertion and will increase MS02A Main Steam Line Rupture Inside Containment (1A)</i>						

2009 Initial License Exam Sample

CAEP FILE ILT-09-SEE02.cae PAGE 1						
IMF RD11A	00:00:00	N/A	N/A	N/A	True	4
IMF RD11B	00:00:00	N/A	N/A	N/A	True	4
IMF NI05C	00:00:00	N/A	N/A	N/A	1.1	Preload
IMF RC203 (1) 2500	00:00:00	N/A	N/A	N/A	2500	1
IMF SW05A (3) 99	00:00:00	N/A	N/A	N/A	99	2
IMF MS02A (5) .3 00:10:00 .1	00:00:00	N/A	N/A	N/A	.3	3
TRG 7 "DMF RD11A"	00:00:00	N/A	N/A	N/A	N/A	4
TRG 9 "DMF RD11B"	00:00:00	N/A	N/A	N/A	N/A	4
IMF SER01720	00:00:00	N/A	N/A	N/A	Block	6
IMF CS03A	00:00:00	N/A	N/A	N/A	True	6
IMF CS03B	00:00:00	N/A	N/A	N/A	True	6
IOR DI-46351-Close ON	00:00:00	N/A	N/A	N/A	On	6
IOR DO-46351-R OFF	00:00:00	N/A	N/A	N/A	Off	6
IOR DO-46351-G ON	00:00:00	N/A	N/A	N/A	On	6
IOR DI-46352-Close ON	00:00:00	N/A	N/A	N/A	On	6
IOR DO-46352-R OFF	00:00:00	N/A	N/A	N/A	Off	6
IOR DO-46352-G ON	00:00:00	N/A	N/A	N/A	On	6
IOR DI-46353-Close ON	00:00:00	N/A	N/A	N/A	On	6
IOR DO-46353-R OFF	00:00:00	N/A	N/A	N/A	Off	6
IOR DO-46353-G ON	00:00:00	N/A	N/A	N/A	On	6

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IOR DI-46354-Close ON	00:00:00	N/A	N/A	N/A	On	6
IOR DO-46354-R OFF	00:00:00	N/A	N/A	N/A	Off	6
IOR DO-46354-G ON	00:00:00	N/A	N/A	N/A	On	6
IOR DI-467471-01-Initiate OFF	00:00:00	N/A	N/A	N/A	Off	6
IOR DI-467474-01-Initiate OFF	00:00:00	N/A	N/A	N/A	Off	6
IMF FW16B	00:00:00	N/A	N/A	N/A	True	5
TARGET 30 "hwzedxg48a(5)==1.0&&hwzedxg48z(2)==1.0"	00:00:00	N/A	N/A	N/A	N/A	4
TRG 30 "IMF MS02A 20 00:05:00 5"	00:00:00	N/A	N/A	N/A	20	4
CAEP FILE ILT-09-SEE02.cae PAGE 2						
TRGSET 29 "hwzcst5153(1)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 29 "DOR DI-46351-CLOSE"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 28 "hwzcst5153(1)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 28 "DOR DO-46351-R"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 27 "hwzcst5153(1)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 27 "DOR DO-46351-G"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 26 "hwzcst5153(2)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 26 "DOR DI-46353-CLOSE"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 25 "hwzcst5153(2)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 25 "DOR DO-46353-R"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 24 "hwzcst5153(2)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 24 "DOR DO-46353-G"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 23 "hwzcst5254(1)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6

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TRG 23 "DOR DI-46352-CLOSE"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 22 "hwzcst5254(1)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 22 "DOR DO-46352-R"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 21 "hwzcst5254(1)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 21 "DOR DO-46352-G"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 20 "hwzcst5254(2)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 20 "DOR DI-46354-CLOSE"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 19 "hwzcst5254(2)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 19 "DOR DO-46354-R"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 18 "hwzcst5254(2)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 18 "DOR DO-46354-G"	00:00:00	N/A	N/A	N/A	N/A	6
IRF RP141 TRIP	00:00:00	N/A	N/A	N/A	Trip	Preload
IRF RP142 TRIP	00:00:00	N/A	N/A	N/A	Trip	Preload
CAEP FILE ILT-09-SEE02.cae PAGE 3						
IOR DO-46401-G ON	00:00:00	N/A	N/A	N/A	On	6
IOR DO-46401-R OFF	00:00:00	N/A	N/A	N/A	Off	6
IOR DI-46401-Close ON	00:00:00	N/A	N/A	N/A	On	6
IOR DO-46402-G ON	00:00:00	N/A	N/A	N/A	On	6
IOR DO-46402-R OFF	00:00:00	N/A	N/A	N/A	Off	6
IOR DI-46402-Close ON	00:00:00	N/A	N/A	N/A	On	6
TRGSET 17 "hwzcst6401(1)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 17 "DOR DO-46401-G"	00:00:00	N/A	N/A	N/A	N/A	6

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TRGSET 16 "hwzcst6401(1)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 16 "DOR DO-46401-R"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 15 "hwzcst6401(1)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 15 "DOR DI-46401-CLOSE"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 14 "hwzcst6401(2)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 14 "DOR DO-46402-G"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 13 "hwzcst6401(2)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 13 "DOR DO-46402-R"	00:00:00	N/A	N/A	N/A	N/A	6
TRGSET 12 "hwzcst6401(2)==1.0"	00:00:00	N/A	N/A	N/A	N/A	6
TRG 12 "DOR DI-46402-CLOSE"	00:00:00	N/A	N/A	N/A	N/A	6
IOR DO-46113-G OFF	00:00:00	N/A	N/A	N/A	Off	Preload
IRO DO-46114-G OFF	00:00:00	N/A	N/A	N/A	Off	Preload
CAEP FILE ILT-09-SEE02.cae PAGE 4						
IRF IA101 OFF	00:00:00	N/A	N/A	N/A	Off	Preload
IOR DI-46412-CLOSE ON	00:00:00	N/A	N/A	N/A	On	Preload
DOR DI-46412-CLOSE	00:00:20	N/A	N/A	N/A	N/A	Preload
IOR DO-44561-C-COUNT OFF	00:00:00	N/A	N/A	N/A	Off	Preload

SIMULATOR SCENARIO DEVELOPMENT CHECKLIST

Mark with an "X" Yes or No for any of the following. If the answer is No, include an explanation after the item.

- | | Yes | No |
|---|-------------------------------------|-------------------------------------|
| 1. The scenario contains objectives for the desired tasks and relevant Human Performance Tools. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. The scenario content adequately addresses the desired tasks, through simulator performance, instructor-led training freezes, or both. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Plant PRA initiating events, important equipment, and important tasks are identified. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Turnover information includes a Daily At Power Risk Assessment provided by the PRA Group. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5. The scenario contains procedurally driven success paths. Procedural discrepancies are identified and corrected before training is given. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 6. The Scenario Guide includes responses for all communications to simulated personnel outside the Control Room, based on procedural guidance and standard operating practices. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. The scenario includes related industry experience. Not Required for Evaluations | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Training elements and specific Human Performance elements are addressed in the Scenario Critique Guide to be used by the Critique Facilitator. The Critique Guide includes standards for expected performance. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9. Any identified Critical Tasks possesses the following elements (NUREG-1021): <ul style="list-style-type: none"> • Essential to safety with adverse consequences or significant degradation, • Cue(s) prompt the Operator to respond. • Defined and measurable performance indicators. • Performance feedback. The use of "N/A" is allowed for item 9 only if this is <u>NOT</u> an evaluated scenario. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10. Technical Specifications including Limiting Conditions for Operation, reactivity briefings, and Emergency-Plan entries are addressed as appropriate. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Developer and Reviewer: Once checklist is completed and deficiencies are corrected, sign the cover page.

2009

SIMULATOR EXERCISE VALIDATION CHECKLIST

Mark with an "X" Yes or No for any of the following. If the answer is No, include an explanation after the item.

- | | Yes | No |
|--|-------------------------------------|--------------------------|
| 1. The desired initial condition(s) could be achieved. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All malfunctions and other instructor interface items were functional and responded to support the simulator Scenario. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. All malfunctions and other instructor interface items were initiated in the same sequence described within the simulator scenario. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. All applicable acceptance criteria were met for procedures that were used to support the simulator scenario. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5. During the simulator scenario, observed changes corresponded to expected plant response. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 6. Did the scenario satisfy the learning or examination objectives without any significant simulator performance issues, or deviations from the approved scenario sequence? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. The simulator is capable of being used to satisfy learning or examination objectives without exceptions, significant performance discrepancies, or deviation from the approved scenario sequence. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 8. Any identified Critical Tasks possesses the following elements (NUREG-1021): | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| • Essential to safety with adverse consequences or significant degradation, | | |
| • Cue(s) prompt the Operator to respond. | | |
| • Defined and measurable performance indicators. | | |
| • Performance feedback. | | |

The use of "N/A" is allowed for item 8 only if this is NOT an evaluated scenario.

Discrepancies noted (Check "none" or list items in comments field) None

Comments: None

Validator: Sign the cover page only after noted discrepancies are corrected or compensatory actions are taken to ensure quality training.

Simulator Exercise Guide

SEG# ROI-06-SE-SC02/SOI-06-SE-SC02 Rev: A

TS/TRM (PP-1)	Identified All Applicable	Applied & Implemented Correctly As Time Allowed	All Information Passed on to All Crew Members (i.e., briefs)	Any Knowledge or Performance Deficiencies	Corrective Actions if Required
T.S. 3.10.l	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
T.S. 3.10.n	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
T.S. Table 3.5-2 item #5-OTΔT	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
T.S. Table 3.5-2 item #8-High Pressurizer Pressure	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
T.S. Table 3.5-3 item #1d-Pressurizer Low Pressure	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
COLR 2.11	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
T.S. 3.7.c	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
TRM 3.3.1	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
T.S. 3.3.e	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
T.S 3.7.b.2	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
T.S 3.7.b.2	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
T.S 3.3.d	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
T.S 3.3.b	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
T.S 3.4.b.2	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
T.S 3.4.b.3	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
T.S 3.0.c	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
TS 3.6.d	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
EALs (EP Group)	Identified All Applicable	Classified & Notified Timely	All Information Passed on to All Crew Members (i.e., briefs)	Any Knowledge or Performance Deficiencies	Corrective Actions if Required
SA2.1	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Procedure Compliance (PP-3)	Applied & Implemented Correctly As Time Allowed		Any Knowledge or Performance Deficiencies		Corrective Actions if Required
	<input type="checkbox"/> Yes <input type="checkbox"/> No				
Human Performance Errors (PP-2)	Identify All HU Errors or Potential HU Errors		Any Knowledge or Performance Deficiencies		Corrective Actions if Required
Operator Fundamentals	Identify All Operator Fundamental Errors Or Potential Operator Fundamental Errors		Any Knowledge or Performance Deficiencies		Corrective Actions if Required

SEG# ROI-06-SE-SC03/SOI-06-SE-SC03 Rev: A

SITE:	Kewaunee Power Station		
PROGRAM:	Reactor Operator Program/Senior Reactor Operator Program		
PROGRAM No.			
COURSE:	2009 NRC License Exam	Course #: ROI-06-SE-SC03 / SOI-06-SE-SC03	
Total Time	2 Hours		
Prepared by:	Andrew Fahrenkrug	/S	02/02/09
	Printed Name	Instructor's Signature	Date
Reviewed by:	Steve Johnson	/S	02/07/09
(Optional)	Printed Name	Simulator Development Checklist Instructor Signature	Date
Reviewed by:	Andrew Fahrenkrug	/S	01/23/09
(Optional)	Printed Name	Simulator Validation Checklist Signature	Date
Approved by:	Terry Evans	/S	02/10/09
	Printed Name	Training Manager	Date
Approved by:	Mark Goolsbey	/S	02/12/09
	Printed Name	Facility Representative	Date

QUANTITATIVE ATTRIBUTES

Event No.	Malf. No.	Event Type*	Event Description
1	RC10B 10%	C (RO)	PR-2B Fails Open
2	RX213	I (BOP)	SG "A" pressure transmitter fails high
3	SG02A .3%	C (Both)	Small SG "A" tube leak < 1 gpm
		R (RO)	Reactor Shutdown
		N (BOP)	Plant Shutdown
4	SG01A 20%	M (Both)	SGTR "A" SG
5	MS08A	C (BOP)	Failure of MS-1A to Close
5	MS08B	C (BOP)	Failure of MS-1B to Close
6	Override	C (RO)	Failure of Spray Valve PS-1A to Operate
6	Override	C (RO)	Failure of Spray Valve PS-1B to Operate
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

SCENARIO TIME LINE

EVENT 1: PRZR PORV (PR-2B) fails open at 10% Human Performance Tools: Procedure Compliance, Clear Communications, Peer Checking, Self Checking Operator Fundamentals: Knowledge of Plant design and Theory, Teamwork Component RO Technical Specification SRO		
Lead evaluator direct Booth Instructor to initiate Event 1. For Information Only: EAL SU5.2, Identified leakage > 25 gpm, due to PRZR PORV opening. Applicability of EAL SU5.2 is based on total time the PRZR PORV was open and unisolated and the change in PRT level.	When directed, initiate Event 1 by activating Trigger 1 .	Annunciators: 47042-A, PRESSURIZER PORV OPEN 47042-B, PRESSURIZER PORV DISCHARGE TEMP HIGH 47041-B, PRESSURIZER SAFETY DISCH TEMP HIGH 47043-C, Pressurizer Control Press Abnormal 47043-D, PRZR Pressure Low Board Indications: PRZR PORV (PR-2B) red open light lit PRZR/RCS pressure decreasing
Operator Fundamentals: Knowledge of Plant Design and Theory		CREW Identifies lowering PRZR pressure
		RO Identifies open PRZR PORV (PR-2B)).
Human performance: Self Checking, Peer Checking, Procedure Use and Adherence		RO Performs immediate actions of AOP-GEN-001 <ul style="list-style-type: none"> • Check Pressurizer Pressure GREATER THAN 2315 PSIG (NO) • CHECK Both PORVs – CLOSED

		<p>(NO)</p> <ul style="list-style-type: none"> Place PRZR PORV Block Valve PR-1B control switch to close Place PRZR PORV PR-2B control switch to close
Operator Fundamental: Teamwork		US Verify immediate actions of AOP-GEN-001 complete
<p>T.S. 3.1.a.5.A.2; PORV inoperable for reasons other than seat leakage w/n one hour either restore PORV to operable status or close associated block valve and remove power from block valve. Restore PORV to operable status w/n 72 hours or initiate action to achieve HSB w/n 6 hrs and HSD w/n following 6 hrs.</p> <p>TS for the plant transient are 3.10.I for RCS pressure and 3.10.n for DNBR parameters COLOR 2.11 pressure shall be > 2217 psig control board and > 2219 psig computer indication</p>		<p>US Hold Brief and evaluate T.S. Instrument Failure</p> <p>T.S. 3.1.a.5.A.2 72 Hour LCO</p> <p>DNBR (If crew responds quickly pressure may not lower to COLOR Value)</p> <p>T.S. 3.10.I T.S. 3.10.n COLOR 2.11</p>
	<p>ROLE: SM/WCC</p> <p>REQUEST: Remove Power from PR-1B</p> <p>RESPONSE: Will pursue removing power and inform when completed.</p> <p>DELAY: After 30 minutes INSERT TRIGGER 29 and report that power has removed from PR-1B</p>	US Inform SM or WCC need to remove power for PR-1B within one hour
For Information Only: EAL SU5.2, Identified leakage > 25 gpm, due to PRZR PORV opening. Applicability of EAL SU5.2 is based on total time the PRZR PORV was		

open and unisolated and the change in PRT level.

EVENT 2: PT-468 "A" SG pressure transmitter fails high over 60 seconds

Human Performance Tools: Procedure Compliance, Clear Communications, Peer Checking, Self Checking

Operator Fundamentals: Precisely Controlling Plant Parameters, Knowledge of Plant design and Theory, Teamwork, Closing Monitoring Plant Conditions

Component BOP

Technical Specification SRO

Lead evaluator direct Booth Instructor to

When directed, initiate Event 2 by activating

Annunciators:

<p>initiate Event 2.</p> <p>FW-7A will be in automatic control prior to the next event.</p> <p>Note: The operators may perform actions for SD-3A first.</p>	<p>Trigger 3.</p> <p>ROLE: WWC and/or I&C</p> <p>REQUEST: Request support for failed transmitter.</p> <p>RESPONSE: Support as requested.</p>	<p>47061-C, S/G A FEED FLOW EXCESSIVE (Depending on when the crew recognizes the problem and takes action)</p> <p>TLA-10, SG TILTS</p> <p>Board Indications</p> <p>A SG level increasing above program</p> <p>Reactor Thermal Increasing</p> <p>SG PORV SD-3A Red Light Lit</p>
<p>Operator Fundamental: Closely Monitoring Plant Conditions</p>		<p>BOP SG A narrow range level not maintaining on program.</p>
<p>Human performance: Self Checking, Clear Communications, Procedure Compliance, Peer Checking</p> <p>Operator Fundamental: Precisely Controlling Plant Parameters, Teamwork</p>		<p>BOP Performs immediate actions of AOP-GEN-001 to place FW-7A in MAN</p> <p>If SG level is changing in an uncontrolled manner then PERFORM the following</p> <p>SHIFT affected SG Feedwater Flow Controller to Manual.</p> <p>FW-7A</p> <p>THROTTLE affected SG Feedwater control valve to maintain SG narrow range level stable between 33% and</p>

		50% FW-7A
Operator Fundamental: Closely Monitoring Plant Conditions		BOP Identifies SD-3A Open
		BOP Performs immediate actions of AOP-GEN-001 to Shut SD-3A Check Steam Generator PORVs BOTH CLOSED (NO SD-3A OPEN) If SG pressure < 1005 psig than STOP SG PORV Flow Manually CLOSE SD-3A
Operator Fundamental: Closely Monitoring Plant Conditions, Knowledge of Plant Design and Theory		BOP Identifies PT-468 failing high
The US may remove the failed instrument from service and place FW-7A in automatic before addressing T.S		US Hold Brief to for entry to AOP-MISC-001
		Actions for AOP-MISC-001
		US If failed steam pressure channel is an input to a SG PORV VERIFY Immediate Actions of AOP-GEN-001 are complete Place affected SG PORV to Manual (SD-3A) Adjust SG PORV as necessary to control SG Pressure at desired value
		BOP Restore A SG narrow range level to 44%
		BOP Defeat the failed channel input by selecting the alternate steam flow channel on the associated steam flow channel selector switch

		<p>BOP When SG level is restored to normal and steam flow and feed flow are matched then place the affected SG feed regulating valve to automatic. (FW-7A)</p>
<p>Note: Bistables will not be tripped during the scenario</p>	<p>ROLE: WWC and/or I&C REQUEST: Support for failed transmitter. May Request to perform SP-47-316E for checking for Red Channel Failed Bistables May Request IC support for Tripping Bistables at this time RESPONSE: Support as requested It will take about 45 minutes to get the paper work together for the SP-47-316E. Will take about 45 minutes to get an IC Tech to the control Room to Trip Bistables</p>	<p>US Contact SM/WWC/IC to perform corrective action on failed instrument</p>
<p>T.S. 3.5.b – For online testing or in the event if failure of a subsystem instrumentation channel, plant operation shall be permitted to continue at rated power in accordance with tables TS 3.5-2 through TS 3.5-5</p> <p>Table TS 3.5-2 Item 16</p> <p>Stem Flow/Feedwater Flow Mismatch: No Channels 2, No Channels to Trip 1, Minimum Operable Channels 1</p> <p>Table TS 3.5-3 Item 1c</p> <p>Low Steam Pressure/Line: No Channels 3, No Channels to Trip 2, Minimum Operable Channels 2</p> <p>Table TS 3.5-4 Item 2a</p> <p>Hi-Hi Steam Flow with Safety Injection: Channels 2/loop, No</p>		<p>US Refer to T.S. 3.5.b Affected T.S., No Action Statements.</p> <p>Table TS 3.5-2 Item 16 Table TS 3.5-3 Item 1c Table TS 3.5-4 Item 2a Table TS 3.5-4 Item 2b</p>

<p>Channels to Trip 1, Minimum Operable Channels 1</p> <p>Table TS 3.5-4 Item 2b</p> <p>Hi Steam Flow and 2 of 4 Lo-Lo Tavg with Safety Injection: Channels 2/loop, No Channels to Trip 1, Minimum Operable Channels 1</p>		
<p>After FW-7A has been returned to Automatic, the next event may be initiated.</p>		
<p>EVENT 3: SG "A" develops a small tube leak of ~ 500 gpd (0.35 gpm) over 5 minutes</p> <p>Human Performance Tools: Task Preview, Procedure Compliance, Clear Communications, Peer Checking, Self Checking</p> <p>Operator Fundamentals: Precisely Controlling Plant Parameters, Knowledge of Plant design and Theory, Teamwork, Closing Monitoring Plant Conditions</p> <p>Component RO/BOP</p> <p>Reactivity RO</p> <p>Normal BOP</p> <p>Technical Specification SRO</p>		
<p>Lead evaluator, <u>WHEN</u> FW-7A has been returned to AUTO, <u>THEN</u> direct Booth Instructor to initiate Event 3.</p> <p>Note: Annunciator 47011-B and 47012-B will Alarm after the Tube Leak has been active for awhile</p> <p>Human Performance: Clear</p>	<p>When directed, initiate Event 3 by activating Trigger 5.</p>	<p>Annunciators:</p> <p>TLA-15, RMS Above Normal</p> <p>47011-B, Radiation Indication High</p> <p>47012-B Radiation Indication Alert</p> <p>Board Indications:</p> <p>N-16 for 'A' SG rising</p>

<p>Communications – During Evolution many parameters and control must be coordinated, clear communications within the crew is critical.</p> <p>Operator Fundamental: The Crew must function efficiently as a team to complete procedure in a timely manner.</p>		
<p>NOTE: ARP 47033-35, Step 1 contains an “OR” statement that if used, directs RP to perform radiation surveys and the implementation of AOP-RM-001. Also note that ARP 47033-35, Step 1 references A-RM-45, which has been replaced by AOP-RM-001</p>	<p>ROLE: Radiation Protection PURPOSE: Notified of possible primary to secondary leakage Survey the area of SG A. RESPONSE: ACKNOWLEDGE communication. CONSULT with control room concerning survey requirements DELAY: If requested to survey the area of SG A, wait 10 minutes then report that SG A has elevated counts. If asked SG B counts are normal.</p>	<p>Crew perform Actions of ARP. If Alarm is due to R-15 then Go To E-O-14 (AOP-RC-004) OR DIRECT Radiation Protection to Survey the Area and Go To A-RM-45 (AOP-RM-001)</p>
<p>NOTE: If the crew implements AOP-RM-001 they should direct the NAO to close HS-17 and RP to perform radiation surveys. If the crew doesn't implement AOP-RM-001 they should <u>NOT</u> direct the NAO to close HS-17. HS-17 will be closed later in AOP-RC-004 at Step 15.</p>	<p>ROLE: NAO PURPOSE: Close HS-17 per AOP-RM-001, Steps 16 and 20 RNO b.1.b RESPONSE: REPORT HS-17 CLOSED DELAY 10 minutes</p>	<p>Crew may choose to implement AOP-RM-001, Abnormal Radiation Monitoring System Step 16 and/or 20 RNO b.1.b. DIRECT Equipment Operator to CLOSE HS-17</p>
<p>NOTE: ARP 47033-35 directs implementation of E-0-14 which has been replaced by AOP-RC-004.</p>		<p>US Announces entry into AOP-RC-004 per ARP direction</p>
	<p>ROLE: OMO REQUEST: Inform of SG Tube leak RESPONSE: Acknowledge SG Tube Leak</p>	<p>AOP-RC-004 (CAS)US Determine reactor trip <u>NOT</u> required</p>

		<ul style="list-style-type: none"> • PRZR level > 3% • Reactor Critical • VCT level >5%
	<p>ROLE: SM/WWC</p> <p>REQUEST: Inform of SG tube leak & ask for assistance</p> <p>RESPONSE: Acknowledge SG tube leak and will get people ASAP</p>	<p>AOP-RC-004</p> <p>(CAS) US/RO Determine PZR level stable or trending to program level. As leak increase during the scenario US direct RNO actions upon report of PRZR level lowering</p> <ul style="list-style-type: none"> • Increase charging to maximum • Turn on all PRZR heaters • With report from that level is stable or increasing, control charging as necessary to maintain PRZR level at program
		US/RO Verify Automatic Makeup Control
<p>Note: The crew may contact the SM to contact Chemistry for the R-15 count rate that equates to 100gpd. If so then as then wait 5minutes and report that the estimated R-15 count rate for 100gpd is 3172 cpm</p>	<p>ROLE: Chemistry</p> <p>REQUEST: Estimate R-15 count rate for 100 gpd leak using most recent results from CHEM-59.003 per AOP-RC-004, (CY-KW-059-003) Step 4.a RNO a.1</p> <p>RESPONSE: ACKNOWLEDGE communication. INFORM operator that it will take approximately 5 minutes to estimate R-15 count rate (time it will take to locate the form)</p> <p>DELAY: After 5 minutes report that 100 gpd leakage equates to 3172 cpm on R-15</p>	<p>AOP-RC-004</p> <p>US Determine S/G leak Rate</p>
<p>Note: While waiting for the response from</p>	ROLE: Chemistry	US evaluates T.S. for the plant transient:

<p>chemistry the US may use this time to review T.S.</p> <p>T.S. 3.1.d.1.D; When RCS Tavg is > 200°F, operational leakage shall be limited to 150 gpd primary to secondary leakage through any one SG. If primary to secondary leakage limit exceed, then initiate action to achieve HSD w/n 6 hrs and CSD w/n additional 30 hrs.</p>	<p>REQUEST: Count rate on R-15 for 150 gpd</p> <p>RESPONSE: R-15 count rate for 150 gpd 4758 cpm</p> <p>DELAY: 5 minutes</p>	<ul style="list-style-type: none"> 3.1.d.1.D for RCS operational leakage
<p>Action Level 3 includes 1 hr clock to 50% reactor power and 2 hr clock once reactor power gets to 50% to get to HSD. No credit is given for getting to 50% in < 1 hr.</p>		<p>AOP-RC-004</p> <p>CREW determines leakage > 100 gpd</p> <p>US/CREW determine Action Level 3 required based on R-19 increase $\geq 5\%$</p>
<p>Human Performance: Task Preview</p> <p>Note: Chemistry/RP/EO/AO will not be available for the shift brief.</p> <p>Note: The US may take this time to review AOP-GEN-002 and incorporated required brief in AOP-GEN-002 into brief required per AOP-RC-004</p> <p>Note: The US may at this time review and perform initial steps of AOP-GEN-002</p>		<p>AOP-RC-004/AOP-GEN-002</p> <p>US Perform the following:</p> <p>Task brief for action level 3 using Attachment B of AOP-RC-004 & AOP-GEN-002</p> <p>Distribute Field Copies of AOP-RC-004 and AOP-GEN-002</p>
<p>Note: Since starting at 27% the US should realize that the desired loading rate is 1%/min, NOT 3%. Per Step 17 of AOP-RC-004.</p> <p>The US may request concurrence for establishing initial loading rate at 1%/min instead of the 3% per min stated in Step 11.d.1 of AOP-RC-004. RESPONSE: Acknowledge</p>		<p>AOP-RC-004</p> <p>(CAS)US Coordinates load decrease at 1%/min per AOP-GEN-002 while continuing AOP-RC-004.</p>

<p>Human Performance: Procedure Compliance</p> <p>Operator Fundamental: Teamwork, Precisely Controlling Plant parameters</p>		
		<p>AOP-GEN-002 CREW Make plant announcement</p>
		<p>AOP-GEN-002 (CAS) US Directs RO to VERIFY rods in AUTO</p>
<p>Human Performance: Peer Checking—All reactivity calculations must be peer checked</p>		<p>AOP-GEN-002 US/RO Estimate required boron to be added standard reactivity plan</p>
<p>Human Performance: Peer Checking</p>		<p>AOP-GEN-002 (CAS) RO Borate RCS at Maximum rate per Attachment G</p>
		<p>AOP-GEN-002 US Direct Placing All PRZR Heaters ON</p>
		<p>AOP-GEN-002 (CAS)RO Control Charging and Letdown Flow to Maintain RCS Inventory per CVC-002</p>
		<p>AOP-GEN-002 BOP Gen Turbine NOT on VPL</p> <ul style="list-style-type: none"> • Disengage VPL <ul style="list-style-type: none"> ○ Verify CV tracking meter nulled ○ PRESS the Turbine Manual Pushbutton

		<ul style="list-style-type: none"> ○ PRESS the OPER AUTO Pushbutton
<p>Note: Per AOP-GEN-002 Step 35 the Turbine Load Reduction is Stopped at 5%.</p>		<p>AOP-GEN-002</p> <p>(CAS) BOP Prepare for Turbine Load Reduction</p> <ul style="list-style-type: none"> • Check Turbine Load Reduction Desired • Check Turbine Mode – OPER AUTO • SET Setter to Desired Turbine Load 5% (25-35 MWe) • Set Loading Rate to 1%/min
Human Performance: Peer Checking		<p>BOP When Tave has lowered by 1°F then perform load reduction by pressing GO Pushbutton</p> <ul style="list-style-type: none"> • Maintain MVARs 0-150 MVAR
Operator Fundamental: Teamwork, Closing Monitoring Plant Parameters, Precisely Controlling Plant Parameters		<p>AOP-GEN-002</p> <p>RO/BOP Control Boration Flow and power reduction as necessary to maintain plant requirements</p> <ul style="list-style-type: none"> • ΔI • Rod Insertion Limits • Tave within 4°F of Tref
	<p>ROLE: DEMI</p> <p>REQUEST: Inform of Load Reduction</p> <p>RESPONSE: Acknowledge</p> <p>DELAY: None</p>	<p>AOP-GEN-002</p> <p>(CAS) US Inform DEMI of Power Reduction</p>
		AOP-GEN-002

		(CAS) US/RO Check Rod Position above alarm set points and RIL
Operator Fundamental: Closing Monitoring Plant Parameters		AOP-GEN-002 (CAS) RO Control Tave/Tref Deviation <ul style="list-style-type: none"> • Verify Control Rods move as necessary to restore Tavg/Tref deviation • Check Status light Load Loss 10 PCT Rate: NOT LIT • Check Tavg > 540°F
		AOP-GEN-002 CREW Review SER points
Operator Fundamental: Closing Monitoring Plant Parameters		AOP-GEN-002 (CAS) RO/BOP Verify Control Systems Operating in Automatic <ul style="list-style-type: none"> • S/G Level Control • PRZR Level Control • PRZR Pressure Control
		AOP-GEN-002 (CAS) ADJUST Heater Drain Pump Speed as necessary to Maintain Equal Loading
	ROLE: Chemistry REQUEST: Sample SGs and perform	AOP-RC-004 (CAS) CREW determine leaking SG

	<p>accelerated count to determined leaking SG per AOP-RC-004, Step 12.a.</p> <p>RESPONSE: ACKNOWLEDGE communication. <u>IF</u> SG sample valves are isolated, <u>THEN REQUEST</u> the sample valves be overridden OPEN.</p> <p>DELAY: After 30 minutes REPORT "A" SG activity significantly > "B" SG activity and that the leak appears to be in "A" SG.</p>	<ul style="list-style-type: none"> Direct Chemistry to sample SGs and perform accelerated count
	<p>ROLE: Radiation Protection</p> <p>REQUEST: Survey SGBD CIC Ion Exchange Resin Column per AOP-RC-004, Step 12.b</p> <p>RESPONSE: ACKNOWLEDGE communication.</p> <p>DELAY: After 4 minutes REPORT that the leak appears to be in SG A due to higher background radiation readings on the SGBD CIC Ion Exchange Resin Column of SG A.</p>	<p>AOP-RC-004</p> <p>CREW Direct RP to survey SGBD CIC Ion Exchange Resin Column</p>
		<p>AOP-RC-004/AOP-GEN-002</p> <p>BOP verifies SGBD isolated per AOP-RC-004 and AOP-GEN-002 step 24</p>
	<p>ROLE: Equipment Operator</p> <p>REQUEST: CLOSE MU-2A per AOP-RCS-004, Step 14.a</p> <p>RESPONSE: ACKNOWLEDGE direction. Set Remote Function FW185 to 0.</p> <p>DELAY: 3 minutes later REPORT completion</p>	<p>AOP-RC-004/AOP-GEN-002</p> <p>(CAS) US/BOP Minimize Condenser Hotwell level per AOP-RC-004 and per AOP-GEN-002 Step 25</p>

	<p>ROLE: Equipment Operator</p> <p>REQUEST: Bypass makeup water plant heater per AOP-RCS-004, Step 14.d</p> <p>RESPONSE: ACKNOWLEDGE direction.</p> <p>DELAY: 5 minutes later REPORT that the makeup water heater has been bypassed per NOP-MUP-001</p>	
	<p>ROLE: Equipment Operator</p> <p>REQUEST: Minimize secondary contamination per AOP-RCS-004, Step 15</p> <p>RESPONSE: ACKNOWLEDGE direction</p> <p>DELAY: 10 minutes later REPORT completion</p>	<p>AOP-RC-004/AOP-GEN-002</p> <p>(CAS) US/BOP directs minimizing secondary system contamination per AOP-RCS-004. and per AOP-GEN-002 step 26</p>
	<p>ROLE: EO</p> <p>REQUEST: OPEN HS-5000B, CLOSE HS-5000A & HS-5001A</p> <p>RESPONSE: HS-5000B OPEN and HS-5000A and HS-5001A are CLOSED</p> <p>DELAY 10 minutes</p>	<p>AOP-RC-004/AOP-GEN-002</p> <p>(CAS) BOP Locally Align Heating Steam Systems Drains to Condenser:</p> <ul style="list-style-type: none"> • Locally OPEN HS-5000B • Locally CLOSE HS-5000A • Locally CLOSE HS-5001A
		<p>AOP-GEN-002</p> <p>BOP shifts 4160 VAC buses from MAT to RAT per AOP-GEN-002 and N-EHV-39</p>
Operator Fundamental: Closely Monitoring Plant Parameters, Precisely Controlling	<p>ROLE: AO</p> <p>REQUEST: Check Breaker 1-101, RAT to</p>	<p>N-EHV-39</p> <p>BOP Transfer Bus 1 from the MAT to the</p>

<p>Plant Parameters</p> <p>Human Performance: Procedure Compliance, Self Checking</p>	<p>Bus 1, OPEN and Racked IN</p> <p>RESPONSE: Breaker 1-101, RAT to Bus 1 OPEN and Racked IN.</p> <p>DELAY: 3 minutes</p>	<p>RAT</p> <ul style="list-style-type: none"> • Check Power available from RAT • Check Breaker 1-101, RAT to Bus 1, OPEN and Racked IN • GAI-TRONICS Plant Announcement • POSITION BKR 1-101 Sync Switch to ON • VERIFY Incoming and Running Voltage Within 8 volts • CHECK Synchroscope indicator within 3.33 minutes (20°) of 12:00 • WHEN sources are in Sync THEN CLOSE BKR 1-101 • VERIFY the following <ul style="list-style-type: none"> ○ BKR 1-101 red light LIT ○ Indication of Load Shift between running and incoming sources • POSITION Bkr 1-104 to TRIP • VERIFY the following <ul style="list-style-type: none"> ○ Bkr 1-104 green light LIT ○ Decrease on Main Aux XFMR Winding Y megawatt and kiloamp indicators • POSITION BKR 1-101 Sync Switch to OFF
<p>Operator Fundamental: Closely Monitoring Plant Parameters, Precisely Controlling Plant Parameters</p> <p>Human Performance: Procedure Compliance, Self Checking</p>	<p>ROLE: AO</p> <p>REQUEST: Check Breaker 1-201, RAT to Bus 2, OPEN and Racked IN</p> <p>RESPONSE: Breaker 1-201, RAT to Bus 2 OPEN and Racked IN.</p> <p>DELAY: 3 minutes</p>	<p>N-EHV-39</p> <p>BOP Transfer Bus 2 from the MAT to the RAT</p> <ul style="list-style-type: none"> • Check Power available from RAT • Check Breaker 1-201, RAT to Bus 2, OPEN and Racked IN • GAI-TRONICS Plant Announcement

		<ul style="list-style-type: none"> • POSITION BKR 1-201 Sync Switch to ON • VERIFY Incoming and Running Voltage Within 8 volts • CHECK Synchroscope indicator within 3.33 minutes (20°) of 12:00 • WHEN sources are in Sync THEN CLOSE BKR 1-201 • VERIFY the following <ul style="list-style-type: none"> ○ BKR 1-201 red light LIT ○ Indication of Load Shift between running and incoming sources • POSITION Bkr 1-204 to TRIP • VERIFY the following <ul style="list-style-type: none"> ○ Bkr 1-104 green light LIT ○ Decrease on Main Aux XFMR Winding Y megawatt and kiloamp indicators • POSITION BKR 1-201 Sync Switch to OFF
<p>Operator Fundamental: Closely Monitoring Plant Parameters, Precisely Controlling Plant Parameters</p> <p>Human Performance: Procedure Compliance, Self Checking</p>	<p>ROLE: EO</p> <p>REQUEST: Check Breaker 1-307, RAT to Bus 3, OPEN and Racked IN</p> <p>RESPONSE: Breaker 1-307, RAT to Bus 3 OPEN and Racked IN.</p> <p>DELAY: 2 minutes</p>	<p>N-EHV-39</p> <p>BOP Transfer Bus 3 from the MAT to the RAT</p> <ul style="list-style-type: none"> • Check Power available from RAT • Check Breaker 1-307, RAT to Bus 3, OPEN and Racked IN • GAI-TRONICS Plant Announcement • POSITION BKR 1-307 Sync Switch to ON • VERIFY Incoming and Running Voltage Within 8 volts • CHECK Synchroscope indicator within 3.33 minutes (20°) of 12:00

		<ul style="list-style-type: none"> • WHEN sources are in Sync THEN CLOSE BKR 1-307 • VERIFY the following <ul style="list-style-type: none"> ○ BKR 1-307 red light LIT ○ Indication of Load Shift between running and incoming sources • OPEN Bkr 1-301 • VERIFY the following <ul style="list-style-type: none"> ○ Bkr 1-301 green light LIT ○ Decrease on Main Aux XFMR Winding X megawatt and kiloamp indicators • POSITION BKR 1-307 Sync Switch to OFF
<p>Operator Fundamental: Closely Monitoring Plant Parameters, Precisely Controlling Plant Parameters</p> <p>Human Performance: Procedure Compliance, Self Checking</p>	<p>ROLE: EO</p> <p>REQUEST: Check Breaker 1-407, RAT to Bus 4, OPEN and Racked IN</p> <p>RESPONSE: Breaker 1-407, RAT to Bus 4 OPEN and Racked IN.</p> <p>DELAY: 2 minutes</p>	<p>N-EHV-39</p> <p>BOP Transfer Bus 4 from the MAT to the RAT</p> <ul style="list-style-type: none"> • Check Power available from RAT • Check Breaker 1-407, RAT to Bus 4, OPEN and Racked IN • GAI-TRONICS Plant Announcement • POSITION BKR 1-407 Sync Switch to ON • VERIFY Incoming and Running Voltage Within 8 volts • CHECK Synchroscope indicator within 3.33 minutes (20°) of 12:00 • WHEN sources are in Sync THEN CLOSE BKR 1-407 • VERIFY the following <ul style="list-style-type: none"> ○ BKR 1-407 red light LIT ○ Indication of Load Shift between running and

		<p>incoming sources</p> <ul style="list-style-type: none"> • OPEN Bkr 1-401 • VERIFY the following <ul style="list-style-type: none"> ○ Bkr 1-401 green light LIT ○ Decrease on Main Aux XFMR Winding X megawatt and kiloamp indicators • POSITION BKR 1-407 Sync Switch to OFF
	<p>ROLE: EO</p> <p>REQUEST: Locally Shutdown Turbine Oil Reservoir</p> <p>The Control Room Operator May Request that the EO come to the control room or perform Step 29 of AOP-GEN-002 as time permits</p> <p>RESPONSE: Acknowledge direction to Locally Shutdown Turbine Oil Reservoir.</p> <p>DELAY: Will not be completed by the END of the scenario.</p>	<p>AOP-GEN-002</p> <p>US/BOP Locally shutdown Turbine Oil Conditioner:</p> <ul style="list-style-type: none"> • Check Available Resources permit shutdown of Turbine Oil Conditioner • CLOSE Oil Reservoir Over Flow TD-310 • STOP Turbine Oil and Circulating Pump • CLOSE Conditioner Discharge To Reservoir TD-301
		<p>AOP-GEN-002</p> <p>(CAS) RO Check P-2 LIT</p> <ul style="list-style-type: none"> • NO – Continue Load Reduction • YES – Stop Turbine Load Reduction <p>POSITION Control Rod Bank Selector in MANUAL</p> <p>MAINTAIN Tavg within 1.5°F of Tref</p>
<p>The Scenario is Not Validated for shifting Steam Dumps to Steam Pressure Mode at this time. It is intended that the next event be initiated prior to shifting steam dumps. Shifting steam dumps is a BOP action.</p>		

Exam SEG

EVENT 4: SG "A" tube leak develops into a SGTR

Human Performance Tools: Clear Communications, Procedure Use and Adherence, Focus Brief

Operator Fundamentals: Closing Monitoring Plant Conditions

Major RO/BOP

Human Performance: Clear Communications – Clear report of the parameters and use of three part communications

Operator Fundamental: Closely Monitoring Plant Parameters – Recognition of changing PRZR level and VCT level

Lead evaluator, WHEN the BOP has shifted 4160V Buses from the MAT to the RAT (AOP-GEN-002, Step 19.b), THEN direct Booth Instructor to initiate Event 4.

CUE:

- PRZR and VCT level lowering
- Charging pump speed increasing

When directed, initiate Event 4 by activating **Trigger 5.**

RO recognizes PRZR and VCT level lowering and charging flow increasing, and reports same to US.

US/RO implement AOP-RC-004, (CAS) Step 2 RNO, when PRZR level is no longer stable at or trending to program level

<p>Human Performance: Procedure Use and Adherence – The Operator should initially maximize charging and then reduce speed in later steps to maintain PRZR Level</p> <p>NOTE: Two charging pumps are running at this time. The RO should place the charging pump in AUTO to MANUAL and increase charging to maximum for diagnosis steps that follow.</p> <p>The SGTR will generate an automatic Reactor Trip and SI signal.</p>		<p>RO increases charging pump speed and starts second charging pump to establish maximum charging flow</p> <p>RO reports that PRZR level continues to lower.</p> <p>US/RO isolate letdown.</p> <ul style="list-style-type: none"> • LD-2 SHUT • LD-3 SHUT • LD-4A SHUT • LD-4B SHUT • LD-4C SHUT • LD-300 SHUT <p>CREW recognizes that a manual trip is required, cannot maintain PRZR/VCT level.</p>
<p>Human Performance: Focus Brief – Ensure the crew is aligned with actions</p> <p>NOTE: The magnitude of the SGTR increases upon reactor trip.</p> <p>For Information Only: EAL classification FA1, Any Loss or potential loss of either fuel clad or RCS (Table F-1). Table F-1: SGTR that results in SI actuation.</p>		<p>US Focus brief for the crew to inform of tripping and going to E-0</p>
		<p>US directs manual reactor trip and SI</p>
		<p>RO Manually Trip the reactor and Verify Reactor Trip</p>
		<p>BOP Verify Turbine Trip</p>
		<p>BOP Check 4160V Emergency AC Buses at least one energized. Bus 5 or Bus 6</p>
		<p>RO verifies that SI has initiated or manually initiates SI on lowering PRZR pressure and level.</p>

<p>Critical Task: Stop Feedwater to “A” Steam Generator within 10 minutes of “B” Steam Generator Rupture if minimum level requirements are met 5% [13%].</p> <p>SAFETY SIGNIFICANCE: Mitigate ruptured steam generator overflow and dose consequences, minimize the potential of radiological release from overflow. Min level required to maintain water level above the U-Tubes in order to promote thermal stratification to prevent ruptured steam generator depressurization</p> <p>CUE: SG “A” Level rising in an uncontrolled manner or abnormal radiation and SG “A” narrow range level is > 5%</p> <p>MEASURABLE PERFORMANCE INDICATOR: BOP Closes AFW-10A or AFW-10B if the Turbine Driven AFW pump is not running. Close AFW-10A if TD AFW pump is running. Close AFW -2A</p> <p>PERFORMANCE FEEDBACK: “A” AFW header flow indicates zero</p>	<p>RECORD TIME FEED FLOW ISOLATED TO SG “A” _____</p> <p>Time of Reactor Trip – Time Feed Flow Isolated= _____</p> <p>Time S/G “A” Narrow range level > 5% _____</p>	<p>BOP once “A” SG NR level > 5%, isolates feed to ruptured SG “A” either in E-0 using FOP or E-3</p>
		<p>RO - Performs Attachment A by direction from the SRO.</p>
		<p>(CAS) US/BOP VERIFY AFW pumps Running</p>
		<p>(CAS) US/BOP AFW discharge pressure > 1000psig</p>
		<p>US/BOP Verify Secondary Heat Sink</p>
		<p>US/CREW RXCP Seal Cooling</p>

		<p>(CAS) US/CREW VERIFY RCS Temperature Control</p> <ul style="list-style-type: none"> • RCS Cold Leg temperatures <547°F and Stable – Temperature lowering because of SD-3B open • Main Steam Dump Mode Selector Switch to RESET then STM PRESS • Stop Dumping Steam • If SG pressure less than 1005 psig Then VERIFY SG PORV CLOSED • CLOSE MS-1A, MS-2A, MS-1B, MS-2B if RCS temperature continues to lower
		US/RO Check PRZR PORVs – Both Closed
		US/RO Check PRZR Spray Valves Closed
		US/ RO Check if RXCPS should remain running
		STA Monitor CSF Status Trees
		US/RO Check If any SG is Faulted
		<p>US Check If Steam Generator Tubes are Intact</p> <ul style="list-style-type: none"> • Crew Identify a Ruptured S/G. • Verify Attachment “A” complete • Crew Brief • Transition to E-3
		E-3
		<p>(CAS) US/RO Check If RXCPs should remain running</p> <ul style="list-style-type: none"> • RXCPs – Any Running

		<ul style="list-style-type: none"> Subcooling $\geq 15^{\circ}\text{F}$ [37°F]
	<p>ROLE: Radiation Protection REQUEST: Support surveys as requested RESPONSE: Acknowledge request.</p> <p>ROLE: Chemistry REQUEST: Sample SGs as requested RESPONSE: Acknowledge request</p>	<p>CREW Identify Ruptured Steam Generator</p> <ul style="list-style-type: none"> Steam Generator A
<p>Note: The only action in this step left to be completed at this time, should be to take the A AFW pump to pullout.</p>		<p>(CAS) US/BOP – Check if Feed Flow to Ruptured Steam Generator should be stopped</p> <ul style="list-style-type: none"> Place A AFW pump to Pullout
<p>EVENT 5: MSIVs Fail to CLOSE</p> <p>Human Performance Tools Self Checking</p> <p>Operator Fundamentals: Understanding Plant Design and Theory</p> <p>Component BOP</p>		
The MSIVs have been preloaded to fail to close		US Directs isolating steam flow from SG “A”
	<p>Note: There is no procedural direction to locally close MSIVs.</p> <p>ROLE: NAO</p> <p>REQUEST: Directed to locally close MSIVs</p> <p>RESPONSE: Acknowledge request</p> <p>DELAY: After 3 minutes report that MSIVs will <u>NOT</u> close locally.</p>	BOP Determines MS-1A will <u>NOT</u> close.
		BOP Determines MS-1B will <u>NOT</u> close
		BOP Sets Steam Dump manual controller

		(HC-484) to 1050 psig. BOP shifts steam dumps to steam pressure mode.
Operator Fundamental: Understanding Plant Design and Theory – The US should understand that Attachment C does not isolate SG A from SG B	ROLE: NAO REQUEST: Directed to locally isolate MS header per E-3, Attachment C. RESPONSE: Acknowledge request.. Insert Trigger 13, wait delay time and report action complete DELAY: 15 minutes	US Directs local isolation of MS header per E-3, Attachment C.
		US Directs BOP to use intact SG “B” PORV to control RCS temperature and cooldown.
Transition from E-3 to ECA-3.1		US determines that SG “A” can <u>NOT</u> be isolated from SG “B” <u>AND</u> directs transition to ECA-3.1
		ECA-3.1
Human Performance: Self Checking		RO reset SI
Human Performance: Self Checking		RO reset CI
		BOP Check Instrument Air to Containment Established <ul style="list-style-type: none"> • IA-101 Open • Reactor Building Header Pressure > 60 psig
		(CAS) BOP Check All AC Buses Energized by Off-Site Power

		RO Place all PRZR heater control switches to OFF
		(CAS) US Check if Containment Spray Should be Stopped – NO ICS pumps running
Note: Feed Flow to Ruptures SG A was previously stopped		BOP Check Ruptured SG A level > 5%[13%] <ul style="list-style-type: none"> • Stop feed flow to Ruptured SG A
Human Performance Self Checking – Pumps are placed in AUTO not Pullout		(CAS) RO Check If RHR Pumps Should be Stopped <ul style="list-style-type: none"> • RHR pumps running in SI injection mode • RCS pressure > 270 psig[300psig] AND Stable or Increasing • Stop RHR Pumps aligned for SI Injection Mode and PLACE in AUTO
	ROLE: Chemistry REQUEST: Perform EPIP-RET-03C. RESPONSE: Acknowledge request. No further action is required	US Initiate Evaluation of Plant Status <ul style="list-style-type: none"> • Check Aux Building Radiation Levels Normal • Chemistry to perform the following per EPIP-RET-03C, Post Accident Operation of the High Radiation Sample Room: <ul style="list-style-type: none"> ○ Start up Containment Hydrogen Monitoring System ○ Sample containment recirculation sump for pH ○ Sample RCS for boron and activity • Start Additional Plant Equipment to assist as necessary •

		RO Establish charging flow
		RO Align Charging pump suction to the RWST <ul style="list-style-type: none"> • OPEN CVC-301 • CLOSE CVC-1
		RO Establish Maximum Charging Flow
		BOP Check If Any SG Faulted – No Faulted Steam Generators
		(CAS) BOP Maintain Intact Steam Generator Water Level <ul style="list-style-type: none"> • Maintain Total Feed Flow > 210 gpm until intact Steam Generator Narrow Range Level > 5%[13%] • Control Feed Flow to Maintain Intact Steam Generator Narrow Range Level 22%-50%
		(CAS) BOP Maintain All Running AFW Pumps Discharge Pressures > 100 psig <ul style="list-style-type: none"> • Throttle AFW-2A
		BOP Initiate RCS Cooldown to Cold Shutdown <ul style="list-style-type: none"> • Cooldown rate < 100°F/hr • RHR system not in service for cooldown • Dump Steam From Intact Steam Generator using Steam Dump in STM Press Mode
NOTE: IF “A” SG NR level increases to > 88% during the scenario, THEN the crew will contact the ED to determine if ECA-3.2 should be implemented.	ROLE: Emergency Director REQUEST: “A” SG NR level is > 88%. Should ECA-3.2 be implemented? RESPONSE: It is not necessary to implement ECA-3.2 at this time.	(CAS) US Check if Subcooled Recovery Appropriate <ul style="list-style-type: none"> • RWST Level > 56% -- Yes • Check Rupture SG Narrow Range Level < 88%[85%]

		RO Check RCS Subcooling > 15°F
		RO Check ECCS pump Status <ul style="list-style-type: none"> • SI pumps ANY Running
EVENT 6: Pressurizer spray valves fail to operate Human Performance Tools Self Checking Operator Fundamentals: Precisely Controlling Plant Parameters, Closely Monitoring Plant Conditions Component RO		
		RO Check PRZR Level Greater than 22%[34%] – No
		RO Depressurize using Normal Spray
		US/RO Depressurize using ONE PRZR PORV
Operator Fundamental: Precisely Controlling Plant Parameters, Closely Monitoring Plant Conditions		RO When PRZR Level > 22%[34%] then STOP RCS Depressurization
Human Performance: Self Checking		RO Check If one RXCP Should be Started <ul style="list-style-type: none"> • Check RXCPs Both Stopped\ • Stop RXCP A and place in PULLOUT
		US Determine if one SI pump should be stopped <ul style="list-style-type: none"> • Check SI Pumps – Both Running • Determine Required subcooling <ul style="list-style-type: none"> ○ 24°F[78°F] • Check RCS subcooling > required subcooling • Check PRZR Level > 22%[34%] Stop one SI pump and Place in AUTO
EAL Determination shall be conducted as a JPM for the SRO by an examiner if required		SRO/US identify the current EAL at the END of the scenario using the EAL matrix . Correct Classification is ALERT, FA1

<p>Emergency Plan</p> <ul style="list-style-type: none"> For Information Only: EAL classification FA1, Any Loss or potential loss of either fuel clad or RCS (Table F-1). Table F-1: SGTR that results in SI actuation <p>Note EAL SU5.2 during initial SG tube leak when in excess of 25 gpm</p>		<p>Student may refer to EPIP-AD-02 to assist in EAL determination</p>
<p>6. SCENARIO END:</p> <p>Terminate the scenario after the crew has progressed in ECA-3.1 to determining if one SI pump should be stopped (Step 20) <u>OR</u> at the lead evaluator's discretion.</p>	<ul style="list-style-type: none"> a. FREEZE simulator at direction of floor instructor. b. STOP DVD recorder. <u>IF</u> this is the last session of the week, <u>THEN</u> FINALIZE the DVD (optional) c. Ensure all EXAM material is collected 	
<p>7. POST-SCENARIO:</p> <ul style="list-style-type: none"> a. ENSURE simulator problems encountered during the scenario are documented IAW site specific process. b. ENSURE training attendance is documented on, Training Attendance Report. c. SOLICIT/COLLECT trainee feedback 		

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