

CALLAWAY PLANT

ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO: ILE-12/2000A1RO
COMPLETION TIME: 10 MINUTES
JOB TITLE: URO
DUTY: ADMINISTRATIVE
TASK TITLE: OPERATIONS PERSONNEL EMERGENCY ACTIONS

KSA NO: G2.4.34
KSA RATING: 3.8/3.6
REVISION: 001031

The performance of this task was evaluated against the standards contained in this Admin JPM and determined to be:

SATISFACTORY

UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: EIP-ZZ-00102, EMERGENCY IMPLEMENTING ACTIONS, REV 24

TOOLS/EQUIPMENT: ATTACHMENTS 2 AND 3 OF EIP-ZZ-00102. E-KIT PRE-STAGED IN THE BACK OF THE SIMULATOR

FACILITY REPRESENTATIVE: _____ //Edward B. Stewart// _____ DATE: _____ 11/16/00

CHIEF EXAMINER: _____ //H. F. Bundy// _____ DATE: _____ 11/16/00

ADMIN JPM NO: ILE-12/2000A1RO

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT WAS IN MODE 1 WHEN A TORNADO CAUSED A PLANT TRIP AND SAFETY INJECTION. A FAULTED/RUPTURED STEAM GENERATOR HAS CAUSED THE TURBINE BUILDING TO BECOME CONTAMINATED. YOU WERE AN EXTRA REACTOR OPERATOR WORKING IN THE FIELD OFFICE.

Initiating Cues: THE FIELD SUPERVISOR HAS DIRECTED YOU TO PERFORM STEP 1.4 OF ATTACHMENT 2 OF EIP-ZZ-00102 FOR THE CONTROL ROOM MAIN ACCESS.

TASK STANDARD: UPON COMPLETION OF THE TASK, THE CANDIDATE WILL HAVE SET UP THE MODEL 177 RATEMTER, FRISKER PROBE, DETECTOR CABLE, POWER CORD TO THE MAIN DOOR ENTERING THE CONTROL ROOM. THE CANDIDATE WILL HAVE ALSO PERFORMED A PRE-OPERATIONAL CHECK ON THE INSTRUMENT.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>1. PROVIDE CANDIDATE WITH ATTACHMENT 2, OPERATIONS PERSONNEL EMERGENCY ACTIONS</p>	<p>CANDIDATE SHOULD REVIEW STEP 1.4 OF ATTACHMENT 2, OPERATIONS PERSONNEL EMERGENCY ACTIONS</p>	<p>S U Comments:</p>
<p>2. IF RADIOLOGICAL CONDITIONS ARE A POTENTIAL HAZARD, SET UP FRISKERS AT THE DOOR AND ALLOW ENTRANCE ONLY THROUGH THAT DOOR. STEP 1.4 ATTCH 2</p>	<p>CANDIDATE SHOULD REVIEW STEP AND PROCEED TO ATTACHMENT 3 PROVIDE CANDIDATE WITH ATTACHMENT 3 OF EIP-ZZ-00102</p>	<p>S U Comments:</p>
<p>3. REMOVE MODEL 177 RATEMETER, FRISKER PROBE, DETECTOR CABLE, POWER CORD, AND CHECK SOURCE FROM THE E-KIT CABINET LOCATED BEHIND THE CONTROL BOARDS. STEP 1 ATTACH 3</p>	<p>CANDIDATE SHOULD GO TO THE BACK OF THE SIMULATOR AND REMOVE E-KIT</p>	<p>S U Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>4.* CONNECT DETECTOR AND POWER CORDS, TO THE MODEL 177 RATEMETER</p> <p>STEP 2 ATTACH 3</p>	<p>CANDIDATE SHOULD CONNECT THE DETECTOR AND POWER CORDS TO THE MODEL 177 RATEMETER</p>	<p>S U</p> <p>Comments:</p>
<p>5.* VERIFY THE FOLLOWING FOR THE FRONT PANEL:</p> <p>ON SWITCH IN THE "ON" POSITION</p> <p>VOLUME ADJUSTED TO HEAR</p> <p>RESPONSE SWITCH IN "SLOW"</p> <p>RANGE SWITCH TO "X1" SCALE</p> <p>STEP 2 ATTACH 3</p>	<p>CANDIDATE SHOULD PREFORM THE FOLLOWING:</p> <p>THE ON SWITCH TO THE ON POSITION (CRITICAL STEP)</p> <p>ADJUST VOLUME TO HEAR AUDIBLE COUNTS</p> <p>PLACE RESPONSE SWITCH IN SLOW</p> <p>RANGE SWITCH TO THE X1 SCALE</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>6. ENSURE THE FOLLOWING FOR THE REAR PANEL:</p> <p>ALARM SET AT "5"</p> <p>SUBTRACT SWITCH IN THE "OFF" POSITION</p> <p>STEP 2 ATTACH 3</p>	<p>CANDIDATE SHOULD ENSURE THE FOLLOWING:</p> <p>ALARM IS SET AT "5"</p> <p>THIS METER DOES NOT HAVE A SUBTRACT SWITCH</p>	<p>S U</p> <p>Comments:</p>
<p>7.* ENSURE THE INSTRUMENT HAS A CURRENT CALIBRATION STICKER</p> <p>STEP 3 ATTACH 3</p>	<p>CANDIDATE SHOULD DETERMINE THAT THE INSTRUMENT HAS A CURRENT CALIBRATION STICKER</p>	<p>S U</p> <p>Comments:</p>
<p>8.* SET THE RANGE SWITCH TO THE APPROPRIATE POSITION AND PLACE THE DETECTOR WITH IN THE CHECK SOURCE BRACKET LINES.</p> <p>STEP 3 ATTACH 3</p>	<p>CANDIDATE SHOULD PLACE THE RANGE SWITCH TO X1K AND PLACE THE DETECTOR WITH IN THE CHECK SOURCE BRACKET LINES.</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>9.* VERIFY THE RESPONSE IS WITHIN THE ACCEPTABLE RANGE AS SPECIFIED ON THE RESPONSE VALUE DETERMINATION STICKER</p> <p>STEP 3 ATTACH 3</p>	<p>CANDIDATE SHOULD VERIFY THE RESPONSE IS WITHIN 80 TO 120 KCPM</p>	<p>S U</p> <p>Comments:</p>
<p>10. CHECK THE INSTRUMENT ALARM BY ADJUSTING THE ALARM SET SWITCH SO IT IS LESS THAN THE COUNT RATE OF THE SOURCE</p> <p>STEP 3 ATTACH 3</p>	<p>CANDIDATE SHOULD VERIFY THE ALARM WORKS PROPERLY BY ADJUSTING THE SETPOINT TO LESS THAN THE SOURCE COUNT RATE</p>	<p>S U</p> <p>Comments:</p>
<p>11. REMOVE THE SOURCE FROM THE DETECTOR</p> <p>STEP 3 ATTACH 3</p>	<p>CANDIDATE SHOULD REMOVE THE SOURCE FROM THE DETECTOR</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>12. DEPRESS THE RESET BUTTON. THE ALARM CONDITION SHOULD CLEAR</p> <p>STEP 3 ATTACH 3</p>	<p>CANDIDATE SHOULD DEPRESS THE RESET BUTTON TO CLEAR THE ALARM</p>	<p>S U</p> <p>Comments:</p>
<p>13.* COMPLETE THE ATTACHED PRE-OPERATIONAL CHECK STICKER.</p> <p>STEP 3 ATTACH 3</p>	<p>CANDIDATE SHOULD DETERMINE THE PRE-OPERATIONAL CHECKS ARE SATISFACTORY (CRITICAL STEP), AND COMPLETE THE ATTACHED PRE-OPERATIONAL CHECK STICKER</p>	<p>S U</p> <p>Comments:</p>
<p>14. RETURN THE CHECK SOURCE TO THE E-KIT CABINET.</p> <p>STEP 4 ATTACH 3</p>	<p>CANDIDATE SHOULD RETURN THE CHECK SOURCE TO THE E-KIT CABINET</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>15.* MOVE THE RATEMETER TO THE DOORS OF THE CONTROL ROOM. ENSURE THE PROBE IS LEFT FACE UP WHEN NOT BEING USED</p> <p>STEP 5 ATTACH 3</p>	<p>CANDIDATE SHOULD MOVE THE RATEMETER TO THE DOOR OF THE CONTROL ROOM (CRITICAL STEP), AND ENSURE THE PROBE IS LEFT FACE UP</p>	<p>S U</p> <p>Comments:</p>
	<p>THIS ADMIN JPM IS COMPLETE</p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	

* CRITICAL STEP

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT WAS IN MODE 1 WHEN A TORNADO CAUSED A PLANT TRIP AND SAFETY INJECTION. A FAULTED/RUPTURED STEAM GENERATOR HAS CAUSED THE TURBINE BUILDING TO BECOME CONTAMINATED. YOU WERE AN EXTRA REACTOR OPERATOR WORKING IN THE FIELD OFFICE.

Initiating Cues: THE FIELD SUPERVISOR HAS DIRECTED YOU TO PERFORM STEP 1.4 OF ATTACHMENT 2 OF EIP-ZZ-00102 FOR THE CONTROL ROOM MAIN ACCESS.

CALLAWAY PLANT

ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO: ILE-12/2000A1SRO
COMPLETION TIME: 15 MINUTES
JOB TITLE: SRO
DUTY: RADIOLOGICAL EMERGENCY RESPONSE
TASK TITLE: CLASSIFY EMERGENCY EVENT PER EIP-ZZ-00101

KSA NO: G2.4.41
KSA RATING: 2.3/4.1
REVISION: 001101

The performance of this task was evaluated against the standards contained in this Admin JPM and determined to be:

SATISFACTORY

UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: EIP-ZZ-00101, CLASSIFICATION OF EMERGENCIES, REV 24

TOOLS/EQUIPMENT: ATTACHMENT 1 OF EIP-ZZ-00102, EMERGENCY IMPLEMENTING ACTIONS

FACILITY REPRESENTATIVE: //Edward B. Stewart// DATE: 11/16/00

CHIEF EXAMINER: //H. F. Bundy// DATE: 11/16/00

ADMIN JPM NO: ILE-12/2000A1SRO

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: SEE SS DAILY LOG SHEET AND WALK DOWN CONTROL BOARDS FOR PLANT CONDITIONS.

Initiating Cues: THE TIME IS NOW 0623. CLASSIFY THE EVENT BASED ON CURRENT CONDITIONS AND COMPLETE ATTACHMENT 1 OF EIP-ZZ-00102, EMERGENCY IMPLEMENTING ACTIONS.

Notes: **THIS IS A TIME CRITICAL ADMIN JPM TO BE COMPLETED WITHIN 15 MINUTES.** USE IC-167 PLACE HOLD OFF TAGS ON NB02 AND NE02. RUN SIMULATOR AND PLACE IN FREEZE MODE.

TASK STANDARD: UPON COMPLETION OF THIS TASK, THE CANDIDATE SHOULD DETERMINE AN ALERT EXISTS DUE TO GROUP 4K OR 3H EAL. THE CANDIDATE WILL FILL IN ATTACHMENT 1 OF EIP-ZZ-00102 WITH CLASSIFICATION, CAUSE, EMERGENCY ORGANIZATION ACTIVATION, AND ACTIONS FOR NON-ESSENTIAL PERSONNEL.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>1. OBTAIN A COPY OF EIP-ZZ-00101, CLASSIFICATION OF EMERGENCIES, AND ATTACHMENT 1 OF EIP-ZZ-00102, EMERGENCY IMPLEMENTING ACTIONS</p>	<p>CANDIDATE SHOULD OBTAIN A COPY OF EIP-ZZ-00101 AND ATTACHMENT 1 OF EIP-ZZ-00102</p> <p>PROVIDE CANDIDATE A COPY OF EIP-ZZ-00101 AND ATTACHMENT 1 OF EIP-ZZ-00102</p>	<p>S U</p> <p>Comments:</p>
<p>2.* APPLY GROUP 4K EAL AND DECLARE AN ALERT</p> <p>(APPLICABLE IN DEFUELED MODE)</p>	<p>CANDIDATE SHOULD DETERMINE THE FOLLOWING APPLY FROM GROUP 4K</p> <p>1.a. LOSS OF OFFSITE POWER TO NB01</p> <p>1.b. LOSS OF OFFSITE POWER TO NB02</p> <p>1.c LOSS OF D/G NE01</p> <p>1.d LOSS OF D/G NE02</p> <p>AND</p> <p>2. THE LOSS OF <u>ALL</u> 4 HAS OCCURRED FOR >15 MINUTES</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>3.* APPLY GROUP 3H EAL AND DECLARE AN ALERT (APPLICABLE AT ALL TIMES)</p>	<p>CANDIDATE SHOULD DETERMINE THE FOLLOWING APPLY FROM GROUP 3H</p> <p>2.a. REPORT OF A NATURAL OR DESTRUCTIVE PHENOMENA TO THE FOLLOWING SAFE SHUTDOWN AREAS: 5. DIESEL GENERATOR BUILDING 8. CONTROL BUILDING</p> <p>2.b. THERE IS VISIBLE DAMAGE TO PERMANENT STRUCTURES OR EQUIPMENT, AFFECTING PLANT OPERATIONS.</p>	<p>S U Comments:</p>
<p>4.* COMPLETE ATTACHMENT 1 EAL AREA</p>	<p>CANDIDATE SHOULD CIRCLE ALERT FOR EAL CLASSIFICATION</p>	<p>S U Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
5. COMPLETE TIME AREA	CANDIDATE SHOULD PUT CURRENT TIME OR ASK EVALUATOR FOR TIME	S U Comments:
6. COMPLETE CAUSE OF EMERGENCY AREA	LOSS OF ALL OFFSITE POWER AND ONSITE AC POWER TO ESSENTIAL BUSES FOR > 15 MINUTES IF DETERMINE TO BE EAL 4K NATURAL AND DESTRUCTIVE PHENOMENA AFFECTING A SAFE SHUTDOWN AREA IF EAL DETERMINED TO BE 3H	S U Comments:
7. COMPLETE EMERGENCY ORGANIZATION ACTIVATION AREA	CANDIDATE SHOULD CHECK ALERT OR HIGHER BOX IN EMERGENCY ORGANIZATION ACTIVATION AREA	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
8. COMPLETE ACTIONS FOR NON-ESSENTIAL PERSONNEL AREA	CANDIDATE SHOULD CHECK UNUSUAL EVENT/ALERT AREA FOR ACTIONS FOR NON- ESSENTIAL PERSONNEL	S U Comments:
9. COMPLETE SPECIAL INSTRUCTIONS AREA	CANDIDATE MAY MARK SPECIAL INSTRUCTIONS N/A OR LEAVE BLANK	S U Comments:
10. COMPLETE PERSONNEL CAUTION AREA	CANDIDATE MAY MARK POTENTIAL AIRBORNE CONTAMINATION OR LEAVE BLANK	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
11. COMPLETE EC/RM APPROVAL AREA	CANDIDATE SHOULD SIGN EC/RM APPROVAL AREA	S U Comments:
	<p>THE JPM IS COMPLETE</p> <p><u>RECORD STOP TIME ON</u></p> <p><u>PAGE 1</u></p>	

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
	COMPARE CANDIDATES ATTACHMENT 1 WITH ANSWER KEY ALERT CIRCLED DECLARATION TIME, DATE CAUSE ALERT BOX CHECKED FOR EMERGENCY ORGANIZATION ACTIVATION UNUSUAL EVENT/ALERT BOX CHECKED FOR ACTIONS FOR NON-ESSENTIAL PERSONNEL EC/RM APPROVAL SIGNED	

* CRITICAL STEP

ADMIN JPM NO: ILE-12/2000A1SRO

**CALLAWAY PLANT
SHIFT SUPERVISOR DAILY LOG**

DATE 12/18/00

LINE NO.	TIME	
1	0000	Continued logs from log sheet dated 12/17/00. Core has been off-loaded to Spent
2		Fuel Pool. Callaway Plant is in NO MODE. RCS has been drained to mid-loop
3		to support work on letdown piping.
4	0115	Tagged out NB02 and NE02 for Bus cleaning and breaker PMs. Verified NO
5		fuel movement in progress or planned for Spent Fuel Pool.
6	0345	Severe weather and tornado warning issued by National Weather Service
7		entered EIP-ZZ-00231, "Response to Severe Thunderstorms/High Winds/ 8
8		Tornado Watches and Warnings".
9	0600	Tornado passes thru Callaway Plant causing a loss of switchyard and NB01.
10	0605	NE01 trips due to overheating due to loss of ESW.
11	0610	Maintenance informs the CRS that NB01 can be energized by 0930 via
12		off-site power.
13	0612	Electrical maintenance informs the CRS that NB02 will be able to be energized
14		via NE02 by 0840.
15	0615	HP reports radiation levels normal in Containment and Fuel Building.
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Emergency Announcement

NOTE: If CODE RED is in progress, on-site emergency announcements should be held to a minimum and prohibit movement of personnel until CODE RED is secured.

SOUND THE PLANT EMERGENCY ALARM

ATTENTION ALL PERSONNEL! ATTENTION ALL PERSONNEL!

A(N)	UNUSUAL EVENT ALERT SITE EMERGENCY GENERAL EMERGENCY	HAS BEEN DECLARED AT ___:___ (time)
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THE CAUSE OF THE EMERGENCY IS

Emergency Organization Activation	
<input type="checkbox"/> Unusual Event	ALL MEMBERS OF THE ON-SHIFT EMERGENCY ORGANIZATION REPORT TO YOUR STATIONS.
<input type="checkbox"/> Alert or Higher	ALL MEMBERS OF THE EMERGENCY RESPONSE ORGANIZATION REPORT TO YOUR STATIONS.

Actions For Non-Essential Personnel	
<input type="checkbox"/> Unusual Event/Alert	ALL NON-ESSENTIAL PERSONNEL CONTINUE WITH YOUR NORMAL DUTIES UNLESS FURTHER INSTRUCTIONS ARE GIVEN.
<input type="checkbox"/> Site/General	<input type="checkbox"/> Normal hours ALL NON-ESSENTIAL PERSONNEL REPORT TO YOUR PRE-DESIGNATED ASSEMBLY AREAS IN THE CMB AND TRAINING CENTER. TAKE ALL PERSONAL BELONGINGS SUCH AS COATS, CAR KEYS AND PURSES. FOLLOW THE INSTRUCTIONS OF YOUR SUPERVISOR AND SECURITY OFFICERS.
	<input type="checkbox"/> Off-normal hours ALL NON-ESSENTIAL PERSONNEL PROCEED TO THE TSC AND AWAIT FURTHER INSTRUCTIONS.

Special instructions,(i.e. special routes during releases. seek cover during storms) _____

PERSONNEL CAUTION (If required)	
<input type="checkbox"/> Potential Airborne Contamination	THERE WILL BE NO EATING, DRINKING, SMOKING, OR CHEWING UNTIL FURTHER NOTICE.

(REPEAT ALL ANNOUNCEMENTS)

EC/RM APPROVAL

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: SEE SS DAILY LOG SHEET AND WALK DOWN CONTROL BOARDS FOR PLANT CONDITIONS.

Initiating Cues: THE TIME IS NOW 0623. CLASSIFY THE EVENT BASED ON CURRENT CONDITIONS AND COMPLETE ATTACHMENT 1 OF EIP-ZZ-00102, EMERGENCY IMPLEMENTING ACTIONS.

Notes: **THIS IS A TIME CRITICAL ADMIN JPM TO BE COMPLETED WITHIN 15 MINUTES.**

Emergency Announcement

NOTE: If CODE RED is in progress, on-site emergency announcements should be held to a minimum and prohibit movement of personnel until CODE RED is secured.

SOUND THE PLANT EMERGENCY ALARM

ATTENTION ALL PERSONNEL! ATTENTION ALL PERSONNEL!

A(N)	UNUSUAL EVENT <input checked="" type="checkbox"/> ALERT SITE EMERGENCY GENERAL EMERGENCY	HAS BEEN DECLARED AT ___:___ (Current time) (time)
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THE CAUSE OF THE EMERGENCY IS

Loss of a all Offsite Power and Onsite AC Power to Essential Busses for > 15 minutes (EAL 4K)

OR

Natural and Destructive Phenomena affecting a safe shutdown area (EAL 3H)

Emergency Organization Activation	
<input type="checkbox"/> Unusual Event	ALL MEMBERS OF THE ON-SHIFT EMERGENCY ORGANIZATION REPORT TO YOUR STATIONS.
<input checked="" type="checkbox"/> Alert or Higher	ALL MEMBERS OF THE EMERGENCY RESPONSE ORGANIZATION REPORT TO YOUR STATIONS.

Actions For Non-Essential Personnel					
<input checked="" type="checkbox"/> Unusual Event/Alert	ALL NON-ESSENTIAL PERSONNEL CONTINUE WITH YOUR NORMAL DUTIES UNLESS FURTHER INSTRUCTIONS ARE GIVEN.				
<input type="checkbox"/> Site/General	<table border="0" style="width: 100%;"> <tr> <td style="width: 15%; padding: 5px;"><input type="checkbox"/> Normal hours</td> <td style="padding: 5px;">ALL NON-ESSENTIAL PERSONNEL REPORT TO YOUR PRE-DESIGNATED ASSEMBLY AREAS IN THE CMB AND TRAINING CENTER. TAKE ALL PERSONAL BELONGINGS SUCH AS COATS, CAR KEYS AND PURSES. FOLLOW THE INSTRUCTIONS OF YOUR SUPERVISOR AND SECURITY OFFICERS.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> Off-normal hours</td> <td style="padding: 5px;">ALL NON-ESSENTIAL PERSONNEL PROCEED TO THE TSC AND AWAIT FURTHER INSTRUCTIONS.</td> </tr> </table>	<input type="checkbox"/> Normal hours	ALL NON-ESSENTIAL PERSONNEL REPORT TO YOUR PRE-DESIGNATED ASSEMBLY AREAS IN THE CMB AND TRAINING CENTER. TAKE ALL PERSONAL BELONGINGS SUCH AS COATS, CAR KEYS AND PURSES. FOLLOW THE INSTRUCTIONS OF YOUR SUPERVISOR AND SECURITY OFFICERS.	<input type="checkbox"/> Off-normal hours	ALL NON-ESSENTIAL PERSONNEL PROCEED TO THE TSC AND AWAIT FURTHER INSTRUCTIONS.
<input type="checkbox"/> Normal hours	ALL NON-ESSENTIAL PERSONNEL REPORT TO YOUR PRE-DESIGNATED ASSEMBLY AREAS IN THE CMB AND TRAINING CENTER. TAKE ALL PERSONAL BELONGINGS SUCH AS COATS, CAR KEYS AND PURSES. FOLLOW THE INSTRUCTIONS OF YOUR SUPERVISOR AND SECURITY OFFICERS.				
<input type="checkbox"/> Off-normal hours	ALL NON-ESSENTIAL PERSONNEL PROCEED TO THE TSC AND AWAIT FURTHER INSTRUCTIONS.				

Special instructions,(i.e. special routes during releases. seek cover during storms) NA

PERSONNEL CAUTION (If required)	
<input type="checkbox"/> Potential Airborne Contamination	THERE WILL BE NO EATING, DRINKING, SMOKING, OR CHEWING UNTIL FURTHER NOTICE.

(REPEAT ALL ANNOUNCEMENTS)

 Candidate's Name
 EC/RM APPROVAL

CALLAWAY PLANT

ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO:	ILE-12/2000A2RO	KSA NO:	G2.1.18
COMPLETION TIME:	20 MINUTES	KSA RATING:	2.9/3.0
JOB TITLE:	URO	REVISION:	000922
DUTY:	ADMINISTRATIVE		
TASK TITLE:	PERFORM CHANNEL CHECKS ON MAIN CONTROL BOARD INDICATORS		

The performance of this task was evaluated against the standards contained in this Admin JPM and determined to be:

SATISFACTORY

UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: OSP-ZZ-00001, Control Room Shift and Daily Log Readings and Channel Checks, Rev 35
ODP-ZZ-00020, Instrumentation Channel Deviations, Rev 11

TOOLS/EQUIPMENT: Page 5 and 6 of Attachment 1 of OSP-ZZ-00001

FACILITY REPRESENTATIVE: _____ //Edward B. Stewart// _____ DATE: _____ 11/16/00

CHIEF EXAMINER: _____ //H. F. Bundy// _____ DATE: _____ 11/16/00

ADMIN JPM NO: ILE-12/2000A2RO

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. YOU ARE THE EXTRA REACTOR OPERATOR ON SHIFT.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO COMPLETE THE ATTACHED TWO PAGES OF OSP-ZZ-00001, CONTROL ROOM SHIFT AND DAILY READINGS AND CHANNEL CHECKS. SS/OS HAS GRANTED PERMISSION TO USE CRITERIA 2.

Notes: **USE OF THE MAINFRAME COMPUTER IS NOT ALLOWED.**

TASK STANDARD: UPON COMPLETION OF THE TASK, THE CANDIDATE WILL HAVE:

- (1) COMPLETED THE CHANNEL CHECKS,
- (2) DETERMINED OPΔT AND CTMT ATMOSPHERE PRESSURE ARE SAT BY CRITERIA 1,
- (3) OTΔT AND RCΔT LOOPS ARE SAT BY CRITERIA 2,
- (4) DETERMINED CONTAINMENT AIR COOLER TEMPERATURE TO BE 99°F.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>1. PROVIDE CANDIDATE WITH MATERIAL AND ALLOW HIM TO REVIEW WORK TO BE PERFORMED</p> <p>STEPS MAY BE PREFORMED IN ANY ORDER</p>	<p>CANDIDATE SHOULD REVIEW ADMIN JPM INITIAL CONDITIONS AND INITIATING CUES.</p>	<p>S U</p> <p>Comments:</p>
<p>2.* DETERMINE OPΔT SETPOINTS WITHIN 6% OF EACH OTHER (CRITERIA 1)</p> <p>ODP-ZZ-00020, ATTACH 1, pg. 1</p>	<p>CANDIDATE SHOULD REVIEW OPΔT FOR ALL LOOPS AND DETERMINE THEY ARE WITHIN 6%. (112% HIGHEST, 109% LOWEST)</p>	<p>S U</p> <p>Comments:</p>
<p>3.* DETERMINE RC LP ΔT SETPOINTS WITHIN 7% OF EACH OTHER (CRITERIA 1)</p> <p>ODP-ZZ-00020, ATTACH 1, pg. 1</p>	<p>CANDIDATE SHOULD DETERMINE RC LP ΔT SETPOINTS ARE NOT SAT BY CRITERIA 1 AND APPLY CRITERIA 2</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>4.* DETERMINE RC LP ΔT SETPOINTS WITHIN 7% OF AVERAGE (CRITERIA 2)</p> <p>ODP-ZZ-00020, ATTACH 1, pg. 1</p>	<p>CANDIDATE SHOULD DETERMINE RC LP ΔT SETPOINTS ARE SAT BY CRITERIA 2</p> <p>AVERAGE = 102.5 °F</p> <p>ALL RC LP ΔT SETPOINTS MUST BE ± 7% OF 102.5%</p> <p>RANGE 95.5% TO 109.5%</p>	<p>S U</p> <p>Comments:</p>
<p>5. DETERMINE OTΔT SETPOINTS WITHIN 7% OF EACH OTHER (CRITERIA 1)</p> <p>ODP-ZZ-00020, ATTACH 1, pg. 1</p>	<p>CANDIDATE SHOULD DETERMINE OTΔT IS NOT SAT BY CRITERIA 1 AND APPLY CRITERIA 2</p>	<p>S U</p> <p>Comments:</p>
<p>6.* DETERMINE OTΔT SETPOINTS WITHIN 7% OF AVERAGE (CRITERIA 2)</p> <p>ODP-ZZ-00020, ATTACH 1, pg. 1</p>	<p>CANDIDATE SHOULD DETERMINE OTΔT IS SAT BY CRITERIA 2</p> <p>AVERAGE = 120.5%</p> <p>ALL OTΔT SETPOINTS MUST BE ± 7% OF 120.5%</p> <p>RANGE 113.5% TO 127.5%</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>7. DETERMINE CTMT ATMOS PRESS SETPOINTS WITHIN 2.5 PSIG OF EACH OTHER (CRITERIA 1)</p> <p>ODP-ZZ-00020, ATTACH 1, pg. 1</p>	<p>CANDIDATE SHOULD REVIEW ALL CTMT ATMOS PRESS AND DETERMINE THEY ARE WITHIN 2.5 PSIG. (2.8 PSIG HIGHEST, 1.0 PSIG LOWEST)</p>	<p>S U</p> <p>Comments:</p>
<p>8. DETERMINE CTMT COOLER AVG AIR TEMP</p> <p>T/S SR 3.6.5.1</p>	<p>CANDIDATE SHOULD DETERMINE THE PORTABLE AIR TEMPERATURE MUST BE USED</p> <p>$106 + 90 + 98 + 102 = 396/4 = 99^{\circ}\text{F}$ AVERAGE AIR TEMPERATURE</p>	<p>S U</p> <p>Comments:</p>
<p>9.</p>	<p>THIS ADMIN JPM IS COMPLETE</p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
10.	<p>COMPARE CANDIDATE'S SHIFT AND READINGS:</p> <p>OPDT: SAT CRITERIA #1</p> <p>OTDT: SAT CRITERIA #2</p> <p>RC LP DT: SAT CRITERIA #2</p> <p>CTMT ATMOS PRESS: SAT CRITERIA #1</p> <p>CTMT COOLER INLET AIR TEMP DETERMINED TO 99°F</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

Read to Performer: You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. YOU ARE THE EXTRA REACTOR OPERATOR ON SHIFT.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO COMPLETE THE ATTACHED TWO PAGES OF OSP-ZZ-00001, CONTROL ROOM SHIFT AND DAILY READINGS AND CHANNEL CHECKS. SS/OS HAS GRANTED PERMISSION TO USE CRITERIA 2.

Notes: **USE OF THE MAINFRAME COMPUTER IS NOT ALLOWED.**

CONTROL ROOM SHIFT & DAILY READINGS AND CHANNEL CHECK
MODES 1 – 4 **12 Hour Shift**

Date 12/20/2000

OSP-ZZ-00001
 Rev. 6

	Mode	Tech. Spec./FSAR	I.D.	Acceptance Criteria	Units	00-02	12-14	CRI 1
T AVG AND DT (at RL004)								
RC LP 1 OV Pwr ΔT Set Point	1-2		BB TI-411B		% FP	112		
RC LP 1 ΔT	1-2		BB TI-411A		% FP	100		
RC LP 1 OV Temp ΔT Set Point	1-2		BB TI-411C		% FP	122		
RC LP 1 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-412	551 ≤ T ≤ 592.6	°F	592		
RC LP 2 OV Pwr ΔT Set Point	1-2		BB TI-421B		% FP	109		
RC LP 2 ΔT	1-2		BB TI-421A		% FP	107		
RC LP 2 OV Temp ΔT Set Point	1-2		BB TI-421C		% FP	115		
RC LP 2 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-422	551 ≤ T ≤ 592.6	°F	588		
RC LP 3 OV Pwr ΔT Set Point	1-2		BB TI-431B		% FP	114		
RC LP 3ΔT	1-2		BB TI-431A		% FP	99		
RC LP 3 OV Temp ΔT Set Point	1-2		BB TI-431C		% FP	122		
RC LP 3 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-432	551 ≤ T ≤ 592.6	°F	589		
RC LP 4 OV Pwr ΔT Set Point	1-2		BB TI-441B		% FP	110		
RC LP 4 ΔT	1-2		BB TI-441A		% FP	104		
RC LP 4 OV Temp ΔT Set Point	1-2		BB TI-441C		% FP	123		
RC LP 4 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-442	551 ≤ T ≤ 592.6	°F	585		
OPΔT Setpoint Channel Check	1-2	3.3.1-7#1, 3.3.1-14.C.1#1 3.3.2-5.E.3.A#1, 3.3.2-6.D.3.A#1 3.3.1-14.C.2#1, 3.3.2-5.E.3.B#1* 3.3.2-6.D.3.B#1			Sat/Unsat			6%
OTΔT Setpoint Channel Check	1-2	3.3.1-6#1, 3.3.1-14.C.1#1 3.3.2-5.E.3.A#1, 3.3.2-6.D.3.A#1 3.3.1-14.C.2#1, 3.3.2-5.E.3.B#1* 3.3.2-6.D.3.B#1			Sat/Unsat			7%
RC LP ΔT Channel Check	1-2	3.3.1-6#1, 3.3.1-7#1, 3.3.1-14.C.1#1, 3.3.2-5.E.3.A#1, 3.3.2-6.D.3.A#1, 3.3.1-14.C.2#1, 3.3.2-5.E.3.B#1 *, 3.3.2-6.D.3.B#1			Sat/Unsat			7%

* Except when all MFIVs are CLOSED

** Mode 2 with Keff ≥ 1.0

REMARKS:

CONTROL ROOM SHIFT & DAILY READINGS AND CHANNEL CHECK
MODES 1 – 4 **12 Hour Shift**

Date 12/20/2000

OSP-ZZ-00001
 Rev. 6

	Mode	Tech. Spec./FSAR	I.D.	Acceptance Criteria	Units	00-02	12-14	CRI 1
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AUXILIARY FEEDWATER (at RL005)

Condensate Storage Tank Level	1-3	3.7.6.1	AP LI-4A	≥ 62	%	88		
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FLOW RATE MEASUREMENT DEVICES * (at RL014) FSAR 16.0.

Cooling Tower B/D Disch	All	16.11.1.3.1-2.C	FI DB-1017	❖ Discharge Limit – 10, 160	1000 gpm	9K		
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CONTAINMENT (at RL018)

CTMT Atmos Press	1-3		GN PI-934		PSIG	1.0		
CTMT Atmos Press	1-3		GN PI-936		PSIG	1.5		
CTMT Atmos Press	1-3		GN PI-935		PSIG	2.8		
CTMT Atmos Press	1-3		GN PI-937		PSIG	1.0		
CTMT Atmos Press Channel Check	1-3	3.3.2-1.C#1 3.3.2-2.C#1 3.3.1-14.D#1, 3.3.2-3.B.3#1, 3.3.2-4.D#1@@, 3.3.2-5.E.4#1@, 3.3.2-6.D.4#1			Sat / Unsat			2.5 psig

CTMT Cooler D Inlet Air Temp	1-4	3.6.5.1	GN TI-61 **		°F	Note (1)		
CTMT Cooler B Inlet Air Temp	1-4	3.6.5.1	GN TI-63 **		°F	90		
CTMT Cooler A Inlet Air Temp	1-4	3.6.5.1	GN TI-60 **		°F	98		
CTMT Cooler C Inlet Air Temp	1-4	3.6.5.1	GN TI-62 **		°F	102		
CTMT Avg Air Temp	1-4	3.6.5.1		≤120	°F			

FLOW RATE MEASUREMENT DEVICES (at RL018)

CTMT Normal Sump Level	1-4	3.4.15.A.1	LF-LI-10 ***	VAR	Inches	20		
CTMT Normal Sump Level	1-4	3.4.15.A.1	LF LI-9 ***	VAR	Inches	14		

- ❖ HTP-ZZ-02006 lists 10,160 gpm to ensure flow at manway 86-5 is not excessive.
- * Channel Checks on Cooling Tower Blowdown limits SHALL consist of verifying indication of flow during periods of release, and SHALL be made at least once per 24 hours on days in continuous, periodic, or batch releases are made.
- ** If one or more of the four temperature indications used to determine the arithmetical average of the primary containment average air temperature fails, the instrument(s) should be declared inoperable and not used to satisfy the surveillance requirements of T/S SR 3.6.5.1
 If Local air temperature readings cannot be taken at the failed location(s) within the specified surveillance frequency requirements, then enter **T/S LCO 3.6.5** action statement.
- *** Acceptable discharge monitoring is indicated by a comparison of sump level changes since the previous shift.
- @ Mode 2 & 3 – Except when all MFIVs are closed.
- @@ Modes 2 & 3 – Except when all MSIVs are CLOSED.

REMARKS: (1) Portable air temperature monitor indicates 106°F. GN TI-61 WR'ed

CONTROL ROOM SHIFT & DAILY READINGS AND CHANNEL CHECK
MODES 1 – 4 **12 Hour Shift**

Date 12/20/2000

OSP-ZZ-00001
Rev. 6

<i>Mode</i>	<i>Tech. Spec./FSAR</i>	<i>I.D.</i>	<i>Acceptance Criteria</i>	<i>Units</i>	<i>00-02</i>	<i>12-14</i>	<i>CRI 1</i>
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	Mode	Tech. Spec./FSAR	I.D.	Acceptance Criteria	Units	00-02	12-14	CRI 1
T AVG AND DT (at RL004)								
RC LP 1 OV Pwr ΔT Set Point	1-2		BB TI-411B		% FP	112		
RC LP 1 ΔT	1-2		BB TI-411A		% FP	100		
RC LP 1 OV Temp ΔT Set Point	1-2		BB TI-411C		% FP	122		
RC LP 1 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-412	551 ≤ T ≤ 592.6	°F	592		
RC LP 2 OV Pwr ΔT Set Point	1-2		BB TI-421B		% FP	109		
RC LP 2 ΔT	1-2		BB TI-421A		% FP	107		
RC LP 2 OV Temp ΔT Set Point	1-2		BB TI-421C		% FP	115		
RC LP 2 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-422	551 ≤ T ≤ 592.6	°F	588		
RC LP 3 OV Pwr ΔT Set Point	1-2		BB TI-431B		% FP	114		
RC LP 3ΔT	1-2		BB TI-431A		% FP	99		
RC LP 3 OV Temp ΔT Set Point	1-2		BB TI-431C		% FP	122		
RC LP 3 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-432	551 ≤ T ≤ 592.6	°F	589		
RC LP 4 OV Pwr ΔT Set Point	1-2		BB TI-441B		% FP	110		
RC LP 4 ΔT	1-2		BB TI-441A		% FP	104		
RC LP 4 OV Temp ΔT Set Point	1-2		BB TI-441C		% FP	123		
RC LP 4 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-442	551 ≤ T ≤ 592.6	°F	585		
OPΔT Setpoint Channel Check	1-2	3.3.1-7#1, 3.3.1-14.C.1#1 3.3.2-5.E.3.A#1, 3.3.2-6.D.3.A#1 3.3.1-14.C.2#1, 3.3.2-5.E.3.B#1* 3.3.2-6.D.3.B#1			Sat/Unsat	SAT		6%
OTΔT Setpoint Channel Check	1-2	3.3.1-6#1, 3.3.1-14.C.1#1 3.3.2-5.E.3.A#1, 3.3.2-6.D.3.A#1 3.3.1-14.C.2#1, 3.3.2-5.E.3.B#1* 3.3.2-6.D.3.B#1			Sat/Unsat	SAT*		7%
RC LP ΔT Channel Check	1-2	3.3.1-6#1, 3.3.1-7#1, 3.3.1-14.C.1#1, 3.3.2-5.E.3.A#1, 3.3.2-6.D.3.A#1, 3.3.1-14.C.2#1, 3.3.2-5.E.3.B#1 *, 3.3.2-6.D.3.B#1			Sat/Unsat	SAT*		7%

* Except when all MFIVs are CLOSED

** Mode 2 with Keff ≥ 1.0

REMARKS: * Should denote SAT by Criteria 2.

<i>Mode</i>	<i>Tech. Spec./FSAR</i>	<i>ID.</i>	<i>Acceptance Criteria</i>	<i>Units</i>	<i>00-02</i>	<i>12-14</i>	<i>CRI 1</i>

Mode	Tech. Spec./FSAR	I.D.	Acceptance Criteria	Units	00-02	12-14	CRI 1
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AUXILIARY FEEDWATER (at RL005)

Condensate Storage Tank Level	1-3	3.7.6.1	AP LI-4A	≥ 62	%	88	
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FLOW RATE MEASUREMENT DEVICES * (at RL014) FSAR 16.0.

Cooling Tower B/D Disch	All	16.11.1.3.1-2.C	FI DB-1017	❖ Discharge Limit – 10, 160	1000 gpm	9K	
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CONTAINMENT (at RL018)

CTMT Atmos Press	1-3		GN PI-934		PSIG	1.0	
CTMT Atmos Press	1-3		GN PI-936		PSIG	1.5	
CTMT Atmos Press	1-3		GN PI-935		PSIG	2.8	
CTMT Atmos Press	1-3		GN PI-937		PSIG	1.0	
CTMT Atmos Press Channel Check	1-3	3.3.2.1.C#1 3.3.2.2.C#1 3.3.1-14.D#1, 3.3.2-3.B.3#1,3.3.2-4.D# 1@@, 3.3.2-5.E.4#1@, 3.3.2-6.D.4#1			Sat / Unsat	SAT	2.5 psig

CTMT Cooler D Inlet Air Temp	1-4	3.6.5.1	GN TI-61 **		°F	Note (1)	
CTMT Cooler B Inlet Air Temp	1-4	3.6.5.1	GN TI-63 **		°F	90	
CTMT Cooler A Inlet Air Temp	1-4	3.6.5.1	GN TI-60 **		°F	98	
CTMT Cooler C Inlet Air Temp	1-4	3.6.5.1	GN TI-62 **		°F	102	
CTMT Avg Air Temp	1-4	3.6.5.1		≤120	°F	99	

FLOW RATE MEASUREMENT DEVICES (at RL018)

CTMT Normal Sump Level	1-4	3.4.15.A.1	LF-LI-10 ***	VAR	Inches	20	
CTMT Normal Sump Level	1-4	3.4.15.A.1	LF LI-9 ***	VAR	Inches	14	

- ❖ HTP-ZZ-02006 lists 10,160 gpm to ensure flow at manway 86-5 is not excessive.
- * Channel Checks on Cooling Tower Blowdown limits SHALL consist of verifying indication of flow during periods of release, and SHALL be made at least once per 24 hours on days in continuous, periodic, or batch releases are made.
- ** If one or more of the four temperature indications used to determine the arithmetical average of the primary containment average air temperature fails, the instrument(s) should be declared inoperable and not used to satisfy the surveillance requirements of T/S SR 3.6.5.1.
If Local air temperature readings cannot be taken at the failed location(s) within the specified surveillance frequency requirements, then enter **T/S LCO 3.6.5** action statement.
- *** Acceptable discharge monitoring is indicated by a comparison of sump level changes since the previous shift.
- @ Mode 2 & 3 – Except when all MFIVs are closed.
- @@ Modes 2 & 3 – Except when all MSIVs are CLOSED.

REMARKS: (1) Portable air temperature monitor indicates 106°F. GN TI-61 WR'ed. **CANDIDATE MUST DETERMINE PORTABLE AIR TEMPERATURE SHOULD BE USED.**

<i>Mode</i>	<i>Tech. Spec./FSAR</i>	<i>ID.</i>	<i>Acceptance Criteria</i>	<i>Units</i>	<i>00-02</i>	<i>12-14</i>	<i>CRI 1</i>

CALLAWAY PLANT

ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO: ILE-12/2000A2SRO
COMPLETION TIME: 20 MINUTES
JOB TITLE: SRO
DUTY: ADMINISTRATIVE
TASK TITLE: REVIEW CHANNEL CHECKS ON MAIN CONTROL BOARD INDICATORS

KSA NO: G2.1.25
KSA RATING: 2.8/3.1
REVISION: 000928

The performance of this task was evaluated against the standards contained in this Admin JPM and determined to be:

SATISFACTORY

UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: OSP-ZZ-00001, Control Room Shift and Daily Log Readings and Channel Checks, Rev 35
ODP-ZZ-00020, Instrumentation Channel Deviations, Rev 11

TOOLS/EQUIPMENT: Page 1 and 2 of Attachment 1 of OSP-ZZ-00001, Red ink pen

FACILITY REPRESENTATIVE: //Edward B. Stewart// DATE: 11/16/00

CHIEF EXAMINER: //H. F. Bundy// DATE: 11/16/00

ADMIN JPM NO: ILE-12/2000A2SRO

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. YOU ARE THE CONTROL ROOM SUPERVISOR.

Initiating Cues: PERFORM A REVIEW OF THE ATTACHED TWO PAGES OF OSP-ZZ-00001, CONTROL ROOM SHIFT AND DAILY READINGS AND CHANNEL CHECKS. BASED ON YOUR REVIEW, DETERMINE ANY REQUIRED ACTIONS FROM TECHNICAL SPECIFICATIONS. THERE ARE CRITICAL TASKS ASSOCIATED WITH TWO (2) OF THE LOG SHEETS.

Notes: **USE OF THE MAINFRAME COMPUTER IS NOT ALLOWED.**

TASK STANDARD: UPON COMPLETION OF THE TASK, THE CANDIDATE WILL HAVE DETERMINED:

- (1) OTΔT AND RC LP ΔT ARE SAT BY CRITERIA #2,
- (2) THE CST LEVEL IS BELOW T/S AND WILL HAVE APPLIED T/S 3.7.6.A,
- (3) PORTABLE INST MUST BE USED FOR CTMT COOLER INLET AIR TEMP.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>1. PROVIDE CANDIDATE WITH MATERIAL AND ALLOW HIM TO REVIEW WORK TO BE PERFORMED</p> <p>STEPS MAY BE PREFORMED IN ANY ORDER</p>	<p>CANDIDATE SHOULD REVIEW ADMIN JPM INITIAL CONDITIONS AND INITIATING CUES.</p>	<p>S U</p> <p>Comments:</p>
<p>2. DETERMINE OPΔT SETPOINTS WITHIN 6% OF EACH OTHER (CRITERIA 1)</p> <p>ODP-ZZ-00020, ATTACH 1, pg. 1</p>	<p>CANDIDATE SHOULD REVIEW OPΔT FOR ALL LOOP AND DETERMINE THEY ARE WITHIN 6%. (112% HIGHEST, 109% LOWEST)</p>	<p>S U</p> <p>Comments:</p>
<p>3. DETERMINE OTΔT SETPOINTS WITHIN 7% OF EACH OTHER (CRITERIA 1)</p> <p>ODP-ZZ-00020, ATTACH 1, pg. 1</p>	<p>CANDIDATE SHOULD DETERMINE OTΔT IS NOT SAT BY CRITERIA 1 AND APPLY CRITERIA 2</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>4.* DETERMINE OTΔT SETPOINTS WITHIN 7% OF AVERAGE (CRITERIA 2)</p> <p>ODP-ZZ-00020, ATTACH 1, pg. 1</p>	<p>CANDIDATE SHOULD DETERMINE OTΔT IS SAT BY CRITERIA 2</p> <p>AVERAGE = 120.5%</p> <p>ALL OTΔT SETPOINTS MUST BE ± 7% OF 120.5%</p> <p>RANGE 113.5% TO 127.5%</p>	<p>S U</p> <p>Comments:</p>
<p>5.* DETERMINE RC LP ΔT SETPOINTS WITHIN 7% OF EACH OTHER (CRITERIA 1)</p> <p>ODP-ZZ-00020, ATTACH 1, pg. 1</p>	<p>CANDIDATE SHOULD DETERMINE RC LP ΔT SETPOINTS IS NOT SAT BY CRITERIA 1 AND APPLY CRITERIA 2</p>	<p>S U</p> <p>Comments:</p>
<p>6.* DETERMINE RC LP ΔT SETPOINTS WITHIN 7% OF AVERAGE (CRITERIA 2)</p> <p>ODP-ZZ-00020, ATTACH 1, pg. 1</p>	<p>CANDIDATE SHOULD DETERMINE RC LP ΔT SETPOINTS ARE SAT BY CRITERIA 2</p> <p>AVERAGE = 102.5 °F</p> <p>ALL RC LP ΔT SETPOINTS MUST BE ± 7% OF 102.5%</p> <p>RANGE 95.5% TO 109.5%</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>7.* DETERMINE CONDENSATE STORAGE TANK LEVEL ACCEPTABLE</p>	<p>CANDIDATE SHOULD DETERMINE CST LEVEL IS BELOW AMOUNT REQUIRED BY T/S 3.7.6.A</p> <p>ESW VERIFIED OPERABLE WITHIN 4 HOURS AND ONCE PER 12 HOURS THEREAFTER AND CST RESTORED OPERABLE WITHIN 7 DAYS</p> <p>CST LEVEL READING SHOULD BE CIRCLED IN RED INK. NOTE: NOT REQUIRED FOR CRITICAL TASK</p>	<p>S U</p> <p>Comments:</p>
<p>8. DETERMINE CTMT ATMOS PRESS SETPOINTS WITHIN 2.5 PSIG OF EACH OTHER (CRITERIA 1)</p> <p>ODP-ZZ-00020, ATTACH 1, pg. 1</p>	<p>CANDIDATE SHOULD REVIEW ALL CTMT ATMOS PRESS AND DETERMINE THEY ARE WITHIN 2.5 PSIG. (2.8 PSIG HIGHEST, 1.0 PSIG LOWEST)</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>9.* DETERMINE CTMT COOLER AVG AIR TEMP INCORRECTLY AVERAGED</p> <p>T/S SR 3.6.5.1</p>	<p>CANDIDATE SHOULD DETERMINE THAT PORTABLE AIR INSTRUMENT MUST BE USED (THIS IS THE CRITICAL TASK)</p> <p>$106 + 90 + 98 + 102 = 396/4 =$ 99°F AVERAGE AIR TEMPERATURE (CALCULATING THE NUMBER IS NOT CRITICAL)</p> <p>CUE: IF ASKED INFORM THE CANDIDATE THAT LOCAL TEMPERATURE IS 106° F</p>	<p>S U</p> <p>Comments:</p>
<p>10.</p>	<p>THIS ADMIN JPM IS COMPLETE</p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
11.	<p>COMPARE CANDIDATE'S EVALUATION OF THE LOGS:</p> <p>OTDT: SAT CRITERIA #2</p> <p>RC LP DT: SAT CRITERIA #2</p> <p>CST LVL: APPLY T/S 3.7.6.A</p> <p>PORTABLE AIR INST MUST BE USED FOR CTMT COOLER INLET AIR TEMP</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. YOU ARE THE CONTROL ROOM SUPERVISOR.

Initiating Cues: PERFORM A REVIEW OF THE ATTACHED TWO PAGES OF OSP-ZZ-00001, CONTROL ROOM SHIFT AND DAILY READINGS AND CHANNEL CHECKS. BASED ON YOUR REVIEW, DETERMINE ANY REQUIRED ACTIONS FROM TECHNICAL SPECIFICATIONS. THERE ARE CRITICAL TASKS ASSOCIATED WITH TWO (2) OF THE LOG SHEETS.

Notes: **USE OF THE MAINFRAME COMPUTER IS NOT ALLOWED.**

CONTROL ROOM SHIFT & DAILY READINGS AND CHANNEL CHECK
MODES 1 – 4 **12 Hour Shift**

Date 12/20/2000

OSP-ZZ-00001
 Rev. 6

	Mode	Tech. Spec./FSAR	I.D.	Acceptance Criteria	Units	00-02	12-14	CRI 1
T AVG AND DT (at RL004)								
RC LP 1 OV Pwr ΔT Set Point	1-2		BB TI-411B		% FP	112		
RC LP 1 ΔT	1-2		BB TI-411A		% FP	100		
RC LP 1 OV Temp ΔT Set Point	1-2		BB TI-411C		% FP	122		
RC LP 1 T AVG	1-2 **	3.4.1.2,3.4.2.1	BB TI-412	$551 \leq T \leq 592.6$	°F	592		
RC LP 2 OV Pwr ΔT Set Point	1-2		BB TI-421B		% FP	109		
RC LP 2 ΔT	1-2		BB TI-421A		% FP	107		
RC LP 2 OV Temp ΔT Set Point	1-2		BB TI-421C		% FP	115		
RC LP 2 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-422	$551 \leq T \leq 592.6$	°F	588		
RC LP 3 OV Pwr ΔT Set Point	1-2		BB TI-431B		% FP	114		
RC LP 3ΔT	1-2		BB TI-431A		% FP	99		
RC LP 3 OV Temp ΔT Set Point	1-2		BB TI-431C		% FP	122		
RC LP 3 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-432	$551 \leq T \leq 592.6$	°F	589		
RC LP 4 OV Pwr ΔT Set Point	1-2		BB TI-441B		% FP	110		
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RC LP 4 OV Temp ΔT Set Point	1-2		BB TI-441C		% FP	123		
RC LP 4 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-442	$551 \leq T \leq 592.6$	°F	585		
OPΔT Setpoint Channel Check	1-2	3.3.1-7#1, 3.3.1-14.C.1#1 3.3.2-5.E.3.A#1, 3.3.2-6.D.3.A#1 3.3.1-14.C.2#1, 3.3.2-5.E.3.B#1* 3.3.2-6.D.3.B#1			Sat/Unsat			6%
OTΔT Setpoint Channel Check	1-2	3.3.1-6#1, 3.3.1-14.C.1#1 3.3.2-5.E.3.A#1, 3.3.2-6.D.3.A#1 3.3.1-14.C.2#1, 3.3.2-5.E.3.B#1* 3.3.2-6.D.3.B#1			Sat/Unsat			7%
RC LP ΔT Channel Check	1-2	3.3.1-6#1, 3.3.1-7#1, 3.3.1-14.C.1#1, 3.3.2-5.E.3.A#1, 3.3.2-6.D.3.A#1, 3.3.1-14.C.2#1, 3.3.2-5.E.3.B#1 *, 3.3.2-6.D.3.B#1			Sat/Unsat			7%

* Except when all MFIVs are CLOSED

** Mode 2 with $K_{eff} \geq 1.0$

REMARKS:

CONTROL ROOM SHIFT & DAILY READINGS AND CHANNEL CHECK
MODES 1 – 4 12 Hour Shift

Date 12/20/2000

OSP-ZZ-00001
Rev. 6

<i>Mode</i>	<i>Tech. Spec./FSAR</i>	<i>I.D.</i>	<i>Acceptance Criteria</i>	<i>Units</i>	<i>00-02</i>	<i>12-14</i>	<i>CRI 1</i>
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CONTROL ROOM SHIFT & DAILY READINGS AND CHANNEL CHECK
MODES 1 – 4 **12 Hour Shift**

Date 12/20/2000

OSP-ZZ-00001
 Rev. 6

	Mode	Tech. Spec./FSAR	I.D.	Acceptance Criteria	Units	00-02	12-14	CRI 1
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AUXILIARY FEEDWATER (at RL005)

Condensate Storage Tank Level	1-3	3.7.6.1	AP LI-4A	≥ 62	%	56		
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FLOW RATE MEASUREMENT DEVICES * (at RL014) FSAR 16.0.

Cooling Tower B/D Disch	All	16.11.1.3.1-2.C	FI DB-1017	❖ Discharge Limit – 10, 160	1000 gpm	10		
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CONTAINMENT (at RL018)

CTMT Atmos Press	1-3		GN PI-934		PSIG	1.0		
CTMT Atmos Press	1-3		GN PI-936		PSIG	1.5		
CTMT Atmos Press	1-3		GN PI-935		PSIG	2.8		
CTMT Atmos Press	1-3		GN PI-937		PSIG	1.0		
CTMT Atmos Press Channel Check	1-3	3.3.2.1.C#1 3.3.2.2.C#1 3.3.1-14.D#1, 3.3.2-3.B.3#1, 3.3.2-4.D#1@@, 3.3.2-5.E.4#1@, 3.3.2-6.D.4#1			Sat / Unsat	Sat		2.5 psig

CTMT Cooler D Inlet Air Temp	1-4	3.6.5.1	GN TI-61 **		°F	Note (1)		
CTMT Cooler B Inlet Air Temp	1-4	3.6.5.1	GN TI-63 **		°F	90		
CTMT Cooler A Inlet Air Temp	1-4	3.6.5.1	GN TI-60 **		°F	98		
CTMT Cooler C Inlet Air Temp	1-4	3.6.5.1	GN TI-62 **		°F	102		
CTMT Avg Air Temp	1-4	3.6.5.1		≤120	°F	96.7		

FLOW RATE MEASUREMENT DEVICES (at RL018)

CTMT Normal Sump Level	1-4	3.4.15.A.1	LF-LI-10 ***	VAR	Inches	20		
CTMT Normal Sump Level	1-4	3.4.15.A.1	LF LI-9 ***	VAR	Inches	14		

- ❖ HTP-ZZ-02006 lists 10,160 gpm to ensure flow at manway 86-5 is not excessive.
- * Channel Checks on Cooling Tower Blowdown limits SHALL consist of verifying indication of flow during periods of release, and SHALL be made at least once per 24 hours on days in continuous, periodic, or batch releases are made.
- ** If one or more of the four temperature indications used to determine the arithmetical average of the primary containment average air temperature fails, the instrument(s) should be declared inoperable and not used to satisfy the surveillance requirements of T/S SR 3.6.5.1
 If Local air temperature readings cannot be taken at the failed location(s) within the specified surveillance frequency requirements, then enter **T/S LCO 3.6.5** action statement.
- *** Acceptable discharge monitoring is indicated by a comparison of sump level changes since the previous shift.
- @ Mode 2 & 3 – Except when all MFIVs are closed.
- @@ Modes 2 & 3 – Except when all MSIVs are CLOSED.

REMARKS: (1) GN TI-61 WR'ed.

CONTROL ROOM SHIFT & DAILY READINGS AND CHANNEL CHECK
MODES 1 – 4 12 Hour Shift

Date 12/20/2000

OSP-ZZ-00001
Rev. 6

<i>Mode</i>	<i>Tech. Spec./FSAR</i>	<i>I.D.</i>	<i>Acceptance Criteria</i>	<i>Units</i>	<i>00-02</i>	<i>12-14</i>	<i>CRI 1</i>

	Mode	Tech. Spec./FSAR	I.D.	Acceptance Criteria	Units	00-02	12-14	CRI 1
T AVG AND DT (at RL004)								
RC LP 1 OV Pwr ΔT Set Point	1-2		BB TI-411B		% FP	112		
RC LP 1 ΔT	1-2		BB TI-411A		% FP	100		
RC LP 1 OV Temp ΔT Set Point	1-2		BB TI-411C		% FP	122		
RC LP 1 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-412	551 ≤ T ≤ 592.6	°F	592		
RC LP 2 OV Pwr ΔT Set Point	1-2		BB TI-421B		% FP	109		
RC LP 2 ΔT	1-2		BB TI-421A		% FP	107		
RC LP 2 OV Temp ΔT Set Point	1-2		BB TI-421C		% FP	115		
RC LP 2 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-422	551 ≤ T ≤ 592.6	°F	588		
RC LP 3 OV Pwr ΔT Set Point	1-2		BB TI-431B		% FP	114		
RC LP 3ΔT	1-2		BB TI-431A		% FP	99		
RC LP 3 OV Temp ΔT Set Point	1-2		BB TI-431C		% FP	122		
RC LP 3 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-432	551 ≤ T ≤ 592.6	°F	589		
RC LP 4 OV Pwr ΔT Set Point	1-2		BB TI-441B		% FP	110		
RC LP 4 ΔT	1-2		BB TI-441A		% FP	104		
RC LP 4 OV Temp ΔT Set Point	1-2		BB TI-441C		% FP	123		
RC LP 4 T AVG	1-2 **	3.4.1.2, 3.4.2.1	BB TI-442	551 ≤ T ≤ 592.6	°F	585		
OPΔT Setpoint Channel Check	1-2	3.3.1-7#1, 3.3.1-14.C.1#1 3.3.2-5.E.3.A#1, 3.3.2-6.D.3.A#1 3.3.1-14.C.2#1, 3.3.2-5.E.3.B#1* 3.3.2-6.D.3.B#1			Sat/Unsat	SAT		6%
OTΔT Setpoint Channel Check	1-2	3.3.1-6#1, 3.3.1-14.C.1#1 3.3.2-5.E.3.A#1, 3.3.2-6.D.3.A#1 3.3.1-14.C.2#1, 3.3.2-5.E.3.B#1* 3.3.2-6.D.3.B#1			Sat/Unsat	SAT*		7%
RC LP ΔT Channel Check	1-2	3.3.1-6#1, 3.3.1-7#1, 3.3.1-14.C.1#1, 3.3.2-5.E.3.A#1, 3.3.2-6.D.3.A#1, 3.3.1-14.C.2#1, 3.3.2-5.E.3.B#1 *, 3.3.2-6.D.3.B#1			Sat/Unsat	SAT*		7%

* Except when all MFIVs are CLOSED

** Mode 2 with Keff ≥ 1.0

REMARKS: * Should denote SAT by Criteria 2.

<i>Mode</i>	<i>Tech. Spec./FSAR</i>	<i>ID.</i>	<i>Acceptance Criteria</i>	<i>Units</i>	<i>00-02</i>	<i>12-14</i>	<i>CRI 1</i>

Mode	Tech. Spec./FSAR	I.D.	Acceptance Criteria	Units	00-02	12-14	CRI 1
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AUXILIARY FEEDWATER (at RL005)

Condensate Storage Tank Level	1-3	3.7.6.1	AP LI-4A	≥ 62	%	56	
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FLOW RATE MEASUREMENT DEVICES * (at RL014) FSAR 16.0.

Cooling Tower B/D Disch	All	16.11.1.3.1-2.C	FI DB-1017	❖ Discharge Limit – 10, 160	1000 gpm	10	
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CONTAINMENT (at RL018)

CTMT Atmos Press	1-3		GN PI-934		PSIG	1.0	
CTMT Atmos Press	1-3		GN PI-936		PSIG	1.5	
CTMT Atmos Press	1-3		GN PI-935		PSIG	2.8	
CTMT Atmos Press	1-3		GN PI-937		PSIG	1.0	
CTMT Atmos Press Channel Check	1-3	3.3.2-1.C#1 3.3.2-2.C#1 3.3.1-14.D#1, 3.3.2-3.B.3#1,3.3.2-4.D# 1@@, 3.3.2-5.E.4#1@, 3.3.2-6.D.4#1			Sat / Unsat	SAT	2.5 psig

CTMT Cooler D Inlet Air Temp	1-4	3.6.5.1	GN TI-61 **		°F	Note (1)	
CTMT Cooler B Inlet Air Temp	1-4	3.6.5.1	GN TI-63 **		°F	90	
CTMT Cooler A Inlet Air Temp	1-4	3.6.5.1	GN TI-60 **		°F	98	
CTMT Cooler C Inlet Air Temp	1-4	3.6.5.1	GN TI-62 **		°F	102	
CTMT Avg Air Temp	1-4	3.6.5.1		≤120	°F	96.7	

FLOW RATE MEASUREMENT DEVICES (at RL018)

CTMT Normal Sump Level	1-4	3.4.15.A.1	LF-LI-10 ***	VAR	Inches	20	
CTMT Normal Sump Level	1-4	3.4.15.A.1	LF LI-9 ***	VAR	Inches	14	

- ❖ HTP-ZZ-02006 lists 10,160 gpm to ensure flow at manway 86-5 is not excessive.
- * Channel Checks on Cooling Tower Blowdown limits SHALL consist of verifying indication of flow during periods of release, and SHALL be made at least once per 24 hours on days in continuous, periodic, or batch releases are made.
- ** If one or more of the four temperature indications used to determine the arithmetical average of the primary containment average air temperature fails, the instrument(s) should be declared inoperable and not used to satisfy the surveillance requirements of T/S SR 3.6.5.1.
If Local air temperature readings cannot be taken at the failed location(s) within the specified surveillance frequency requirements, then enter **T/S LCO 3.6.5** action statement.
- *** Acceptable discharge monitoring is indicated by a comparison of sump level changes since the previous shift.
- @ Mode 2 & 3 – Except when all MFIVs are closed.
- @@ Modes 2 & 3 – Except when all MSIVs are CLOSED.

REMARKS: ➡ Candidate should determine level is below T/S. Apply 3.7.6.a and circle in red ink.

<i>Mode</i>	<i>Tech. Spec./FSAR</i>	<i>I.D.</i>	<i>Acceptance Criteria</i>	<i>Units</i>	<i>00-02</i>	<i>12-14</i>	<i>CRI 1</i>
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(1) GN TI-61 WR'ed. Cue: IF ASKED, LOCAL AIR TEMPERATURE IS 106°F. Candidate should determine that local air temperature must be used to calculate the average.

CALLAWAY PLANT

ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO: ILE-12/2000A3RO
COMPLETION TIME: 25 MINUTES
JOB TITLE: URO
DUTY: ADMINISTRATIVE
TASK TITLE: TAG OUT 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B)

KSA NO: G2.2.13
KSA RATING: 3.6/3.8
REVISION: 000928

The performance of this task was evaluated against the standards contained in this Admin JPM and determined to be:

SATISFACTORY

UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: APA-ZZ-00310, ODP-ZZ-00310

TOOLS/EQUIPMENT: TAGOUT CONTINUATION SHEET, MU2KS01, EU3KS01

FACILITY REPRESENTATIVE: //Edward B. Stewart// DATE: 11/16/00

CHIEF EXAMINER: //H. F. Bundy// DATE: 11/16/00

ADMIN JPM NO: ILE-12/2000A3RO

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: THE 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) MUST BE TAGGED OUT TO REPLACE A BROKEN IMPELLER.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO DETERMINE THE FOLLOWING INFORMATION AND COMPLETE THE TAGOUT CONTINUATION SHEET PROVIDED:

- TYPE OF WORKMAN'S PROTECTION ASSURANCE REQUIRED
- COMPONENTS TO BE TAGGED
- TAGGED POSITIONS OF COMPONENTS

INFORM THE CONTROL ROOM SUPERVISOR WHEN DONE.

Notes: **USE OF THE MAINFRAME COMPUTER IS NOT ALLOWED.**

TASK STANDARD: UPON COMPLETION OF THE TASK, THE CANDIDATE WILL HAVE TAGGED OUT THE 'B' BULK CHEMICAL ACID TRANSFER PUMP WITH A HOLD OFF TAG ON THE MCC BREAKER (OFF/OPEN), SUCTION VALVE (CLOSED), AND DISCHARGE VALVE (CLOSED). TAG SEQUENCE IS NOT CRITICAL.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>1. PROVIDE CANDIDATE WITH MATERIAL AND ALLOW HIM TO REVIEW WORK TO BE PERFORMED</p> <p>STEPS MAY BE PREFORMED IN ANY ORDER</p>	<p>CANDIDATE SHOULD REVIEW ADMIN JPM INITIAL CONDITIONS AND INITIATING CUES.</p>	<p>S U</p> <p>Comments:</p>
<p>2.* DETERMINE TYPE OF WPA REQUIRED FOR TAGGING OUT 'B' BULK CHEMICAL ACID XFR PUMP (PKS02B) IS A HOLD OFF</p> <p>APA-ZZ-00310, STEP 2.19.3 OR 4.1.1</p>	<p>CANDIDATE MAY REVIEW APA-ZZ-00310 TO ENSURE TAGGING IS FOR HUMAN PROTECTION, AND THE EQUIPMENT WILL NOT BE OPERATED</p> <p>CANDIDATE SHOULD DETERMINE A HOLD OFF IS REQUIRED</p>	<p>S U</p> <p>Comments:</p>
<p>3. DETERMINE LOCAL HANDSWITCH KSHS13, FOR 'B' BULK CHEMICAL ACID XFR PUMP MUST BE TAGGED TO THE NORMAL AFTER STOP POSITION</p> <p>PRINT EU3KS01 UNDER ACID PUMP PKS02B HS NUMBER</p>	<p>CANDIDATE SHOULD DETERMINE LOCAL HANDSWITCH IS REQUIRED TO BE TAGGED IN THE OFF POSITION</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>4.* DETERMINE 'B' BULK CHEM ACID XFR PUMP BREAKER, PG14RDF5 SHOULD BE TAGGED TO THE OFF/OPEN POSITION</p> <p>PRINT EU3KS01 UNDER MCC LOCATION (ACID)</p>	<p>CANDIDATE SHOULD DETERMINE THE POWER SUPPLY FOR PKS02B IS PG14RDF5 AND IS REQUIRED TO BE TAGGED TO THE OFF/OPEN POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>5.* DETERMINE 'B' BULK CHEM ACID XFR PUMP SUCTION VALVE, KSV0017, SHOULD BE TAGGED CLOSED</p> <p>PRINT MU2KS01, B4</p>	<p>CANDIDATE SHOULD DETERMINE KSV0017, PKS02B SUCTION VALVE IS REQUIRED TO BE TAGGED CLOSED</p>	<p>S U</p> <p>Comments:</p>
<p>6.* DETERMINE 'B' BULK CHEM ACID XFR PUMP DISCHARGE VALVE, KSV0019, SHOULD BE TAGGED CLOSED</p> <p>PRINT MU2KS01, B3</p>	<p>CANDIDATE SHOULD DETERMINE KS00V19, PKS02B DISCHARGE VALVE IS REQUIRED TO BE TAGGED CLOSED</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>7.* DETERMINE 'B' BULK CHEMICAL ACID XFR PUMP MINI FLOW ISO VALVE, KSV0022, SHOULD BE TAGGED CLOSED</p> <p>PRINT MU2KS01, C4</p>	<p>CANDIDATE SHOULD DETERMINE KSV0022, PKS02B PUMP MINI FLOW ISO VALVE, SHOULD BE TAGGED CLOSED</p>	<p>S U</p> <p>Comments:</p>
<p>8.* DETERMINE 'B' BULK CHEM ACID XFR PUMP MINI FLOW ISO VALVE, KSV0045, SHOULD BE TAGGED CLOSED</p> <p>PRINT M22EB01, C4</p>	<p>CANDIDATE SHOULD DETERMINE KSV0045, PKS02B PUMP MINI FLOW ISO VALVE, SHOULD BE TAGGED CLOSED</p>	<p>S U</p> <p>Comments:</p>
<p>9.* DETERMINE 'B' BULK CHEM ACID XFR PUMP DISCHARGE DRAIN VALVE, KSV0058, SHOULD BE TAGGED OPEN</p> <p>PRINT MU2KS01, C4</p>	<p>CANDIDATE MAY DETERMINE KSV0058, PKS02B DISCHARGE DRAIN VALVE, SHOULD BE TAGGED OPEN OR OPEN/CAP REMOVED</p> <p>SHOULD ALSO DETERMINE HOSE SHOULD BE USED TO DRAIN SYSTEM</p> <p>CRITICAL STEP TAG KSV0058 OR KSV0050 OPEN OR OPEN/CAP REMOVED</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>10.* DETERMINE 'B' BULK CHEM ACID XFR PUMP CASING DRAIN VALVE, KSV0050 SHOULD BE TAGGED OPEN</p> <p>PRINT MU2KS01, B4</p>	<p>CANDIDATE SHOULD DETERMINE KSV0050, PKS02B, PUMP CASING DRAIN VALVE SHOULD BE TAGGED OPEN OR OPEN/CAP REMOVED</p> <p>SHOULD ALSO DETERMINE HOSE SHOULD BE USED TO DRAIN SYSTEM</p> <p>CRITICAL STEP TAG KSV0058 OR KSV0050 OPEN OR OPEN/CAP REMOVED</p>	<p>S U</p> <p>Comments:</p>
<p>11.* DETERMINE 'B' BULK CHEM ACID XFR PUMP CASING VENT KSV0121 SHOULD BE TAGGED OPEN</p> <p>PRINT MU2KS01, B4</p>	<p>CANDIDATE SHOLD DETERMINE KSV0121, PKS02B CASING VENT CHOULD BE TAGGED OPEN OR OPEN/CAP REMOVED</p>	<p>S U</p> <p>Comments</p>
<p>12.</p>	<p>THIS ADMIN JPM IS COMPLETE</p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
13.	<p>COMPARE CANDIDATE'S TAGOUT CONTINUATION SHEET TO THE ATTACHED. ENSURE THE FOLLOWING:</p> <p>WPA TYPE: HOLD OFF</p> <p>PG14RDF5: OFF OR OPEN</p> <p>KSV0017: CLOSED</p> <p>KSV0019: CLOSED</p> <p>KSV0022: CLOSED</p> <p>KSV0045: CLOSED</p> <p>KSV0058 OR KSV0050: OPEN</p> <p>KSV0121: OPEN</p> <p>TAG SEQUENCE IS CRITICAL TO HAVE KSV0017,19, PG14RDF5 TAGGED PRIOR TO OPENING DRAIN VALVES KSV0050 AND KSV0058.</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TAGOUT CONTINUATION SHEET

WPA TYPE: ***HOLD OFF**

TAG SEQUENCE NUMBER	TAGGED COMPONENT	TAGGING POSITION
1	KSHS13	OFF
2	*PG14RDF5	*OFF
3	*KSV0017	*CLOSED
4	*KSV0019	*CLOSED
5	*KSV0022	*CLOSED
6	*KSV0045	*CLOSED
7	*KSV0058 OR	OPEN/CAP REMOVED
8	*KSV0050	OPEN/CAP REMOVED
9	*KSV0121	OPEN

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: THE 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) MUST BE TAGGED OUT TO REPLACE A BROKEN IMPELLER.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO DETERMINE THE FOLLOWING INFORMATION AND COMPLETE THE TAGOUT CONTINUATION SHEET PROVIDED:

- TYPE OF WORKMAN'S PROTECTION ASSURANCE REQUIRED
- COMPONENTS TO BE TAGGED
- TAGGED POSITIONS OF COMPONENTS

INFORM THE CONTROL ROOM SUPERVISOR WHEN DONE.

Notes: **USE OF THE MAINFRAME COMPUTER IS NOT ALLOWED.**

CALLAWAY PLANT

ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO: ILE-12/2000A3SRO
COMPLETION TIME: 15 MINUTES
JOB TITLE: SRO
DUTY: ADMINISTRATIVE
TASK TITLE: REVIEW WPA FOR 'B' BULK CHEMICAL ACID TRANSFER PUMP

KSA NO: G2.2.13
KSA RATING: 3.6/3.8
REVISION: 000928

The performance of this task was evaluated against the standards contained in this Admin JPM and determined to be:

SATISFACTORY

UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: APA-ZZ-00310, ODP-ZZ-00310

TOOLS/EQUIPMENT: COMPLETED TAGOUT CONTINUATION SHEET, MU2KS01, EU3KS01

FACILITY REPRESENTATIVE: //Edward B. Stewart// DATE: 11/16/00

CHIEF EXAMINER: //H. F. Bundy// DATE: 11/16/00

ADMIN JPM NO: ILE-12/2000A3SRO

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: THE REACTOR OPERATOR HAS PREPARED WPA TO REPLACE THE PUMP IMPELLER FOR THE 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) AND HAS GIVEN THE WPA TO YOU FOR REVIEW.

Initiating Cues: YOU HAVE BEEN DIRECTED TO REVIEW THE WPA FOR 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) USING PRINTS PROVIDED ENSURE IT IS ADEQUATE TO PERFORM THE REQUIRED MAINTENANCE. INFORM THE SHIFT SUPERVISOR WHEN THE WPA REVIEW IS COMPLETE. THERE ARE THREE (3) CRITICAL ERRORS ASSOCIATED WITH THIS WPA.

Notes: **USE OF THE MAINFRAME COMPUTER IS NOT ALLOWED.**

TASK STANDARD: UPON COMPLETION OF THE TASK, THE CANDIDATE WILL HAVE DETERMINED:
(1) FOR TAG #2 PG13RDF1 IS AN INCORRECT COMPONENT, PG14RDF5 IS THE CORRECT COMPONENT,
(2) FOR TAG #6, OPEN IS AN INCORRECT TAGGING POSITION, CLOSED IS THE CORRECT TAGGING POSITION,
(3) DETERMINE KSV0058 OR KSV0050 SHOULD BE TAGGED OPEN.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>1. PROVIDE CANDIDATE WITH THE TAGOUT CONTINUATION SHEET AND ALLOW HIM TO REVIEW THE WORK TO BE PERFORMED</p> <p>STEPS MAY BE PREFORMED IN ANY ORDER</p>	<p>CANDIDATE SHOULD REVIEW ADMIN JPM INITIAL CONDITIONS, INITIATING CUES, AND TAGOUT CONTINUATION SHEET</p>	<p>S U</p> <p>Comments:</p>
<p>2.* DETERMINE HOLD OFF IS THE CORRECT TYPE OF WPA</p> <p>APA-ZZ-00310, STEP 2.19.3 OR 4.1.1</p>	<p>CANDIDATE MAY REVIEW APA-ZZ-00310 TO ENSURE TAGGING IS FOR PERSONNEL PROTECTION, AND THE EQUIPMENT WILL NOT BE OPERATED</p> <p>CANDIDATE SHOULD DETERMINE A HOLD OFF IS REQUIRED</p>	<p>S U</p> <p>Comments:</p>
<p>3. DETERMINE CORRECT HANDSWITCH TO BE TAGGED FOR THE 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) AND IT'S REQUIRED POSITION</p> <p>PRINT EU3KS01 UNDER HS NUMBER</p>	<p>CANDIDATE SHOULD DETERMINE THE LOCAL HANDSWITCH, KSHS13 SHOULD BE TAGGED TO OFF PER PRINT EU3KS01</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>4.* DETERMINE CORRECT BREAKER TO BE TAGGED FOR THE 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) MOTOR AND IT'S REQUIRED POSITION</p> <p>PRINT EU3KS01 UNDER MCC LOCATION (ACID)</p>	<p>CANDIDATE SHOULD DETERMINE PG13RDF1 IS <u>INCORRECT</u> BREAKER FOR THE 'B' BULK CHEMICAL ACID TRANSFER PUMP MOTOR</p> <p>NOTE: MAY NEED TO ASK A FOLLOW UP QUESTION TO ENSURE CANDIDATE SUPPLIES EVALUATOR WITH CORRECT BREAKER</p>	<p>S U</p> <p>Comments:</p>
<p>5.* DETERMINE CORRECT BREAKER TO BE TAGGED FOR THE 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) MOTOR AND IT'S REQUIRED POSITION</p> <p>PRINT EU3KS01 UNDER MCC LOCATION</p>	<p>CANDIDATE SHOULD DETERMINE THE POWER SUPPLY FOR PKS02B IS PG14RDF5 AND IS REQUIRED TO BE TAGGED TO THE OFF/OPEN POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>6.* DETERMINE CORRECT SUCTION VALVE TO BE TAGGED FOR THE 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) AND IT'S REQUIRED POSITION</p> <p>PRINT MU2KS01, B4</p>	<p>CANDIDATE SHOULD DETERMINE KSV0017 IS THE CORRECT SUCTION VALVE AND IS REQUIRED TO BE TAGGED CLOSED</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>7. DETERMINE CORRECT DISCHARGE VALVE TO BE TAGGED FOR THE 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) AND IT'S REQUIRED POSITION</p> <p>PRINT MU2KS01, B3</p>	<p>CANDIDATE SHOULD DETERMINE KSV0019 IS THE DISCHARGE VALVE AND IS REQUIRED TO BE TAGGED CLOSED</p>	<p>S U</p> <p>Comments:</p>
<p>8. DETERMINE CORRECT PUMP MINI FLOW VALVE TO BE TAGGED FOR THE 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) AND IT'S REQUIRED POSITION</p> <p>PRINT MU2KS01, C4</p>	<p>CANDIDATE SHOULD DETERMINE KSV0022 IS THE CORRECT MINI FLOW VALVE AND IT IS REQUIRED TO BE TAGGED CLOSED</p>	<p>S U</p> <p>Comments:</p>
<p>9.* DETERMINE CORRECT PUMP MINI FLOW VALVE TO BE TAGGED FOR THE 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) AND IT'S REQUIRED POSITION</p> <p>PRINT MU2KS01, C4</p>	<p>CANDIDATE SHOULD DETERMINE KSV0045 IS CORRECT VALVE FOR THE 'B' BULK CHEMICAL ACID TRANSFER PUMP MINI FLOW, BUT OPEN IS AN INCORRECT POSITION</p> <p>NOTE: MAY NEED TO ASK A FOLLOW UP QUESTION TO ENSURE CANDIDATE SUPPLIES EVALUATOR WITH CORRECT VALVE</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>10. DETERMINE PUMP CASING VENT KSV0121 IS CORRECT VALVE AND SHOULD BE TAGGED OPEN</p> <p>PRINT MU2KS01, C4</p>	<p>CANDIDATE SHOULD DETERMINE KSV0121 IS THE CORRECT CASING VENT VALVE AND SHOULD BE TAGGED OPEN</p>	<p>S U</p> <p>Comments:</p>
<p>11.* DETERMINE PUMP DISCH DRAIN VALVE TO BE TAGGED FOR THE 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) AND IT'S REQUIRED POSITION</p> <p>PRINT MU2KS01, C4</p>	<p>CANDIDATE SHOULD DETERMINE KSV0058 IS THE PUMP DISCH DRAIN VALVE AND IS REQUIRED TO BE TAGGED OPEN OR OPEN/CAP REMOVED</p> <p>CRITICAL STEP IS TO TAG KSV0058 OR KSV0050 OPEN</p>	<p>S U</p> <p>Comments:</p>
<p>12*. DETERMINE CORRECT PUMP CASING DRAIN VALVE TO BE TAGGED FOR THE 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) AND IT'S REQUIRED POSITION</p> <p>PRINT MU2KS01, B4</p>	<p>CANDIDATE SHOULD DETERMINE KSV0050 IS THE PUMP CASING DRAIN VALVE AND IS REQUIRED TO BE TAGGED OPEN OR OPEN/CAP REMOVED</p> <p>CRITICAL STEP IS TO TAG KSV0058 OR KSV0050 OPEN</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
14.	<p>THIS ADMIN JPM IS COMPLETE</p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>	<p>S U</p> <p>Comments:</p>
	<p>COMPARE CANDIDATE'S TAGOUT CONTINUATION SHEET TO THE ATTACHED. ENSURE THE FOLLOWING:</p> <p>WPA WAS INCORRECT</p> <p>TAGS #2, AND #6 HAVE BEEN CORRECTED</p> <p>DRAIN VALVE KSV0050 OR KSV0058 WAS ADDED TO TAG OUT SHEET</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TAGOUT CONTINUATION SHEET

WPA TYPE: HOLD OFF

TAG SEQUENCE NUMBER	TAGGED COMPONENT	TAGGING POSITION
1	KSHS13	OFF/STOP
2	PG13RDF4 *PG14RDF5	OFF
3	KSV0017	CLOSED
4	KSV0019	CLOSED
5	KSV0022	CLOSED
6	KSV0045	OPEN *CLOSED
7	KSV0121	OPEN
8	*KSV0058 OR	*OPEN/CAP REMOVED
9	*KSV0050	*OPEN/CAP REMOVED

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: THE REACTOR OPERATOR HAS PREPARED WPA TO REPLACE THE PUMP IMPELLER FOR THE 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) AND HAS GIVEN THE WPA TO YOU FOR REVIEW.

Initiating Cues: YOU HAVE BEEN DIRECTED TO REVIEW THE WPA FOR 'B' BULK CHEMICAL ACID TRANSFER PUMP (PKS02B) USING PRINTS PROVIDED ENSURE IT IS ADEQUATE TO PERFORM THE REQUIRED MAINTENANCE. INFORM THE SHIFT SUPERVISOR WHEN THE WPA REVIEW IS COMPLETE. THERE ARE THREE (3) CRITICAL ERRORS ASSOCIATED WITH THIS WPA.

Notes: **USE OF THE MAINFRAME COMPUTER IS NOT ALLOWED.**

ILE-12/2000A3SRO

TAGOUT CONTINUATION SHEET

WPA TYPE: HOLD OFF

TAG SEQUENCE NUMBER	TAGGED COMPONENT	TAGGING POSITION
1	KSHS13	OFF/STOP
2	PG13RDF1	OFF
3	KSV0017	CLOSED
4	KSV0019	CLOSED
5	KSV0022	CLOSED
6	KSV0045	OPEN
7	KSV0121	OPEN

REFERENCE USE

The following information exists:

- Callaway Plant is replacing Spent Fuel Pool Racks. The old racks must be cleaned prior to shipping.
- Dose rate at the Spent Fuel Pool rack is 75 mrem/hr.
- The old rack is drying out creating an Airborne Radioactivity Area.
- Internal dose if respirator is worn is 0 mrem.
- Internal dose if no respirator is worn is 42 mrem.
- Time to complete job while wearing a respirator is 4.5 hours.
- Time to complete job without wearing a respirator is 4 hours.

Determine if personnel working on the Spent Fuel Pool rack should wear a respirator.

REFERENCE USE

The Callaway Plant is in a Refueling Outage with core offload in progress. Two I & C Technicians are in the Control Room and request authorization to enter the Seal Table area to perform a surveillance. A crew briefing is in progress for discussing the seal table entry.

QUESTION: Using plant procedures, discuss the requirements for entry. Include in your discussion radiation posting, radiation monitoring, and any locking requirements.

CALLAWAY PLANT

ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO:	ILE-12/2000A5RO	KSA NO:	G2.1.33
COMPLETION TIME:	25 MINUTES	KSA RATING:	3.4/4.0
JOB TITLE:	URO	REVISION:	000928
DUTY:	ADMINISTRATIVE		
TASK TITLE:	PERFORM RCS INVENTORY BALANCE		

The performance of this task was evaluated against the standards contained in this Admin JPM and determined to be:

SATISFACTORY

UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: OSP-BB-00009, RCS INVENTORY BALANCE, REV. 9

TOOLS/EQUIPMENT: ATTACHMENTS 1, 2, 3, AND 6, OF OSP-BB-00009

FACILITY REPRESENTATIVE: _____ //Edward B. Stewart// _____ DATE: _____ 11/16/00

CHIEF EXAMINER: _____ //H. F. Bundy// _____ DATE: _____ 11/16/00

ADMIN JPM NO: ILE-12/2000A5RO

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT HAS BEEN OPERATING AT 100% STEADY-STATE POWER FOR THE LAST 100 DAYS. THE MAINFRAME COMPUTER IS NOT WORKING. SURVEILLANCE OSP-BB-00009, RCS INVENTORY BALANCE IS REQUIRED. ALL INFORMATION HAS BEEN RECORDED ON ATTACHMENTS 1, 2 AND 3. YOU ARE THE REACTOR OPERATOR.

Initiating Cues: THE CONTROL ROOM SUPERVISOR (CRS) HAS DIRECTED YOU TO DETERMINE THE RCS LEAKAGE USING OSP-BB-00009, RCS INVENTORY BALANCE. BEGINNING WITH STEP 6.1.4 AND USING ATTACHMENT 6, PERFORM THE INDICATED CALCULATIONS. INFORM THE CRS WHEN YOU HAVE COMPLETED THE ASSIGNED TASK.

Notes: **USE OF THE MAINFRAME COMPUTER AND A PERSONAL COMPUTER (PC) IS NOT ALLOWED.**

TASK STANDARD: UPON COMPLETION OF THE TASK THE CANDIADATE WILL HAVE DETERMINED TOTAL RCS LEAKAGE IS > 1.0 GPM, IDENTIFIED RCS LEAKAGE IS APPROXIMATELY 0.2 GPM AND UNIDENTIFIED RCS LEAKAGE IS APPROXIMATELY 0.98 GPM

START TIME: _____

STOP TIME: _____

<p>1. PROVIDE CANDIDATE WITH MATERIAL AND ALLOW TIME TO REVIEW WORK TO BE PERFORMED</p>	<p>CANDIDATE SHOULD REIVIEW ADMIN JPM INITIAL CONDITIONS AND INITIATING CUES.</p>	<p>S U Comments:</p>
<p>2. DETERMINE RCS LEAKAGE BY PERFORMING THE INDICATED CALCULATIONS ON ATTACHMENT 6 STEP 6.1.4</p>	<p>CANDIDATE SHOULD DETERMINE RCS LEAKAGE PER ATTACHMENT 6 OF OSP-BB-00009</p>	<p>S U Comments:</p>
<p>3. DETERMINE CHANGE IN MASS OF WATER CONTAINED IN THE RCDT ATTACH 6, STEP 1.0</p>	<p>CANDIDATE SHOULD DETERMINE THERE HAS BEEN NO CHANGE IN RCDT MASS AND MARK STEP N/A</p>	<p>S U Comments:</p>

* CRITICAL STEP

<p>4.* DETERMINE MASS OF WATER CONTAINED IN THE VCT</p> <p>ATTACH 6, STEP 2.0</p>	<p>CANDIDATE SHOULD USE ATTACHMENT 3 AND DETERMINE $L_i = 51\%$ AND $L_f = 37\%$ AND PERFORM THE FOLLOWING:</p> <p>$51 - 37 = 14\%$ LEVEL CHANGE</p> <p>$14\% \times 2.73057 \text{ ft}^3/\% = 38.22798 \text{ ft}^3$</p> <p>$38.22798 \text{ ft}^3 \times 1/0.01605 = 2381.8056 \text{ lbm}$</p>	<p>S U</p> <p>Comments:</p>
<p>5. DETERMINE CHANGE IN MASS OF WATER CONTAINED IN THE PZR:</p> <p>ATTACH 6, STEP 3.0</p>	<p>CANDIDATE SHOULD DETERMINE THERE HAS BEEN NO CHANGE IN MASS OF WATER IN THE PRESSURIZER USING ATTACHMENT 3</p>	<p>S U</p> <p>Comments:</p>
<p>6. DETERMINE CHANGE IN MASS OF WATER CONTAINED IN THE PRT</p> <p>ATTACH 6, STEP 4.0</p>	<p>CANDIDATE SHOULD DETERMINE THERE HAS BEEN NO CHANGE IN MASS OF WATER CONTAINED IN THE PRT USING ATTACHMENT 3</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

<p>7. DETERMINE CHANGE IN MASS OF WATER CONTAINED IN THE RCS LOOPS</p> <p>ATTACH 6, STEP 5.0</p>	<p>CANDIDATE SHOULD DETERMINE RCS TEMPERATURE HAS NOT CHANGED SO THERE IS NO CHANGE IN THE MASS OF WATER IN THE RCS LOOPS</p>	<p style="text-align: center;">S U</p> <p>Comments:</p>
<p>8.* SUMMARIZE RCS LEAKAGE:</p> <p>ATTACH 6, STEP 6.1</p>	<p>CANDIDATE SHOULD DETERMINE A SUM OF ALL LEAKAGE AS FOLLOWS:</p> <p>DELTA M(vct) = 2381.8 LBM</p> <p>DELTA M(pzr) = 0 LBM</p> <p>DELTA M(rcs) = 0 LBM</p> <p>TOTAL RCS LEAKAGE = 2381.8 LBM</p> <p>CONVERT MASS TO GALLONS</p> <p>$2381.8 \times 0.01605 \times 7.4805 = 286$ GALLONS</p>	<p style="text-align: center;">S U</p> <p>Comments:</p>

* CRITICAL STEP

<p>9.* DETERMINE TOTAL RCS LEAKAGE ATTACH 6, STEP 6.1</p>	<p>CANDIDATE SHOULD USE ATTACHMENT 3 AND DETERMINE THERE HAS BEEN 0 GALLONS MAKEUP TO THE RCS AND NO CHEMICAL ADDITIONS HAVE BEEN MADE AND ADD TO THE LEAKAGE VALUE</p> <p>TOTAL LEAKAGE 286.0</p> <p>+ M/U GAL = 0 GALLONS</p> <p>+ CHEM ADD = 0 GALLONS</p> <p>TOTAL = 286.0 GALLONS</p>	<p style="text-align: center;">S U</p> <p>Comments:</p>
<p>10.* CONVERT FROM GALLONS TO GPM ATTACH 6, STEP 6.1</p>	<p>CANDIDATE SHOULD CONVERT 286.0 TO GPM BY DETERMINING THE TEST DURATION WAS 240 MINUTES AND DIVIDE</p> <p>$286.0/240 = 1.19 \text{ GPM}$</p>	<p style="text-align: center;">S U</p> <p>Comments:</p>

* CRITICAL STEP

<p>11.* DETERMINE IDENTIFIED RCS LEAKAGE</p> <p>ATTACH 6, STEP 6.2</p>	<p>CANDIDATE SHOULD DETERMINE RCS IDENTIFIED RCS LEAKAGE:</p> <p>DELTA-M(rcdt) = 0 GAL</p> <p>DELTA-M(prt) = 0 GAL</p> <p>DIVERTED = 0 GAL</p> <p>SAMPLES = 0 GAL</p> <p>PRI/SEC = 50 GAL</p> <p>RCDT = 0 GAL</p> <p>TOTAL = 50 GALLONS</p>	<p style="text-align: center;">S U</p> <p>Comments:</p>
<p>12.* CONVERT IDENTIFIED RCS LEAKAGE GALLONS TO GPM</p> <p>ATTACH 6, STEP 6.2</p>	<p>DIVIDE TOTAL LEAKAGE 50 GALLONS BY 240 MINUTES</p> <p>50 GAL/ 240 MIN = 0.208 GPM</p>	<p style="text-align: center;">S U</p> <p>Comments:</p>
<p>13.* DETERMINE UNIDENTIFIED RCS LEAKAGE</p> <p>ATTACH 6, STEP 6.3</p>	<p>CANDIDATE SHOULD SUBTRACT IDENTIFIED RCS LEAKAGE (0.208 GPM) FROM TOTAL RCS LEAKAGE (1.19 GPM)</p> <p>1.19 - 0.208 = 0.982 GPM</p>	<p style="text-align: center;">S U</p> <p>Comments:</p>

* CRITICAL STEP

<p>14.* CANDIDATE SHOULD NOTIFY CONTROL ROOM SUPERVISOR OF UNIDENTIFIED RCS LEAKAGE</p>	<p>CANDIDATE SHOULD NOTIFY THE CONTROL ROOM SUPERVISOR THAT RCS UNIDENTIFIED RCS LEAKAGE IS 0.982 GPM</p>	<p>S U Comments:</p>
<p>15.</p>	<p>THIS ADMIN JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u></p>	<p>S U Comments:</p>

* CRITICAL STEP

RCS INVENTORY BALANCE PLANT STATUS

PERFORMED BY: Edward B. Stewart	INITIALS: EBS	DATE: 12/19/2000
PERFORMED BY: Stanley M. Putthoff	INITIALS: SMP	

1. Enter the Plant Mode: 1 (1 - 5)
2. Enter the number of RCPs in operation: 4 (1 - 4)
3. Circle appropriate PZR Spray Source: RCS CVCS
4. Enter brief description of flow path(s) and flow rate established for letdown and charging. (i.e., Letdown via RHR Train A to CVCS through BG-HCV-128 at 75 gpm. Charging via NCP to RCS Loop 1.)

Charging via NCP to RCS Loop 1
Letdown 120 gpm from RCS loop 3

5. Make up calculations (for Step 6.1 on Attachment 6).

Counter Reading: $\frac{00000}{\text{Final}} - \frac{0000}{\text{Initial}} = \frac{0}{\text{Total Make Up}}$ gal

6. Chemical Additions, including RCS ammonia addition (+) (For Step 6.1 on Attachment 6) :

0 gal Purpose N/A

7. Letdown divert calculations (for Step 6.2 on Attachment 6):

$\frac{0}{\text{Time Divert Ended}} - \frac{0}{\text{Time Divert Started}} = \frac{0}{\text{Total Minutes Divert}} \times \frac{0}{\text{Letdown Flowrate}} \text{ gpm} = \frac{0}{\text{Total Divert}}$ gal

8. Samples taken (+) (For Step 6.2 on Attachment 6):

0 gal Purpose N/A

9. Primary to Secondary Leakage (For Step 6.2 on Attachment 6):

GEF0092 Computer Point $\frac{300}{1440} \text{ gpd} = 0.208 \text{ gpm}$

NOTE: If the computer point is not available, contact Chemistry for a value IAW **CTP-ZZ-02590**

10. Other identified leakage (for Step 6.2 on Attachment 6) which has not gone to the RCDT, PRT, S/G's which has been properly quantified:

Sources	Leakage (gpm)
None	0

***NORMAL LEAKAGE - REQUIRED SYSTEMS
 LINEUP/RESTORATION (Section 6.1)***

Section 6.1.2: Pre-Test Lineup

<i>Step</i>	<i>Component Switch</i>	<i>Panel</i>	<i>Required Position</i>	<i>Performed By (Initials)</i>
6.1.2.1	HB-HIS-7176	RL021	CLOSED	EBS
6.1.2.2	HB-HIS-7136	RL021	CLOSED	EBS
6.1.2.3	BG-HS-25	RL002	OFF	EBS
6.1.2.4	BG-FY-111B	RL002	RESET	EBS
	BG-FY-110B	RL002	RESET	EBS
6.1.2.5	BG-HIS-112A	RL001	Man. Divert to VCT	EBS

Section 6.1.3: Data Acquisition per Attachment 3, 4, or 5

Section 6.1.5: Post-Test Restoration

<i>Step</i>	<i>Component Switch</i>	<i>Panel</i>	<i>Required Position</i>	<i>Performed By</i>	<i>Verified By</i>
6.1.5.1	BG-HIS-112A	RL001	AUTO		
	BG-HS-25	RL002	AUTO		
6.1.5.3	HB-HIS-7176	RL021	As Required by Radwaste		
	HB-HIS-7136	RL021	As Required by Radwaste		

LEAKAGE DATA SHEET - PREFERRED METHOD

Always record the following data:

Parameter	Instrument or Computer Point	Initial	1 Hour	2 Hours	3 Hours	Final
Time	N/A (HH:MM)	0100	0200	0300	0400	0500
RCDT Level (HB115)	HB-LI-1003	40%	40%	40%	40%	40%
VCT Level	REL0112M	51%	48%	43%	40%	37%
PZR Level Avg.	REU0483M	58%	58%	58%	58%	58%
PRT Level	REL0485M	75%	75%	75%	75%	75%
PRT Temperature	RET0485M	90°F	90°F	90°F	90°F	90°F

For RCS pressure greater than 1700 psig, record the following data:

Parameter	Instrument or Computer Point	Initial	1 Hour	2 Hours	3 Hours	Final
RCS Avg. TAVG*	REU0484M	588.4°F	588.4°F	588.4°F	588.4°F	588.4°F
PZR Press. Avg.	REU0482M	2235 psig				

For RCS pressure less than 1700 psig, record the following data:

Parameter	Instrument or Computer Point	Initial	1 Hour	2 Hours	3 Hours	Final
RCS WR Pressure	REP0498M	psig	psig	psig	psig	psig
RCS WR Pressure	REP0499M	psig	psig	psig	psig	psig
	Avg. Pressure	psig	psig	psig	psig	psig
RCS Avg. T-Hot	REU0486M	°F	°F	°F	°F	°F

EBS
12/19/00

If required due to rapid RCDT level increases, record the following:

Parameter	Instrument or Computer Point	Initial	1 Hour	2 Hours	3 Hours	Final
RCDT Totalizer	HB-FQI-1014	gal	gal	gal	gal	gal

* If temperature is less than 212°F, then the Limitations of Step 3.9 apply.

ADMIN JPM NO: ILE-12/2000A**5RO**

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ATTACHMENT 3

RCS INVENTORY BALANCE CALCULATIONS

NOTE: Calculation of specific volumes is not required, **if** the input data is **identical** for initial and final conditions, since the resultant Delta-M value will be zero for identical initial and final values.

1. CHANGE IN MASS OF WATER CONTAINED IN THE RCDT:

1.1 SPECIFIC VOLUME: $v = .01605 \text{ ft}^3/\text{Lbm}$ (Assumes 35 psig, 100°F)

1.2 $\text{Delta-M} = (V_f - V_i) \times (1/v)$

V_f and V_i are volumes in cubic feet corresponding to the final and initial levels in the RCDT, as per Attachment 7, "RCDT Volume Vs. Indicated Level".

$$\text{Delta-M(rcdt)} = \left(\frac{\text{ } (\text{ft}^3)}{V_f} - \frac{\text{ } (\text{ft}^3)}{V_i} \right) \times \left(\frac{1}{\text{ } v} \right)$$

$$\text{Delta-M(rcdt)} = (+) \text{ } \text{ Lbm}$$

2. CHANGE IN MASS OF WATER CONTAINED IN THE VCT:

2.1 SPECIFIC VOLUME: $v = .01605 \text{ ft}^3/\text{Lbm}$ (Assumes 35 psig, 100°F)

2.2 $\text{Delta-M} = (2.73057 \text{ ft}^3/\%) \times (L_i - L_f) \times (1/v)$

L_f and L_i are VCT levels in % recorded on Attachment 3, or the averaged final and initial levels in % from Attachment 4 or Attachment 5, depending on plant conditions.

$$\text{Delta-M(vct)} = (2.73057) \times \left(\frac{\text{ } \%}{L_i} - \frac{\text{ } \%}{L_f} \right) \times \left(\frac{1}{\text{ } v} \right)$$

$$\text{Delta-M(vct)} = (+ \text{ or } -) \text{ } + \text{ } \text{ Lbm}$$

4. CHANGE IN MASS OF WATER CONTAINED IN THE PRT:

- 4.1 SPECIFIC VOLUME: Calculate the specific volume for saturated liquid (V_1), as interpolated from the ASME Steam Tables or Attachment 10. The interpolations are to be performed using the PRT TEMPERATURE data recorded on Attachment 3, 4, or 5.

NOTE: PRT PRESSURE is assumed to be at 6 psig or 20.7 psia. Specific volumes computed at any pressure within 1 psi of this value will be accurate enough for this procedure.

$$V_1 = \text{___} \text{ (ft}^3\text{/Lbm)}$$

- 4.2 $\Delta M = (V_f - V_i) \times (1/v_1)$

V_f and V_i are volumes in cubic feet corresponding to the final and initial levels in the PRT, as per Attachment 8, "PRT Volume Vs. Indicated Level". v_1 is the specific volume computed per Step 4.1.

$$\Delta M(\text{prt}) = \left(\frac{\text{___} \text{ (ft}^3\text{)}}{V_f} - \frac{\text{___} \text{ (ft}^3\text{)}}{V_i} \right) \times \left(\frac{1}{\text{___}} \right)$$

$$\Delta M(\text{prt}) = (+) \text{___} \text{ Lbm}$$

5. CHANGE IN MASS OF WATER CONTAINED IN THE RCS LOOPS:

- 5.1 SPECIFIC VOLUME: Calculate the specific volumes for subcooled liquid (V_1), as interpolated from the ASME Steam Tables or Attachment 11. The interpolations are to be performed for the initial and final PZR or RCS WR PRESSURE data, (corrected to psia), using the RCS AVG TAVG or RCS WR T-HOT TEMPERATURE data, from Attachment 3, 4, or 5.

NOTE: If data is recorded on Attachment 4 or 5, the average of all data recorded MUST be computed and used to obtain the initial and final average pressures and average temperatures for specific volume determination.

NOTE: If T_{HOT} is less than 212°F, the Limitations of Section 3.9 apply

6.2 IDENTIFIED RCS LEAKAGE:

$$\begin{aligned}
 &\text{Delta-M(rcdt)} &&= \text{_____ Lbm (per Step 1.2)} \\
 &+ \text{Delta-M(prt)} &&= \text{_____ Lbm (per Step 4.2)} \\
 &\textbf{Identified RCS Leakage} &&= \text{_____ Lbm} \times 0.01605 \times 7.4805 = \\
 &&&= \text{_____ gal} \\
 &&&+ \text{_____ gal (Diverted)} \\
 &&&+ \text{_____ gal (SI Test Hdr flow)} \\
 &&&+ \text{_____ gal (Samples Taken)} \\
 &&&+ \text{_____ gal (Primary/Secondary)} \\
 &&&+ \text{_____ gal (RCDT Totalizer)} \\
 &= \text{_____ gal} &&/ \text{_____ Test Duration (Minutes)} \\
 &= \text{_____ GPM} &&+ \text{_____ GPM (per Attachment 1)} \\
 &&&(\text{Any other properly quantified leakage}) \\
 &= \text{_____ GPM Total Identified RCS Leakage}
 \end{aligned}$$

MUST be less than 10.0 GPM to meet acceptance criteria

6.3 UNIDENTIFIED RCS LEAKAGE:

$$\begin{aligned}
 &\textbf{Total RCS Leakage} &&= \text{_____ GPM (per Step 6.1)} \\
 &- \textbf{Identified RCS Leakage} &&= \text{_____ GPM (per Step 6.2)} \\
 &\textbf{Unidentified RCS Leakage} &&= \text{_____ GPM}
 \end{aligned}$$

MUST be less than 1.0 GPM to meet acceptance criteria

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT HAS BEEN OPERATING AT 100% STEADY-STATE POWER FOR THE LAST 100 DAYS. THE MAINFRAME COMPUTER IS NOT WORKING. SURVEILLANCE OSP-BB-00009, RCS INVENTORY BALANCE IS REQUIRED. ALL INFORMATION HAS BEEN RECORDED ON ATTACHMENTS 1, 2 AND 3. YOU ARE THE REACTOR OPERATOR.

Initiating Cues: THE CONTROL ROOM SUPERVISOR (CRS) HAS DIRECTED YOU TO DETERMINE THE RCS LEAKAGE USING OSP-BB-00009, RCS INVENTORY BALANCE. BEGINNING WITH STEP 6.1.4 AND USING ATTACHMENT 6, PERFORM THE INDICATED CALCULATIONS. INFORM THE RCS WHEN YOU HAVE COMPLETED THE ASSIGNED TASK.

Notes: **USE OF THE MAINFRAME COMPUTER AND A PERSONAL COMPUTER (PC) IS NOT ALLOWED.**

CALLAWAY PLANT

ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO:	ILE-12/2000A5SRO	KSA NO:	G2.1.33
COMPLETION TIME:	25 MINUTES	KSA RATING:	3.4/4.0
JOB TITLE:	URO	REVISION:	000928
DUTY:	ADMINISTRATIVE		
TASK TITLE:	REVIEW RCS INVENTORY BALANCE		

The performance of this task was evaluated against the standards contained in this Admin JPM and determined to be:

SATISFACTORY

UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: OSP-BB-00009, RCS INVENTORY BALANCE, REV 9

TOOLS/EQUIPMENT: ATTACHMENTS 1, 2, 3, AND 6 OF OSP-BB-00009

FACILITY REPRESENTATIVE: //Edward B. Stewart// DATE: 11/16/00

CHIEF EXAMINER: //H. F. Bundy// DATE: 11/16/00

ADMIN JPM NO: ILE-12/2000A5SRO

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT HAS BEEN OPERATING AT 100% STEADY-STATE POWER FOR THE LAST 100 DAYS. THE MAINFRAME COMPUTER IS NOT WORKING. SURVEILLANCE OSP-BB-00009, RCS INVENTORY BALANCE HAS BEEN PERFORMED PER STEP 6.1.4 OF OSP-BB-00009.

Initiating Cues: YOU ARE REQUIRED TO PERFORM THE REVIEW OF THE OSP-BB-00009, RCS INVENTORY BALANCE AND DETERMINE T/S APPLICABILITY PER THE OUTCOME OF THE REVIEW.

Notes: **USE OF THE MAINFRAME COMPUTER IS NOT ALLOWED.**

TASK STANDARD: UPON COMPLETION OF THE TASK THE CANDIADATE WILL HAVE DETERMINED TOTAL RCS LEAKAGE IS > 1.0 GPM, IDENTIFIED RCS LEAKAGE IS APPROXIMATELY 0.02 GPM AND UNIDENTIFIED RCS LEAKAGE IS APPROXIMATELY 1.169 GPM AND APPLY T/S 3.4.13.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
1. PROVIDE CANDIDATE WITH MATERIAL AND ALLOW HIM TO REVIEW WORK TO BE PERFORMED	CANDIDATE SHOULD REIVEW ADMIN JPM INITIAL CONDITIONS AND INITIATING CUES.	S U Comments:
2. REVIEW RCS LEAKAGE DETERMINATION BY USING CALCULATIONS ON ATTACHMENT 6 STEP 6.1.4	CANDIDATE SHOULD DETERMINE RCS LEAKAGE PER ATTACHMENT 6 OF OSP-BB-00009	S U Comments:
3. REVIEW CHANGE IN MASS OF WATER CONTAINED IN THE RCDT ATTACH 6, STEP 1.0	CANDIDATE SHOULD DETERMINE THERE HAS BEEN NO CHANGE IN RCDT MASS AND THE STEP HAS BEEN DONE CORRECTLY	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>4. REVIEW MASS OF WATER CONTAINED IN THE VCT CALCULATION</p> <p>ATTACH 6, STEP 2.0</p>	<p>CANDIDATE SHOULD REVIEW ATTACHMENT 3 AND DETERMINE CALCULATION WAS PERFORMED CORRECTLY $L_i = 51\%$ AND $L_f = 37\%$ AND PERFORM THE FOLLOWING:</p> <p>$51 - 37 = 14\%$ LEVEL CHANGE</p> <p>$14\% \times 2.73057 \text{ft}/\% = 38.22798 \text{ft}$</p> <p>$38.22798 \text{ft} \times 1/0.01605 = 2381.8056 \text{lbm}$</p>	<p>S U</p> <p>Comments:</p>
<p>5. REVIEW CHANGE IN MASS OF WATER CONTAINED IN THE PZR DETERMINATION:</p> <p>ATTACH 6, STEP 3</p>	<p>CANDIDATE SHOULD REVIEW THERE HAS BEEN NO CHANGE IN MASS OF WATER IN THE PRESSURIZER USING ATTACHMENT 3 AND THE STEP HAS BEEN DONE CORRECTLY</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>6. REVIEW CHANGE IN MASS OF WATER CONTAINED IN THE PRT DETERMINATION</p> <p>ATTACH 6, STEP 4.0</p>	<p>CANDIDATE SHOULD REVIEW THERE HAS BEEN NO CHANGE IN MASS OF WATER CONTAINED IN THE PRT USING ATTACHMENT 3 AND THE STEP HAS BEEN DONE CORRECTLY</p>	<p>S U</p> <p>Comments:</p>
<p>7. REVIEW CHANGE IN MASS OF WATER CONTAINED IN THE RCS LOOPS DETERMINATION</p> <p>ATTACH 6, STEP 5.0</p>	<p>CANDIDATE SHOULD REVIEW RCS TEMPERATURE HAS NOT CHANGED SO THERE IS NO CHANGE IN THE MASS OF WATER IN THE RCS LOOPS AND THE STEP HAS BEEN DONE CORRECTLY</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>8. REVIEW SUMMARIZATION OF RCS LEAKAGE: ATTACH 6, STEP 6.1</p>	<p>CANDIDATE SHOULD REVIEW THE SUM OF ALL LEAKAGE AS FOLLOWS:</p> <p>DELTA M(vct) = 2381.8</p> <p>DELTA M(pzr) = 0 LBM</p> <p>DELTA M(rcs) = 0 LBM</p> <p>TOTAL RCS LEAKAGE = 2381.8</p> <p>CONVERT MASS TO GALLONS</p> <p>2381.8 x 0.01605 x 7.4805 = 286 GALLONS</p> <p>AND DETERMINE STEP WAS DONE CORRECTLY</p>	<p>S U</p> <p>Comments:</p>
<p>9. REVIEW TOTAL RCS LEAKAGE ATTACH 6, STEP 6.0</p>	<p>CANDIDATE SHOULD REVIEW THERE HAS BEEN 0 GALLONS MAKEUP TO THE RCS FROM ATTACHMENT 3 AND NO CHEMICAL ADDITIONS MADE AND ADD TO THE LEAKAGE</p> <p>TOTAL LEAKAGE 286.0</p> <p>+ M/U GAL 0 GALLONS</p> <p>+ CHEM ADD 0 GALLONS</p> <p>TOTAL = 286.0 GALLONS</p> <p>AND STEP HAS BEEN DONE CORRECTLY</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
10. CONVERT FROM GALLONS TO GPM ATTACH 6, STEP 6.0	CANDIDATE SHOULD CONVERT 286.0 TO GPM BY DETERMINING THE TEST LASTED 240 MINUTES AND DIVIDE $286.0/240 = 1.19 \text{ GPM}$	S U Comments:
11.* REVIEW DETERMINATION IDENTIFIED RCS LEAKAGE ATTACH 6, STEP 6.2	CANDIDATE SHOULD REVIEW RCS IDENTIFIED RCS LEAKAGE DETERMINATION: DELTA-M(rcdt) = 0 GAL DELTA-M(prt) = 0 GAL DIVERTED = 0 GAL SAMPLES = 0 GAL PRI/SEC = 50 GAL RCDT = 0 GAL TOTAL = 50 GALLONS AND DETERMINE STEP WAS DONE INCORRECTLY THE PRI/SEC AND TOTAL LEAKAGE SHOULD BE 5.0 GALLONS	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
<p>12.* REVIEW CONVERSION OF IDENTIFIED RCS LEAKAGE GALLONS TO GPM</p> <p>ATTACH 6, STEP 6.2</p>	<p>DIVIDE TOTAL LEAKAGE 50 GALLONS BY 240 MINUTES</p> <p>50 GAL/ 240 MIN = 0.208 GPM</p> <p>CANDIDATE SHOULD DETERMINE THIS STEP WAS DONE WRONG AND THE CORRECT ANSWER IS 0.0208 GPM</p>	<p>S U</p> <p>Comments:</p>
<p>13.* DETERMINE UNIDENTIFIED RCS LEAKAGE</p> <p>ATTACH 6, STEP 6.0</p>	<p>CANDIDATE SHOULD DETERMINE SUBTRACTION OF IDENTIFIED RCS LEAKAGE (0.208 GPM) FROM TOTAL RCS LEAKAGE (1.10 GPM) WAS DONE INCORRECTLY AND DETERMINE LEAKAGE AS FOLLOWS:</p> <p>1.19 - 0.208 = 0.982 GPM</p>	<p>S U</p> <p>Comments:</p>
<p>14.* CANDIDATE SHOULD REVIEW T/S</p>	<p>CANDIDATE SHOULD DETERMINE RCS UNIDENTIFIED RCS LEAKAGE HAS EXCEEDED T/S AND APPLY T/S 3.4.13:</p> <p>REDUCE LEAKAGE WITHIN LIMITS WITHIN 4 HOURS</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
15.	THIS ADMIN JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>	S U Comments:

* CRITICAL STEP

RCS INVENTORY BALANCE PLANT STATUS

PERFORMED BY: Edward B. Steward	INITIALS: EBS	DATE: 12/19/2000
PERFORMED BY: Stanley M. Putthoff	INITIALS: SMP	

1. Enter the Plant Mode: 1 (1 - 5)
2. Enter the number of RCPs in operation: 4 (1 - 4)
3. Circle appropriate PZR Spray Source: RCS CVCS
4. Enter brief description of flow path(s) and flow rate established for letdown and charging. (i.e., Letdown via RHR Train A to CVCS through BG-HCV-128 at 75 gpm. Charging via NCP to RCS Loop 1.)

Charging via NCP to RCS Loop 1
Letdown RCS 3 to CVCS 120 gpm

5. Make up calculations (for Step 6.1 on Attachment 6).

Counter Reading: $\frac{0}{\text{Final}} - \frac{0}{\text{Initial}} = \frac{0}{\text{Total Make Up}}$ gal

6. Chemical Additions, including RCS ammonia addition (+) (For Step 6.1 on Attachment 6) :

0 gal Purpose N/A

7. Letdown divert calculations (for Step 6.2 on Attachment 6):

$\frac{0}{\text{Time Divert Ended}} - \frac{0}{\text{Time Divert Started}} = \frac{0}{\text{Total Minutes Divert}} \times \frac{0}{\text{Letdown Flowrate}} \text{ gpm} = \frac{0}{\text{Total Divert}}$ gal

8. Samples taken (+) (For Step 6.2 on Attachment 6):

0 gal Purpose N/A

9. Primary to Secondary Leakage (For Step 6.2 on Attachment 6):

GEF0092 Computer Point $\frac{30 \text{ gpd}}{1440 \text{ min/day}} = 0.0208 \text{ gpm}$

NOTE: If the computer point is not available, contact Chemistry for a value IAW **CTP-ZZ-02590**

10. Other identified leakage (for Step 6.2 on Attachment 6) which has not gone to the RCDT, PRT, S/G's which has been properly quantified:

Sources	Leakage (gpm)
None	0

NORMAL LEAKAGE - REQUIRED SYSTEMS LINEUP/RESTORATION (Section 6.1)

Section 6.1.2: Pre-Test Lineup

<i>Step</i>	<i>Component Switch</i>	<i>Panel</i>	<i>Required Position</i>	<i>Performed By (Initials)</i>
6.1.2.1	HB-HIS-7176	RL021	CLOSED	EBS
6.1.2.2	HB-HIS-7136	RL021	CLOSED	EBS
6.1.2.3	BG-HS-25	RL002	OFF	EBS
6.1.2.4	BG-FY-111B	RL002	RESET	EBS
	BG-FY-110B	RL002	RESET	EBS
6.1.2.5	BG-HIS-112A	RL001	Man. Divert to VCT	EBS

Section 6.1.3: Data Acquisition per Attachment 3, 4, or 5

Section 6.1.5: Post-Test Restoration

<i>Step</i>	<i>Component Switch</i>	<i>Panel</i>	<i>Required Position</i>	<i>Performed By</i>	<i>Verified By</i>
6.1.5.1	BG-HIS-112A	RL001	AUTO	EBS	SMP
	BG-HS-25	RL002	AUTO	EBS	SMP
6.1.5.3	HB-HIS-7176	RL021	As Required by Radwaste	EBS	SMP
	HB-HIS-7136	RL021	As Required by Radwaste	EBS	SMP

ADMIN JPM NO: ILE-12/2000A**5SRO**

Page 1 of 1

ATTACHMENT 2

LEAKAGE DATA SHEET - PREFERRED METHOD

Always record the following data:

Parameter	Instrument or Computer Point	Initial	1 Hour	2 Hours	3 Hours	Final
Time	N/A (HH:MM)	0100	0200	0300	0400	0500
RCDT Level (HB115)	HB-LI-1003	40%	40%	40%	40%	40%
VCT Level	REL0112M	51%	48%	43%	40%	37%
PZR Level Avg.	REU0483M	58%	58%	58%	58%	58%
PRT Level	REL0485M	75%	75%	75%	75%	75%
PRT Temperature	RET0485M	90°F	90°F	90°F	90°F	90°F

For RCS pressure greater than 1700 psig, record the following data:

Parameter	Instrument or Computer Point	Initial	1 Hour	2 Hours	3 Hours	Final
RCS Avg. TAVG*	REU0484M	588.4°F	588.4°F	588.4°F	588.4°F	588.4°F
PZR Press. Avg.	REU0482M	2235 psig				

For RCS pressure less than 1700 psig, record the following data:

Parameter	Instrument or Computer Point	Initial	1 Hour	2 Hours	3 Hours	Final
RCS WR Pressure	REP0498M	psig	psig	psig	psig	psig
RCS WR Pressure	REP0499M	psig	psig	psig	psig	psig
	Avg. Pressure	psig	psig	psig	psig	psig
RCS Avg. T-Hot	REU0486M	°F	°F	°F	°F	°F

N/A
EBS
12/19/00

If required due to rapid RCDT level increases, record the following:

Parameter	Instrument or Computer Point	Initial	1 Hour	2 Hours	3 Hours	Final
RCDT Totalizer	HB-FQI-1014	gal	gal	gal	gal	gal

* If temperature is less than 212°F, then the Limitations of Step 3.9 apply.

RCS INVENTORY BALANCE CALCULATIONS

NOTE: Calculation of specific volumes is not required, **if** the input data is **identical** for initial and final conditions, since the resultant Delta-M value will be zero for identical initial and final values.

1. CHANGE IN MASS OF WATER CONTAINED IN THE RCDT:

1.1 SPECIFIC VOLUME: $v = .01605 \text{ ft}^3/\text{Lbm}$ (Assumes 35 psig, 100°F)

1.2 $\text{Delta-M} = (V_f - V_i) \times (1/v)$

V_f and V_i are volumes in cubic feet corresponding to the final and initial levels in the RCDT, as per Attachment 7, "RCDT Volume Vs. Indicated Level".

$$\text{Delta-M(rcdt)} = \left(\frac{\quad}{V_f} (\text{ft}^3) - \frac{\quad}{V_i} (\text{ft}^3) \right) \times \left(1 / \frac{\quad}{v} \right)$$

$$\text{Delta-M(rcdt)} = (+) \underline{\quad 0 \quad} \text{ Lbm}$$

2. CHANGE IN MASS OF WATER CONTAINED IN THE VCT:

2.1 SPECIFIC VOLUME: $v = .01605 \text{ ft}^3/\text{Lbm}$ (Assumes 35 psig, 100°F)

2.2 $\text{Delta-M} = (2.73057 \text{ ft}^3/\%) \times (L_i - L_f) \times (1/v)$

L_f and L_i are VCT levels in % recorded on Attachment 3, or the averaged final and initial levels in % from Attachment 4 or Attachment 5, depending on plant conditions.

$$\text{Delta-M(vct)} = (2.73057) \times \left(\frac{51}{L_i} \% - \frac{37}{L_f} \% \right) \times \left(1 / \frac{0.01605}{v} \right)$$

$$\text{Delta-M(vct)} = (+ \text{ or } -) \underline{\quad 2381.8 \quad} \text{ Lbm}$$

3. CHANGE IN MASS OF WATER CONTAINED IN THE PZR:

3.1 SPECIFIC VOLUME: Calculate the specific volumes for saturated liquid (V_l) and saturated vapor (V_v), as interpolated from the ASME Steam Tables or Attachment 9. The interpolations are to be performed using the AVERAGE of the initial and final PZR or RCS WR PRESSURE data (from Attachment 3, 4, or 5), corrected to psia.

NOTE: If data is recorded on Attachment 4 or 5, the average of all data recorded MUST be computed and used to obtain the average pressure for specific volume determination.

PZR or RCS WR Pressure Data				Averaged Specific Volumes (ft ³ /Lbm)	
	(PSIG)#		(PSIA)*		
Final	= 2235		2249.7	V_l	= 0.026978
Initial	= 2235		2249.7	V_v	= 0.157059
Averaged	= 2235	+14.7 =	2249.7		

= Use for Attachment 9
* = Use for ASME Steam Tables

3.2 $\Delta M = (16.8921 \text{ ft}^3/\%) \times (L_i - L_f) \times (1/V_l - 1/V_v)$

L_f and L_i are final and initial PZR levels in % recorded on Attachment 3, or the AVERAGED levels in % computed from all recorded data from Attachment 4 or Attachment 5, depending on plant conditions. V_l and V_v are specific volumes for saturated liquid and saturated vapor, respectively, calculated per Step 3.1.

$$\Delta M(\text{pZR}) = (16.8921) \times \left(\frac{\text{ } \%}{L_i} - \frac{\text{ } \%}{L_f} \right) \times \left(\frac{1}{V_l} - \frac{1}{V_v} \right)$$

$$\Delta M(\text{pZR}) = (+ \text{ or } -) \text{ } 0 \text{ } \text{Lbm}$$

4. CHANGE IN MASS OF WATER CONTAINED IN THE PRT:

- 4.1 SPECIFIC VOLUME: Calculate the specific volume for saturated liquid (V_1), as interpolated from the ASME Steam Tables or Attachment 10. The interpolations are to be performed using the PRT TEMPERATURE data recorded on Attachment 3, 4, or 5.

NOTE: PRT PRESSURE is assumed to be at 6 psig or 20.7 psia. Specific volumes computed at any pressure within 1 psi of this value will be accurate enough for this procedure.

$$V_1 = \underline{0.01610} \text{ (ft}^3\text{/Lbm)}$$

- 4.2 $\Delta\text{-M} = (V_f - V_i) \times (1/v_1)$

V_f and V_i are volumes in cubic feet corresponding to the final and initial levels in the PRT, as per Attachment 8, "PRT Volume Vs. Indicated Level". v_1 is the specific volume computed per Step 4.1.

$$\Delta\text{-M}(\text{prt}) = \left(\frac{\underline{\quad} \text{ (ft}^3\text{)}}{V_f} - \frac{\underline{\quad} \text{ (ft}^3\text{)}}{V_i} \right) \times \left(1 / \underline{\quad} \right)$$

$$\Delta\text{-M}(\text{prt}) = (+) \underline{0} \text{ Lbm}$$

5. CHANGE IN MASS OF WATER CONTAINED IN THE RCS LOOPS:

- 5.1 SPECIFIC VOLUME: Calculate the specific volumes for subcooled liquid (V_1), as interpolated from the ASME Steam Tables or Attachment 11. The interpolations are to be performed for the initial and final PZR or RCS WR PRESSURE data, (corrected to psia), using the RCS AVG TAVG or RCS WR T-HOT TEMPERATURE data, from Attachment 3, 4, or 5.

NOTE: If data is recorded on Attachment 4 or 5, the average of all data recorded MUST be computed and used to obtain the initial and final average pressures and average temperatures for specific volume determination.

NOTE: If T_{HOT} is less than 212°F, the Limitations of Section 3.9 apply

PZR or RCS WR Pressure Data				TAVG or T-HOT	
	(PSIG)		(PSIA)	Temperature (°F)	
Final =	2235	+14.7 =	2249.7	Final =	588.4
Initial =	2235	+14.7 =	2249.7	Initial =	588.4
Initial (V _{li}) =	0.022662		Final (V _{lf}) =	0.022662	

5.2 $\Delta\text{-M} = (10,313 \text{ ft}^3) \times (1/V_{li} - 1/V_{lf})$

V_{li} and V_{lf} are specific volumes for subcooled liquid, at initial and final conditions, respectively, calculated per step 5.1.

$\Delta\text{-M}(\text{rcs}) = (10,313) \times (1/ \underline{\hspace{1cm}} - 1/ \underline{\hspace{1cm}})$
 $\hspace{10em} V_{li} \hspace{1em} V_{lf}$

$\Delta\text{-M}(\text{rcs}) = (+ \text{ or } -) \underline{\hspace{1cm} 0 \hspace{1cm}} \text{ Lbm}$

6. SUMMARIZE RCS LEAKAGES:

6.1 TOTAL RCS LEAKAGE:

$\Delta\text{-M}(\text{vct}) = \underline{2381.8} \text{ Lbm (per Step 2.2)}$

+ $\Delta\text{-M}(\text{pZR}) = \underline{0} \text{ Lbm (per Step 3.2)}$

+ $\Delta\text{-M}(\text{rcs}) = \underline{0} \text{ Lbm (per Step 5.2)}$

Total RCS Leakage = $\underline{2381.8} \text{ Lbm} \times .01605 \times 7.4805 =$

= $\underline{286.0} \text{ gal}$

+ $\underline{0} \text{ gal (Makeup)}$

+ $\underline{0} \text{ gal (Chemicals Added)*}$

= $\underline{286.0} \text{ gal} / \underline{240} \text{ Test Duration (Minutes)}$

= $\underline{1.19} \text{ GPM Total RCS Leakage}$

*Include ammonia injected into RCS from the ammonia addition Panel.

6.2 IDENTIFIED RCS LEAKAGE:

$$\begin{aligned}
&\text{Delta-M(rcdt)} &&= \underline{0} \text{ Lbm (per Step 1.2)} \\
&+ \text{Delta-M(prt)} &&= \underline{0} \text{ Lbm (per Step 4.2)} \\
&\textbf{Identified RCS Leakage} &&= \underline{0} \text{ Lbm} \times 0.01605 \times 7.4805 = \\
&&&= \underline{0} \text{ gal} \\
&&&+ \underline{0} \text{ gal (Diverted)} \\
&&&+ \underline{0} \text{ gal (SI Test Hdr flow)} \\
&&&+ \underline{0} \text{ gal (Samples Taken)} \\
&&&+ \underline{50} \text{ gal (Primary/Secondary)} \\
&&&+ \underline{0} \text{ gal (RCDT Totalizer)} \\
&= \underline{50} \text{ gal} &&/ \underline{240} \text{ Test Duration (Minutes)} \\
&= \underline{0.208} \text{ GPM} &&+ \underline{0} \text{ GPM (per Attachment 1)} \\
&&&(\text{Any other properly quantified leakage}) \\
&= \underline{0.208} \textbf{ GPM Total Identified RCS Leakage}
\end{aligned}$$

MUST be less than 10.0 GPM to meet acceptance criteria

6.3 UNIDENTIFIED RCS LEAKAGE:

$$\begin{aligned}
&\textbf{Total RCS Leakage} &&= \underline{1.19} \text{ GPM (per Step 6.1)} \\
&- \textbf{Identified RCS Leakage} &&= \underline{0.208} \text{ GPM (per Step 6.2)} \\
&\textbf{Unidentified RCS Leakage} &&= \underline{0.982} \text{ GPM}
\end{aligned}$$

MUST be less than 1.0 GPM to meet acceptance criteria

6.2 IDENTIFIED RCS LEAKAGE:

Delta-M(rcdt) = 0 Lbm (per Step 1.2)
 + Delta-M(prt) = 0 Lbm (per Step 4.2)
Identified RCS Leakage = 0 Lbm × 0.01605 × 7.4805 =
 = 0 gal

+ 0 gal (Diverted)
 + 0 gal (SI Test Hdr flow)
 + 0 gal (Samples Taken)

5.0 + 50 gal (Primary/Secondary)
 + 0 gal (RCDT Totalizer)

5.0 = 50 gal / 240 Test Duration (Minutes)

0.0208 = 0.208 GPM + 0 GPM (per Attachment 1)

(Any other properly quantified leakage)

0.0208 = 0.208 **GPM Total Identified RCS Leakage**

MUST be less than 10.0 GPM to meet acceptance criteria

6.3 UNIDENTIFIED RCS LEAKAGE:

Total RCS Leakage = 1.19 GPM (per Step 6.1)

– **Identified RCS Leakage** = 0.0208 GPM (per Step 6.2) **0.0208**

Unidentified RCS Leakage = 0.982 GPM **1.169**

MUST be less than 1.0 GPM to meet acceptance criteria

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. You may use any approved reference materials normally available to you, unless directed otherwise. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Administrative Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT HAS BEEN OPERATING AT 100% STEADY-STATE POWER FOR THE LAST 100 DAYS. THE MAINFRAME COMPUTER IS NOT WORKING. SURVEILLANCE OSP-BB-00009, RCS INVENTORY BALANCE HAS BEEN PERFORMED PER STEP 6.1.4 OF OSP-BB-00009.

Initiating Cues: YOU ARE REQUIRED TO PERFORM THE REVIEW OF THE OSP-BB-00009, RCS INVENTORY BALANCE AND DETERMINE T/S APPLICABILITY PER THE OUTCOME OF THE REVIEW.

Notes: **USE OF THE MAINFRAME COMPUTER IS NOT ALLOWED.**

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO:	ILE-12/2000-JPMC1	KSA NO:	013A4.01
COMPLETION TIME:	10 MINUTES	KSA RATING:	4.5/4.8
JOB TITLE:	URO/SRO	REVISION:	000928
TASK TITLE:	ISOLATE A RUPTURED STEAM GENERATOR		
DUTY:	ESFAS		

The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM SIMULATOR/LAB _____ PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED PERFORMED _____

REFERENCES: E-3, STEAM GENERATOR TUBE RUPTURE, REV 1B3
OOA-SA-0001A/B, REV 1

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //Edward B. Stewart// DATE: 11/16/00

CHIEF EXAMINER: //H. F. Bundy// DATE: 11/16/00

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 3. A STEAM GENERATOR TUBE RUPTURE EXISTS ON S/G 'D'.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PERFORM STEP 3 OF E-3, STEAM GENERATOR TUBE RUPTURE. INFORM THE CONTROL ROOM SUPERVISOR WHEN S/G 'D' LOW POINT DRAIN HAS BEEN VERIFIED CLOSED.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

ALL OPERATOR ACTIONS ARE TO BE SIMULATED.

Task Standard: UPON COMPLETION OF THIS JPM, THE OPERATOR WILL HAVE ISOLATED 'D' STEAM GENERATOR FROM FEEDWATER, STEAM AND DRAINS.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF E-3, STEAM GENERATOR TUBE RUPTURE		OPERATOR SHOULD OBTAIN PROCEDURE COPY	S U Comments:
2. ADJUST AB PIC-4A, SG 'D' ATMOSPHERIC STEAM DUMP CONTROLLER TO 1125 PSIG STEP 3.a	AB PIC-4A PRESSURE INDICATOR IS POINTING TO 1125 PSIG	OPERATOR SHOULD ENSURE AB PIC-4A, SG 'D' ATMOSPHERIC STEAM DUMP CONTROLLER IS SET TO 1125 PISG	S U Comments:
3. CHECK SG 'D' ATMOSPHERIC STEAM DUMP CLOSED STEP 3.b	AB PIC-4A POSITIONER INDICATES 0% OPEN AB PIC-4A GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY AB PIC-4A, SG 'D' ATMOSPHERIC STEAM DUMP IS CLOSED	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. VERIFY LOOP STEAM SUPPLY VALVES FROM SG 'D' TO AFP TURBINE IS MANUALLY ISOLATED STEP 3.c		OPERATOR SHOULD REALIZE SG 'D' DOES NOT FEED THE AFP TURBINE	S U Comments:
5. ENSURE SG BLOWDOWN CTMT ISO VALVES FROM 'D' SG IS CLOSED STEP 3.d	BM HIS-38 GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY BM HIS-38, SG 'D' BLOWDOWN CTMT ISO VALVE IS CLOSED	S U Comments:
6. SLOW CLOSE AB HV- 11, SG 'D' MSIV WITH AB HIS-11 AND ALL MSIV BYPASS VALVES USING AB-HIK-15 STEP 3.e	AB-HIS-11 RED LIGHT REMAINS ILLUMINATED AND GREEN LIGHT REMAINS OUT ALL MSIV BYPASS VALVES INDICATE CLOSED	OPERATOR SHOULD ATTEMPT TO SLOW CLOSE SG 'D' MSIV WITH AB HIS-11 AND ALL MSIV BYPASS VALVES WITH AB- HIK-15	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
7. USE OPERATOR AID OOA-SA-0001A/B LOCATED AT SA075A AND SA075B TO CLOSE 'D' MSIV STEP RNO3.e		OPERATOR SHOULD USE RNO TO ATTEMPT TO SLOW CLOSE ABHV11 MSIV AND IMPLEMENT OOA-SA-0001A/B OPERATOR SHOULD USE THE OOA LOCATED AT SA075A/B CABINET	S U Comments:
8.		GO TO SA075A OR SA075B TO FAST CLOSE ABHV11, 'D' SG MSIV	S U Comments:
9.* PLACE LOGIC CHANNEL 1 SWITCH TO OFF OOA-SA-0001A STEP 1.1.1	LOGIC CH 1 SWITCH IS IN THE OFF POSITION	OPERATOR SHOULD PLACE LOGIC CHANNEL SWITCH #1 TO THE OFF POSITION	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10.* PLACE LOGIC CHANNEL 2 SWITCH TO OFF</p> <p>OOA-SA-0001A STEP 1.1.2</p>	<p>LOGIC CH 2 SWITCH IS IN THE OFF POSITION</p>	<p>OPERATOR SHOULD PLACE LOGIC CHANNEL SWITCH #2 TO THE OFF POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>11.* PLACE LOGIC CHANNEL 3 SWITCH TO OFF</p> <p>OOA-SA-0001A STEP 1.1.3</p>	<p>LOGIC CH 3 SWITCH IS IN THE OFF POSITION</p>	<p>OPERATOR SHOULD PLACE LOGIC CHANNEL SWITCH #3 TO THE OFF POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>12.* PLACE THE MSIV ENABLE SWITCH TO THE ENABLE POSITION</p> <p>OOA-SA-0001A STEP 1.2</p>	<p>MSIV ENABLE SWITCH IS IN THE ENABLE POSITION</p>	<p>OPERATOR SHOULD PLACE THE MSIV ENABLE SWITCH TO THE ENABLE POSITION</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>13.* FAST CLOSE 'D' MSIV BY PLACING 'D' MSIV TOGGLE SWITCH TO THE FC POSITION</p> <p>OOA-SA-0001A STEP 1.3</p>	<p>'D' MSIV TOGGLE SWITCH IS IN THE FAST CLOSE POSITION</p> <p>AB HIS-11 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT</p>	<p>OPERATOR SHOULD PLACE 'D' MSIV TOGGLE SWITCH TO THE FC POSITION</p> <p>NOTE: OPERATOR SHOULD ONLY CLOSE 'D' MSIV</p>	<p>S U</p> <p>Comments:</p>
<p>14. VERIFY 'D' MSIV IS CLOSED</p> <p>OOA-SA-0001A STEP 1.4</p>	<p>AB HIS-11 GREEN LIGHT IS LIT AND RED LIGHT IS OUT</p>	<p>OPERATOR SHOULD VERIFY ABHV11, SG 'D' MSIV IS CLOSED</p>	<p>S U</p> <p>Comments:</p>
<p>15.</p>		<p>RETURN TO E-3, STEAM GENERATOR TUBE RUPTURE STEP 3.e</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
16. CLOSE SG 'D' LOW POINT DRAIN USING AB HIS-10 STEP 3.f	AB HIS-10 GREEN LIGHT IS LIGHT AND RED LIGHT IS OUT	OPERATOR SHOULD CLOSE ABHV10, SG 'D' LOW POINT DRAIN	S U Comments:
17. INFORM THE CONTROL ROOM SUPERVISOR STEAM GENERATOR 'D' HAS BEEN ISOLATED	CONTROL ROOM SUPERVISOR ACKNOWLEDGES	OPERATOR SHOULD INFORM THE CONTROL SUPERVISOR STEP 3 OF E-3 HAS BEEN COMPLETED	S U Comments:
	THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>		S U Comments:

* CRITICAL STEP

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 3. A STEAM GENERATOR TUBE RUPTURE EXISTS ON S/G 'D'.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PERFORM STEP 3 OF E-3, STEAM GENERATOR TUBE RUPTURE. INFORM THE CONTROL ROOM SUPERVISOR WHEN S/G 'D' LOW POINT DRAIN HAS BEEN VERIFIED CLOSED.

ALL OPERATOR ACTIONS ARE TO BE SIMULATED.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO:	ILE-12/2000-JPMP1	KSA NO:	064A4.01
COMPLETION TIME:	20 MINUTES	KSA RATING:	4.0/4.3
JOB TITLE:	URO/SRO	REVISION:	000928
TASK TITLE:	LOCALLY START NE02		
DUTY:	EMERGENCY DIESEL GENERATOR SYSTEM		

The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM _____ SIMULATOR/LAB _____ PLANT X CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ X PERFORMED _____

REFERENCES: OTO-ZZ-00001, CONTROL ROOM EVACUATION WITH FIRE, REV 17,
ATTACHMENT 3 AND 10
IPE/PRA

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //Edward B. Stewart// DATE: 11/16/00

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: THE CONTROL ROOM IS BEING EVACUATED DUE TO A FIRE. YOU ARE THE REACTOR OPERATOR.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PERFORM ATTACHMENT 3 OF OTO-ZZ-00001, CONTROL ROOM EVACUATION WITH FIRE.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: START THIS JPM OUTSIDE THE CONTROL ROOM.

Task Standard: UPON COMPLETION OF THIS JPM, THE OPERATOR WILL HAVE LOCALLY STARTED 'B' EMERGENCY DIESEL GENERATOR.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF ATTACHMENT 3, RO-CONTROL ROOM EVACUATION WITH FIRE	PROVIDE OPERATOR WITH PROCEDURE COPY	OPERATOR SHOULD OBTAIN PROCEDURE COPY	<p style="text-align: center;">S U</p> <p>Comments:</p>
2. GET RO EQUIPMENT BAG AND RADIO STEP 1	OPERATOR HAS EQUIPMENT BAG AND RADIO	<p>OPERATOR SHOULD PROCEED TO CONTROL ROOM TO GET EQUIPMENT BAG AND THEN TO THE FIELD OFFICE TO GET THE RADIO</p> <p>THEN PROCEED IMMEDIATELY TO THE SOUTH ESF SWITCHGEAR ROOM</p>	<p style="text-align: center;">S U</p> <p>Comments:</p>
3. TRIP NB0209, NB02 NORM AND NB0212, NB02 ALT SPLY BREAKERS STEP 1.1	<p>NB0209 BREAKER GREEN LIGHT IS LIT AND RED LIGHT IS OUT</p> <p>NB0212 BREAKER GREEN LIGHT IS LIT AND RED LIGHT IS OUT</p>	OPERATOR SHOULD TRIP NB02 NORMAL AND ALTERNATE FEEDER BREAKERS WITH HANDSWITCHES NB0209 AND NB0212	<p style="text-align: center;">S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. VERIFY 'B' D/G STARTS AND NB0211 CLOSES STEP 1.2	NB0211 BREAKER GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY 'B' D/G STARTED AND NB0211 CLOSED	S U Comments:
5. VERIFY NB02 BUS VOLTAGE ON NB0201 INDICATES APPROXIMATELY 4160 VAC STEP 1.3	VOLTMETER ON BKR NB0201 INDICATES 0 VOLTS NOTE: CANDIDATE MAY CHECK OTHER VOLTAGE INDICATIONS (ALL INDICATE 0 VOLTS)	OPERATOR SHOULD VERIFY VOLTAGE ON NB0201	S U Comments:
6. CONTINUE WITH THIS ATTACHMENT WHETHER NE02 HAS STARTED OR NOT STEP 1.4		OPERATOR SHOULD CONTINUE WITH STEP 1.5	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
7. PLACE NB-HS-0014 IN THE ISOLATE POSITION STEP 1.5	NB-HS-0014 IS IN THE ISOLATE POSITION	OPERATOR SHOULD PLACE NB-HS-0014 IN THE ISOLATE POSITION. LOCATION: NB0201	S U Comments:
8. PLACE NORMAL/ISOLATE SWITCH ON NG04 IN THE ISOLATE POSITION STEP 1.5	NG04 NORMAL/ISOLATE SWITCH IS IN THE ISOLATE POSITION	OPERATOR SHOULD PLACE THE NORMAL/ISOLATE SWITCH ON NG04 TO THE ISOLATE POSITION LOCATION: NG04	S U Comments:
9. PLACE NORMAL/ISOLATE SWITCH ON NG02 IN THE ISOLATE POSITION STEP 1.5	NG02 NORMAL/ISOLATE SWITCH IS IN THE ISOLATE POSITION	OPERATOR SHOULD PLACE THE NORMAL/ISOLATE SWITCH ON NG02 TO THE ISOLATE POSITION LOCATION: NG02	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10. PLACE GDHS11 TO ISO/RUN</p> <p>GDHS61 TO ISO/RUN</p> <p>GDHS11A TO ISO/OPEN</p> <p>STEP 1.5</p>	<p>GDHS11 IS IN ISO/RUN</p> <p>GDHS61 IS IN ISO/RUN</p> <p>GDHS11A IS IN THE ISO/OPEN POSITION</p>	<p>OPERATOR SHOULD PLACE GDHS11 AND GDHS61 TO ISO/RUN, AND GDHS11A TO ISO/OPEN</p> <p>LOCATION: EAST WALL</p>	<p>S U</p> <p>Comments:</p>
<p>11. AT NB02 OPEN BREAKER COMPONENT DOOR AND PULL CONTROL POWER FUSE BLOCKS (UC) AND VERIFY THE BREAKER IS OPEN FOR THE FOLLOWING:</p> <p>NB0201 ('B' CCP)</p> <p>NB0202 ('B' SI PMP)</p> <p>NB0203 (CTMT SPRAY)</p> <p>NB0204 ('B' RHR)</p> <p>NB0207 ('D' CCW)</p> <p>NB0206 ('B' CCW)</p> <p>NB0217 (NG08)</p> <p>STEP 1.6</p>	<p>BREAKER DOORS HAVE BEEN OPENED AND UC FUSES HAVE BEEN PULLED. BREAKER HAS BEEN VERIFIED OPEN</p>	<p>OPERATOR SHOULD PULL UC FUSES AND ENSURE NB02 BREAKERS ARE OPEN</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>12. ON NB02 CHECK CLOSED:</p> <p>NB0210 NG04 FEEDER</p> <p>NB0213 NG02 FEEDER</p> <p>NB0216 NG06E FEEDER</p> <p>STEP 1.7</p>	<p>NB0210, NB0213 AND NB0216 RED LIGHTS ARE LIT AND GREEN LIGHTS ARE OUT</p>	<p>OPERATOR SHOULD VERIFY NB0210, NB0213 AND NB0216 ARE CLOSED</p>	<p>S U</p> <p>Comments:</p>
<p>13. VERIFY 'B' ESW PUMP IS NOT RUNNING. ATTEMPT TO START 'B' ESW PUMP WITH HANDSWITCH NB0215</p> <p>STEP 1.8</p>	<p>NB0215 GREEN LIGHT IS LIT AND RED LIGHT IS OUT</p> <p>NB0215 BREAKER RED CLOSED LIGHT IS LIT AND GREEN LIGHT IS OUT</p>	<p>OPERATOR SHOULD OBSERVE 'B' ESW PUMP IS NOT RUNNING (NO POWER) CANDIDATE WILL ATTEMPT TO CLOSE NB0215</p>	<p>S U</p> <p>Comments:</p>
<p>14.* IF THE DIESEL GENERATOR NE02 FAILED TO START PERFORM ATTACHMENT 10</p> <p>STEP 1.8.1</p>		<p>OPERATOR SHOULD PERFORM ATTACHMENT 10</p> <p>GIVE OPERATOR ATTACHMENT 10 OF OTO-ZZ-00001</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>15. ENSURE NB0211, NB02 EMERG FEED FROM 'B' STBY DG NE02 IS OPEN</p> <p>STEP 1.1.1 (ATT 10)</p>	<p>NB0211 GREEN LIGHT IS LIT AND RED LIGHT IS OUT</p>	<p>OPERATOR SHOULD VERIFY NB0211, NB02 EMERG FEED FROM 'B' STBY DG NE02 IS OPEN.</p>	<p>S U</p> <p>Comments:</p>
<p>16. ENSURE CONTROL POWER IS AVAILABLE TO NB02 AS INDICATED BY LIGHTS ON NB02 BUS BKRS</p> <p>STEP 1.1.2 (ATT 10)</p>	<p>THE GREEN LIGHT IS LIT AND THE RED LIGHT IS OUT</p>	<p>OPERATOR SHOULD VERIFY CONTROL POWER IS AVAILABLE TO NB02</p>	<p>S U</p> <p>Comments:</p>
<p>17. OPEN BREAKER NB0205, PAL01B MDAFP 'B'</p> <p>STEP 1.1.3 (ATT 10)</p>	<p>THE GREEN LIGHT IS LIT AND THE RED LIGHT IS OUT</p> <p>NB0205 HAS BEEN OPENED</p>	<p>OPERATOR SHOULD OPEN NB0205, PAL01B MDAFP 'B'</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
18. ENSURE NB0209, NB02 MN FDR BKR FROM XNB02 IS OPEN STEP 1.1.4 (ATT 10)	NB0209 BREAKER GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY NB0209, MN FDR BKR FROM XNB02 IS OPEN	S U Comments:
19. ENSURE NB0210, NB02 ALT FEED FROM XFMR XNB01 IS OPEN STEP 1.1.5 (ATT 10)	NB0210 BREAKER GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY NB0210, NB02 ALT FEED FROM XFMR XNB01 IS OPEN	S U Comments:
20. BREAK GLASS ON KJ-HS101D AND OBSERVE DIESEL STARTS STEP 1.2.1 (ATT 10)	BUTTON POPS OUT WHEN GLASS IS BROKEN ON KJ- HS101D NE02 DID NOT START	OPERATOR SHOULD BREAK GLASS ON KJ- HS101D CHECK NE02 DID NOT START AND PROCEED TO STEP 1.2.3.1	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
21.* PLACE KJ HS-109, LOCAL MASTER TRANSFER SWITCH, TO THE LOCAL/ MANUAL POSITION STEP 1.2.3.1 (ATT 10)	KJ HS-109 IS IN THE LOCAL/MANUAL POSITION	OPERATOR SHOULD PLACE KJ HS-109 IN THE LOCAL/MANUAL POSITION	S U Comments:
22.* PRESS AND HOLD KJ HS-101C, DG 'B' LOCAL START PB, UNTIL THE DIESEL STARTS STEP 1.2.3.2 (ATT 10)	KJ HS-101C HAS BEEN PRESSED NE02 STARTS, REACHES 514 RPM	OPERATOR SHOULD PRESS KJ HS-101C, DG 'B' LOCAL START PB, VERIFY NE02 STARTS	S U Comments:
23. PLACE KJ HS-109 LOCAL MASTER TRANSFER SWITCH, TO THE AUTO POSITION STEP 1.2.3.3 (ATT 10)	KJ HS-109 IS IN THE AUTO POSITION	OPERATOR SHOULD PLACE KJ HS-109, LOCAL MASTER TRANSFER SWITCH TO THE AUTO POSITION AND CONTINUE WITH STEP 1.3	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
	THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>	INFORM OPERATOR THE JPM IS COMPETE	S U Comments:

* CRITICAL STEP

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: THE CONTROL ROOM IS BEING EVACUATED DUE TO A FIRE. YOU ARE THE REACTOR OPERATOR.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PERFORM ATTACHMENT 3 OF OTO-ZZ-00001, CONTROL ROOM EVACUATION WITH FIRE.

ALL OPERATOR ACTIONS ARE TO BE SIMULATED.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO:	ILE-12/2000-JPMP2	KSA NO:	059A2.11
COMPLETION TIME:	15 MINUTES	KSA RATING:	3.0/3.3
JOB TITLE:	URO/SRO	REVISION:	000928
TASK TITLE:	LOCALLY OPERATE A MFRV		
DUTY:	MAIN FEEDWATER SYSTEM		

The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM _____ SIMULATOR/LAB _____ PLANT X CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED X PERFORMED _____

REFERENCES: OOA-AE-00001, OPERATOR AID FOR LOCAL OPERATION OF SG MAIN FEED
REGULATION VALVE (MFRV). REV 006

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //Edward B. Stewart// DATE: 11/16/00

CHIEF EXAMINER: //H. F. Bundy// DATE: 11/16/00

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. I & C IS REQUIRED TO ADJUST MAIN FEEDWATER REGULATION VALVE, AEFCV0530, DUE TO IMPROPER OPERATION. A PRE-EVOLUTION BRIEF HAS BEEN CONDUCTED. OOA-AE-00001, OPERATOR AID FOR LOCAL OPERATION OF SG MAIN FEED REGULATION VALVE (MFRV), WILL BE USED TO CONTROL FEEDWATER TO 'C' STEAM GENERATOR WHILE I & C IS WORKING ON AEFCV0530. ALL REQUIRED EQUIPMENT IS AT THE VALVE, AND I & C AND THE FIELD SUPERVISOR ARE READY. YOU ARE AN EXTRA EQUIPMENT OPERATOR ON SHIFT.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO WORK WITH THE BOP OPERATOR TO TAKE MANUAL CONTROL OF AEFCV0530 AND CONTROL FEEDWATER TO 'C' STEAM GENERATOR. START WITH STEP 1.3 OF OOA-AE-00001, OPERATOR AID FOR LOCAL OPERATION OF SG MAIN FEED REGULATION VALVE (MFRV). INFORM THE CONTROL ROOM SUPERVISOR WHEN THE MFRV IS MECHANICALLY ALIGNED TO THE HANDWHEEL AND THE MFRV CAN ONLY BE OPERATED BY THE LOCAL OPERATOR USING THE HANDWHEEL.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: ALL OPERATOR ACTIONS ARE TO BE SIMULATED.

Task Standard: UPON COMPLETION OF THIS JPM, THE OPERATOR WILL HAVE PLACED AEFCV530 IN MANUAL AND CONTROLLED FEEDWATER TO 'C' STEAM GENERATOR.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OOA-AE-00001, OPERATOR AID FOR LOCAL OPERATION OF SG MAIN FEED REGULATION VALVE (MFRV)		OPERATOR SHOULD OBTAIN PROCEDURE COPY	S U Comments:
2. REVIEW OOA-AE-00001, OPERATOR AID FOR LOCAL OPERATION OF SG MAIN FEED REGULATION VALVE (MFRV)		OPERATOR SHOULD REVIEW OOA-AE-00001, OPERATOR AID FOR LOCAL OPERATION OF SG MAIN FEED REGULATION VALVE (MFRV)	S U Comments:
3. CLOSE AEV0264 OR AEV0263, S/G 'C' UPSTREAM/ DNSTREAM ISO VALVE STEP 1.3.1	AEV0264/AEV0263 IS CLOSED	OPERATOR SHOULD CLOSE EITHER AEV0264 OR AEV0263	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. INFORM THE BOP WHEN AEV0264/AEV0263 IS CLOSED STEP 1.3.2	THE BOP ACKNOWLEDGES	OPERATOR SHOULD INFORM BOP OPERATOR OF 'C' S/G ISO VALVE BEING CLOSED	S U Comments:
5. FULLY OPEN THE AEFCV0570, S/G 'C' BYPASS FRV STEP 1.3.3	AEFCV0570 HAS BEEN FULLY OPENED	OPERATOR SHOULD LOCALLY VERIFY AEFCV0570 HAS BEEN OPENED	S U Comments:
6. FULLY CLOSE AEFCV0570, S/G 'C' BYPASS FRV STEP 1.3.4	AEFCV0570 HAS BEEN CLOSED	OPERATOR SHOULD LOCALLY VERIFY AEFCV570 HAS BEEN CLOSED	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
7.* RE-OPEN AEV0264/AEV0263, UPSTREAM/ DNSTREAM ISO VALVE CLOSED STEP 1.4	AEV0264/AEV0263 HAS BEEN OPENED	OPERATOR SHOULD OPEN AEV0264/AEV0263, UPSTREAM/ DNSTREAM ISO VALVE CLOSED IN STEP 3	S U Comments:
8. REQUEST BOP OPERATOR TO OPEN AEFCV0570, S/G 'C' BYPASS FRV TO 60% USING THE BYPASS FRV CONTROLLER STEP 1.5	THE BOP REPORTS AEFCV0570 IS 60% OPEN	ASCERTAINS THE BOP OPERATOR OPENS AEFCV0570 FROM THE CONTROL ROOM	S U Comments:
9. ENSURE S/G 'C' PARAMETERS ARE RELATIVELY STABLE BEFORE PROCEEDING. STEP 1.6	THE BOP OPERATOR REPORTS S/G 'C' LEVEL IS STABLE AT 50%. ALL OTHER PARAMETERS ARE STABLE	ASCERTAINS THAT THE BOP OPERATOR VERIFIES CONDITIONS ARE STABLE IN S/G 'C'	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10. RECORD LOCAL MFRV POSITION AS INDICATED BY THE LCD DISPLAY ON THE POSITIONER FOR AEFCV0530</p> <p>STEP 1.7</p>	<p>THE LOCAL LCD DISPLAY IS 80%</p>	<p>OPERATOR SHOULD RECORD POSITION OF AEFCV0530 FROM THE LCD DISPLAY</p>	<p>S U</p> <p>Comments:</p>
<p>11. REQUEST BOP OPERATOR TO DETERMINE THE MCB CONTROLLER POSITION FOR AEFCV0530</p> <p>STEP 1.8</p>	<p>BOP OPERATOR REPORTS AEFCV0530 POSITION IS 80% OPEN</p>	<p>OPERATOR SHOULD RECORD AEFCV0530 POSITION 80% OPEN</p>	<p>S U</p> <p>Comments:</p>
<p>12. REQUEST BOP OPERATOR TO SET AEFCV0530, S/G 'C' MFRV MCB CONTROLLER IN MANUAL</p> <p>STEP 2.1.1</p>	<p>BOP OPERATOR REPORTS AEFCV0530 IS IN MANUAL</p>	<p>CANDIDATE SHOULD REQUEST BOP OPERATOR TO PLACE AEFCV0530 IN MANUAL</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. REQUEST BOP OPERATOR TO MAINTAIN S/G 'C' LEVEL USING AEFCV0570, BYPASS FRV STEP 2.1.2	BOP REPORTS S/G LEVEL IS STABLE AT 50%	CANDIDATE SHOULD DETERMINE THE BOP OPERATOR HAS STABILIZED PLANT PARAMETERS PRIOR TO PROCEEDING	S U Comments:
14.* ROTATE AEFCV0530 TO ALIGN THE HANDWHEEL ENGAGING MECHANISM TO THE STEM ENGAGING MECHANISM STEP 2.1.3	HANDWHEEL ENGAGING MECHANISM AND STEM ENGAGING MECHANISM ARE ALIGNED	OPERATOR SHOULD DEMONSTRATE HOW TO ALIGN HANDWHEEL ENGAGING MECHANISM AND STEM ENGAGING MECHANISM	S U Comments:
15.* PLACE THE T-HANDLE IN THE ALIGNMENT HOLES STEP 2.1.4	T-HANDLE HAS BEEN PLACED IN THE ALIGNMENT HOLES	OPERATOR SHOULD DEMONSTRATE HOW TO PLACE THE T-HANDLE IN THE ALIGNMENT HOLES	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
16. CLOSE AEFCV0530V4, THE 3-WAY ISO/BLEED INSTR AIR VALVE TO BLEED THE AIR FROM THE TOP AND BOTTOM OF THE ACTUATOR STEP 2.1.5	AEFCV0530V4 HAS BEEN CLOSED	OPERATOR SHOULD DEMONSTRATE HOW TO CLOSE AEFCV0530V4, 3-WAY ISO/BLEED INSTR AIR VALVE	S U Comments:
17. INFORM CONTROL ROOM SUPERVISOR THAT AEFCV0530 IS MECHANICALLY ALIGNED AND CAN ONLY BE OPERATED LOCALLY STEP 2.1.6	CONTROL ROOM SUPERVISOR ACKNOWLEDGES	OPERATOR SHOULD INFORM THE CONTROL ROOM THAT AEFCV0530, IS NOW IN LOCAL OPERATION ONLY	S U Comments:
	THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>		S U Comments:

* CRITICAL STEP

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. I & C IS REQUIRED TO ADJUST MAIN FEEDWATER REGULATION VALVE, AEFCV0530, DUE TO IMPROPER OPERATION. A PRE-EVOLUTION BRIEF HAS BEEN CONDUCTED. OOA-AE-00001, OPERATOR AID FOR LOCAL OPERATION OF SG MAIN FEED REGULATION VALVE (MFRV), WILL BE USED TO CONTROL FEEDWATER TO 'C' STEAM GENERATOR WHILE I & C IS WORKING ON AEFCV0530. ALL REQUIRED EQUIPMENT IS AT THE VALVE, AND I & C AND THE FIELD SUPERVISOR ARE READY. YOU ARE AN EXTRA EQUIPMENT OPERATOR ON SHIFT.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO WORK WITH THE BOP OPERATOR TO TAKE MANUAL CONTROL OF AEFCV0530 AND CONTROL FEEDWATER TO 'C' STEAM GENERATOR. START WITH STEP 1.3 OF OOA-AE-00001, OPERATOR AID FOR LOCAL OPERATION OF SG MAIN FEED REGULATION VALVE (MFRV). INFORM THE CONTROL ROOM SUPERVISOR WHEN THE MFRV IS MECHANICALLY ALIGNED TO THE HANDWHEEL AND THE MFRV CAN ONLY BE OPERATED BY THE LOCAL OPERATOR USING THE HANDWHEEL.

ALL OPERATOR ACTIONS ARE TO BE SIMULATED.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO:	ILE-12/2000-JPMP3	KSA NO:	033A2.03
COMPLETION TIME:	20 MINUTES	KSA RATING:	3.1/3.5
JOB TITLE:	URO/SRO	REVISION:	000928
TASK TITLE:	PLACE RWST IN RECIRC		
DUTY:	SPENT FUEL POOL COOLING SYSTEM		

The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM _____ SIMULATOR/LAB _____ PLANT X CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ X PERFORMED _____

REFERENCES: OTN-EC-00001, FUEL POOL COOLING AND CLEANUP SYSTEM, REV 17
SOS 94-1449, 95-1172, 99-2599

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //Edward B. Stewart// DATE: 11/16/00

CHIEF EXAMINER: //H. F. Bundy// DATE: 11/16/00

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. CHEMISTRY HAS REQUESTED TO HAVE THE RWST PLACED IN RECIRC. THE RWST IS LINED UP PER OTN-BN-00001, BORATED REFUELING WATER STORAGE SYSTEM. THE FUEL POOL COOLING AND CLEANUP SYSTEM IS LINED UP PER SECTION 4.1 OF OTN-EC-00001, FUEL POOL COOLING AND CLEANUP SYSTEM. THE FUEL POOL SKIMMER SYSTEM IS SHUTDOWN PER SECTION 4.5 AND FUEL POOL CLEAN UP HAS BEEN SECURED PER SECTION 4.6 OF OTN-EC-00001. THE RESIN IN THE FUEL POOL CLEANUP DEMINERALIZER HAS BEEN VERIFIED TO BE BORATED TO 2400 PPM. A BRIEF HAS BEEN CONDUCTED AND YOU ARE THE PRIMARY EO AND HAVE BEEN GIVEN THE EQUIPMENT WARNING SIGNS. THE INSIDE EO IS READY TO OPERATE EQUIPMENT AS REQUIRED.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PLACE THE RWST IN RECIRC USING THE 'A' FUEL POOL CLEANUP PUMP PER SECTION 5.1 OF OTN-EC-00001, FUEL POOL COOLING AND CLEANUP. INFORM HIM WHEN THE RWST IS IN RECIRC.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: **ALL OPERATOR ACTIONS ARE TO BE SIMULATED.**

Task Standard: UPON COMPLETION OF THIS JPM, THE OPERATOR WILL HAVE PLACED THE RWST IN RECIRC USING 'A' FUEL POOL CLEANUP PUMP.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OTN-EC-00001, FUEL POOL COOLING AND CLEANUP SYSTEM		OPERATOR SHOULD OBTAIN PROCEDURE COPY	S U Comments:
2. REVIEW PRECAUTIONS AND LIMITATIONS OF OTN-EC-00001, FUEL POOL COOLING AND CLEAN UP SYSTEM STEP 2.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW PRECAUTIONS AND LIMITATIONS	S U Comments:
3. ENSURE RESIN IN THE FUEL POOL CLEANUP DEMIN IS BORATED TO ≥ 2350 PPM. STEP 5.1.1	GIVEN IN INITIAL CONDITIONS	OPERATOR SHOULD ENSURE THE FUEL POOL CLEANUP DEMIN RESIN IS BORATED TO ≥ 2350 PPM	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. ENSURE THE RWST IS LINED UP PER OTN-BN-00001, BORATED REFUELING WATER STORAGE SYSTEM STEP 5.1.2	GIVEN IN INITIAL CONDITIONS	OPERATOR SHOULD ENSURE THE RWST IS LINED UP PER OTN-BN-00001, BORATED REFUELING WATER STORAGE SYSTEM	S U Comments:
5. ENSURE FUEL POOL SKIMMER SYSTEM IS SHUTDOWN PER SECTION 4.5 OR 5.4 STEP 5.1.3.1	GIVEN IN INITIAL CONDITIONS	OPERATOR SHOULD ENSURE THE FUEL POOL SKIMMER SYSTEM IS SHUTDOWN	S U Comments:
6. ENSURE THE FUEL POOL CLEANUP PUMPS ARE SHUTDOWN PER SECTION 4.6 OR 5.4 STEP 5.1.3.2	GIVEN IN INITIAL CONDITIONS	OPERATOR SHOULD ENSURE THE FUEL POOL CLEANUP PUMPS ARE SHUTDOWN	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
7. ENSURE THE FUEL POOL COOLING AND CLEANUP SYSTEM IS LINED UP PER SECTION 4.1, AS APPLICABLE STEP 5.1.3.3	GIVEN IN INITIAL CONDITIONS	OPERATOR SHOULD ENSURE THE FUEL POOL COOLING AND CLEANUP SYSTEM IS LINED UP PER SECTION 4.1	S U Comments:
8. HANG EQUIPMENT WARNING SIGNS ON ECV0099, SPENT FUEL POOL SOUTH SKIMMER VALVE STEP 5.1.3.4	"THE RWST IS IN CLEANUP/ RECIRCULATION. DO NOT PLACE THE SFP SKIMMERS IN SERVICE" SIGN HAS BEEN PLACED	OPERATOR SHOULD LOCATE ECV0099, SPENT FUEL POOL SOUTH SKIMMER ISOLATION VALVE LOCATION: FB2026 ROOM 6203	S U Comments:
9. HANG EQUIPMENT WARNING SIGNS ON ECV0100, SPENT FUEL POOL WEST SKIMMER VALVE STEP 5.1.3.4	"THE RWST IS IN CLEANUP/ RECIRCULATION. DO NOT PLACE THE SFP SKIMMERS IN SERVICE" SIGN HAS BEEN PLACED	OPERATOR SHOULD LOCATE ECV0100, SPENT FUEL POOL WEST SKIMMER ISOLATION VALVE LOCATION: FB2026 ROOM 6203	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
10. HANG EQUIPMENT WARNING SIGNS ON ECV0101, FUEL TRANSFER CANAL SKIMMER VALVE STEP 5.1.3.4	"THE RWST IS IN CLEANUP/ RECIRCULATION. DO NOT PLACE THE SFP SKIMMERS IN SERVICE" SIGN HAS BEEN PLACED	OPERATOR SHOULD LOCATE ECV0101, FUEL POOL TRANSFER CANAL ISOLATION VALVE LOCATION: FB2026 ROOM 6203	S U Comments:
11. REQUEST THE REACTOR OPERATOR TO START A TREND GRAPH TO MONITOR THE FLUID INVENTORY WITHIN THE RWST, SFP, AND/OR REFUELING POOL STEP 5.1.4	TIME TREND HAS BEEN STARTED FOR THE RWST AND SFP	OPERATOR SHOULD CONTACT THE CONTROL ROOM TO START A TREND GRAPH OF THE RWST AND SFP USING TIME TREND SFP OR RWST	S U Comments:
12. ENSURE CLOSED ECV0025 AND ECV0033, FUEL POOL COOLING HX OUTLET TO FUEL POOL CLEANUP PUMP ISO VLV STEP 5.1.5	ECV0025 IS CLOSED ECV0033 IS CLOSED	OPERATOR SHOULD ENSURE ECV0025 AND ECV0033, FUEL POOL COOLING HX OUTLET TO FUEL POOL CLEANUP PUMP ISO VALVES ARE CLOSED LOCATION: FB2000 RM 6104 AND 6105	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>13. ENSURE ECV0076, FUEL POOL CLEANUP DEMIN TO SFP ISO VLV, IS CLOSED</p> <p>STEP 5.1.6</p>	<p>ECV0076 IS CLOSED</p>	<p>OPERATOR SHOULD ENSURE ECV0076, FUEL POOL CLEANUP DEMIN TO SFP ISO VLV IS CLOSED</p> <p>LOCATION: FB2000 RM 6105</p>	<p>S U</p> <p>Comments:</p>
<p>14.* REQUEST THE INSIDE EO TO OPEN BNV0002, FUEL POOL CLEANUP DEMIN TO RWST ISO VLV</p> <p>STEP 5.1.7</p>	<p>BNV0002 IS OPEN</p>	<p>OPERATOR SHOULD CONTACT THE INSIDE OPERATOR TO OPEN BNV0002, FUEL POOL CLEANUP DEMIN TO RWST ISO VLV</p> <p>LOCATION: RWST VLV ROOM (OUTSIDE AUX BLDG)</p>	<p>S U</p> <p>Comments:</p>
<p>15. REQUEST THE REACTOR OPERATOR TO PLACE THE MAGNETIC CAUTION SIGN RWST RECIRC ON THE MCB AND UPDATE THE PLANT STATUS BOARD</p> <p>STEP 5.1.8</p>	<p>CAUTION SIGN HAS BEEN HUNG AND MCB STATUS BOARD HAS BEEN UPDATED</p>	<p>OPERATOR SHOULD CONTACT THE CONTROL ROOM TO PLACE CAUTION SIGN AND UPDATE THE STATUS BOARD</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>16.* REQUEST THE REACTOR OPERATOR TO OPEN RWST TO FUEL POOL CLEANUP PUMPS ISO VALVES, BNHCV8800A AND BNHCV8800B</p> <p>STEP 5.1.9</p>	<p>THE REACTOR OPERATOR HAS OPENED BNHCV8800A AND BNHCV8800B</p>	<p>OPERATOR SHOULD CONTACT A REACTOR OPERATOR TO OPEN BNHCV8800A AND BNHCV8800B FROM RL017</p>	<p>S U</p> <p>Comments:</p>
<p>17.* START 'A' FUEL POOL CLEANUP PUMP WITH HANDSWITCH ECHS0023</p> <p>STEP 5.1.10</p>	<p>ECHS0023 HAS BEEN PLACED IN "RUN"</p>	<p>OPERATOR SHOULD START 'A' FUEL POOL CLEANUP PUMP WITH HANDSWITCH ECHS0023</p> <p>LOCATION: FB2000 RM 6104</p>	<p>S U</p> <p>Comments:</p>
<p>18. THROTTLE 'A' FUEL POOL CLEANUP PUMP DISCHARGE VALVE, ECV0038, TO OBTAIN 70,000 TO 75,000 LBM/HR AS INDICATED ON ECFI0044</p> <p>STEP 5.1.11</p>	<p>ECV0038 HAS BEEN THROTTLED</p> <p>ECFI0044 INDICATES 73,000 LBM/HR</p>	<p>OPERATOR SHOULD THROTTLE ECV0038, 'A' FUEL POOL CLEANUP PUMP DISCHARGE VLV TO MAINTAIN 70,000 TO 75,000 LBM/HR</p> <p>LOCATION: FB2000 RM 6104</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
19. CONTACT RADWASTE CONTROL ROOM TO VERIFY FUEL POOL CLEANUP FILTER D/P IS < 20 PSID STEP 5.1.12	RADWASTE REPORTS ECPDI0025 INDICATE 13 PSID	OPERATOR SHOULD CONTACT RADWASTE TO VERIFY FUEL POOL CLEANUP FILTER D/P < 20 PSID	S U Comments:
20. NOTIFY CHEMISTRY THAT THE RWST IS NOW IN RECIRC STEP 5.1.12.1	CHEMISTRY ACKNOWLEDGES	OPERATOR SHOULD INFORM CHEMISTRY THAT THE RWST IS NOW IN THE RECIRC MODE	S U Comments:
21. NOTIFY THE CONTROL ROOM SUPERVISOR THAT THE RWST IS IN RECIRC WITH 'A' FUEL POOL CLEANUP PUMP	CONTROL ROOM SUPERVISOR ACKNOWLEDGES	OPERATOR SHOULD INFORM THE CONTROL ROOM SUPERVISOR THAT THE RWST HAS BEEN PLACED IN THE RECIRC MODE	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
	THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>		S U Comments:

* CRITICAL STEP

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. CHEMISTRY HAS REQUESTED TO HAVE THE RWST PLACED IN RECIRC. THE RWST IS LINED UP PER OTN-BN-00001, BORATED REFUELING WATER STORAGE SYSTEM. THE FUEL POOL COOLING AND CLEANUP SYSTEM IS LINED UP PER SECTION 4.1 OF OTN-EC-00001, FUEL POOL COOLING AND CLEANUP SYSTEM. THE FUEL POOL SKIMMER SYSTEM IS SHUTDOWN PER SECTION 4.5 AND FUEL POOL CLEAN UP HAS BEEN SECURED PER SECTION 4.6 OF OTN-EC-00001. THE RESIN IN THE FUEL POOL CLEANUP DEMINERALIZER HAS BEEN VERIFIED TO BE BORATED TO 2400 PPM. A BRIEF HAS BEEN CONDUCTED AND YOU ARE THE PRIMARY EO AND HAVE BEEN GIVEN THE EQUIPMENT WARNING SIGNS. THE INSIDE EO IS READY TO OPERATE EQUIPMENT AS REQUIRED.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PLACE THE RWST IN RECIRC USING THE 'A' FUEL POOL CLEANUP PUMP PER SECTION 5.1 OF OTN-EC-00001, FUEL POOL COOLING AND CLEANUP. INFORM HIM WHEN THE RWST IS IN RECIRC.

ALL OPERATOR ACTIONS ARE TO BE SIMULATED.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO:	ILE-12/2000-JPMS1	KSA NO:	045A2.17
COMPLETION TIME:	15 MINUTES	KSA RATING:	2.7/2.9
JOB TITLE:	URO/SRO	REVISION:	000928
TASK TITLE:	MAIN TURBINE MECHANICAL O/S TRIP TEST		
DUTY:	MAIN TURBINE		

The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM _____ SIMULATOR/LAB PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED

REFERENCES: OSP-AC-00004, MAIN TURBINE TRIP TEST, REV 13

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: _____ //Edward B. Stewart// _____ DATE: _____ 11/16/00

CHIEF EXAMINER: _____ //H. F. Bundy// _____ DATE: _____ 11/16/00

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. SECTION 6.3 OF OSP-AC-00004, MAIN TURBINE TRIP TESTS, IS REQUIRED. A BRIEF HAS BEEN CONDUCTED AND THE SECONDARY EQUIPMENT OPERATOR HAS OBTAINED KEY 91 FROM THE SS. THE SS HAS GIVEN PERMISSION TO PERFORM THE MECHANICAL OVERSPEED TRIP TEST. YOU ARE THE BOP REACTOR OPERATOR.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PERFORM THE MECHANICAL OVERSPEED TRIP TEST ON THE MAIN TURBINE PER SECTION 6.3 OF OSP-AC-00004, MAIN TURBINE TRIP TESTS. SECTIONS 6.1 AND 6.2 HAVE BEEN PERFORMED PREVIOUSLY. INFORM THE CONTROL ROOM SUPERVISOR WHEN SECTION 6.3 HAS BEEN COMPLETED.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: USE IC-164.
STEPS 7, 9 AND 11 REQUIRE USING REMOTE MODE CHS005 TO ETTB OR MTTB POSITION.

Task Standard: UPON COMPLETION OF THIS JPM, THE OPERATOR WILL HAVE DETERMINED KEY 91 WAS PLACED IN THE WRONG POSITION, HALTED THE TEST, HAD KEY 91 PLACED IN THE CORRECT POSITION AND PERFORMED THE MECHANICAL OVERSPEED TRIP TEST.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OSP-AC-00004, MAIN TURBINE TRIP TESTS		OPERATOR SHOULD OBTAIN PROCEDURE COPY	S U Comments:
2. REVIEW ACCEPTANCE CRITERIA OF OSP- AC-00004, MAIN TURBINE TRIP TESTS STEP 2.0		OPERATOR SHOULD REVIEW ACCEPTANCE CRITERIA OF OSP-AC- 00004, MAIN TURBINE TRIP TESTS	S U Comments:
3. REVIEW PRECAUTIONS AND LIMITATIONS OF OSP-AC-00004, MAIN TURBINE TRIP TESTS STEP 3.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW PRECAUTIONS AND LIMITATIONS	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. REVIEW INITIAL CONDITIONS OF OSP-AC-00004, MAIN TURBINE TRIP TESTS STEP 4.0	IF ASKED: ALL INITIAL CONDITIONS ARE SATISFIED	OPERATOR SHOULD REVIEW INITIAL CONDITIONS	S U Comments:
5. REVIEW NOTES, CAUTIONS AND MECHANICAL OVERSPEED TRIP TEST PROCEDURE STEP 6.3		OPERATOR SHOULD REVIEW NOTES, CAUTION AND MECHANICAL OVERSPEED TEST PROCEDURE	S U Comments:
6. OBTAIN THE SHIFT SUPERVISOR'S PERMISSION TO OPERATE THE BYPASS SWITCH STEP 6.3.1	IF ASKED: THE SS HAS GIVEN PERMISSION TO OPERATE THE BYPASS SWITCH NOTE: GIVEN IN INITIATING CUES	OPERATOR MAY OBTAIN THE SS's PERMISSION TO OPERATE THE BYPASS SWITCH	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7.* OPERATOR SHOULD CONTACT SECONDARY EO TO INSERT BYPASS KEY 91 INTO ACHS0001 AND TURN TO THE MECHANICAL TRIP TEST BYPASS POSITION</p> <p>STEP 6.3.2</p>		<p>OPERATOR SHOULD CONTACT THE SECONDARY OPERATOR TO PLACE KEY 91 TO THE MTTB POSITION</p> <p>NOTE: REMOTE MODE CHS005 TO ETTB</p>	<p>S U</p> <p>Comments:</p>
<p>8.* VERIFY "LOCKED OUT" LIGHT IS ILLUMINATED</p> <p>STEP 6.3.2.1</p>	<p>"LOCKED OUT" LIGHT IS NOT ILLUMINATED</p>	<p>OPERATOR SHOULD FIND THE "LOCKED OUT LIGHT IS NOT ILLUMINATED, STOP THE TEST AND CONTACT OS/SS</p>	<p>S U</p> <p>Comments:</p>
<p>9.* OPERATOR DETERMINES KEY 91 HAS BEEN TURNED TO ETTB POSITION</p>		<p>OPERATOR SHOULD DETERMINE KEY 91 HAS BEEN TURNED TO THE ETTB POSITION AND RESTORE TO NORMAL</p> <p>REMOTE MODE DELETE CHS005</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
10. OPERATOR MAY REQUEST KEY 91 BE RETURNED TO NORMAL AND CONTINUE WITH THE TEST	THE SS HAS DETERMINED TO CONTINUE WITH THE MECHANICAL TRIP POSITION TEST	OPERATOR SHOULD DETERMINE THE TEST CANNOT CONTINUE WITH KEY 91 IN ETTB POSITION AND REQUEST KEY 91 BE RETURNED TO NORMAL.	S U Comments:
11.* CONTACT SECONDARY EO TO INSERT BYPASS KEY IN ACHS0001 AND TURN KEY TO THE MTTB POSITION STEP 6.3.2.	KEY HAS BEEN INSERTED IN BYPASS SWITCH ACHS0001 AND THEN TURNED TO NORMAL AND THEN TO THE MTTB POSITION	OPERATOR SHOULD CONTACT THE SECONDARY TO TURN KEY 91 TO THE NORMAL POSITION AND THEN TURNED TO THE MTTB POSITION REMOTE MODE CHS005 TO MTTB	S U Comments:
12. VERIFY THAT THE "LOCKED OUT" LIGHT IS ENERGIZED STEP 6.3.2.1	"LOCKED OUT" LIGHT IS ENERGIZED	OPERATOR SHOULD VERIFY THE "LOCKED OUT" LIGHT IS ENERGIZED	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. VERIFY THE "NORMAL" LIGHT IS DEENERGIZED STEP 6.3.2.2	"NORMAL" LIGHT IS DEENERGIZED	OPERATOR SHOULD VERIFY THE "NORMAL" LIGHT IS NOT ILLUMINATED	S U Comments:
14. OBSERVE THAT THE MECHANICAL O/S RESET AND THE TRIP PISTON RESET LIGHTS ARE ENERGIZED STEP 6.3.3	"MECHANICAL O/S RESET" LIGHT IS ENERGIZED "TRIP PISTON RESET" LIGHT IS ENERGIZED	OPERATOR SHOULD VERIFY THE "MECHANICAL O/S RESET" AND "TRIP PISTON" LIGHTS ARE ENERGIZED	S U Comments:
15. VERIFY ALL OTHER LIGHTS IN THIS GROUP EXCEPT THE "LOCKED OUT" LIGHT ARE DEENERGIZED STEP 6.3.4	"LOCKED OUT" LIGHT IS THE ONLY LIGHT ENERGIZED IN THE GROUP	OPERATOR SHOULD VERIFY ONLY THE "LOCKED OUT" LIGHT IS ENERGIZED IN THE GROUP	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
16.* DEPRESS AND HOLD THE START MECH O/S TRIP TEST PUSHBUTTON AND VERIFY THE PUSHBUTTON LIGHT ENERGIZES STEP 6.3.5	"START MECH O/S TRIP TEST" BUTTON HAS BEEN PRESSED AND IS NOW ILLUMINATED	OPERATOR SHOULD PRESS AND HOLD THE "START MECH O/S TRIP TEST" PUSHBUTTON AND VERIFY THAT THE PUSHBUTTON LIGHT ENERGIZES	S U Comments:
17.* RELEASE THE START MECH O/S TRIP TEST PUSHBUTTON STEP 6.3.6	"START MECH O/S TRIP TEST" BUTTON HAS BEEN RELEASED	OPERATOR SHOULD RELEASE THE "START MECH O/S TRIP TEST" PUSHBUTTON	S U Comments:
18. OBSERVE THAT THE "MECH O/S RESET" LIGHT DEENERGIZES AND THE "TRIPPED" LIGHT ENERGIZES STEP 6.3.6.1	"MECH O/S RESET" LIGHT DEENERGIZES "TRIPPED" LIGHT ENERGIZES	OPERATOR SHOULD VERIFY THE "MECH O/S RESET" LIGHT DEENERGIZES AND THE "TRIPPED" LIGHT ENERGIZES	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
19. VERIFY ANNUNCIATOR 112B, MECH O/S TURB TRIP ALARMS STEP 6.3.6.2	ANNUNCIATOR 112B, MECH O/S TURB TRIP IS IN ALARM	OPERATOR SHOULD VERIFY ANNUNCIATOR 112B, MECH O/S TURB TRIP IS IN ALARM	S U Comments:
20. VERIFY ANNUNCIATOR 122F, TURB ELECT MALF ALARMS STEP 6.3.6.3	ANNUNCIATOR 122F, TURB ELECT MALF IS IN ALARM	OPERATOR SHOULD VERIFY ANNUNCIATOR 122F ELECT MALF IS IN ALARM	S U Comments:
21. OBSERVE THE "RESETTING" LIGHT ENERGIZES STEP 6.3.6.4	"RESETTING" LIGHT ENERGIZES	OPERATOR SHOULD VERIFY THE "RESETTING" LIGHT ENERGIZES	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
22. OBSERVE THE MECH O/S TRIPPED LIGHT DEENERGIZES AND THE RESET LIGHT ENERGIZES STEP 6.3.6.5	"MECH O/S TRIPPED" LIGHT DEENERGIZES "RESET" LIGHT ENERGIZES	OPERATOR SHOULD VERIFY THE "MECH O/S TRIPPED" LIGHT DEENERGIZES AND THE "RESET" LIGHT ENERGIZES	S U Comments:
23. OBSERVE THE START MECH O/S TRIP TEST LIGHT DEENERGIZES STEP 6.3.6.6	"START MECH O/S TRIP TEST" LIGHT DEENERGIZES	OPERATOR SHOULD VERIFY THE "START MECH O/S TRIP TEST" LIGHT DEENERGIZES	S U Comments:
24. OBSERVE THAT THE RESET LIGHT IS DEENERGIZED STEP 6.3.6.7	"RESETTING" LIGHT IS DEENERGIZED	OPERATOR SHOULD VERIFY THE "RESETTING" LIGHT IS DEENERGIZED	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
25. RESET ANNUNCIATOR 112B MECH O/S TURB TRIP STEP 6.3.12	ANNUNCIATOR 112B, MECH O/S TURB TRIP LIGHT GOES OUT	OPERATOR SHOULD RESET ANNUNCIATOR 112B, MECH O/S TURB TRIP, WITH THE ANNUNCIATOR RESET PUSHBUTTON	S U Comments:
26. INFORM THE CONTROL ROOM SUPERVISOR THAT SECTION 6.3. OF OSP-AC-00004 HAS BEEN COMPLETED	THE CONTROL ROOM SUPERVISOR ACKNOWLEDGES	OPERATOR SHOULD INFORM THE CONTROL ROOM SUPERVISOR THE MECH TRIP TEST HAS BEEN COMPLETED	S U Comments:
	THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>		S U Comments:

* CRITICAL STEP

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. SECTION 6.3 OF OSP-AC-00004, MAIN TURBINE TRIP TESTS, IS REQUIRED. A BRIEF HAS BEEN CONDUCTED AND THE SECONDARY EQUIPMENT OPERATOR HAS OBTAINED KEY 91 FROM THE SS. THE SS HAS GIVEN PERMISSION TO PERFORM THE MECHANICAL OVERSPEED TRIP TEST. YOU ARE THE BOP REACTOR OPERATOR.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PERFORM THE MECHANICAL OVERSPEED TRIP TEST ON THE MAIN TURBINE PER SECTION 6.3 OF OSP-AC-00004, MAIN TURBINE TRIP TESTS. SECTIONS 6.1 AND 6.2 HAVE BEEN PERFORMED PREVIOUSLY. INFORM THE CONTROL ROOM SUPERVISOR WHEN SECTION 6.3 HAS BEEN COMPLETED.

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. THE PLANT HAS EXPERIENCED A FAILURE OF POWER RANGE CHANNEL N42. ALL IMMEDIATE OPERATOR ACTIONS HAVE BEEN COMPLETED.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PERFORM POWER RANGE CHANNEL N42 TRIP INITIATION PER OTO-SE-00003, "POWER RANGE NUCLEAR CHANNEL FAILURE", USING ATTACHMENT 2. INFORM THE CONTROL ROOM SUPERVISOR WHEN YOU HAVE VERIFIED THE PROPER BISTABLE LIGHTS ARE LIT ON SC066W.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: USE IC-164
USE MALFUNCTION NIS03b, CHANNEL N42, 200% POWER; 10 SECOND RAMP.

Task Standard: UPON COMPLETION OF THIS JPM, POWER RANGE NUCLEAR INSTRUMENT CHANNEL N42 WILL HAVE ITS INPUTS TO CHANNEL COMPARATORS AND ROD STOP DEFEATED, REACTOR PROTECTION BISTABLES TRIPPED, AND CONTROL POWER FUSES REMOVED.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OTO-SE-00003, POWER RANGE NUCLEAR CHANNEL FAILURE, ATTACHMENT 2		OPERATOR SHOULD OBTAIN PROCEDURE COPY	S U Comments:
2.* ON THE DETECTOR CURRENT COMPARATOR DRAWER, SELECT THE "UPPER SECTION" SWITCH TO THE PR N42 POSITION AND ANN78B PR UPPER DETECTOR FLUX DEV ALARM IS CLEAR	THE "UPPER SECTION" SWITCH IS SELECTED TO THE PR N42 POSITION AND THE CHANNEL DEFEAT" LIGHT IS ON ANN 78B PR UPPER DETECTOR FLUX DEV IS CLEAR	OPERATOR SHOULD SELECT PR N42 ON THE "DETECTOR CURRENT COMPARATOR" DRAWER "UPPER SECTIONS" ON SE054D AND 78B PR UPPER DETECTOR FLUX DEV ALARM IS CLEAR	S U Comments:
3.* ON THE DETECTOR CURRENT COMPARATOR DRAWER, SELECT THE "LOWER SECTION" SWITCH TO THE PR N42 POSITION AND THAT ANN 78C PR LOWER DETECTOR FLUX DEV IS CLEAR	THE "LOWER SECTION" SWITCH IS IN THE PR N42 POSITION AND THE "CHANNEL DEFEAT" LIGHT IS ON ANN 78C, PR LOWER DETECTOR FLUX DEV IS CLEAR	OPERATOR SHOULD SELECT PR N42 ON THE "DETECTOR CURRENT COMPARATOR" DRAWER "LOWER SECTIONS" ON SE054D AND ANN 78C PR LOWER DETECTOR FLUX DEV CLEARS	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4.* ON THE DETECTOR CURRENT COMPARATOR DRAWER, SELECT THE "ROD STOP BYPASS" SWITCH TO BYPASS PR N42 POSITION AND VERIFY ANN 82A, PR OVER PWR ROD STOP CLEARS</p>	<p>BYPASS PR N42 SELECTED WITH THE "ROD STOP BYPASS" SWITCH</p> <p>ANN 82A, PR OVER PWR ROD STOP CLEARS</p>	<p>OPERATOR SHOULD BYPASS PR N42 WITH THE "ROD STOP BYPASS" SWITCH ON SE054D AND ANN 82A, PR OVER PWR ROD STOP IS CLEAR</p>	<p>S U</p> <p>Comments:</p>
<p>5.* ON THE DETECTOR CURRENT COMPARATOR DRAWER, SELECT THE "POWER MISMATCH BYPASS" SWITCH TO THE BYPASS PR N42 POSITION</p>	<p>BYPASS PR N42 SELECTED BY THE "POWER MISMATCH BYPASS" SELECTOR SWITCH</p>	<p>OPERATOR SHOULD SELECT BYPASS PR N42 WITH THE "POWER MISMATCH BYPASS" SWITCH ON SE054D</p>	<p>S U</p> <p>Comments:</p>
<p>6. ON COMPARATOR AND RATE DRAWER, SELECT CHANNEL N42 WITH THE "COMPARATOR CHANNEL DEFEAT" SWITCH AND VERIFY ANN 78A, PR CHANNEL DEV CLEARS</p>	<p>N42 IS SELECTED BY THE "COMPARATOR CHANNEL DEFEAT" SWITCH AND COMPARATOR DEFEAT LIGHT IS ON</p> <p>ANN 78A, PR CHANNEL DEV CLEARS</p>	<p>OPERATOR SHOULD SELECT N42 WITH THE "COMPARATOR CHANNEL DEFEAT" SWITCH ON SE054D AND VERIFY ANN 78A, PR CHANNEL DEV CLEARS</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
7.* REMOVE CONTROL POWER FUSES FOR CHANNEL N42	POWER RANGE CHANNEL N42 CONTROL POWER FUSES ARE REMOVED AND THE FOLLOWING LIGHTS ARE LIT; OVERPOWER TRIP HIGH RANGE, OVERPOWER TRIP LOW RANGE, NEGATIVE RATE TRIP, AND POSITIVE RATE TRIP	OPERATOR SHOULD PUSH AND TURN THE CONTROL POWER FUSES FOR N42 ON CABINET SE054D AND THEN REMOVE THE FUSES FROM THE DRAWER	<p style="text-align: center;">S U</p> <p>Comments:</p>
8. REQUEST RO/SRO TO INDEPENDENTLY VERIFY CONTROL POWER FUSES REMOVED FOR N42	OS/STA HAS INDEPENDENTLY VERIFIED THE REMOVAL OF POWER RANGE CHANNEL N42 CONTROL POWER FUSES	OPERATOR SHOULD REQUEST RO/SRO TO INDEPENDENTLY VERIFY CONTROL POWER FUSES REMOVED FOR N42	<p style="text-align: center;">S U</p> <p>Comments:</p>
9. INFORM THE SS AND URO OF THE REMOVAL OF CONTROL POWER FUSES N42	<p>SS ACKNOWLEDGES AND HAS THE OS ENTER IT IN THE SS LOGS</p> <p>URO ACKNOWLEDGES AND ENTERS IT IN THE URO LOGS</p>	OPERATOR SHOULD INFORM THE SS AND URO N42 CONTROL POWER FUSES HAVE BEEN REMOVED	<p style="text-align: center;">S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10. CALL AN I&C TECHNICIAN TO PLACE BS-3 AND BS-4 ON SB042 TEST CARD TS/421C/D IN THE TEST POSITION</p>	<p>I&C TECH ACKNOWLEDGES AND HAS PLACED BS-3 AND BS-4 IN "TEST" ON TEST CARD TS/421C/D IN CABINET SB042</p> <p>NOTE: SIMULATOR OPERATOR SHOULD TRIP BISTABLES</p>	<p>OPERATOR SHOULD CONTACT AN I&C TECHNICIAN TO PLACE BS-3 AND BS-4 IN THE TEST POSITION IN CABINET SB042 TEST CARDS</p> <p>BAT SE022.txt</p>	<p>S U</p> <p>Comments:</p>
<p>11. ON PANEL SB069 VERIFY OT T L2 TB421C PR HI SETPT NC42R PR HI FLUX NC42U PR LO SETPT NC42P STATUS LIGHTS ARE LIT</p>	<p>OT T L2 TB421C PR HI SETPT NC42R PR HI FLUX NC42U PR LO SETPT NC42P LIGHTS ARE LIT ON SB069</p>	<p>OPERATOR SHOULD VERIFY OT T L2 TB421C PR HI SETPT NC42R PR HI FLUX NC42U PR LO SETPT NC42P LIGHTS ARE LIT ON SB069 PANEL</p>	<p>S U</p> <p>Comments:</p>
<p>12. VERIFY ON PANEL SC066W THAT THE STATUS LIGHTS FOR OTDT CHAN II INPUT TO C-3 AND N42 BYP C-2 OVER PWR ROD STOP ARE LIT</p>	<p>OTDT CH II INPUT TO C-3 ON SC066W IS LIT</p> <p>N42 BYP C-2 OVER PWR ROD STOP IS LIT</p>	<p>OPERATOR SHOULD VERIFY OTDT CH II INPUT TO C-3 AND N42 BYP C-2 OVER PWR ROD STOP ARE LIT ON SC066W, MISC BISTABLES, ON RL024</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. INFORM THE CONTROL ROOM SUPERVISOR ATTACHMENT 2 OF OTO-SE-00003 HAD BEEN COMPLETED	CONTROL ROOM SUPERVISOR ACKNOWLEDGES	OPERATOR SHOULD INFORM THE CONTROL ROOM SUPERVISOR THE ASSIGNED TASK HAS BEEN COMPLETED.	S U Comments:
	THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>		S U Comments:

* CRITICAL STEP

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. THE PLANT HAS EXPERIENCED A FAILURE OF POWER RANGE CHANNEL N42. ALL IMMEDIATE OPERATOR ACTIONS HAVE BEEN COMPLETED.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PERFORM POWER RANGE CHANNEL N42 TRIP INITIATION PER OTO-SE-00003, "POWER RANGE NUCLEAR CHANNEL FAILURE", USING ATTACHMENT 2. INFORM THE CONTROL ROOM SUPERVISOR WHEN YOU HAVE VERIFIED THE PROPER BISTABLE LIGHTS ARE LIT ON SC066W.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO:	ILE-12/2000-JPMS 3	KSA NO:	001A2.03
COMPLETION TIME:	20 MINUTES	KSA RATING:	3.5/4.2
JOB TITLE:	URO/SRO	REVISION:	000928
TASK TITLE:	MISALIGNED CONTROL ROD		
DUTY:	ROD CONTROL		

The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM _____ SIMULATOR/LAB X PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED X

REFERENCES: OTO-SF-00004, MISALIGNMENT OF CONTROL RODS, REVISION 7

TOOLS/EQUIPMENT: URO LOG SHEET

FACILITY REPRESENTATIVE: //Edward B. Stewart// DATE: 11/16/00

CHIEF EXAMINER: //H. F. Bundy// DATE: 11/16/00

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. TWO (2) HOURS AGO, ROD P-8 WAS DISCOVERED MISALIGNED DURING A POWER INCREASE. A FLUX MAP DETERMINED ROD P-8 IS 15 STEPS LOWER THAN ITS BANK. ROD P-8 WAS DECLARED INOPERABLE AND THE REQUIREMENTS OF T/S 3.1.4, 3.1.5 AND 3.1.6 WERE SATISFIED. A QPTR HAS BEEN PERFORMED SATISFACTORILY. THE EDO AND REACTOR ENGINEER HAVE AGREED THE PROBLEM IS CORRECTED AND THE PLAN IS TO REALIGN CONTROL BANK C.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO REALIGN ROD P-8 WITH CONTROL BANK 'C' PER OTO-SF-00004, "MISALIGNMENT OF CONTROL RODS". STARTING WITH STEP 6.7, WITHDRAW ROD P-8 15 STEPS PER SUBSEQUENT OPERATOR ACTIONS. INFORM THE CONTROL ROOM SUPERVISOR WHEN THE NSSS COMPUTER (ROD BANK UPDATE) HAS BEEN PERFORMED.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: USE IC-165
SET CONTROL BANK D STEP COUNTERS TO 120 STEPS. SET CONTROL BANK C STEP COUNTERS TO 228 STEPS. SET MCRFNS(44) = 213 TO SET CONTROL ROD P-8 TO 213 STEPS. MONITOR ROD P-8 USING MCRFNS(44).

Task Standard: UPON COMPLETION OF THIS JPM, THE OPERATOR WILL HAVE ALIGNED ROD P-8 WITHIN ± 4 STEPS OF BANK C.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OTO-SF-00004, MISALIGNMENT OF CONTROL RODS		OPERATOR SHOULD OBTAIN PROCEDURE COPY	S U Comments:
2. LOCATE LIFT COIL DISCONNECT PANEL		OPERATOR SHOULD GO TO THE NIS CABINET IN THE BACK OF THE SIMULATOR	S U Comments:
3.* PLACE CONTROL RODS H-2 B-8 H-14 F-6 F-10 K-10 K-6 TO THE DISCONNECT POSITION STEP 6.7.1	ROD IS IN THE DISCONNECTED POSITIONS	WITH THE EXCEPTION OF ROD P-8, THE OPERATOR SHOULD PLACE ALL CONTROL BANK 'C' RODS TO THE DISCONNECTED POSITION H-2 _____ B-8 _____ H-14 _____ F-6 _____ F-10 _____ K-10 _____ K-6 _____	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. RECORD IN THE URO LOG THE READING OF THE GROUP STEP COUNTER FOR THE ASSOCIATED ROD STEP 6.7.2		OPERATOR SHOULD RECORD 228 STEPS	S U Comments:
5. CONTACT THE PRIMARY EO AT THE PULSE-TO-ANALOG CONVERTER CABINET, TO HOLD THE "AUTO-MANUAL" SWITCH IN THE <u>MANUAL</u> POSITION STEP 6.7.3	PRIMARY EO IS HOLDING THE AUTO-MANUAL SWITCH IN MANUAL AT THE PULSE-TO-ANALOG CONVERTER CABINET	OPERATOR SHOULD CONTACT THE PRIMARY EO TO HOLD SWITCH NOTE: ACTION MODE, REMOTE SFS001 SHOULD BE USED	S U Comments:
6.* PLACE SE HS-9 BANK SELECTOR SWITCH, TO CBC STEP 6.7.4	CBC IS SELECTED WITH SE HS-9	OPERATOR SHOULD SELECT CBC WITH THE BANK SELECTOR SWITCH SE HS-9	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7. CONTACT THE PRIMARY EO TO ENSURE THAT THE PROPER GROUP SELECT LIGHT IS LIT ON THE POWER CABINET FOR CONTROL BANK 'C'</p> <p>STEP 6.7.4.1</p>	<p>GROUP SELECT LIGHT B IS ILLUMINATED FOR POWER CABINET 1AC AND 2AC</p>	<p>OPERATOR SHOULD DETERMINE POWER CABINET 1AC AND 2AC SHOULD HAVE GROUP SELECT LIGHT 'B' ILLUMINATED</p>	<p>S U</p> <p>Comments:</p>
<p>8.* WITHDRAW ROD P-8 UNTIL ALIGNMENT IS ACHIEVED</p> <p>STEP 6.7.4.2</p>	<p>ROD P-8 IS READING THE DESIRED STEP COUNTER POSITION</p>	<p>WITHDRAW ROD P-8 TO DESIRED POSITION AS READ ON SC-CB-C1</p> <p>NOTE: ROD P-8 SHOULD BE WITHDRAWN 15 ± 4 STEPS</p>	<p>S U</p> <p>Comments:</p>
<p>9. ADJUST TURBINE LOAD AND/OR BORON CONCENTRATION AS NECESSARY TO CONTROL Tave</p> <p>STEP 6.7.4.2.1</p>		<p>OPERATOR MAY ADJUST TURBINE LOAD OR BORON CONCENTRATION AS ROD P-8 IS ALIGNED WITH CONTROL BANK 'C'</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
10. IF THE MISALIGNED ROD DOES NOT RESPOND, PROCEED WITH STEP 6.8 STEP 6.7.4.2.2		OPERATOR SHOULD REALIZE ROD P-8 HAS ALIGNED PROPERLY AND CONTINUE TO STEP 6.7.5	S U Comments:
11. RELEASE THE "AUTO-MANUAL" SWITCH AT THE PULSE-TO-ANALOG CONVERTER CABINET STEP 6.7.5	THE PRIMARY EO HAS PLACED THE "AUTO-MANUAL" SWITCH IS IN AUTOMATIC	OPERATOR SHOULD CONTACT THE PRIMARY EO AND INSTRUCT HIM TO RELEASE THE "AUTO-MANUAL" SWITCH	S U Comments:
12.* PLACE CONTROL ROD H-2 B-8 H-14 F-6 F-10 K-10 K-6 TO THE CONNECTED POSITION STEP 6.7.6	ROD IS IN THE CONNECTED POSITION	OPERATOR SHOULD PLACE ALL CONTROL BANK 'C' RODS TO THE CONNECTED POSITION H-2 _____ B-8 _____ H-14 _____ F-6 _____ F-10 _____ K-10 _____ K-6 _____	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. RESET THE GROUP STEP COUNTER TO THE RECORDED POSITION STEP 6.7.7	STEP COUNTER SC-SB-C1 IS READING THE SAME AS SC-CB-C2	OPERATOR SHOULD RESET STEP COUNTER SC-CB-C1 TO THE RECORDED POSITION	S U Comments:
14. RESET THE ROD CONTROL URGENT FAILURE ALARM USING SF HS-4 STEP 6.7.8	ROD CONTROL URGENT FAILURE ALARM HAS BEEN RESET	OPERATOR SHOULD RESET THE ROD CONTROL URGENT FAILURE ALARM BY PRESSING SF HS-4	S U Comments:
15. RETURN THE BANK SELECTOR SWITCH SE HS-9 TO THE 'AUTO' OR 'MANUAL' POSITION AS REQUIRED BY THE SS STEP 6.7.9	THE SS DIRECTS YOU TO RETURN RODS TO THE 'MANUAL' POSITION	OPERATOR SHOULD RETURN THE BANK SELECTOR SWITCH, SE HS-9 TO THE 'MANUAL' POSITION AS REQUIRED BY THE SS	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
16. IF ROD MISALIGNMENT CANNOT BE CORRECTED, REFER TO TECH SPEC SECTION 3.1.4 STEP 6.8	ROD P-8 WAS ALIGNED CORRECTLY	OPERATOR SHOULD UNDERSTAND THAT ROD P-8 WAS ALIGNED CORRECTLY AND GO TO STEP 6.9	S U Comments:
17. INVESTIGATE THE CAUSE OF THE MALFUNCTION STEP 6.9	THE CAUSE OF ROD P-8 MISALIGNMENT IS UNDER INVESTIGATION	OPERATOR MAY ASK IF ROD P-8 IS UNDER INVESTIGATION	S U Comments:
18. SELECT ROD BANK UPDATE FROM THE NSSS SCREEN STEP 6.10.1	ROD BANK UPDATE HAS BEEN SELECTED FROM THE NSSS COMPUTER SCREEN	OPERATOR SHOULD SELECT THE ROD BANK UPDATE FROM THE NSSS COMPUTER	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
19. UPDATE THE STATUS OF ALL CONTROL ROD BANKS TO REFLECT CURRENT CONDITIONS STEP 6.10.2	NSSS COMPUTER ROD BANK UPDATE HAS BEEN PERFORMED, ALL RODS SHOW CURRENT STATUS		S U Comments:
20. IF A GROUP IS SPLIT, ENTER THE GROUP 1 POSITION ONLY STEP 6.10.2.1	CONTROL BANK 'C' GROUP 1 AND 2 ARE AT THE SAME NUMBER OF STEPS	OPERATOR SHOULD ENTER BOTH GROUP 1 AND 2 STEPS FOR CONTROL BANK 'C'	S U Comments:
21. PRESS F3 TO SAVE UPDATED DATA STEP 6.10.3	F3 HAS BEEN PRESSED	OPERATOR SHOULD PRESS F3 TO SAVE THE DATA ENTERED FOR CONTROL BANK 'C'	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
22. INFORM THE OPERATING SUPERVISOR ROD P-8 HAS BEEN ALIGNED WITH CONTROL BANK 'C' AND THE ROD BANK UPDATE HAD BEEN COMPLETED	<p>THE OPERATING SUPERVISOR ACKNOWLEDGES</p>	OPERATOR SHOULD INFORM THE OS ROD P-8 HAS BEEN ALIGNED WITH CONTROL BANK 'C' AND THE ROD BANK UPDATE HAS BEEN COMPLETED.	<p>S U</p> <p>Comments:</p>
	<p>THE JPM IS COMPLETE</p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>		<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. TWO (2) HOURS AGO, ROD P-8 WAS DISCOVERED MISALIGNED DURING A POWER INCREASE. A FLUX MAP DETERMINED ROD P-8 IS 15 STEPS LOWER THAN ITS BANK. ROD P-8 WAS DECLARED INOPERABLE AND THE REQUIREMENTS OF T/S 3.1.4, 3.1.5 AND 3.1.6 WERE SATISFIED. A QPTR HAS BEEN PERFORMED SATISFACTORILY. THE EDO AND REACTOR ENGINEER HAVE AGREED THE PROBLEM IS CORRECTED AND THE PLAN IS TO REALIGN CONTROL BANK C.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO REALIGN ROD P-8 WITH CONTROL BANK 'C' PER OTO-SF-00004, "MISALIGNMENT OF CONTROL RODS". STARTING WITH STEP 6.7, WITHDRAW ROD P-8 15 STEPS PER SUBSEQUENT OPERATOR ACTIONS. INFORM THE CONTROL ROOM SUPERVISOR WHEN THE NSSS COMPUTER (ROD BANK UPDATE) HAS BEEN PERFORMED.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO:	ILE-12/2000-JPMS4	KSA NO:	029A3.01
COMPLETION TIME:	20 MINUTES	KSA RATING:	3.8/4.0
JOB TITLE:	URO/SRO	REVISION:	000928
TASK TITLE:	REINITIATE CTMT PURGE		
DUTY:	CONTAINMENT PURGE		

The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM _____ SIMULATOR/LAB X PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED X

REFERENCES: OTN-GT-00001, CONTAINMENT PURGE SYSTEM, REV 16. SOS 93-1739

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //Edward B. Stewart// DATE: 11/16/00

CHIEF EXAMINER: //H. F. Bundy// DATE: 11/16/00

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. A CONTAINMENT MINI-PURGE WAS IN PROGRESS TO PREPARE FOR A CONTAINMENT ENTRY. ONE HOUR AGO, A CPIS/CRVIS OCCURRED DUE TO A SPIKE ON GT-RE-22. REPAIRS HAVE BEEN MADE TO GT-RE-22 AND IT IS NOW OPERABLE. OUTSIDE AIR TEMPERATURE IS EXPECTED TO BE >50°F. AIRBORNE CONTAMINATION REDUCTION IS NOT REQUIRED, HOWEVER NOBLE GASES NEED TO BE REDUCED.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PLACE THE CONTAINMENT MINI-PURGE SYSTEM IN SERVICE PER OTN-GT-00001, CONTAINMENT PURGE SYSTEM, SECTION 4.7. THE CONTROL ROOM SUPERVISOR HAS DETERMINED AT THIS TIME NOT TO REALIGN THE CONTROL BUILDING HVAC. THE SS HAS AUTHORIZED REINITIATING PURGE. INFORM THE CONTROL ROOM SUPERVISOR WHEN THE MINI-PURGE HAS BEEN REINITIATED.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: USE IC-165
MANUALLY INITIATE A CPIS AND CRVIS (BOTH TRAINS). TO SET CONTAINMENT PRESSURE AS REQUIRED IF PROBLEMS ARE ENCOUNTERED, USE ACTION, METERS, SET GTPDI40 TO 5, RAMP OVER 5 SECONDS.

Task Standard: UPON COMPLETION OF THIS JPM, THE OPERATOR WILL HAVE ESTABLISHED CONTAINMENT MINI-PURGE.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OTN-GT-00001, CONTAINMENT PURGE SYSTEM		OPERATOR SHOULD OBTAIN PROCEDURE COPY	S U Comments:
2. REVIEW PRECAUTIONS AND LIMITATIONS OF OTN-GT-00001, CONTAINMENT PURGE SYSTEM	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW PRECAUTIONS AND LIMITATIONS	S U Comments:
3. REVIEW INITIAL CONDITIONS OF OTN-GT-00001, CONTAINMENT PURGE SYSTEM	OUTSIDE TEMPERATURE IS EXPECTED TO REMAIN GREATER THAN 50°F AND CTMT AIRBORNE ACTIVITY DOES NOT NEED TO BE REDUCED CHECKLIST 1, 2 AND 3 ARE COMPLETE	OPERATOR SHOULD REVIEW INITIAL CONDITIONS	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. ENSURE THE REQUIREMENTS OF CAUTION PRIOR TO STEP 4.7.1 CAN BE MET PRIOR TO CTMT PURGE REINITIATION</p> <p>CAUTION PRIOR TO STEP 4.7.1</p>		<p>OPERATOR SHOULD REALIZE PURGE WAS ONLY SECURED FOR ONE HOUR AND SS HAS GIVEN PERMISSION TO REINITIATE PURGE</p>	<p>S U</p> <p>Comments:</p>
<p>5. HAVE THE COUNT ROOM TECHNICIAN VERIFY ALARM/TRIP SETPOINTS FOR GTRE21, GTRE22, AND GTRE33 ARE CORRECT PER THE RELEASE PERMIT</p> <p>STEP 4.7.1</p>	<p>THE COUNT ROOM TECHNICIAN HAS VERIFIED SETPOINTS CORRECT PER THE RELEASE PERMIT</p>	<p>OPERATOR SHOULD CONTACT THE COUNT ROOM TECHNICIAN TO VERIFY SETPOINTS FOR GTRE21, 22 AND 33 PER RELEASE</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>6. IF MONITOR READINGS ARE \geq THE HIGH ALARM SETPOINT, CLOSE THE PERMIT, RESAMPLE, AND GENERATE A NEW PERMIT</p> <p>STEP 4.7.1.1</p>	<p>RM 11 CHANNELS 211, 212, 221, 222, 223, 331, 332, AND 333 ARE LIT GREEN</p>	<p>OPERATOR SHOULD USE THE RM11 CONSOLE TO DETERMINE THE COLOR OF CHANNELS 211, 212, 221, 222, 223, 331, 332, AND 333 ARE NOT LIT RED</p>	<p>S U</p> <p>Comments:</p>
<p>7. CHECK SA036D AND SA036E HAVE NO BISTABLES LIT. RECORD ON THE URO LOG AND RESET THE BISTABLE LIGHTS</p> <p>STEP 4.7.2</p>	<p>NO BISTABLE LIGHTS ARE LIT ON SA036D AND SA036E</p>	<p>OPERATOR SHOULD GO TO THE SA036D AND SA036E PANEL IN THE BACK OF THE CONTROL ROOM AND VERIFY NO BISTABLE LIGHTS LIT</p>	<p>S U</p> <p>Comments:</p>
<p>8. IF REQUIRED, WITH SS/CRS PERMISSION, RESET THE FOLLOWING:</p> <p>STEP 4.7.3</p>	<p>IF ASKED: THE SS HAS AUTHORIZED RESETTING SWITCHES</p>	<p>OPERATOR SHOULD REALIZE SS HAS GIVEN PERMISSION</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
9.* RESET CPIS BY DEPRESSING SA HS-15, CTMT PURGE TRN 'B' ISO ON RL018 STEP 4.7.3	TRAIN 'B' CPIS HAS BEEN RESET	OPERATOR SHOULD DEPRESS THE RESET BUTTON ON SA HS-15, CTMT PURGE TRN 'B' ISO ON RL018	S U Comments:
10.* RESET CRVIS BY DEPRESSING SA HS-13, CTRL BLDG VENT TRN 'B' ISO STEP 4.7.3	TRAIN 'B' CRVIS HAS BEEN RESET	OPERATOR SHOULD DEPRESS THE RESET BUTTON ON SA HS-13, CTRL BLDG VENT TRN 'B' ISO ON RL018	S U Comments:
11.* RESET CPIS BY DEPRESSING SA HS-11, CTMT PURGE TRN 'A' ISO ON RL018 STEP 4.7.3	TRAIN 'A' CPIS HAS BEEN RESET	OPERATOR SHOULD DEPRESS THE RESET BUTTON ON SA HS-11, CTMT PURGE TRN 'A' ISO ON RL018	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>12.* RESET CRVIS BY DEPRESSING SA HS-9, CTRL BLDG VENT TRN 'A' ISO ON RL018</p> <p>STEP 4.7.3</p>	<p>TRAIN 'A' CRVIS HAS BEEN RESET</p>	<p>OPERATOR SHOULD DEPRESS THE RESET BUTTON ON SA HS-9, CTRL BLDG VENT TRN 'A' ISO ON RL018</p>	<p>S U</p> <p>Comments:</p>
<p>13. ENSURE CPIS AND CRVIS LIGHTS OUT ON ESFAS STATUS PANELS; IF REQUIRED USE SA HS-24 AND/OR SA HS-23, ESF PANEL MODE SEL SWITCHES, TO RESET</p> <p>STEP 4.7.3.1</p>	<p>CPIS AND CRVIS LIGHTS ON 'B' ESFAS STATUS PANEL ARE OUT</p>	<p>OPERATOR SHOULD OBSERVE THE "CTRL RM VENT ISO SYS" LABEL BACKLIGHT GOES OUT ON SA066Y</p>	<p>S U</p> <p>Comments:</p>
<p>14. ENSURE CPIS AND CRVIS LIGHTS OUT ON ESFAS STATUS PANELS; IF REQUIRED USE SA HS-24 AND/OR SA HS-23, ESF PANEL MODE SEL SWITCHES, TO RESET</p> <p>STEP 4.7.3.1</p>	<p>CPIS AND CRVIS LIGHTS ON 'A' ESFAS STATUS PANEL ARE OUT</p>	<p>OPERATOR SHOULD OBSERVE THE "CTRL RM VENT ISO SYS" LABEL BACKLIGHT GOES OUT ON SA066X</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>15. ENSURE MCB ANNUNCIATORS 59D (CPIS) AND 63A (CRVIS) ARE CLEAR.</p> <p>STEP 4.7.3.2</p>	<p>MCB ANNUNCIATORS 59D AND 63A ARE CLEAR.</p>	<p>OPERATOR SHOULD VERIFY MCB ANNUNCIATORS 59D AND 63A ARE CLEAR.</p>	<p>S U</p> <p>Comments:</p>
<p>16. IF REQUIRED, REALIGN THE CONTROL BUILDING HVAC PER OTN-GK-00001</p> <p>STEP 4.7.4</p>	<p>THE O.S. HAS DETERMINED TO ALIGN MINI-PURGE PRIOR TO REALIGNING THE CONTROL BUILDING HVAC</p>	<p>THE OPERATOR SHOULD CONTINUE WITH STEP 4.7.5 AND NOT ALIGN CONTROL BUILDING HVAC AT THIS TIME</p> <p>GIVEN IN INITIAL CONDITIONS</p>	<p>S U</p> <p>Comments:</p>
<p>17. PLACE MINI-PURGE IN SERVICE PER SECTION 4.3 OF THIS PROCEDURE</p> <p>STEP 4.7.5</p>		<p>OPERATOR SHOULD GO TO SECTION 4.3</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
18. ENSURE GASEOUS RADWASTE RELEASE PERMIT IS APPROVED PER SECTION 4.2 OF THIS PROCEDURE STEP 4.3.1	RELEASE PERMIT HAS BEEN APPROVED PER SECTION 4.2	OPERATOR SHOULD VERIFY RELEASE PERMIT HAS BEEN APPROVED	S U Comments:
19. MONITOR OR TREND SDRE41, SDRE42, AND GTPDI040 STEP 4.3.2	SDRE41, SDRE42, AND GT-PDI-040 ARE ALL STABLE	OPERATOR SHOULD MONITOR SDRE41, SDRE42, AND GTPDI040 OR MAY USE TRENDS. OPERATOR MAY USE COMPUTER TIME TREND SCREEN AND USE 'MINIVENT'	S U Comments:
20. RECORD CONTAINMENT, GTPDI0040 OR GTD0040, PRESSURE ON THE GASEOUS RADWASTE PERMIT. STEP 4.3.2.1	CONTAINMENT PRESSURE HAS BEEN RECORDED	OPERATOR SHOULD DETERMINE CONTAINMENT PRESSURE, GTPDI0040 OR GTD0040, ON THE GASEOUS RADWASTE PERMIT	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
21. VERIFY THE "CONTAINMENT PURGE IN PROGRESS DO NOT BYPASS" COVERS OVER THE ESFAS SWITCHES FOR GTRE22 AND 33 STEP 4.3.3	COVERS HAVE BEEN PLACED OVER GTRE22 AND GTRE33 ESFAS SWITCHES	OPERATOR SHOULD VERIFY THE COVERS ON GTRE22 AND GTRE33 ESFAS SWITCHES	S U Comments:
22. INITIAL/DATE/TIME ON SP010 FOR GT RR-21B AND GT RR-58 STEP 4.3.4	INITIALS HAVE BEEN MADE ON GT RR-21B AND GT RR-58	HAVE OPERATOR SHOW LOCATION OF GT RR-21B AND GT RR-58	S U Comments:
23.* START CGT02 CONTAINMENT MINI PURGE EXHAUST FAN USING GT HIS- 20 STEP 4.3.5	GT HIS-20 RED LIGHTS ILLUMINATE AND GREEN LIGHTS GO OUT	OPERATOR SHOULD SELECT RUN FOR GT HIS-20, CTMT MINI-PURGE EXH FAN AND DAMPER, ON RL020	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
24.* OPEN GTHZ0011 USING GT HIS-11, CTMT PURGE ISO DAMPER STEP 4.3.5.1	GT HIS-11 RED LIGHT ILLUMINATES AND THE GREEN LIGHT GOES OUT	OPERATOR SHOULD DEPRESS AND HOLD THE OPEN PUSHBUTTON FOR GT HIS-11	S U Comments:
25.* OPEN GTHZ0012 USING GT HIS-12, CTMT PURGE ISO DAMPER STEP 4.3.5.1	GT HIS-12 RED LIGHT ILLUMINATES AND THE GREEN LIGHT GOES OUT	OPERATOR SHOULD DEPRESS AND HOLD THE OPEN PUSHBUTTON FOR GT HIS-12	S U Comments:
26.* OPEN GTHZ0028 USING GT HIS-28, CTMT PURGE ISO DAMPER STEP 4.3.5.1	GT HIS-28 RED LIGHT ILLUMINATES AND THE GREEN LIGHT GOES OUT	OPERATOR SHOULD DEPRESS AND HOLD THE OPEN PUSHBUTTON FOR GT HIS-28	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
27.* OPEN GTHZ0029 USING GT HIS-29, CTMT PURGE ISO DAMPER STEP 4.3.5.1	GT HIS-29 RED LIGHT ILLUMINATES AND THE GREEN LIGHT GOES OUT	OPERATOR SHOULD DEPRESS AND HOLD THE OPEN PUSHBUTTON FOR GT HIS-29	S U Comments:
28. INFORM COUNT ROOM TECHNICIAN WHEN PURGE INITIATED STEP 4.3.5.2	COUNT ROOM TECHNICIAN ACKNOWLEDGES	OPERATOR SHOULD NOTIFY THE COUNT ROOM TECHNICIAN OF THE TIME THE PURGE WAS INITIATED	S U Comments:
29. MONITOR CTMT PRESSURE TO BE LESS THAN 10" WG STEP 4.3.6	CTMT PRESSURE IS LESS THAN 10" WG	OPERATOR SHOULD DETERMINE CTMT PRESSURE FROM GTPDI40, CTMT DP, ON RL020	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
30. OPEN GTHZ0041 AND GTHZ0042 USING GT HIS-41, CTMT MINI-PURGE SPLY/EXH DAMPERS STEP 4.3.6	GT HIS-41 RED LIGHT ILLUMINATES AND THE GREEN LIGHT GOES OUT	OPERATOR SHOULD DEPRESS AND HOLD THE OPEN PUSHBUTTON FOR GT HIS-41, CTMT MINI-PURGE SPLY / EXH DAMPERS, ON RL020	S U Comments:
31. MONITOR CTMT PRESSURE TO BE LESS THAN 4.25" WG STEP 4.3.7	CTMT PRESSURE IS NOW 2.5" WG	OPERATOR SHOULD DETERMINE CTMT PRESSURE FROM GTPDI40, CTMT DP, ON RL020	S U Comments:
32.* OPEN GTHZ0026 USING GT HIS-26, CTMT PURGE SYS AIR SPLY DAMPER STEP 4.3.7	GT HIS-26 RED LIGHT ILLUMINATES AND THE GREEN LIGHT GOES OUT	OPERATOR SHOULD DEPRESS AND HOLD THE OPEN PUSHBUTTON FOR GT HIS-26, CTMT PURGE SYS AIR SPLY DAMPER, ON RL020	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>33.* OPEN GTHZ0027 USING GT HIS-27, CTMT PURGE SYS AIR SPLY DAMPER</p> <p>STEP 4.3.7</p>	<p>GT HIS-27 RED LIGHT ILLUMINATES AND THE GREEN LIGHT GOES OUT</p>	<p>OPERATOR SHOULD DEPRESS AND HOLD THE OPEN PUSHBUTTON FOR GT HIS-27, CTMT PURGE SYS AIR SPLY DAMPER, ON RL020</p>	<p>S U</p> <p>Comments:</p>
<p>34.* START CONTAINMENT MINI PURGE SUPPLY AIR UNIT, SGT02, USING GT HIS-23</p> <p>STEP 4.3.8</p>	<p>GT HIS-23 RED LIGHT ILLUMINATES AND THE GREEN LIGHT GOES OUT</p>	<p>OPERATOR SHOULD SELECT RUN FOR GT HIS-23, CTMT MINI-PURGE AIR SUPPLY UNIT, ON RL020</p>	<p>S U</p> <p>Comments:</p>
<p>35.* OPEN GTHZ0005 USING GT HIS-5, CTMT MINI-PURGE AIR SPLY CTMT ISO</p> <p>STEP 4.3.8.1</p>	<p>GT HIS-5 RED LIGHT IS LIT AND THE GREEN LIGHT GOES OUT</p>	<p>OPERATOR SHOULD DEPRESS AND HOLD THE OPEN PUSHBUTTON FOR GT HIS-5, CTMT MINI-PURGE AIR SPLY CTMT ISO, ON RL020</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
36.* OPEN GTHZ0004 USING GT HIS-4, CTMT MINI-PURGE AIR SPLY CTMT ISO STEP 4.3.8.1	GT HIS-4 RED LIGHT IS LIT AND THE GREEN LIGHT GOES OUT	OPERATOR SHOULD DEPRESS AND HOLD THE OPEN PUSHBUTTON FOR GT HIS-4, CTMT MINI-PURGE AIR SPLY CTMT ISO, ON RL020	S U Comments:
37. NOTIFY THE CONTROL ROOM SUPERVISOR THAT CTMT MINI-PURGE HAS BEEN RE-INITIATED	CONTROL ROOM SUPERVISOR ACKNOWLEDGES	OPERATOR SHOULD INFORM THE CONTROL ROOM SUPERVISOR THAT CTMT MINI-PURGE HAS BEEN RE-INITIATED	S U Comments:
	THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 2</u>		S U Comments:

* CRITICAL STEP

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. A CONTAINMENT MINI-PURGE WAS IN PROGRESS TO PREPARE FOR A CONTAINMENT ENTRY. ONE HOUR AGO, A CPIS/CRVIS OCCURRED DUE TO A SPIKE ON GT-RE-22. REPAIRS HAVE BEEN MADE TO GT-RE-22 AND IT IS NOW OPERABLE. OUTSIDE AIR TEMPERATURE IS EXPECTED TO BE >50°F. AIRBORNE CONTAMINATION REDUCTION IS NOT REQUIRED, HOWEVER NOBLE GASES NEED TO BE REDUCED.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PLACE THE CONTAINMENT MINI-PURGE SYSTEM IN SERVICE PER OTN-GT-00001, CONTAINMENT PURGE SYSTEM, SECTION 4.7. THE CONTROL ROOM SUPERVISOR HAS DETERMINED AT THIS TIME NOT TO REALIGN THE CONTROL BUILDING HVAC. THE SS HAS AUTHORIZED REINITIATING PURGE. INFORM THE CONTROL ROOM SUPERVISOR WHEN THE MINI-PURGE HAS BEEN REINITIATED.

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 5 PREPARING FOR A REFUELING OUTAGE. MAINTENANCE HAS BEEN PERFORMED ON ENHV0006, CONTAINMENT SPRAY PUMP 'A' DISCHARGE ISOLATION VALVE. ALL INITIAL CONDITIONS, PRECAUTIONS AND LIMITATIONS ARE SATISFIED.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PERFORM THE VALVE STROKE TEST ON ENHV0006, CONTAINMENT SPRAY PUMP "A" DISCHARGE ISOLATION VALVE PER SECTION 6.2 OF OSP-EN-V001A, SECTION XI TRAIN 'A' CONTAINMENT SPRAY VALVE OPERABILITY. A BRIEF HAS BEEN CONDUCTED. THE PRIMARY EQUIPMENT OPERATOR IS AT ENHV0006, AND HAS A RULER AND THE DRAIN RIG, READY FOR THE SURVEILLANCE TEST. INFORM THE CONTROL ROOM SUPERVISOR WHEN SECTION 6.2 HAS BEEN COMPLETED.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: USE EXPERT MODE / SET VI013SEC= 0.015 TO HAVE ENHV0006 EXCEED THE MAXIMUM STROKE TIME OF 15 SECONDS.

Task Standard: UPON COMPLETION OF THIS JPM, THE OPERATOR WILL HAVE PREFORMED A STROKE TEST OF ENHV0006 AND DETERMINED THAT IT HAS EXCEEDED THE MAXIMUM ALLOWABLE STROKE TIME (15 SECONDS). THE OPERATOR SHOULD DETERMINE ENHV006 SHOULD BE DECLARED INOPERABLE.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OSP-EN-V001A, SECTION XI TRAIN 'A' CONTAINMENT SPRAY VALVE OPERABILITY		OPERATOR SHOULD OBTAIN PROCEDURE COPY	S U Comments:
2. REVIEW ACCEPTANCE CRITERIA OF OSP- EN-V001A, SECTION XI TRAIN 'A' CONTAINMENT SPRAY VALVE OPERABILITY STEP 2.0		OPERATOR SHOULD REVIEW ACCEPTANCE CRITERIA	S U Comments:
3. REVIEW PRECAUTIONS AND LIMITATIONS OF OSP-EN-V001A, SECTION XI TRAIN 'A' CONTAINMENT SPRAY VALVE OPERABILITY STEP 3.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW PRECAUTIONS AND LIMITATIONS	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. REVIEW INITIAL CONDITIONS OF OSP-EN-V001, SECTION XI TRAIN 'A' CONTAINMENT SPRAY VALVE OPERABILITY STEP 4.0	ALL INITIAL CONDITIONS ARE SATISFIED	OPERATOR SHOULD REVIEW INITIAL CONDITIONS	S U Comments:
5. ENSURE 'A' CONTAINMENT SPRAY PUMP IS IN PULL TO LOCK USING EN HIS-3 STEP 6.2.1	EN HIS-3 IS IN THE PULL TO LOCK POSITION	OPERATOR SHOULD VERIFY 'A' CONTAINMENT SPRAY PUMP IN PULL TO LOCK WITH EN HIS-3	S U Comments:
6.* ENSURE 'A' CONTAINMENT SPRAY PUMP SUCTION VALVE, BNHV0004, IS CLOSED USING BN HIS-4 STEP 6.2.2	BN HIS-4 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD CLOSE BNHV0004, 'A' CONTAINMENT SPRAY PUMP SUCTION VALVE, WITH BN HIS-4	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
7. VERIFY CLOSED ENHV0006, USING EN HIS-6. RECORD THIS INITIAL POS ON ATTACHMENT 1 STEP 6.2.3	EN HIS-6 GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY EN HIS-6 'A CONTAINMENT SPRAY PUMP DISCHARGE ISO VALVE IS CLOSED, AND RECORD THE INITIAL POSITION ON ATTACHMENT 1	S U Comments:
8. REMOVE THE VALVE DUST COVER FROM ENHV0006 STEP 6.2.4	PRIMARY EO REPORTS THE VALVE DUST COVER HAS BEEN REMOVED FROM ENHV0006	OPERATOR SHOULD CONTACT PERSONNEL AT ENHV0006 TO HAVE THE DUST COVER REMOVED	S U Comments:
9. MEASURE THE HEIGHT OF THE STEM ABOVE THE ACTUATOR STEP 6.2.5	PRIMARY EO REPORTS THE HEIGHT OF THE STEM ABOVE THE ACTUATOR IS 1.5 INCHES	OPERATOR SHOULD CONTACT PERSONNEL AT ENHV0006 TO HAVE THE HEIGHT OF THE STEM ABOVE ENHV0006 ACTUATOR MEASURED	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10. RECORD 1.5 INCHES AS THE INITIAL LOCAL POSITION ON ATTACHMENT 1</p> <p>STEP 6.2.6</p>		<p>OPERATOR SHOULD RECORD 1.5 INCHES ON ATTACHMENT 1 UNDER INIT LOCAL POS</p>	<p>S U</p> <p>Comments:</p>
<p>11.* OPEN ENHV0006 USING EN HIS-6. MEASURE ELAPSED TIME BETWEEN ACTUATION OF THE SWITCH AND GREEN LIGHT GOING OUT</p> <p>STEP 6.2.7</p>	<p>THE SWITCH HAS BEEN ACTUATED AND 17 SECONDS LATER THE GREEN LIGHT GOES OUT</p> <p>IF ASKED, INFORM THE OPERATOR TO COMPLETE THE SURVEILLANCE</p>	<p>OPERATOR SHOULD MEASURE STROKE TIME TO BE APPROXIMATELY 17 SECONDS</p> <p>NOTE: OPERATOR MAY DETERMINE ENHV006 IS INOPERABLE AT THIS TIME</p>	<p>S U</p> <p>Comments:</p>
<p>12. MEASURE THE HEIGHT OF THE STEM ABOVE THE ACTUATOR ON ENHV0006</p> <p>STEP 6.2.8</p>	<p>PRIMARY EO REPORTS THE STEM MEASUREMENT FOR ENHV0006 IS 10 INCHES</p>	<p>OPERATOR SHOULD CONTACT PERSONNEL AT ENHV0006 TO DETERMINE THE HEIGHT OF THE STEM ABOVE THE ACTUATOR ON ENHV0006</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. RECORD 10 INCHES AS THE FULL STROKE LOCAL POSITION ON ATTACHMENT 1 STEP 6.2.9		OPERATOR SHOULD RECORD 10 INCHES AS THE FULL STROKE LOCAL POS ON ATTACHMENT 1	S U Comments:
14. REPLACE THE VALVE DUST COVER ON ENHV0006 STEP 6.2.10	PRIMARY EO REPORTS THE DUST COVER HAS BEEN REPLACED ON ENHV0006	OPERATOR SHOULD CONTACT PERSONNEL AT ENHV0006 TO HAVE DUST COVER REPLACED	S U Comments:
15.* CLOSE ENHV006, CONTAINMENT SPRAY PUMP 'A' DISCHARGE ISO VLV WITH EN HIS-6 STEP 6.2.11	EN HIS-6 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD CLOSE ENHV0006, CTMT SPRAY PUMP 'A' DISCHARGE ISO VLV WITH EN HIS-6	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
16. OPEN BNHV0004, 'A' CONTAINMENT SPRAY PUMP SUCTION VALVE WITH BN HIS-4 STEP 6.2.12	BN HIS-4 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT	OPERATOR SHOULD OPEN BNHV0004, 'A' CTMT SPRAY PMP SUCTION VALVE WITH BN HIS-4	S U Comments:
17. USING THE MEASUREMENT TAKEN, VERIFY THAT STEM MOVEMENT IS GREATER THAN THE VALUE LISTED FOR VALVE STROKE IN ATTACHMENT 1 STEP 6.2.13		OPERATOR SHOULD VERIFY VALVE STROKE FOR ENHV0006 (10"- 1.5" =8.5") IS GREATER THAN VALVE STROKE DISTANCE (8.3") FROM ATTACHMENT 1	S U Comments:
18. INFORM HP RWST WATER IS GOING TO BE DRAINED FROM THE CONTAINMENT SPRAY SYSTEM STEP 6.2.14.1	HP ACKNOWLEDGES	OPERATOR SHOULD INFORM HP THAT RWST WATER IS GOING TO BE DRAINED FROM 'A' CTMT SPRAY DISCHARGE HEADER	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
19. HAVE THE PRIMARY EO CONNECT A HOSE TO ENV0076 AND ROUTE TO A FLOOR DRAIN, UNLOCK AND OPEN ENV0076, DRAIN WATER AND THEN CLOSE AND LOCK ENV0076 STEPS 6.2.14.2/3/4	THE PRIMARY EO REPORTS ALL WATER HAS BEEN DRAINED FROM ENV0076 AND ENV0076 IS CLOSED AND LOCKED	OPERATOR SHOULD CONTACT THE PRIMARY EO TO HAVE ENV0076 OPENED TO DRAIN RWST WATER FROM 'A' CTMT SPRAY DISCH HEADER, THEN CLOSED AND LOCKED	S U Comments:
20. PLACE 'A' CONTAINMENT SPRAY PUMP HANDSWITCH EN HIS-3 IN NORMAL STEP 6.2.15	EN HIS-3 HAS BEEN TAKEN FROM PULL TO LOCK TO THE NORMAL POSITION	OPERATOR SHOULD RETURN 'A' CTMT SPRAY PMP HANDSWITCH EN HIS-3 TO THE NORMAL POSITION NOTE: IF ASKED EN HIS-3 WILL BE TAKEN TO THE PULL TO LOCK POSITION AT THE COMPLETION OF THIS TEST	S U Comments:
21.* INFORM THE CONTROL ROOM SUPERVISOR ENHV0006 HAS FAILED THE SURVEILLANCE TEST	THE CONTROL ROOM SUPERVISOR ACKNOWLEDGES	OPERATOR SHOULD NOTIFY THE CONTROL ROOM SUPERVISOR ENHV0006 EXCEEDED IT MAX ALLOWABLE STROKE TIME PER 6.2 OF OSP-EN-V001A	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
	THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>		S U Comments:

* CRITICAL STEP

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 5 PREPARING FOR A REFUELING OUTAGE. MAINTENANCE HAS BEEN PERFORMED ON ENHV0006, CONTAINMENT SPRAY PUMP 'A' DISCHARGE ISOLATION VALVE. ALL INITIAL CONDITIONS, PRECAUTIONS AND LIMITATIONS ARE SATISFIED.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PERFORM THE VALVE STROKE TEST ON ENHV0006, CONTAINMENT SPRAY PUMP "A" DISCHARGE ISOLATION VALVE PER SECTION 6.2 OF OSP-EN-V001A, SECTION XI TRAIN 'A' CONTAINMENT SPRAY VALVE OPERABILITY. A BRIEF HAS BEEN CONDUCTED. THE PRIMARY EQUIPMENT OPERATOR IS AT ENHV0006, AND HAS A RULER AND THE DRAIN RIG, READY FOR THE SURVEILLANCE TEST. INFORM THE CONTROL ROOM SUPERVISOR WHEN SECTION 6.2 HAS BEEN COMPLETED.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO:	ILE-12/2000-JPMS6	KSA NO:	062A4.01
COMPLETION TIME:	15 MINUTES	KSA RATING:	3.3/3.1
JOB TITLE:	URO/SRO	REVISION:	20001114
TASK TITLE:	CROSS-CONNECT LOAD CENTERS		
DUTY:	CLASS 1E 480 VAC		

The performance of this task was evaluated against the standards contained in this JPM and determined to be:

SATISFACTORY UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM _____ SIMULATOR/LAB X PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED X

REFERENCES: OTN-NG-00001, CLASS IE 480 VAC ELECTRICAL SYSTEM, REV 8

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //Edward B. Stewart// DATE: 11/16/00

CHIEF EXAMINER: //H. F. Bundy// DATE: 11/16/00

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 5 PREPARING FOR A REFUELING OUTAGE. ELECTRICIANS ARE PREPARING TO PERFORM MAINTENANCE ON BREAKER NG0201 (NG02 FEEDER FROM NB02). NB01 IS THE OPERABLE BUS. An EOSL HAS BEEN PREPARED TO TRACK THE INOPERABILITY OF THE 4 BUS DEGRADED VOLTAGE CHANNELS FOR NB02. ALL INITIAL CONDITIONS, PRECAUTIONS AND LIMITATIONS ARE SATISFIED.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO CROSS-CONNECT LOAD CENTERS NG02 AND NG04 PER OTN-NG-00001, CLASS 1E 480 VAC ELECTRICAL SYSTEM, SECTION 5.2. INFORM THE WPA REACTOR OPERATOR WHEN NG02 AND NG04 ARE CROSS-CONNECTED AND BREAKER NG0201 IS OPEN.
AFTER THE ELECTRICAL WORK HAS BEEN COMPLETED ON NG0201 (AND TAGS ARE CLEARED) RESTORE NG02 THROUGH IT'S NORMAL FEEDER PER SECTION 5.3 OF OTN-NG-00001.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: USE IC-166. ENSURE 'B' AIR COMPRESSOR IS SECURED.

Task Standard: UPON COMPLETION OF THIS JPM, THE OPERATOR WILL HAVE CROSS-CONNECTED NG02 WITH NG04 AND RESTORED NG02 TO IT'S NORMAL SOURCE.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OTN-NG-00001, CLASS 1E 480 VAC ELECTRICAL SYSTEM	PROVIDE OPERATOR WITH PROCEDURE	OPERATOR SHOULD OBTAIN PROCEDURE COPY	S U Comments:
2. REVIEW PRECAUTIONS AND LIMITATIONS OF OTN-NG-00001, CLASS 1E 480 VAC ELECTRICAL SYSTEM STEP 2.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW PRECAUTIONS AND LIMITATIONS	S U Comments:
3. REVIEW INITIAL CONDITIONS OF OTN-NG-00001, CLASS 1E 480 VAC ELECTRICAL SYSTEM STEP 3.0	ALL INITIAL CONDITIONS ARE SATISFIED	OPERATOR SHOULD REVIEW INITIAL CONDITIONS	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. TWO LOAD CENTERS WITHIN EACH LOAD GROUP MAY BE CROSS-CONNECTED, PROVIDED THE COMBINED TOTAL AMPERAGE BEING DRAWN BY THE TWO DOES NOT EXCEED 1200 AMPS WHEN READ ON THE LOCAL AMMETERS</p> <p>CAUTION PRIOR TO STEP 5.2.1</p>	<p>IF ASKED:</p> <p>SECONDARY OPERATOR REPORTS NG02 AMMETER INDICATES 430 AMPS</p> <p>NG04 AMMETER INDICATES 450 AMPS</p>	<p>OPERATOR MAY VERIFY THE TOTAL LOAD BY NG02 AND NG04 DOES NOT EXCEED 1200 AMPS</p>	<p>S U</p> <p>Comments:</p>
<p>5. ENSURE TECH SPEC COMPLIANCE PRIOR TO CLOSING CROSS-TIE BREAKER</p> <p>STEP 5.2.1</p>	<p>NOTE: NO T/S CONCERNS EXIST IN THIS MODE SINCE NB01 IS THE OPERABLE BUS</p>	<p>OPERATOR SHOULD REALIZE NO T/S CONCERNS EXIST</p>	<p>S U</p> <p>Comments:</p>
<p>6. CREATE AND ACTIVATE AND EOSL TO TRACK THE INOPEABILITY OF THE 4 DEGRADED VOLTAGE CHANNELS FOR NB02</p> <p>STEP 5.2.2.</p>	<p>THE EOSL HAS BEEN ACTIVATED</p>	<p>OPERATOR SHOULD HAVE NB02 DEGRADED VOLTAGE EOSL ACTIVATED</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
7.* HOLD NG0216, TIE BKR FOR NG02 AND NG04, IN THE CLOSED POSITION WITH HANDSWITCH NG HIS-13 STEP 5.2.3	NG HIS-13 AMBER LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT	OPERATOR SHOULD HOLD TIE BKR FOR NG02 AND NG04 IN THE CLOSED POSITION WITH HANDSWITCH NG HIS-13 NOTE: OPERATOR SHOULD NOT RELEASE SWITCH	S U Comments:
8. OPEN NG0201, NORMAL FEEDER BREAKER FOR NG02 WITH NG HIS-12 STEP 5.2.4	NG HIS-13 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT NG HIS-12 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD OPEN NG0201, NORMAL FEEDER BREAKER FOR NG02 WITH NG HIS-12	S U Comments:
9.* RELEASE NG HIS-13 TIE BREAKER FOR NG02 AND NG04, STEP 5.2.5	NG HIS-13 HAS BEEN RELEASED	OPERATOR SHOULD RELEASE NG HIS-13, TIE BKR FOR NG02 AND NG04 HANDSWITCH	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10. DIRECT SECONDARY OPERATOR TO VERIFY THE COMBINED TOTAL AMPERAGE BEING DRAWN BY THE LOAD CENTERS DOES NOT EXCEED 1200 AMP</p> <p>STEP 5.2.6</p>	<p>THE SECONDARY OPERATOR REPORT TOTAL AMPERAGE IS 880 AMPS FOR NG02 AND NG04</p>	<p>OPERATOR SHOULD DIRECT AN OPERATOR TO VERIFY NG02 AND NG04 AMPERAGE IS LESS THAN 1200 AMPS</p>	<p>S U</p> <p>Comments:</p>
<p>11. DIRECT SECONDARY OPERATOR TO INSPECT THE AFFECT LOAD CENTERS AND MCC FOR TRIPPED LOADS.</p> <p>STEP 5.2.7</p>	<p>THE SECONDARY OPERATOR REPORTS THAT NO LOADS HAVE TRIPPED FOR NG02 AND NG04</p>	<p>OPERATOR SHOULD DIRECT AND EQUIPMENT OPERATOR TO VERIFY NO LOADS HAVE TRIPPED ON NG02 OR NG04</p>	<p>S U</p> <p>Comments:</p>
<p>12. INFORM THE WPA RO NG0201, NG02 NORMAL FEEDER BREAKER IS OPEN</p>	<p>THE WPA RO HAS HUNG WPA ON NG0201 AND ELECTRICIANS HAVE STARTED WORKING</p>	<p>OPERATOR SHOULD NOTIFY WPA REACTOR OPERATOR THAT NG02 AND NG04 ARE CROSS-CONNECTED AND NG0201 IS OPEN</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13.	THE ELECTRICIANS ARE DONE INSPECTING NG0201, AND WPA HAS BEEN CLEARED AND VERIFIED	OPERATOR SHOULD PROCEED TO SECTION 5.3	S U Comments:
14.* HOLD NG HIS-12, NG02 NORMAL FEEDER BREAKER CLOSE STEP 5.3.1	NG HIS-12 AMBER LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT	OPERATOR SHOULD HOLD CLOSE NG HIS-12, NG02 NORMAL FEEDER BREAKER NOTE: OPERATOR SHOULD NOT RELEASE HANDSWITCH	S U Comments:
15.* OPEN NG HIS-13, NG02-NG04 CROSS-CONNECT STEP 5.3.2	NG HIS-12 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT NG HIS-13 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD OPEN NG02-NG04 CROSS-CONNECT BREAKER WITH HANDSWITCH NG HIS-13	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
16. RELEASE NG HIS-12, NG02 NORMAL FEEDER BREAKER STEP 5.3.3	NG HIS-12 HANDSWITCH HAS BEEN RELEASED	OPERATOR SHOULD RELEASE NG HIS-12, NG02 NORMAL FEEDER BREAKER	S U Comments:
17. DIRECT SECONDARY OPERATOR TO INSPECT THE AFFECT LOAD CENTER AND MCC FOR TRIPPED LOADS. STEP 5.3.4	THE SECONDARY OPERATOR REPORTS THAT NO LOAD HAVE TRIPPED FOR NG02 AND NG04	OPERATOR SHOULD DIRECT AND EQUIPMENT OPERATOR TO VERIFY NO LOAD HAVE TRIPPED ON NG02 OR NG04	S U Comments:
18. INFORM THE CONTROL ROOM SUPERVISOR NG02 AND NG04 ARE NOW IN THEIR NORMAL ALIGNMENT	THE CONTROL ROOM SUPERVISOR ACKNOWLEDGES	OPERATOR SHOULD INFORM THE CONTROL ROOM SUPERVISOR WORK HAS BEEN COMPLETED ON NG02	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
	THE JPM IS COMPLETE <u>RECORD STOP TIME ON PAGE 1</u>		S U Comments:

* CRITICAL STEP

Read to Performer: I will explain the initial conditions, which steps to simulate or discuss, and provide initiating and subsequent cues. You may use any approved reference materials normally available to you. Make all written reports, oral reports, and log entries as if the evolution was actually being performed. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: CALLAWAY PLANT IS IN MODE 5 PREPARING FOR A REFUELING OUTAGE. ELECTRICIANS ARE PREPARING TO PERFORM MAINTENANCE ON BREAKER NG0201 (NG02 FEEDER FROM NB02). NB01 IS THE OPERABLE BUS. An EOSL HAS BEEN PREPARED TO TRACK THE INOPERABILITY OF THE 4 BUS DEGRADED VOLTAGE CHANNELS FOR NB02. ALL INITIAL CONDITIONS, PRECAUTIONS AND LIMITATIONS ARE SATISFIED.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO CROSS-CONNECT LOAD CENTERS NG02 AND NG04 PER OTN-NG-00001, CLASS 1E 480 VAC ELECTRICAL SYSTEM, SECTION 5.2. INFORM THE WPA REACTOR OPERATOR WHEN NG02 AND NG04 ARE CROSS-CONNECTED AND BREAKER NG0201 IS OPEN.
AFTER THE ELECTRICAL WORK HAS BEEN COMPLETED ON NG0201 (AND TAGS ARE CLEARED) RESTORE NG02 THROUGH IT'S NORMAL FEEDER PER SECTION 5.3 OF OTN-NG-00001.

CALLAWAY PLANT TRAINING DEPARTMENT

DYNAMIC SIMULATOR SCENARIO

SIMULATOR SCENARIO: ILE-12/2000-DS1

REVISION DATE: 20001115

SCENARIO TITLE: EARTHQUAKE WITH LOCA OUTSIDE CTMT	EXAM #: ILE-12/2000-DS1
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INITIAL CONDITIONS:

80% Reactor Power, Reducing Load to Repair MFP. CR Pressurization Fan OOS for PMs.

Event TITLE	KSA #	(RATING)
A) Reduce Reactor Power	004A4.01	3.8/3.9
B) SR HI Voltage Failure	032AA2.05	2.9/3.2
C) Feed Flow Channel Failure	059A2.11	3.0/3.3
D) Loss of Instrument Air	078K1.03	3.3/3.4
E) Place Excess Letdown in Service	011A2.07	3.0/3.3
F) Earthquake Causes Inter System LOCA RCS/RHR/Aux Bldg (IPE/PRA)	009EA2.02	3.5/3.8
G) Failure of the Reactor to Auto Trip	029EA1.08	4.5/4.5
H) CRVIS Auto Actuation Failure	013A4.01	4.5/4.8

SCENARIO LENGTH:

Approximately 80 minutes.

SCENARIO COMPLETION CRITERIA:

This scenario is complete when the crew transitions to ES-1.1, SI Termination.

SCENARIO OVERVIEW

EXAM #:
ILE-12/2000-DS1

The plant is operating at 80% power. Power is being reduced at 10% per hour in preparation for maintenance on 'B' MFP. 'A' Control Room Pressurization fan is OOS for preplanned preventative maintenance. The NCP is out of service for preplanned preventative maintenance. A pre-evolution briefing has been conducted for Source Range N-32 W647661 and SOS 99-3249. W647661 will not be worked. I&C will open N32 drawer for verification of serial numbers on the 2-PHI power supply.

After the power decrease is started, Source Range N32 High Voltage power will inadvertently be restored. The crew should respond per OTO-SE-00001, "Source Range Nuclear Channel Failure," and remove the instrument power fuses.

Fifteen(15) minutes into the scenario the controlling feed flow channel on 'B' S/G, AE-FT-520, fails low. This results in an increase in feed flow to the 'B' S/G and a subsequent increase in level. The crew should respond per OTO-AE-00002, "Feedwater Flow Channel Failure," identifying the failed channel, selecting the alternate feedwater flow channel, and then stabilize S/G level at program 50%.

Twenty (20) minutes into the scenario, the crew will experience a failure of instrument air in CTMT. Letdown and charging will isolate. Pressurizer spray valves will not be available. The crew will need to reduce charging flow to only RCP seals and de-energize PZR heaters. OTO-KA-00001, "Partial or Total Loss of Instrument Air, should be entered and Excess Letdown should be established to the PRT.

Thirty-six (36) minutes into the scenario, an earthquake occurs. The earthquake unseats check valves in the ECCS system and RCS pressure is backfed to the RHR system. The pressure causes a break in the RHR piping resulting in an ISLOCA to Auxiliary Building.

The ISLOCA leads to a Reactor Trip and Safety Injection. The Reactor fails to auto trip. The crew should manually trip the Reactor. The crew should respond per E-0, "Reactor Trip or Safety Injection." The crew should manually actuate 'B' Train CRVIS.

The crew should transition to ECA-1.2, "LOCA Outside Containment" at step 31 of E-0. The ISLOCA should be isolated at step 2 of ECA-1.2 when EJ-HV-8809A, RHR Train 'A' Accumulator Injection Supply Isolation Valve, is closed. This action will cause RCS pressure to increase and a transition to E-1, "Loss of Reactor or Secondary Coolant," should be made.

The scenario is complete when the transition to ES-1.1 is performed.

- 1) Initialize at IC-19 or IC-161 (Password LANTZ)
- 2) Run Batch File "ILEDSD1.txt". This will perform the following
 - a) Remove 'A' CR Pressurization Fan from service
 - b) Will preload event B, SR HI VOLTAGE Failure
 - c) Will preload event C, Feed Flow Channel Failure
 - d) Will preload event D, Loss of Instrument Air to CTMT
 - e) Will preload event G, Failure of the Reactor to Auto Trip
 - f) Will preload event H, Failure of CRVIS 'B' Train to Auto Actuate
- 3) Establish the 'Delta I' target value by using PHd and set REK1145=(-)1.629
- 4) MONV the following parameters
rej8809a
rbb8702a
rej8701a
- 5) Ensure 'B' CCP is in service and the NCP is tagged with a "hold off"
- 6) Ensure Reactor Trip Switch indicates "RED"
- 7) Ensure Control Bank 'D' is at 188 steps and all other banks are at 228 steps
- 8) Ensure NIS indicates 80% power
- 9) Ensure the digital display is selected to PZR and auctioneered Hi T_{ave}
- 10) Ensure "Decrease Loading Rate" is illuminated.
- 11) Update Status Board for 'A' train week
 - a) 'A' CR PZR Fan CGK04A
T/S 3.7.10 Condition A
ALLOWED 7 DAYS
'A' CCP 5 days ago 1177 ppm
'B' CCP 2 weeks ago 1193 ppm
- 12) Ensure audio count rate is selected to N-32
- 13) At RP068 hang a "HOLD OFF" tag on GKHS-75

- 14) Ensure RM-11 is on training system
- 15) Microphones available for each person evaluated
- 16) Provide the following for the briefing;
 - copies of the curve book
 - OTG-ZZ-00004
 - OTN-AE-00001

SCENARIO SEQUENCE OF EVENTS GUIDE**EXAM #:**
ILE-12/2000-DS1

<u>INSERT</u> <u>TIME</u> Per Lead Examiner	<u>EVENT</u>	<u>MALF</u>	<u>DESCRIPTION</u>
	B	NIS05b	Failure of S.R. N32 High Volt to Disconnect • Trigger #1
15	C	FWM04b	'B' S/G Feed Flow Channel Failure • Trigger #2 • Delay 0 • Ramp 15 seconds • Value of 0%
20	D	(Remote) KAV002	Loss of Instrument Air to CTMT • Trigger #3 • Delay 0 • Ramp 10 • Value 0
		(Override) KAHIS29_OR	• Trigger #3 • Value OFF
		(Override) KAHIS29_OG	• Trigger #3 • Value OFF
		(Override) SA066X_I09	• Trigger #3 • Value 1
36	F	ISLOCADS1	Batch File for Intersystems LOCA • PHD • BAT ISLOCADS1.txt • ENTER
P	G	CFR13	Protective Systems Failure • AUTO
		(Override) SBHS1_IT	FAILURE of SBHS1 HAND SWITCH TO MANUALLY TRIP THE REACTOR • OFF

SCENARIO SEQUENCE OF EVENTS GUIDE**EXAM #:**
ILE-12/2000-DS1

P	H	(Remote) SBI004	Failure of CRVIS 'B' Train • Trn-b
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EVENT **INITIATING CUE (Instructor enters times ACTUATED)**

Start	_____	Time 0	Completion of Shift turnover and commencement of evaluations
B	_____	Time	Contingent on the power decrease SR N32 Fails
C	_____	Time 15	Fifteen (15) minutes into the scenario AEFT520 Fails
D	_____	Time 20	Twenty (20) minutes into the scenario KAPV0029 Fails
E	_____	Time	Time that Excess Letdown is established to the PRT.
F	_____	Time 36	Thirty-six (36) minutes ISLOCADS1 is initiated
G	_____	Time	Time of manual reactor trip
H	_____	Time	Time of manual CRVIS 'B' Train
End	_____	Time	

INSTRUCTOR TURNOVER INFORMATION	EXAM #: ILE-12/2000-DS1
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PRESENT CONDITIONS:

80% Reactor Power
984 MWe
1171 RCS Boron concentration
188 steps Bank 'D'

POWER HISTORY:

Power decrease initiated 2 hours ago at 10%/hour to repair a steam leak on 'B' MFP.

EQUIPMENT STATUS:

'A' CR Pressurization Fan OOS for preplanned preventative maintenance. PM expected to be finished by 2300 today
NCP tagged out of service for preplanned preventative maintenance. The 'B' CCP is in service. NCP should be available on the day shift tomorrow.

ABNORMAL CONDITIONS:

None

SURVEILLANCES DUE/IN PROGRESS:

None

ADDITIONAL INSTRUCTIONS:

Crew briefing for I&C Engineering and QC to inspect the TWO-PHI power supply in N32.

EVENT**ADDITIONAL INFORMATION**

- B Act as I&C, if requested, and report that N32 is energized and the instrument power fuses should be removed.
- C Act as I&C, if requested, and investigate the failure of AE-FT-520.
- D/E Act as PEO, FS, HP, if contacted, and perform requested functions.
If asked to close BG8483B use Action/Remote/BGV023
- F Inform the operator, when requested, that the seismic monitor has been actuated, the trigger light is ON, lights OSG AE-1 and OSG AE-2 are on, and the tapes have advanced and recorded.

As Equipment operators, if requested, report that you will inspect your respective watchstations for damage.

Two (2) to five (5) minutes later:

- Primary Operator – No apparent damage within the RCA
- Secondary Operator – Some leaks in secondary systems, no severe damage yet discovered
- Inside Operator – Some leaks, no severe damage
- Outside Operator – No damage, but will continue to investigate

Act as Emergency Duty Officer, if contacted, and acknowledge SSE.

If contacted at the Hot Lab Chem Tech inform the caller that BMHV5,6,7, & 8 are open

EVENT: **A** **POSITION:** **EXAM #** **ILE-12/2000-DS1**

BRIEF DESCRIPTION: **Reduce Reactor Power**

EXPECTED OPERATOR / PLANT RESPONSE **RO** **BOP** **CRS**

ANNUNCIATORS:

NONE

1) Refer to OTG-ZZ-00004, "Power Operations", and perform the following: _____

- Begin the load DECREASE at the rate directed by Control Room Supervisor using the EHC LOAD DECREASE pushbutton or if the EHC control is in standby, using the Standby Load Set potentiometer. _____

- The Operator should maintain programmed T_{AVG} within +/- 0.3 Deg F. It is permissible to expand this band to +/- 1.5 Deg F for short periods of time. _____

- ADJUST RCS boron concentration sufficient to maintain T_{AVG} within ± 0.3 degrees F of T_{REF} (to reduce T_{AVG} so that turbine load can be lowered operators may make boron additions of ~30 to ~50 gallons at one time or operators may insert rods a few steps) _____

- MONITOR ΔI and POSITION Control Rods as necessary to maintain ΔI near the target (+/- 1%). _____

COMMENTS:

* Denotes Critical Task

EVENT: **C** **POSITION:** **EXAM #** **ILE-12/2000-DS1**

BRIEF DESCRIPTION: **'B' S/G Feed Flow Channel Failure**

EXPECTED OPERATOR / PLANT RESPONSE **RO** **BOP** **CRS**

ANNUNCIATORS:

S/G 'B' LVL DEV 109C
S/G 'B' FLOW MISMATCH 109D

- 1) Implement actions of OTO-AE-00002, "Feedwater Flow Channel Failure".
- Identify the failure of AE-FT-520
 - Select alternate feedwater flow channel or take manual control of S/G Level to prevent a Turbine Trip (and subsequent Rx Trip) on HIHI S/G Level (Select Channel F521 with switch AE-FS-520C)
 - Stabilize S/G level at program 50%
 - Return Feedwater control to auto, if manual control was selected
 - Initiate actions to repair the failed channel
- 2) Notify EDO upon entering off-normal procedure.

COMMENTS:

* Denotes Critical Task

BRIEF DESCRIPTION: Earthquake with ISLOCA on 'A' Train RHR

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
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ANNUNCIATORS:

SEISMIC RECORDER ON	98E
SSE	98B
PZR PRESS LO RX TRIP	87A

- | | | | |
|--|-------|-------|-------|
| 1) Identify failure of reactor trip and implement E-0, "Reactor Trip or Safety Injection"
(note: the crew may elect to secure excess letdown) | _____ | _____ | _____ |
| <ul style="list-style-type: none"> • Verify reactor trip * a) Manually trip the Rx from RL006 • Verify turbine trip • Verify NB01 and NB02 energized • Check if SI is actuated or required • (The CRS should assign Att 12 to one of the RO's)
Ensure ESW Running • Ensure At Least One CCW PUMP Running In Each Train | _____ | _____ | _____ |
| 1) Continued | | | |

COMMENTS: * Denotes Critical Task

BRIEF DESCRIPTION: Earthquake with ISLOCA on 'A' Train RHR

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
---	-----------	------------	------------

- | | | | |
|--|-------|-------|-------|
| • Ensure Feedwater Isolation | _____ | _____ | |
| • Ensure CIS A | _____ | _____ | |
| • Ensure AFW Actuation | _____ | _____ | |
| • Ensure SI Initiation | _____ | _____ | |
| • Check CTMT Coolers | _____ | _____ | |
| • Ensure CPIS | _____ | _____ | |
| • Check If Main Steamlines Should Be Isolated | _____ | _____ | |
| • Check CTMT Spray Not Required | _____ | _____ | |
| • Ensure CRVIS | _____ | _____ | |
| * a) Manually actuate CRVIS using SA-HS-13 or by aligning components using Attachment 11. | _____ | _____ | |
| • (The CRS and the remaining RO should continue with step 6)
Ensure ECCS Flow | _____ | _____ | _____ |
| 1) Continued | _____ | _____ | _____ |

COMMENTS: * Denotes Critical Task

BRIEF DESCRIPTION: Earthquake with ISLOCA on 'A' Train RHR

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
---	-----------	------------	------------

- | | | | |
|---|-------|-------|-------|
| • Ensure Total AFW Flow >300,000 lbm | | | |
| • Ensure AFW Valve Alignment | _____ | _____ | _____ |
| • Ensure SI Valve Alignment | _____ | _____ | _____ |
| • Check RCS Temperatures | _____ | _____ | _____ |
| • Check PZR PORV's and PZR Spray Valves | _____ | _____ | _____ |
| • Check if RCPs should be Stopped | _____ | _____ | _____ |
| • Check if SG's are not Faulted | _____ | _____ | _____ |
| • Check if SG Tubes are not Ruptured | _____ | _____ | _____ |
| • Check if RCS is Intact | _____ | _____ | _____ |
| • Check if SI flow should be reduced | _____ | _____ | _____ |
| • Implement CSF-1 | | | _____ |
| 1) Continued | | | |
| • Check S/G levels | _____ | _____ | _____ |

COMMENTS: * Denotes Critical Task

BRIEF DESCRIPTION: Earthquake with ISLOCA on 'A' Train RHR

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
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- | | | | |
|---|-------|-------|-------|
| <ul style="list-style-type: none"> • Check Secondary Radiation-NORMAL | _____ | _____ | _____ |
| <ul style="list-style-type: none"> • Check Auxiliary Building Radiation – NORMAL | | | _____ |
| <ul style="list-style-type: none"> a) Ensure transition to ECA-1.2, "LOCA Outside Containment" at step 31 of E-0 based on high Aux Bldg radiation levels | | | |
| <p>2) Continue with actions of ECA-1.2</p> | | | |
| <ul style="list-style-type: none"> • Ensure the following valves – CLOSED | _____ | _____ | _____ |
| <ul style="list-style-type: none"> • Try to identify and isolate break | | | |
| <ul style="list-style-type: none"> * b) Isolate the ISLOCA by closing EJHV8809A prior to exiting ECA-1.2
(note: when EJ8809A is closed set REJ8701A=0.0 to isolate the leak) | _____ | _____ | _____ |
| <ul style="list-style-type: none"> • Check if break is isolated | _____ | _____ | _____ |

COMMENTS:

* Denotes Critical Task

EVENT: F, G, H **POSITION:** **EXAM #** ILE-12/2000-DS1

BRIEF DESCRIPTION: Earthquake with ISLOCA on 'A' Train RHR

EXPECTED OPERATOR / PLANT RESPONSE **RO** **BOP** **CRS**

- | | | | |
|--|-------|-------|-------|
| 3) Ensure transition to E-1, "Loss of Primary or Secondary Coolant" at step 3 of ECA-1.2 | _____ | _____ | _____ |
| • Check if RCPs should be stopped | _____ | _____ | _____ |
| • Check if SGs are not faulted | _____ | _____ | _____ |
| • Check intact SG levels | _____ | _____ | _____ |
| • Check Secondary Radiation – Normal | _____ | _____ | _____ |
| • Check PZR PORVs and PZR PORV block valves | _____ | _____ | _____ |
| • Check if SI flow should be reduced | _____ | _____ | _____ |
| • Go to ES-1.1 (SI Termination) step 1 | | | _____ |
| 4) Ensure transition to ES-1.1, "SI Termination". | | | _____ |

COMMENTS: * Denotes Critical Task

CALLAWAY PLANT TRAINING DEPARTMENT

DYNAMIC SIMULATOR SCENARIO

SIMULATOR SCENARIO: ILE-12/2000-DS2

REVISION DATE: 20001115

SCENARIO TITLE:
FEEDWATER BREAK INSIDE CTMT

EXAM #:
ILE-12/2000-DS2

INITIAL CONDITIONS:

10⁻⁸ amps, ready to increase power to POAH. CTMT mini-purge is in service.

Event TITLE	KSA #	(RATING)
A) Raise Reactor Power	001A1.06	4.1/4.4
B) Pressurizer Level Channel Failure Low	011A2.11	3.4/3.6
C) Restore Normal Letdown	004A2.02	3.9/4.2
D) Steam Dump Failure	041A2.02	3.6/3.9
E) Loss of Plant Computer	G2.4.48	3.5/3.8
F) Dropped Control Rod	014A2.03	3.6/4.1
G) Feed break Inside CTMT	054AK1.01	4.1/4.3
H) CCW Pump Trip with Auto Start Failure of Stby CCW Pump	006A3.04	3.8/3.8
I) CPIS Failure	103A3.01	3.9/4.2

SCENARIO LENGTH:

Approximately 60 minutes.

SCENARIO COMPLETION CRITERIA:

This scenario is complete upon transition to ES-1.1, "SI Termination".

A xenon-free reactor startup was commenced approximately one hour ago. The reactor is critical at 10^{-8} amps. Critical data has been taken and rod repositioning has been completed. Currently, the crew is in OTG-ZZ-00003, "Plant Startup 0-30% Power, at step 6.1.5."

When power is above POAH, Pressurizer Level Channel BB LT-459 fails low, causing a loss of CVCS Letdown. The crew should respond per OTO-BB-00007, "Pressurizer Level Channel Failure," and refer to Technical Specification 3.3.1. The crew should return normal letdown to service.

Twenty (20) minutes into the scenario the steam dumps to the condenser fail open due to a controller malfunction. The crew enters OTO-AB-00001, "Steam Dump Malfunction," and stabilizes plant conditions. Manual control of the condenser steam dumps is still available.

Approximately five (5) minutes after the Steam Dump Failure, the crew will sustain a Loss of Plant Computer. The crew should respond per OTO-RJ-00001, "Loss of Plant Computer," and refer to Technical Specifications.

Approximately ten (10) minutes after the Loss of Plant Computer, control rod K-14 is dropped, causing the reactor to go subcritical. The crew should investigate the cause of the dropped rod and commence a reactor shutdown.

Five (5) minutes after the dropped rod, a feedwater break will occur in CTMT. The reactor should be tripped and SI initiated. E-0, "Reactor Trip or Safety Injection," actions should be performed.

During the response to the Safety Injection, the crew should discover 'B' CCW pump tripped and 'D' CCW pump failed to auto start. The crew should manually start 'D' CCW pump.

During the response to the Safety Injection, the crew should discover a failure of CPIS 'A' train and 'B' train. The crew should manually actuate CPIS on at least one train.

The scenario is complete upon transition to ES-1.1, "SI Termination."

- 1) Initialize at IC-10 or IC-162 (Password "LANTZ")
- 2) Run Batch File ILEDS2.txt. This will perform the following:
 - a) Will preload event B, PZR LVL Channel Failure Low
 - b) Will preload event D, Steam Dump Failure
 - c) Will preload event E, Loss of Plant Computer
 - d) Will preload event F, Dropped Control Rod
 - e) Will preload event G, Feedwater Break Inside CTMT
 - f) Will preload event H, CCW Standby Pump Start Failure
 - g) Will preload event I, CPIS Auto Failure
- 3) For Trigger #6 set conditional
 - WCCWPCS(1)>1
- 4) Check RX trip switch has a RED flag.
- 5) Control bank 'D' is at 100 steps, bank 'C' is at 215 steps with all other rods at 228 steps.
- 6) IR range indicates 10^{-8} amps.
- 7) Ensure the digital display is selected to PZR pressure and Auctioneered HI Tave.
- 8) Ensure steam dumps are slightly open
- 9) Ensure CTMT Mini Purge is in service and Time Trend "MINIVENT" is displayed on one CRT.
- 10) Update status board for 'A' Train week.
- 11) White board has Boron Concentration
 - 'A' CCP "5 days ago" 1287 ppm
 - 'B' CCP "two weeks ago" 1310 ppm
- 12) Ensure the RM-11 is on the training system.
- 13) Microphones available for each person being evaluated.
- 14) Turnover sheets and log sheets are on desks.

- 15) Provide the following for the briefing;
OTG-ZZ-00003
OTN-AE-00001

SCENARIO SEQUENCE OF EVENTS GUIDE**EXAM #:**

ILE-12/2000-DS2

<u>INSERT</u> <u>TIME</u>	<u>EVENT</u>	<u>MALF</u>	<u>DESCRIPTION</u>
8	B	PRS02a	PZR LVL Channel 459 Failure <ul style="list-style-type: none">• Trigger #1• Value 0
20	D	MSS9a	Condenser Steam Dump Failure Group 1 <ul style="list-style-type: none">• Trigger #2• Delay 0• Ramp 300 sec.• Value 100%
		(Remote) SBI007	Inhibit P-12 Auto Closure of Steam Dumps <ul style="list-style-type: none">• Trigger #2• Value = 1
25	E	AUX07a	Loss of Plant Computer <ul style="list-style-type: none">• Trigger #3
35	F	CFR04_35	Dropped Rod Control Bank B1 Rod K14 <ul style="list-style-type: none">• Trigger #4• Stationary Gripper
40	G	FWM08a	Feed Line Break Inside Containment <ul style="list-style-type: none">• Trigger #5• Delay 0• Ramp 120 seconds• Value 3E+6
		MSS03a	Steam Line Break Inside Containment <ul style="list-style-type: none">• Trigger #5• Delay 0• Ramp 120 seconds• 5E+4

SCENARIO SEQUENCE OF EVENTS GUIDE

EXAM #:
ILE-12/2000-DS2

INSERT

<u>TIME</u>	<u>EVENT</u>	<u>MALF</u>	<u>DESCRIPTION</u>
P	H	(REMOTE) SBI008P	'D' CCW Pump Auto Start Failure • Inhibit
		CCW06b	'B' CCW Pump Trip • Trigger #6
P	I	(REMOTE) SBI003	Inhibit CPIS Auto-Actuation • Value 3

EVENT INITIATING CUE (Instructor enters times ACTUATED)

Start	_____	Time 0	Completion of Shift turnover
B	_____	Time 8	PZR LVL Fails Low
D	_____	Time 20	Steam Dump Failure
E	_____	Time 25	Loss of Plant Computer
F	_____	Time 35	Dropped Control Rod
G	_____	Time 40	Feedwater break Inside Ctmt
H	_____	Time	Standby CCW Pump Started
I	_____	Time	CPIS Manually initiated
End	_____	Time	

INSTRUCTOR TURNOVER INFORMATION	EXAM #: ILE-12/2000-DS2
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PRESENT CONDITIONS:

The plant is in Mode 2 at 10^{-8} amps. Critical data has been taken and control rods have been repositioned. The plant is ready for increasing power to the POAH.

- 'A' Main Feedwater Pump at 2000 rpm per OTN-AE-00001 per step 4.5.1.14
- $C_b = 1575$ ppm with MTC slightly positive
- Bank D at 100 steps
- At step 6.1.5 of OTG-ZZ-00003

POWER HISTORY:

The plant tripped 6 days ago from 100% power due a loss of NN02. All repairs are complete.

EQUIPMENT STATUS:

Main turbine chest and shell warming completed.
Containment Mini Purge in service to support containment entry on next shift for monthly inspection.

ABNORMAL CONDITIONS:

None

SURVEILLANCES DUE/IN PROGRESS:

None

ADDITIONAL INSTRUCTIONS:

None

EVENT**ADDITIONAL INFORMATION**

- B Respond as I&C to trip bistables.
- BAT dooropen.txt
 - BAT bb052.txt
 - BAT doorshut.txt
- If contacted as EDO acknowledge the OTO entry.
- D Acknowledge as I&C to investigate the Steam Dump Failure.
- E Respond as the Computer Engineer, if called, and inform the crew that you will begin to investigate immediately.
- F Act as Reactor Engineering, if contacted, and inform the Control Room that you will need to research what actions are required.
- Act as Emergency Duty Officer, if contacted, and refer the crew to Reactor Engineering.
- H If contacted, act as Secondary and Primary EO's to investigate the trip of 'B' CCW pump:
- No abnormalities noted at the pump.
 - There is light smoke in the area of breaker NB02 for the 'B' CCW pump. Opening the breaker cubicle shows that there is smoke inside the breaker but the smoke is clearing – no fire.

EVENT: **A** **POSITION:** **EXAM #** **ILE-12/2000-DS2**

BRIEF DESCRIPTION: **Raise Reactor Power to POAH**

EXPECTED OPERATOR / PLANT RESPONSE **RO** **BOP** **CRS**

ANNUNCIATORS:

NONE

- 1) Increase reactor power as desired to any level less than 1% _____
to place the MFP in service.
(note: Operators will pull rods a few steps and monitor NI's.
This activity may be repeated several times until a positive
startup rate is achieved and/or POAH is attained)

COMMENTS:

* Denotes Critical Task

EVENT: C **POSITION:** **EXAM #** ILE-12/2000-DS2

BRIEF DESCRIPTION: Restore Normal Letdown

EXPECTED OPERATOR / PLANT RESPONSE **RO** **BOP** **CRS**

ANNUNCIATORS:

None

1) ENSURE the following valves are OPEN: _____

- BGHV8160, LTDN SYS INNER CTMT ISO _____
- BGHV8152, LTDN SYS OUTER CTMT ISO _____
- BGHV8245, CVCS DEMINS OUT HDR ISO _____

2) REPRESSURIZE the regenerative heat exchanger as follows:

- ENSURE CLOSED BGLCV0460 and BGLCV0459 using BG HIS-460 and BG HIS-459. _____
- OPEN then CLOSE BGLCV0460 using BG HIS-460. _____
- OPEN then CLOSE BGLCV0459 using BG HIS-459. _____
- REPEAT two more times. _____
- OPEN BGLCV0460 and BGLCV0459 using BG HIS-460 and BG HIS-459. _____

COMMENTS:

* Denotes Critical Task

BRIEF DESCRIPTION: Restore Normal Letdown

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
---	-----------	------------	------------

- | | | | |
|---|-------|--|-------|
| 3) PLACE BG PK-131 in MANUAL and increase setpoint to greater than 75 percent OPEN | _____ | | |
| 4) ENSURE BG TK-130, Letdown Hx Temp Ctrl, is in AUTO. | _____ | | |
| 5) ESTABLISH 85-90 gpm charging flow through BGHCV182 to maintain letdown heat exchanger outlet temperature less than 120°F as read on BG TI-130. | _____ | | |
| 6) OPEN orifice isolation valves using BG HIS-8149BA, or BG HIS-8149CA to establish 75 gpm of letdown flow. | _____ | | |
| 7) ADJUST BG PK-131 as necessary to obtain approximately 350 psig on BG PI-131, then place BG PK-131 in AUTO. | _____ | | |
| 8) ADJUST charging flow as required using BG FK-124 as applicable to maintain pressurizer level at programmed value. | _____ | | |
| 9) ENSURE pressurizer level being maintained at program level and BG-FK-124 in AUTO as required. | _____ | | |
| 10) If 120 gpm of letdown is desired, proceed to Section 5.9, Changing Letdown from 75 gpm to 120 gpm. | _____ | | _____ |

COMMENTS: * Denotes Critical Task

EVENT: **F** **POSITION:** **EXAM #** **ILE-12/2000-DS2**

BRIEF DESCRIPTION: **Dropped Control Rod**

EXPECTED OPERATOR / PLANT RESPONSE **RO** **BOP** **CRS**

ANNUNCIATORS:

RPI ROD DEV 80C
ROD AT BOTTOM 81B

- 1) Identify rod K-14 has dropped into the core _____
- 2) Ensure OTO-SF-00003, "Dropped Control Rod" is implemented. _____
- 3) Determine that the reactor is subcritical. _____
- 4) Ensure I&C is contacted to investigate the cause of the Dropped Control Rod. _____
- 5) Contact EDO and Reactor Engineering to discuss required actions based on plant conditions. _____
- 6) Refer to TS 3.1.3.1. _____
- 7) Determine that rod K-14 should not be recovered, and commence a reactor shutdown to Mode 3. _____

COMMENTS:

* Denotes Critical Task

BRIEF DESCRIPTION: Feed Break Inside Containment

EXPECTED OPERATOR / PLANT RESPONSE **RO** **BOP** **CRS**

ANNUNCIATORS:

CTMT SUMP A/B LEVEL HI	60E
CTMT SUMP C/D LEVEL HI	60F
'A' S/G LEV DEV	108C

- | | | | |
|--|-------|-------|-------|
| 1) Identify feedline break inside containment. | _____ | _____ | _____ |
| 2) When SI occurs, ensure implementation of E-0, "Reactor Trip or Safety injection". | | | |
| • Verify reactor trip | _____ | | _____ |
| • Verify turbine trip | | _____ | _____ |
| • Verify power to NB01/NB02 | _____ | _____ | _____ |
| • Determine SI has occurred | _____ | _____ | _____ |
| • (The CRS should assign Att 12 to one of the RO's)
Ensure ESW pumps-RUNNING | _____ | _____ | |
| • Ensure At Least One CCW PUMP Running In Each Train | _____ | _____ | |

* **Start 'D' CCW pump**

2) (Continued)

COMMENTS: * Denotes Critical Task

BRIEF DESCRIPTION: Feed Break Inside Containment

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
---	-----------	------------	------------

- | | | | |
|--|-------|-------|-------|
| • Ensure Feedwater Isolation | _____ | _____ | |
| • Ensure CIS 'A' | _____ | _____ | |
| • Ensure AFW Actuation | _____ | _____ | |
| • Ensure SI initiation | _____ | _____ | |
| • Ensure CTMT COOLERS | _____ | _____ | |
| • Ensure CPIS | _____ | _____ | |
| * Manually initiate CPIS on at least one Train of CPIS | | | |
| • Check if Main Steamlines should be isolated | _____ | _____ | |
| • Check if CTMT spray is required | _____ | _____ | |
| • Ensure CRVIS | _____ | _____ | |
| • (The CRS and the remaining RO should continue with step 6)
Ensure ECCS flow | _____ | _____ | _____ |
| • Ensure total AFW flow >300,000 LBM/HR | _____ | _____ | _____ |

COMMENTS: * Denotes Critical Task

BRIEF DESCRIPTION: Feed Break Inside Containment

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
• Check CST Level – Greater Than 18%	_____	_____	_____
• Check Secondary Radiation - NORMAL	_____	_____	_____
4) Ensure transition to E-1, "Loss of Reactor or Secondary Coolant".	_____	_____	_____
• Check if RCP's Should Be Stopped		_____	_____
• Check If SG's Are Not Faulted		_____	_____
• Check Intact SG Levels	_____	_____	_____
• Check Secondary Radiation	_____		_____
• Check PZR PORVs and Block Valves	_____	_____	_____
• Check if SI Flow Should Be Reduced			
5) Ensure transition to E-1.1, "SI Termination", at step 7 of E-1.	_____		_____
• Reset SI		_____	_____
• Reset CIS 'A'/CIS 'B'		_____	_____

COMMENTS: * Denotes Critical Task

EVENT: G, H, I **POSITION:** **EXAM #** ILE-12/2000-DS2

BRIEF DESCRIPTION: Feed Break Inside Containment

EXPECTED OPERATOR / PLANT RESPONSE **RO** **BOP** **CRS**

- Establish instrument air to CTMT _____ _____
- Establish charging _____ _____
- Isolate BIT _____ _____
- Stop SI and RHR Pumps _____ _____
- Verify SI Flow Not Required _____ _____
- Check if CTMT Spray Should be Stopped _____ _____
- Establish Letdown

COMMENTS:

* Denotes Critical Task

CALLAWAY PLANT TRAINING DEPARTMENT

DYNAMIC SIMULATOR SCENARIO

SIMULATOR SCENARIO: ILE-12/2000-DSBU

REVISION DATE: 20001115

SCENARIO TITLE: RCP Shaft Failure with ATWS	EXAM #: ILE-12/2000-DSBU
---	------------------------------------

INITIAL CONDITIONS:

60% Reactor Power. At Reduced Load After MFP Repair. TDAFP OOS

Event TITLE	KSA #	(RATING)
A) Decrease Letdown Flow From 120 GPM to 75 GPM	004A4.06	3.6/3.1
B) S/G Level Channel Failure	035A2.03	3.4/3.6
C) VCT Level Channel Failure	016A2.01	3.0/3.1
D) RCP High Vibration	015/017AA1.23	3.1/3.2
E) Power Reduction to <48% Power	003A2.02	3.7/3.9
F) RCP Shaft Failure	015/017AA1.05	3.8/3.8
G) Auto/Man Reactor Trip Failure	029EA1.12	4.1/4.0
H) MDAFP Fails to Auto Start	061A3.01	4.2/4.2
I) Intermediate Range Gamma Compensation Failure	033AA2.02	3.3/3.6

SCENARIO LENGTH:

Approximately 60 minutes.

SCENARIO COMPLETION CRITERIA:

This scenario is complete when the crew transitions to ES-0.1, "Reactor Trip Response," and completes step 10.

SCENARIO OVERVIEW

EXAM #:
ILE-12/2000-DSBU

The plant is operating at 60% power following maintenance on the 'B' MFP for a lube oil leak. The MFP WPA has been cleared and the system engineer is performing a leak check walkdown prior to power ascension.

A scheduled activity is for a surveillance procedure on the CVCS demineralizers. Chemistry will perform a Chemistry Surveillance Procedure (CSP). An initial condition for the CSP is CVCS letdown flow shall be 75 gpm. The crew will be required to reduce letdown flow from 120 gpm to 75 gpm in accordance with OTN-BG-00001, "Chemical and Volume Control System."

Five (5) minutes into the scenario, Steam Generator Level Channel AE LT-519 fails high. The crew should respond per OTO-AE-00003, "Steam Generator Level Channel Failure," and stabilize 'A' S/G level. Technical Specifications 3.3.1 and 3.3.2 actions should be applied.

Ten (10) minutes into the scenario, VCT Level Channel BG LT-149 fails high causing CVCS Letdown to be diverted to the Recycle Holdup Tank. The crew should respond per OTO-BG-00004, "VCT Level Channel Failure," and redirect letdown to the Volume Control Tank to terminate the RCS inventory loss.

Seventeen (17) minutes into the scenario, the crew will receive a high vibration alarm on the 'C' RCP. In accordance with OTO-BB-00002, "Reactor Coolant Pump OFF-Normal," and while monitoring pump vibration, reactor power should be reduced to less than 48% and then RCP 'C' should be stopped.

NOTE: Notify the NRC Examiner that time compression is being used for RCP vibration rate-of-change.

Before the crew reduces load below 48% power, the shaft on RCP 'C' will fail. Flow in loop 'C' will go to 0% and the reactor will fail to automatically trip. The crew should attempt to manually trip the reactor.

The crew should enter FR-S.1, "Response to Nuclear Power Generation." The reactor will be shutdown approximately two (2) minutes after PG19 and PG20 feeder breakers are opened due to the rod drive MG set coastdown.

'A' & 'B' MFP's will trip and 'A' & 'B' MDAFP's will fail to auto start. Both MDAFP's must be manually started to prevent entering FR-H.1.

The crew will be required to manually energize the source range NI's due to undercompensation of IR Channel N36.

The scenario is complete when the crew transitions to ES-0.1, "Reactor Trip Response," and completes step 10.

- 1) Initialize at IC-38 or IC-163 (password LANTZ), 60% power.
- 2) Run Batch File "**ILEDSBU.txt**". This will perform the following:
 - a) Preload Event B, S/G Level Channel Failure.
 - b) Preload Event C, VCT Level Channel Failure.
 - c) Preload Event D, RCP High Vibrations.
 - d) Preload Event F, RCP Shaft Failure.
 - e) Preload Event G, Auto/Man Reactor Trip Failure.
 - f) Preload Event H, MDAFP Fails to Auto Start.
 - g) Preload Event I, Intermediate Range Gamma Compensation Failure.
 - h) Set Decay Heat
 - ZRTCDH(1)=9E7
 - ZRTCDH(2)=9E7
- 3) Run batch file "**AL01TD.txt**". This will tag the TDAFP OOS.
- 4) Set conditional Trigger #4 SAC<30.
- 5) Ensure the simulator operator console is monitoring the following computer points:

CRCPV2 (1)	RCP A shaft vibration
CRCPV2 (2)	RCP B shaft vibration
CRCPV2 (3)	RCP C shaft vibration
CRCPV2 (4)	RCP D shaft vibration
- 6) Check RX trip switch has a RED flag
- 7) Ensure NIS indicates 60% power
- 8) Ensure step counters for Control Bank "D" are set at 161 steps and all other step counters are set at 228 steps.

- 9) Ensure the digital display is selected to PZR pressure and Auctioneered HI Tave.
- 10) Hang hold off tags on the TDAFP.
- 11) Ensure Decrease Loading Rate Button "ON".
- 12) Update status board for "NO" Train week.
Record TDAFP, LCO 3.7.5, 72 hours
- 13) White board has Boron concentration
'A' CCP "5 days ago" 773 ppm
'B' CCP "two weeks ago" 787 ppm
- 14) Turnover sheets and Logs sheets on desks. Ensure a working copy of OTG-ZZ-00004 starting with step 5.1.14.
- 15) Ensure the RM-11 is on the training system.
- 16) Microphones available for each person being evaluated.
- 17) Ensure that an easel is set up around back of the simulator with the following RCP vibration information:

NOTE: Notify the NRC Examiner that time compression is being used for RCP vibration rate-of-change.

All RCP frame vibration is less than 5 MILS. All RCP shaft vibration is less than 20 MILS. High RCP vibration is on the 'C' RCP. The vibration on 'C' RCP frame is 1.2 mils and stable. The vibration on 'C' RCP shaft is 16.4 mils and it appears that the vibration is increasing very slowly, at a rate of 1.5 mils/hr.

SCENARIO SEQUENCE OF EVENTS GUIDE**EXAM #:**
ILE-12/2000-DSBU

<u>INSERT TIME</u>	<u>EVENT</u>	<u>MALF</u>	<u>DESCRIPTION</u>
5	B	FWM02a	S/G Level Channel Failure <ul style="list-style-type: none">• Trigger #1• Delay 0• Ramp 20 seconds• Value 100
10	C	CVC22	VCT Level Channel Failure <ul style="list-style-type: none">• Trigger #2• Delay 0• Ramp 0• Value 100
17	D	(EXPERT COMMAND)	RCP 'C' High Vibration <ul style="list-style-type: none">• Set CRCPV2(3)=18.5
32	F	RCS04c	RCP 'C' Lock Rotor <ul style="list-style-type: none">• Trigger #3
		A070	RCP Vibration Danger <ul style="list-style-type: none">• Trigger #3• Value 0
P	G	CFR13	Protective System Failure (ATWS) <ul style="list-style-type: none">• Value BOTH
P	H	SBI008a SBI008b	'A' & 'B' MDAFP Fails to Auto Start <ul style="list-style-type: none">• Value INHIBIT
P	I	NIS04b	Intermediate Range Gamma Compensation Failure <ul style="list-style-type: none">• Delay 0• Ramp 0• Value 1E-10

SCENARIO SEQUENCE OF EVENTS GUIDE**EXAM #:**
ILE-12/2000-DSBUEVENT INITIATING CUE (Instructor enters times ACTUATED)

Start	_____	Time 0	Completion of Shift turnover
B	_____	Time 5	The S/G Level Channel Fails
C	_____	Time 10	The VCT Level Channel Fails
D	_____	Time 17	The RCP Vibration Alarms
E	_____	Time	The Power Reduction is initiated
F	_____	Time 32	The RCP Shaft Fails
G	_____	Time 32	The ATWS occurs
End	_____	Time	

INSTRUCTOR TURNOVER INFORMATION	EXAM #: ILE-12/2000-DSBU
--	------------------------------------

PRESENT CONDITIONS:

60% Power
Axial Offset = +0.114
749 MWe
Vac. = 2.75 Hga
Cooling Tower B/D = 1.5K
AEHV0038 @ 26% & 1880 klb/hr
SI test header 590# & 0.27 gpm

POWER HISTORY:

60% power for last 2 days due to a lube oil leak on 'B' MFP.

EQUIPMENT STATUS:

TDAFP OOS for preplanned preventative maintenance.
'B' MFP repairs complete. System engineer is performing a leak check inspection.

ABNORMAL CONDITIONS:

None

SURVEILLANCES DUE/IN PROGRESS:

CSP on CVCS demineralizer requires letdown flow to be reduced from 120 gpm to 75 gpm.

ADDITIONAL INSTRUCTIONS:

None

EVENT**ADDITIONAL INFORMATION**

- B Respond as I&C to troubleshoot failed channel.
To trip S/G Level Channel Bistables
- bat ae03_03.txt
 - bat doorshut.txt
- C Respond as I&C to troubleshoot failed channel
- D/E If contacted as Engineering, acknowledge the problem with 'C' RCP and recommend the RCP be secured as soon as procedures will support the pump being secured.
- F When primary EO requested to locally open Reactor Trip Breakers, clear MALF crf13

NOTE: Ensure a valid trip signal exists or else trip breakers will not open when malfunction clears.

EVENT: C **POSITION:** **EXAM #** ILE-12/2000-DSBU

BRIEF DESCRIPTION: VCT Level Channel Failure

EXPECTED OPERATOR / PLANT RESPONSE **RO** **BOP** **CRS**

ANNUNCIATORS:

VCT LEVEL HI LO 42B
VCT DIVERT TO RHT 42D

- 1) Implement OTO-BG-00004, VCT Level Channel 149 Failure. _____
- Place BG HIS-112 in the VCT position _____
- 2) Contact I&C to repair the failed channel _____
- 3) Notify the EDO of entry into an Off-Normal Procedure _____

COMMENTS: * Denotes Critical Task

BRIEF DESCRIPTION: RCP Trip With Reactor Trip Failure

EXPECTED OPERATOR / PLANT RESPONSE RO BOP CRS

ANNUNCIATORS:

LO FLOW & P-8 RX TRIP 86A
RCP VIBRATION DANGER 70A

- 1) Identify an ATWS event is in progress. _____
- 2) Ensure implementation of E-0, "Reactor Trip or Safety Injection", to direct manual reactor trip. _____
- 3) Ensure transition to FR-S.1, "Response to Nuclear Power Generation" (from E-0, step 1 RNO) and direct the implementation of CSF Status Tree Monitoring. _____
- 4) Ensure that actions for FR-S.1, "Response to Nuclear Power Generation", are performed. _____

- *
 - **Insert Negative Reactivity into the core by at least ONE of the following methods before completing Step 4**
 - **De-energize LC's PG19 and PG20** _____
 - **Insert RCCA's** _____
 - **Initiate Immediate Boration of RCS** _____
 - Manually trip the reactor _____

COMMENTS: * Denotes Critical Task

BRIEF DESCRIPTION: RCP Trip With Reactor Trip Failure

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
---	-----------	------------	------------

4) Continued

- Ensure Turbine Trip _____
- Check AFW Pumps running _____
- * a) **Start 'A' & 'B' AFP prior to a transition to FR-H.1.** _____
- Initiate immediate boration _____
- Check if SI is actuated _____
- Check if the following trips have occurred: _____
 - a) Dispatch operator to locally trip reactor _____
- Check SG levels _____
- Ensure all dilution paths isolated _____
- Check for reactivity insertion from uncontrolled cooldown _____

COMMENTS: * Denotes Critical Task

BRIEF DESCRIPTION: RCP Trip With Reactor Trip Failure

EXPECTED OPERATOR / PLANT RESPONSE RO BOP CRS

4) Continued

- Check core exit TCs – LESS THAN 1200 DEG F
- Ensure Reactor subcritical
- Return to procedure and step in effect

5) Ensure transition to E-0, "Reactor Trip or Safety Injection".

- Rx Trip _____
- Turbine trip _____
- Power to NB01 and NB02 _____
- Check if SI is actuated _____
- a) Ensure transition to ES-0.1, "Reactor Trip Response". _____

6) Manually Energize Source Range NI's when power is below the P-6 reset setpoint ($<6 \times 10^{-11} \text{A}$) (Procedurally required in ES-0.1 Step 10.). _____

COMMENTS: * Denotes Critical Task

SORT BY
RO QUESTION NUMBER

RO Exam Question Number	R Number
001	R096
002	R045
003	R090
004	R039
005	R084
006	R033
007	R078
008	R027
009	R071
010	R072
011	R021
012	R065
013	R015
014	R059
015	R009
016	R053
017	R003
018	R097
019	R050
020	R046
021	R091
022	R040
023	R085
024	R034
025	R079
026	R028
027	R073
028	R022
029	R066
030	R016
031	R060
032	R010
033	R054
034	R004
035	R098
036	R049
037	R047
038	R092
039	R041
040	R086
041	R035
042	R080
043	R029
044	R074
045	R023
046	R067
047	R017
048	R061
049	R011
050	R055

RO Exam Question Number	R Number
051	R005
052	R095
053	R044
054	R089
055	R038
056	R083
057	R032
058	R077
059	R026
060	R070
061	R020
062	R064
063	R014
064	R058
065	R008
066	R052
067	R002
068	R100
069	R094
070	R043
071	R088
072	R037
073	R082
074	R031
075	R076
076	R025
077	R069
078	R019
079	R063
080	R013
081	R057
082	R007
083	R051
084	R001
085	R099
086	R048
087	R093
088	R042
089	R087
090	R036
091	R081
092	R030
093	R075
094	R024
095	R068
096	R018
097	R062
098	R012
099	R056
100	R006

SORT BY
SRO QUESTION NUMBER

SRO Exam Question Number	R/S Number
001	R004
002	S010
003	S005
004	R029
005	S019
006	R011
007	S013
008	R021
009	R045
010	R013
011	R036
012	S025
013	R086
014	R054
015	R059
016	R073
017	R077
018	R064
019	S006
020	R030
021	S020
022	R012
023	S014
024	R005
025	R022
026	R046
027	R014
028	R038
029	S026
030	R088
031	R061
032	R066
033	S003
034	R027
035	S017
036	R009
037	S011
038	R002
039	R018
040	R043
041	R020
042	R097
043	S023
044	R081
045	R056
046	R071
047	R053
048	R078
049	S008
050	R033

SRO Exam Question Number	R/S Number
051	R032
052	S002
053	R026
054	S016
055	R008
056	R025
057	R049
058	R016
059	R041
060	R001
061	R095
062	S022
063	R087
064	R074
065	R070
066	S007
067	R035
068	R031
069	S001
070	R006
071	S015
072	R007
073	R024
074	R048
075	R015
076	R039
077	R017
078	R094
079	S021
080	R079
081	R055
082	R068
083	S009
084	R075
085	S004
086	R028
087	S018
088	R010
089	S012
090	R003
091	R019
092	R044
093	R023
094	R100
095	S024
096	R084
097	R058
098	R072
099	R076
100	R063

SORT BY
SRO QUESTION NUMBER

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>005AK1.05</u>	
	Importance Rating	<u>3.3</u>	<u>4.1</u>

Proposed Question:

Which ONE of the following plant conditions would require verification that Shutdown Margin be within the limits provided in the COLR (Core Operating Limits Report)?

- A. One Control Bank 'C' rod is misaligned by 13 steps and cannot be moved.
- B. MTC is not within its upper limit while in Mode 1.
- C. Control Bank 'A' step counters and DRPI indication deviate by 11 steps.
- D. T_{ave} is 550°F in all loops while in Mode 2.

Proposed Answer: A

Distracter Explanation:

- A. T/S 3.1.4 requires SDM to be performed within 1 hour.
- B. T/S 3.1.3 requires administrative withdrawal limits to be established.
- C. T/S 3.1.7, 12 steps is limit, flux map required not SDM verification.
- D. T/S 3.4.2 requires $K_{eff} < 1.0$ with $T_{ave} < 551^\circ\text{F}$.

Technical Reference(s): T/S 3.1.4
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: U T61.003A.6 LP #26, Rod Control

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43(b)** 6 **55.41(b)** 10

Comments: _____

Outline #: R001

Author: EBS

Examination Outline Cross-reference:	Level	RO	SRO
Tier #		<u>1</u>	<u>1</u>
Group #		<u>1</u>	<u>1</u>
K/A #		<u>WE09/WE10EK2.2</u>	
Importance Rating		<u>3.6</u>	<u>3.9</u>

Proposed Question:

The plant was operating at 98% power when a loss of off-site power caused a reactor trip. Twenty minutes after the trip the following plant conditions exist:

- RCS pressure is 2235 psig and slowly increasing.
- RCS Loop T_{HOT} is 564°F in all 4 loops and trending down slowly.
- RCS Loop T_{COLD} is 560°F in all 4 loops and stable.
- Core exit TCs indicate approximately 580°F and stable.
- Pressure is approximately 1136 psig in all steam generators.

Which ONE of the following describes plant conditions?

- A. Heat removal is being maintained by condenser steam dumps. Natural circulation exists.
- B. Heat removal may be established by opening the condenser steam dumps. Natural circulation does not exist.
- C. Heat removal is being maintained by atmospheric steam dumps. Natural circulation exists.
- D. Heat removal may be established by opening the atmospheric steam dumps. Natural circulation does not exist.

Proposed Answer: C

Distracter Explanation:

- A. Condenser steam dumps are closed due to loss of circ pumps.
- B. Condenser steam dumps will not open, natural circulation exists.
- C. Correct. Candidate will analyze loss of off-site power to determine this will cause a loss of circ pumps as well as S/G PORVs are removing heat and natural circulation exist.
- D. Atmospheric steam dumps are open, natural circulation exists.

Technical Reference(s): ES-0.2, NATURAL CIRCULATION COOLDOWN
 (Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objectives:

F	T61.0110.6 LP #20, Main Steam
M	T61.003D.6 LP #7, Natural Circulation

Question Source:

Bank	_____	
Modified Bank	_____	(Note changes or attach parent)
New	<u>X</u>	

Question History:

Previous NRC Exam	<u>No</u>
Previous Quiz / Test	<u>No</u>

Question Cognitive Level:

Memory or Fundamental Knowledge	_____
Comprehension or Analysis	<u>X</u>

10 CFR Part 55 Content: 55.43(b) _____ 55.41(b) 7

Comments: _____

Outline #: R003

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>024AA1.20</u>	
	Importance Rating	<u>3.2</u>	<u>3.3</u>

Proposed Question:

The following plant conditions exist ten minutes after a reactor trip from full power:

- Shutdown Bank 'E' rods H12 and M8 remain at 228 steps all other rods are fully inserted.
- Reactor power is 1×10^{-6} amps and slowly decreasing.
- Indicated startup rate is -0.25 dpm.
- Reactor trip breakers indicate open.

Which ONE of the following actions is required?

- A. Manually insert rods H12 and M8.
- B. Immediate borate with charging pumps or NCP.
- C. Immediate borate with Safety Injection Pumps and RHR Pumps.
- D. Manually energize source range NI.

Proposed Answer: B

Distracter Explanation:

- A. Boration with CCP/NCP is required.
- B. Candidate must determine that a red or orange path does not exist and boration with the CCP/NCP is required per ES-0.1, Reactor Trip Response.
- C. CCP or NCP is required.
- D. Source range NIs are not energized until 6.0×10^{-11} amps.

Technical Reference(s): ES-0.1, "Reactor Trip Response"
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C T61.003D.6, LP #6, Reactor Trip Response

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 5

Comments: _____

Outline #: R004

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>026AA1.03</u>	
	Importance Rating	<u>3.6</u>	<u>3.6</u>

Proposed Question:

In the CCW system, a leak exists larger than the capacity of makeup from the demineralized water system.

Which ONE of the following is the source of additional makeup to the CCW system?

- A. Fire water
- B. Service water
- C. Circulating water
- D. Essential Service Water

Proposed Answer: D

Distracter Explanation:

- A. Fire water is not connected to CCW.
- B. Service water is not connected to CCW.
- C. Circulating water is not connected to CCW.
- D. Correct. Candidate must remember ESW is connected to CCW.

Technical Reference(s): OTO-EG-00001, CCW Train Malfunction
 (Attach if not previously provided) Attachment 1

Proposed references provided to applicants during examination: _____

Learning Objective: E T61.0110.6 LP #10, Component Cooling Water

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43(b)** 5 **55.41(b)** 10

Comments: _____

Outline #: R005

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>WE12EK1.2</u>	
	Importance Rating	<u>3.5</u>	<u>3.8</u>

Proposed Question:

The crew is currently in ECA-2.1, "Uncontrolled Depressurization of All Steam Generators," step 4, due to a steam line break affecting all steam generators. Auxiliary feedwater has been throttled to 15,000 lbm/hr to each steam generator. The following conditions exist:

<u>SG</u>	<u>LEVEL</u>	<u>PRESSURE</u>
A	31% WR	400 psig stable
B	29% WR	390 psig decreasing
C	20% WR	395 psig decreasing
D	32% WR	420 psig increasing

Which ONE of the following describes actions that should be taken and explains the reason?

- A. Continue with ECA-2.1, "Uncontrolled Depressurization of All Steam Generators," because SI accumulators have not injected.
- B. Transition to E-2, "Faulted Steam Generator," because there is an intact steam generator.
- C. Transition to FR-S.1, "Response to Nuclear Power Generation," due to positive reactivity added by the cooldown.
- D. Transition to FR-H.1, "Loss of Secondary Heat Sink," because total auxiliary feed flow is less than required.

Proposed Answer: B

Distracter Explanation:

- A. Steam pressure in 'D' S/G is increasing, transition to E-2 required.
- B. Correct. Candidate is required to analyze plant conditions, determine an intact S/G exists. He is also required to determine a transition should be made to E-2.
- C. The immediate boration from SI would maintain adequate SDM.
- D. Transition to FR-H.1 required only if AVAILABLE feedwater is <300,000 lbm/hr. Auxiliary feed was manually throttled.

Technical Reference(s): ECA-2.1, "Uncontrolled Depressurization of All Steam Generators)
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objectives: C, D T61.003D.6 LP #16, Uncontrolled Depressurization of all Steam Generators

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.43(b) 5 55.41(b) 8

Comments: _____

Outline #: R007 **Author:** EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>WE08EK3.1</u>	
	Importance Rating	<u>3.4</u>	<u>3.9</u>

Proposed Question:

Which ONE of the following events would require a red path entry into FR-P.1, "Response to Pressurized Thermal Shock"?

- A. Reactor trip from Mode 1 10 minutes ago, RCS pressure 2200 psig, RCS hot leg temperature 250°F.
- B. Reactor trip from Mode 1 20 minutes ago, RCS pressure 1970 psig, RCS hot leg temperature 200°F.
- C. Reactor trip from Mode 1 30 minutes ago, RCS pressure 2200 psig, RCS cold leg temperature 250°F.
- D. Reactor Trip from Mode 1 40 minutes ago, RCS pressure 1970 psig, RCS cold leg temperature 200°F.

Proposed Answer: D

Distracter Explanation:

- A. Hot leg temperature not used.
- B. Hot leg temperature not used.
- C. Cold leg temperature < 245°F.
- D. Correct. Candidate is required to analyze plant conditions and determine entry into FR-P.1 requires RCS pressure to the left of operational limits. (Attachment 4) Curve from CSF-1.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>051AK3.01</u>	
	Importance Rating	<u>2.8</u>	<u>3.1</u>

Proposed Question:

A circ water pump tripped while at full power three minutes ago. The following plant conditions exist:

- Auct High T_{ave} 590°F
- Reactor Power 75%
- Turbine Load 880 MWe
- LP 'A' Cond Press 5.9 Hga
- LP 'B' Cond Press 6.2 Hga
- LP 'C' Cond Press 6.5 Hga

Which ONE of the following describes the expected condenser steam dump automatic operations?

- A. All 12 condenser steam dumps are available and all are fully open.
- B. All 12 condenser steam dumps are available and some are open.
- C. Fewer than 12 steam dumps are available and all available dumps are open.
- D. Fewer than 12 steam dumps are available and all are closed.

Proposed Answer: C

Distracter Explanation:

- A. Fewer than 12 steam dumps available, not all dumps are open.
- B. Fewer than 12 steam dumps area available.
- C. Correct. Candidate is required to calculate plant conditions, require steam dumps to be open, combined with condenser vacuum. Determine fewer than 12 steam dumps meet the conditions to open.
- D. Not all steam dumps are closed.

Technical Reference(s): OTO-AD-00001, "Loss of Condenser Vacuum" - Automatic
 (Attach if not previously provided) Actions

Proposed references provided to applicants during examination: None

Learning Objective: A T61.003B.6 LP #9, Loss of Condenser Vacuum

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 7

Comments: _____

Outline #: R009 **Author:** EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>055EK3.02</u>	
	Importance Rating	<u>4.3</u>	<u>4.6</u>

Proposed Question:

A loss of all AC power has occurred. Actions contained in ECA-0.0, "Loss of All AC Power" are being performed. The crew has commenced dumping steam from all steam generators to minimize RCS leakage.

Which ONE of the following describes the reason that steam generator depressurization should be limited to > 120 psig?

- A. To prevent injection of SI accumulator nitrogen into the RCS.
- B. To minimize potential for a pressurized thermal shock.
- C. To ensure turbine driven auxiliary feed pump can maintain steam generator inventory.
- D. To reduce possibility of cooldown causing a recriticality event.

Proposed Answer: A

Distracter Explanation:

- A. Correct. Candidate will have to recall that the cooldown will also lower RCS pressure and allow SI Accumulators to inject. He will also have to recall that if RCS pressure continued to decrease Nitrogen would inject into the RCS.
- B. The resultant RCS cold leg temperatures should not approach the temperature limit at which a challenge will exist.
- C. TD AFP will maintain S/G level as low as 80 psig header pressure.
- D. Cooldown will cause RCS pressure decrease and allow SI accumulators to inject.

Technical Reference(s): ECA-0.0, "Loss of All AC Power"
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: Q T61.003D.6 LP #22, ECA-0.0 Loss of All AC Power

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** 5 **55.41(b)** 10

Comments: IPE/PRA

Outline #: R010

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>057AA2.19</u>	
	Importance Rating	<u>4.0</u>	<u>4.3</u>

Proposed Question:

Which ONE of the following is an expected automatic action due to loss of vital AC instrument bus NN04?

- A. Steam generator level perturbations.
- B. Reactor trips on intermediate range high flux.
- C. Reactor trips on source range high flux.
- D. Charging pump suction swap to the RWST.

Proposed Answer: D

Distracter Explanation:

- A. Affected by loss of NN01 or NN02 only.
- B. Affected by loss of NN01 or NN02 only.
- C. Affected by loss of NN01 or NN02 only.
- D. Correct. Candidate will recall a loss NN04 will cause CCP suction to swap.

Technical Reference(s): OTO-NN-00001, "Loss of Safety Related Instrument Power"

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A T61.003B.6 LP #B-45, Loss of Safety Related Instrument Power

Question Source:

Bank	<u> </u>	
Modified Bank	<u> </u>	(Note changes or attach parent)
New	<u> X </u>	

Question History:

Previous NRC Exam	<u> No </u>
Previous Quiz / Test	<u> No </u>

Question Cognitive Level:

Memory or Fundamental Knowledge	<u> X </u>
Comprehension or Analysis	<u> </u>

10 CFR Part 55 Content: 55.43(b) 55.41(b) 6

Comments: _____

Outline #: R011

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>068AK2.07</u>	
	Importance Rating	<u>3.3</u>	<u>3.4</u>

Proposed Question:

A control room evacuation is being performed per OTO-ZZ-00001, "Control Room Inaccessibility." The reactor operator arrives at NB02 and finds that NE02, 'B' D/G, IS NOT running and NB0211, NB02 emergency feed from 'B' standby DG NE02, is open.

Which ONE of the following describes the actions to be taken?

- A. Locally start 'A' emergency diesel generator, commence required actions with 'A' train equipment.
- B. Locally start 'B' emergency diesel generator and manually close NB0211, NB02 emergency feed from 'B' standby DG NE02.
- C. Trip NB0209 and NB0212, NB02 norm and alt supply breakers, verify 'B' emergency diesel generator starts.
- D. Place all NB02 breakers in Pull-To-Lock, verify 'B' emergency diesel generator starts.

Proposed Answer: C

Distracter Explanation:

- A. 'A' train equipment is not used during control room evacuation.
- B. NB0209 and NB0212 must be verified open before locally starting NE02.
- C. Correct, candidate must recall the Safeguards power drawing and realize that undervoltage is an auto start for NE02.
- D. Breakers for 'B' D/G (NB0211) and 'B' ESW pump (NB0215) are not placed in P-T-L.

Technical Reference(s): Attachment 3 of OTO-ZZ-00001, "Control Room Inaccessibility"
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C.3 T61.003B.6 LP #B-59, Control Room Inaccessibility

Question Source:

Bank	<u> </u>	
Modified Bank	<u> </u>	(Note changes or attach parent)
New	<u> X </u>	

Question History:

Previous NRC Exam	<u> No </u>
Previous Quiz / Test	<u> No </u>

Question Cognitive Level:

Memory or Fundamental Knowledge	<u> </u>
Comprehension or Analysis	<u> X </u>

10 CFR Part 55 Content: 55.43(b) 5 55.41(b) 7

Comments: _____

Outline #: R013

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>069AA2.01</u>	
	Importance Rating	<u>3.7</u>	<u>4.3</u>

Proposed Question:

The following plant conditions exist:

- RCS temperature is 185°F.
- Reactor vessel head installed and bolts fully tensioned.
- 'A' & 'D' S/G WR levels indicate 68%.
- 'A' CCW heat exchanger is tagged out to replace relief valve.
- 'B' RHR train is providing RCS cooling.
- 'B' RCP motor is being moved through the equipment hatch.

The 'B' train RHR pump seizes and becomes inoperable. RCS temperatures is rising at 15°F/hr.

Which ONE of the following actions is required?

- Cross connect CCW trains and provide 'A' RHR train cooling with 'B' CCW pump and heat exchanger.
- Use spent fuel pool cooling pumps and heat exchanger to provide cooling to RCS.
- Set containment closure before RCS temperature is greater than 200°F.
- Set containment closure before RCS temperature is greater than 350°F.

Proposed Answer: C

Distracter Explanation:

- CCW trains cannot be cross-connected to provide RHR cooling.
- Spent fuel pool cooling system can only provide cooling during Mode 6 with reactor vessel head off and pool flooded.
- Correct. Candidate is required to analyze plant conditions, determine Mode 5 exists and CTMT closure must be achieved by Mode 4.
- Containment closure required prior to Mode 4 (>200°F).

Technical Reference(s): T/S 3.6.1
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: F1 T61.003A.6 LP #A-6, Containment

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.43(b) 2 55.41(b) 9

Comments: _____

Outline #: R014

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>074EK2.1</u>	
	Importance Rating	<u>3.6</u>	<u>3.8</u>

Proposed Question:

The following plant conditions exist:

- Core exit thermocouples indicate 788°F and slowly increasing
- RVLIS indicates 38% and slowly decreasing
- 'A' CCP is tagged out for impeller replacement
- NB02 tripped due to a bus lockout
- A safety injection was manually actuated and all AVAILABLE ECCS equipment functioned per design
- Crew is current in FR-C.1, "Response to Inadequate Core Cooling"

Which ONE of the following actions should the crew initially take to establish some form of injection flow?

- A. Depressurize all steam generators to 120 psig.
- B. Start one RCP to collapse voids in RCS to allow injection flow.
- C. Open one PZR PORV to depressurize RCS and allow SI Pumps to inject.
- D. Start the NCP and open BG-FK-124 to establish injection flow.

Proposed Answer: D

Distracter Explanation:

- A. Depressurization of steam generators is used to establish a heat sink, but is not the preferred method.
- B. RCP are not started unless core exit TC > 1200°F.
- C. Opening a PZR PORV does not conserve RCS inventory and is not the preferred method.
- D. Correct. Candidate must determine plant conditions still meet FR-C.1 requirements and actions for FR-C.1.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>1</u>
	K/A #	<u>003G2.4.47</u>	
	Importance Rating	<u>3.4</u>	<u>3.7</u>

Proposed Question:

An event caused the following:

- Reactor power to change from 98% to 93% on N41; Power Range Channels N42, N43 and N44 change from 98% to 97%
- T_{ave} decreased 3°F

Which ONE of the following events would cause the above indications?

- A steam leak has occurred on 'A' S/G.
- A main turbine control valve inadvertently closed.
- A control rod dropped.
- Inadvertent immediate boration.

Proposed Answer: C

Distracter Explanation:

- Temperature will decrease but power will increase.
- Temperature would increase.
- Correct. Candidate will have to analyze plant conditions and determine a dropped rod is the cause.
- Temperature will decrease but power would decrease uniformly for all power range channels.

Technical Reference(s): OTO-SF-00003, "Dropped Control Rod – Symptoms"
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: J T61.003D.6 LP #SD2, Power Ops with Off-Normals

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.43(b) 6 55.41(b) 1

Comments: _____

Outline #: R017

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>007EA2.06</u>	
	Importance Rating	<u>4.3</u>	<u>4.5</u>

Proposed Question:

The plant was at 100% power when an earthquake caused several breaker faults and a loss of the switchyard. The reactor was tripped. E-0, "Reactor Trip or Safety Injection" was entered. While verifying the reactor trip, the RO reports:

- No rod bottom lights are lit. All DRPI indication is lost.
- Reactor trip breakers are open.
- Intermediate range flux is decreasing on all channels.
- NR-45 recorder has no indication.
- Power range NI's indicate 0%

Which ONE of the following describes condition of the plant and actions that should be taken?

- Manually trip reactor, verify reactor trip using power range NIs.
- Boration is required until DRPI is available to verify no more than 1 stuck control rod.
- Transition to FR-S.1, "Response to Nuclear Power Generation" should be made.
- Reactor trip breakers must be verified open locally.

Proposed Answer: A

Distracter Explanation:

- Correct. Candidate will have to analyze given plant conditions is due to loss of power, and determine tripping reactor is still required per E-0, Reactor Trip or Safety Injection."
- Boration not required.
- Reactor trip can be verified by trip breakers open, decreasing flux.
- Reactor trip can be verified, no breakers required to be verified open.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>008AK1.01</u>	
	Importance Rating	<u>3.2</u>	<u>3.7</u>

Proposed Question:

The following plant conditions exist:

- Plant tripped 20 minutes ago from full power.
- A pressurizer safety valve is partially open.
- Pressurizer pressure is 1900 psia.
- Pressurizer level is 34% and stable.
- PRT rupture disk has ruptured.
- Containment pressure is 2.0 psig.

Which ONE of the following describes the expected temperature in the tailpipe downstream of the safety valve and ECCS equipment status?

	<u>Temperature</u>	<u>Auto SI Actuated</u>
A.	215°F	Yes
B.	215°F	No
C.	300°F	Yes
D.	300°F	No

Proposed Answer: B

Distracter Explanation:

- A. 215°F is the correct temperature. Auto SI has not occurred.
- B. Correct. Using steam table the candidate must determine 215°F is correct for plant conditions and the CTMT pressure of 3.5 psig and PZR pressure of 1849 psig has not been exceeded.
- C. 300°F is not correct; auto SI has not occurred.
- D. 300°F is not correct.

Technical Reference(s): E-0, "Reactor Trip and Safety Injection"
 (Attach if not previously provided) Attachment 1

Proposed references provided to applicants during examination: Steam Tables

Learning Objective: D T61.0100.6 LP #17, Safety Injection System

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 14

Comments: _____

Outline #: R019

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #		<u>1</u>
Group #		<u>2</u>	<u>1</u>
K/A #		<u>011EA1.11</u>	
Importance Rating		<u>4.2</u>	<u>4.2</u>

Proposed Question:

The following plant conditions exist:

- 1 hour has passed from a trip from Mode 1
- Large break LOCA in progress
- SIS, CSAS, CIS 'A', CIS 'B' actuated

Which ONE of the following will have the greatest impact on long term core heat removal?

- A. 'A' RHR pump failure.
- B. 'A' SI pump failure.
- C. 'A' Charging pump failure.
- D. NE01 failure.

Proposed Answer: A

Distracter Explanation:

- A. RHR is required for cold leg recirc to provide NPSH to the SI and CCPs.
- B. 'A' SI pump does not supply 'A' CCP.
- C. 'A' CCP does not supply 'A' SI pump.
- D. NB01 is supplied by off-site power.

Technical Reference(s): T61.003D.6 LP #1, ES-1.3, "Transfer to Cold Leg Recirc"

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C T61.0110.6 LP #7, RHR

Question Source: **Bank**
Modified Bank (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge**
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** **55.41(b)** 8

Comments: IPE/PRA

Outline #: R020

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>WE03EK3.3</u>	
	Importance Rating	<u>3.9</u>	<u>3.9</u>

Proposed Question:

Which ONE of the following describes the preferred method of operating RCPs during ES-1.2, "Post LOCA Cooldown and Depressurization"?

- A. Starting any RCP is undesirable because starting an RCP during ECCS induced natural circulation may cause PTS concerns.
- B. Start 'D' RCP if possible to provide normal pressurizer spray flow and allow for normal RCS cooldown.
- C. Starting any RCP is undesirable because the additional heat input may inhibit RCS cooldown.
- D. Start 'A' and 'B' RCPs if possible to provide maximum pressurizer spray flow and RCS fluid mixing.

Proposed Answer: B

Distracter Explanation:

- A. It is desirable to start a RCP; PTS is not a concern because RCS pressure is also reduced.
- B. 'D' is the preferred RCP to start for better spray flow.
- C. While heat input is a concern it is preferred to start a RCP for RCS cooldown and pressure reduction.
- D. If all RCPs were running, then all but one is stopped to minimize heat input to the RCS. Therefore, starting two RCPs is incorrect.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>WE11EK1.1</u>	
	Importance Rating	<u>3.7</u>	<u>4.0</u>

Proposed Question:

The following plant conditions exist:

- A LOCA outside containment has occurred
- RWST is empty
- ECCS pumps have been secured

Which ONE of the following can be used to provide water to the ECCS pumps per ECA-1.1, "Loss of Emergency Recirculation"?

- A. Condensate storage tank.
- B. Spent fuel pool.
- C. Recycle holdup tanks.
- D. Discharge monitor tanks.

Proposed Answer: C

Distracter Explanation:

- A. RCS dilution.
- B. Loss of SFP cooling and shielding.
- C. Correct. Candidate will recall recycle holdup tanks are the only possible source.
- D. RCS dilution.

Technical Reference(s): ECA-1.1, "Loss of Emergency Coolant Recirculation"
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: K T61.003D.6 LP #13, Loss of Emergency Coolant Recirculation

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43(b)** 5 **55.41(b)** 7

Comments: _____

Outline #: R022

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>1</u>
	K/A #	<u>WE02G2.4.12</u>	
	Importance Rating	<u>3.4</u>	<u>3.9</u>

Proposed Question:

An inadvertent safety injection has occurred. Operators are currently performing ES-1.1, "SI Termination" preparing to reset the SI in order to start an RCP.

Which ONE of the following describes indications that only one SI train was reset?

- A. SI actuate light on SB069 would blink since reset switches are train specific.
- B. SI actuate light on SB069 would blink and automatic SI would reinitiate after 60 seconds.
- C. SI actuate light would not extinguish and automatic SI would reinitiate after 60 seconds.
- D. SI actuate light would not extinguish since either switch will reset the SI actuate light.

Proposed Answer: A

Distracter Explanation:

- A. Correct. Candidate will analyze plant conditions to determine SB069 should blink and that reset switches are train specific.
- B. Auto SI cannot occur unless reactor trip breakers are closed.
- C. SI actuate light will blink, auto SI will not occur.
- D. SI actuate light will blink.

Technical Reference(s): E-0, "Reactor Trip or Safety Injection"
 (Attach if not previously provided) T61.003B.6 LP-B1, Intro to Off-Normal Operating Procedures

Proposed references provided to applicants during examination: None

Learning Objectives: B T61.003D.6 LP #4, Reactor Trip or Safety Injection
 I T61.003D.6 LP #9, SI Termination

Question Source: Bank
 Modified Bank _____ (Note changes or attach parent)
 New X

Question History: Previous NRC Exam No
 Previous Quiz / Test No

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

10 CFR Part 55 Content: 55.43(b) _____ 55.41(b) 8

Comments: _____

Outline #: R023

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>022AA1.08</u>	
	Importance Rating	<u>3.4</u>	<u>3.3</u>

Proposed Question:

The following plant conditions exist:

- Mode 2
- VCT level 50% and stable
- 120 gpm letdown
- All control systems in automatic

VCT level transmitter BG-LT-149 fails low.

Which ONE of the following describes the affect this event has on the reactor makeup control system?

- No effect on automatic makeup. Charging pump suction will swap to the RWST.
- No effect on automatic makeup. Letdown will divert to recycle holdup tank.
- Automatic makeup initiated. Makeup will not automatically terminate.
- Automatic makeup initiated. Makeup will be terminated by VCT high level at 97%.

Proposed Answer: C

Distracter Explanation:

- Auto makeup will occur. CCP suction swap is a function of BGLT112 and 185.
- Auto makeup will occur. Letdown will not divert.
- Correct. Candidate will determine that transmitter BG-LT-149 will cause M/U to start and continue.
- Makeup will not terminate.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>025G2.4.24</u>	
	Importance Rating	<u>3.3</u>	<u>3.7</u>

Proposed Question:

The plant is in Mode 6 with the following conditions:

- 270.53 effective full power days (EFPD)
- 110 hours since shutdown
- RCS loop level at 26.0 inches
- All steam generator levels 50% WR
- T-BOIL (time to boil) 38 minutes

Which ONE of the following would cause T-BOIL (time to boil) to increase from 38 minutes to 48 minutes?

- A. Effective full power days (EFPD) increase to 290.53.
- B. Hours since shutdown increase to 160 hours.
- C. RCS loop level lowers to 18.0 inches.
- D. All steam generator levels decrease to 25% WR.

Proposed Answer: B

Distracter Explanation:

- A. More EFPD will increase decay heat and reduce T-BOIL.
- B. Correct. Candidate will recall a longer time since S/D will cause an increase in T-BOIL.
- C. Lower RCS loop level will reduce inventory/mass and reduce T-BOIL.
- D. Steam generator level will have no affect.

Technical Reference(s): T61.003E.6 LP #E3, Loss of RHR Flow
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.003E.6 LP #E3, Loss of RHR

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.43(b) 6 55.41(b) 2

Comments: _____

Outline #: R025

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>032AK2.01</u>	
	Importance Rating	<u>2.7</u>	<u>3.1</u>

Proposed Question:

A reactor startup is in progress. The reactor operator is verifying overlap between the source range and intermediate range NIs.

Which ONE of the following describes the effect on the reactor protection system if a control power fuse on SR32 is blown?

SR32 Level Trip Bypass Switch NORMAL SR32 Level Trip Bypass Switch BYPASS

- | | | |
|----|-----------------|-----------------|
| A. | No Reactor Trip | No Reactor Trip |
| B. | Reactor Trip | Reactor Trip |
| C. | No Reactor Trip | Reactor Trip |
| D. | Reactor Trip | No Reactor Trip |

Proposed Answer: B

Distracter Explanation:

A, C & D are incorrect because there would be a reactor trip with the N32 bypass switch in normal and in bypass.

B. Correct. Candidate will analyze each condition separately and determine a reactor trip will result in each.

Technical Reference(s): T61.0110.6 LP #28, Excore NI
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: D T61.0110.6 LP #28, Excore NI

Question Source: **Bank** _____
 Modified Bank _____ (Note changes or attach parent)
 New X

Question History: **Previous NRC Exam** No
 Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
 Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 6

Comments: _____

Outline #: R026

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>033AA2.11</u>	
	Importance Rating	<u>3.1</u>	<u>3.4</u>

Proposed Question:

The following plant conditions exist:

- Reactor startup in progress
- P-6 has just energized
- Source range channel N31 indicates 3.2×10^3 CPS
- Source range channel N32 indicates 3×10^3 CPS
- Intermediate range channel N35 indicates 3×10^{-10} Amps
- Intermediate range channel N36 indicates 2×10^{-11} Amps

Which ONE of the following is the cause of the above readings?

- Intermediate range channel N35 is undercompensated.
- Intermediate range channel N35 is overcompensated.
- Intermediate range channel N36 is undercompensated.
- Intermediate range channel N36 is overcompensated.

Proposed Answer: A

Distracter Explanation:

- Correct. N31 and N32 are below the P-6 setpoint (10^{-10} amps). The source range NI's agree with N36 setpoint.
- N35 would read lower.
- N36 is consistent with indication provided by source range NI.
- N36 would read lower.

Technical Reference(s): T61.0110.6 LP #28, Excore NIs
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: H T61.0110.6 LP #28, Excore NIs

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.43(b) 6 55.41(b) 1

Comments: _____

Outline #: R027

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>054AK1.01</u>	
	Importance Rating	<u>4.1</u>	<u>4.3</u>

Proposed Question:

The following plant conditions exist:

- Reactor trip and Safety Injection on Hi Ctmt pressure
- All MSIVs closed
- Aux feed to 'C' S/G indication pegged high
- Aux feed to 'A', 'B', 'D' S/G 150,000 lbm/hr each
- No steam flow indicated on any S/G
- 'C' S/G pressure is 200 psig and decreasing
- 'A', 'B' and 'D' S/G pressures are 970 psig and stable
- 'C' S/G WR level is 20% and decreasing
- RCS pressure is 2200 psig and stable
- RCS temperature is 550°F and stable

Using the above indications, which ONE of the following accidents is in progress?

- A. Feed break on 'C' S/G.
- B. Steam break on 'C' S/G.
- C. SGTR on 'C' S/G.
- D. Faulted/ruptured 'C' S/G.

Proposed Answer: A

Distracter Explanation:

- A. Correct, 'C' S/G pressure and level indicate a fault. Aux feed flow high and RCS temperature stable indicate a feed break.
- B. No steam flow indicated.
- C. RCS pressure is stable, no SGTR exist.
- D. RCS pressure is stable, no SGTR exist.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #		<u>1</u>
Group #		<u>2</u>	<u>2</u>
K/A #		<u>WE05EK2.2</u>	
Importance Rating		<u>3.9</u>	<u>4.2</u>

Proposed Question:

The plant was in Mode 1 when all 4 MSIVs fast closed and WILL NOT re-open. All auxiliary feedwater has been lost and cannot be restored.

Present plant conditions are CTMT parameters normal with RCS T_{avg} 557°F. S/G levels are 41% wide range and slowly going down. SI HAS NOT been actuated.

Which ONE of the following methods should be used to recover the RCS Heat Removal Safety Function?

- A. Depressurize RCS to inject SI Accumulators.
- B. Establish Main FW flow to at least one S/G.
- C. Initiate SI to establish Feed and Bleed.
- D. Establish Condensate FW flow to at least one S/G.

Proposed Answer: D

Distracter Explanation:

A and C are incorrect because SI initiation criteria has not been satisfied.

B is incorrect because there is no steam supply for the MFPs.

D. Correct. Candidate will determine steam generator levels are above required SI setpoint (24% WR) and the preferred option is condensate.

Technical Reference(s): T61.003D.6 LP #26, FRG Heat Sink Series
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: T T61.003D.6 LP #26, FRG Heat Sink Series

Question Source: **Bank**
Modified Bank (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge**
Comprehension or Analysis X

10 CFR Part 55 Content: 55.43(b) 5 55.41(b) 10

Comments: IPE/PRA

Outline #: R030

Author: SMP

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>058AK3.01</u>	
	Importance Rating	<u>3.4</u>	<u>3.7</u>

Proposed Question:

Which ONE of the following would be affected by a loss of NK04, 125 VDC bus?

- A. 'A' condensate pump breaker control.
- B. 'B' condensate pump breaker control.
- C. NE01 field flashing.
- D. NE02 field flashing.

Proposed Answer: D

Distracter Explanation:

- A. Affected by PK01 loss.
- B. Affected by PK01 loss.
- C. NE01 Field flashing power is from NK01.
- D. NE02 Field flashing power is from NK04.

Technical Reference(s): T61.0110.6 LP #3, Safeguards Power
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C T61.0110.6 LP #3, Safeguards Power

Question Source: **Bank**
Modified Bank (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis

10 CFR Part 55 Content: **55.43(b)** **55.41(b)** 8

Comments: IPE/PRA

Outline #: R031 **Author:** EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>2</u>
	Group #	<u>2</u>	<u>1</u>
	K/A #	<u>061AK2.01</u>	
	Importance Rating	<u>2.5</u>	<u>2.6</u>

Proposed Question:

SDRE009, RW Bldg Valve Rm Corridor, area radiation monitor is in ALERT alarm on radiation monitoring panel SD055 (in the Control Room).

Which ONE of the following accurately describes indication available at the local unit?

- A. An elevated meter reading only.
- B. An activated audible alarm only.
- C. An elevated meter reading and an illuminated red alarm light.
- D. An elevated meter reading, an activated audible alarm and an illuminated red alarm light.

Proposed Answer: A

Distracter Explanation:

- A. Correct. Candidate will recall only elevated meter reading is the response.
- B, C, and D are incorrect because they only function upon activation of the "High Alarm".

Technical Reference(s): T61.0110.6 LP #36, Process Rad and Area Rad Mon
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: D T61.0110.6 LP #36, Process Rad and Area Rad Mon

Question Source:

Bank	<u> </u>	
Modified Bank	<u> </u>	(Note changes or attach parent)
New	<u> X </u>	

Question History:

Previous NRC Exam	<u> No </u>
Previous Quiz / Test	<u> No </u>

Question Cognitive Level:

Memory or Fundamental Knowledge	<u> X </u>
Comprehension or Analysis	<u> </u>

10 CFR Part 55 Content: 55.43(b) 4 55.41(b) 11

Comments: _____

Outline #: R032

Author: SMP

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>3</u>	<u>3</u>
	K/A #	<u>036AK3.03</u>	
	Importance Rating	<u>3.7</u>	<u>4.1</u>

Proposed Question:

While moving a fuel assembly from the core to the upender, you notice the following:

- Increased bubbling from the fuel bundle
- Fuel pellets dropping from fuel rods
- Increased radiation indicated at the refueling machine area radiation monitor.

Which ONE of the following summarizes the immediate operator actions required in this event?

- Contact Reactor Engineering, place damaged fuel assembly in change fixture, notify HP.
- Contact Reactor Engineering, initiate Containment Purge Isolation Signal, evacuate all personnel from containment.
- Return fuel assembly to reactor vessel, evacuate unnecessary personnel from containment, close one air lock door.
- Return fuel assembly to reactor vessel, initiate Containment Purge Isolation Signal, place both RHR trains in service.

Proposed Answer: C

Distracter Explanation:

- Change fixture is not a safe storage location, notify HP is a subsequent action.
- Initiate CPIS is a subsequent action, only unnecessary personnel are evacuated.
- Correct all immediate operator actions.
- Initiate CPIS is a subsequent action. Additional RHR trains not required.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>3</u>	<u>3</u>
	K/A #	<u>WE15EA1.1</u>	
	Importance Rating	<u>2.9</u>	<u>3.0</u>

Proposed Question:

The following plant conditions exist:

- Large break LOCA has occurred
- Rx trip, SIS, CSAS have actuated
- ESW pipe rupture has flooded recirculation sumps to 142 inches
- Currently performing E-1, "Loss of Reactor or Secondary Coolant"
- Crew is currently in the process of isolating SI accumulators.

Which ONE of the following is the preferred order of isolating 'A' SI accumulator?

- Close isolation valve, open one vent valve, open second vent valve.
- Open first vent valve, open second vent valve, close isolation valve.
- Close isolation valve, open the vent valve.
- Open the vent valve, close isolation valve.

Proposed Answer: C

Distracter Explanation:

- 'A' SI accumulator has only 1 vent valve.
- Isolation valve closed first, 'A' SI accumulator has only 1 vent valve.
- Correct per E-1 step 15c.
- Wrong order.

Technical Reference(s): E-1, "Loss of Reactor or Secondary Coolant"
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.0110.6 LP #19, SI Accumulators

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 9

Comments: _____

Outline #: R036 **Author:** EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>001G2.2.1</u>	
	Importance Rating	<u>3.7</u>	<u>3.6</u>

Proposed Question:

While performing a reactor startup, criticality was achieved with control banks below the rod insertion limit.

Which ONE of the following describes immediate actions that must be taken?

- A. Fully insert all control banks, contact Reactor Engineering.
- B. Fully insert all control banks, begin immediate boration.
- C. Stop all further outward rod motion, contact Reactor Engineering.
- D. Stop all further outward rod motion, begin immediate boration.

Proposed Answer: B

Distracter Explanation:

- A. Must begin immediate boration.
- B. Candidate must recall the proper actions are to fully insert all control banks and immediate borate.
- C. Control banks must be fully inserted, immediate boration should begin.
- D. Control banks must be fully inserted.

Technical Reference(s): OTG-ZZ-00002, "Reactor Startup"
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A.5.b T61.003A.6 LP #A-23, Rx Startup

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43(b)** 6 **55.41(b)** 1

Comments: _____

Outline #: R038

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>003K6.02</u>	
	Importance Rating	<u>2.7</u>	<u>3.1</u>

Proposed Question:

All reactor coolant pumps are secured with the following plant conditions:

- RCS wide range pressure (BBPI-405) indicates 500 psig
- RCS narrow range pressure (BBPI-406) indicates 540 psig
- Charging header pressure (BGPI-120A) indicates 590 psig
- VCT pressure (BGPI-115) indicates 40 psig

Using the attached graph, which ONE of the #1 seal leak-off flowrates below is the lowest flow that would allow starting a reactor coolant pump?

- A. 0.2 gpm
- B. 0.5 gpm
- C. 1.0 gpm
- D. 2.2 gpm

Proposed Answer: B

Distracter Explanation:

- A. 0.2 gpm is below minimum flow allowed.
- B. Candidate must subtract VCT pressure from charging pressure then use graph to determine flow required.
- C. 1.0 is not the lowest.
- D. 2.2 is not the lowest.

Technical Reference(s): OTN-BB-00003, "Reactor Coolant Pumps"
 (Attach if not previously provided) Page 4 of Attachment 1

Proposed references provided to applicants during examination: OTN-BB-00003, Att. 1, Pg 4 of 4

Learning Objective: C.1.d T61.003A.6 LP #A20, CBC – Mod A

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 3

Comments: _____

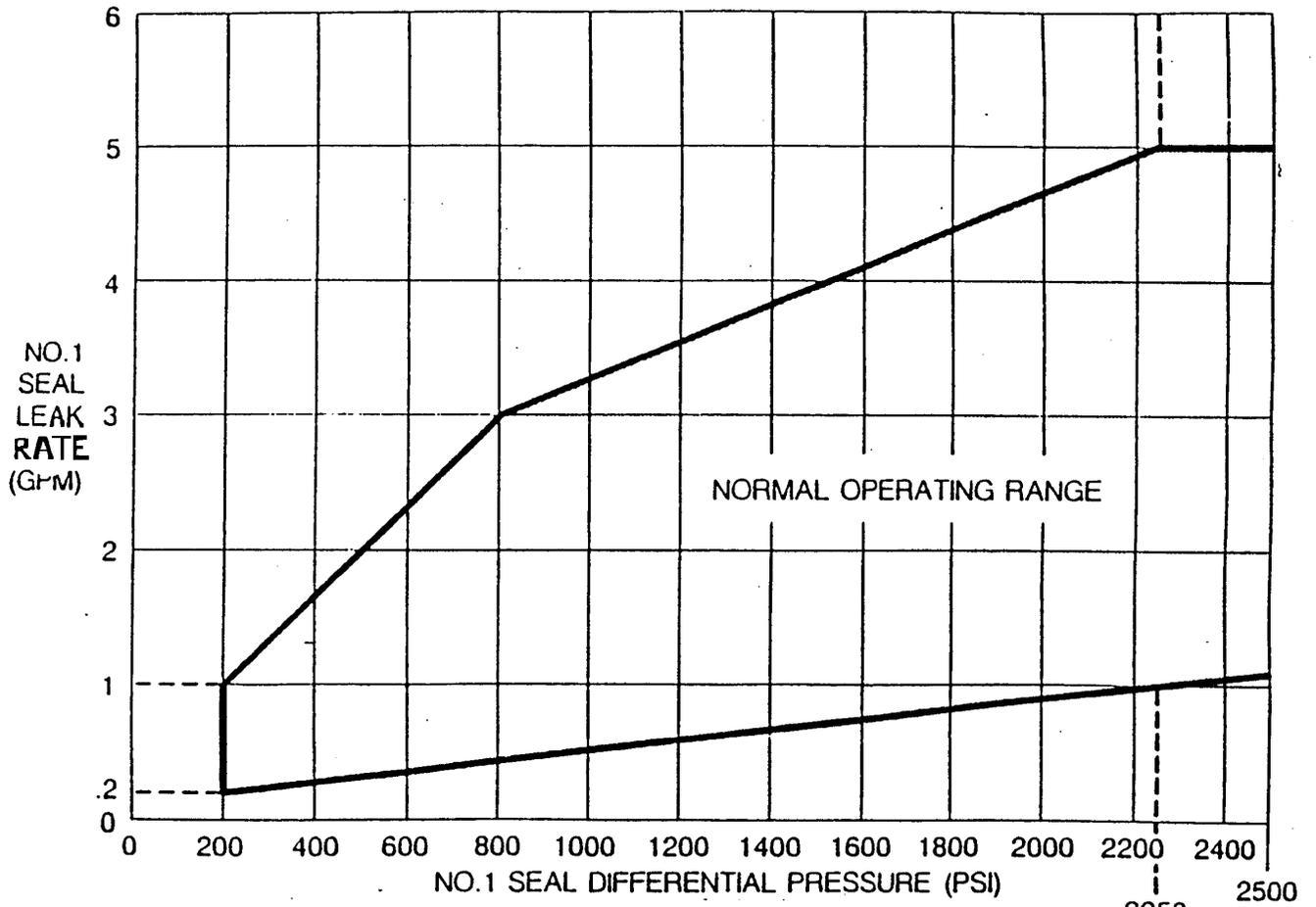
Outline #: R039 **Author:** EBS

OTN-BB-00003

Rev. 13

FIGURE 1

NO.1 SEAL NORMAL OPERATING RANGE



Use the following indicators if less than 400 PSID

- | | |
|-----|------------------------------------|
| RCP | Seal Differential Press. Indicator |
| A | BB PI - 153A |
| B | BB PI - 152A |
| C | BB PI - 151A |
| D | BB PI - 150A |

Otherwise use BG PI - 120A - BG PI - 115

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>003A4.02</u>	
	Importance Rating	<u>2.9</u>	<u>2.9</u>

Proposed Question:

Callaway Plant is in Mode 3 at NOP/NOT.

Which ONE of the following correctly describes 'A' RCP starting current when BB HIS-41, 'A' RCP handswitch, is placed in RUN?

- A. Ammeter indication slowly increases to approximately 350 amps.
- B. Ammeter indication pegs for 15-20 seconds then decreases to approximately 240 amps.
- C. Ammeter indication pegs for 40-50 seconds then decreases to approximately 350 amps.
- D. Ammeter indication immediately increases to approximately 240 amps.

Proposed Answer: B

Distracter Explanation:

- A. Ammeter indication will peg then decrease to 240 amps.
- B. Correct. Candidate is required to recall normal indications when starting an RCP.
- C. Ammeter indication should peg for only 15-20 seconds. This would be indication of a RCP problem.
- D. Ammeter indication will peg.

Technical Reference(s): T61.0110.6 LP #9, RCS
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C.1.h T61.003A.6 LP #20, CBC – Mod A

Question Source:

Bank	<u> </u>	
Modified Bank	<u> </u>	(Note changes or attach parent)
New	<u> X </u>	

Question History:

Previous NRC Exam	<u> No </u>
Previous Quiz / Test	<u> No </u>

Question Cognitive Level:

Memory or Fundamental Knowledge	<u> X </u>
Comprehension or Analysis	<u> </u>

10 CFR Part 55 Content: 55.43(b) 55.41(b) 3

Comments: _____

Outline #: R040

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>013A4.03</u>	
	Importance Rating	<u>4.5</u>	<u>4.7</u>

Proposed Question:

Annunciator window 61D, SG Blowdown Samp Iso, has alarmed.

BMHV0001, 2, 3 and 4, S/G B/D Isolation Valves, are closed. BMHV0019, 20, 21 and 22, S/G B/D Nuclear Sample System Upper Line Isolation Control Valves, are closed. BMHV0035, 36, 37 and 38, Nuclear Sample System Lower Line Isolation Control Valves, are closed. BMHV0065, 66, 67 and 68, S/G B/D Nuclear Sample System Line Isolation Upstream HV, are closed.

Which ONE of the following events could be the cause?

- A. TD AFAS.
- B. MD AFAS.
- C. CISA.
- D. CISB.

Proposed Answer: B

Distracter Explanation:

A is incorrect because while an UV on NB01 or NB02 will cause the valves to close, a TD AFAS is not a direct input to close these valves.

B. Correct Candidate must determine that a BPSIS signal exist, and that MD AFAS is the only item that could have caused only the above valves to close.

C is incorrect because only BMHV0001, 2, 3 and 4 would have closed.

D is incorrect because CISB is not an input to close these valves.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>013A1.02</u>	
	Importance Rating	<u>3.9</u>	<u>4.2</u>

Proposed Question:

The following plant conditions exist:

- 75% power and increasing
- All steam generator pressures decreasing slowly
- Containment temperature, pressure and humidity increasing
- T_{ave} decreasing

Which ONE of the following actions is designed to prevent the containment from exceeding its design pressure limit?

- A. Safety Injection
- B. Main Steam Line Isolation
- C. Containment Isolation Phase 'A'
- D. Containment Isolation Phase 'B'

Proposed Answer: B

Distracter Explanation:

- A. Safety injection is required for maintaining SDM.
- B. Correct. Candidate must determine a steam leak exist and a SLIS is required to isolate S/Gs.
- C. CIS 'A' is designed to prevent fission product release from containment.
- D. CIS 'B' is designed to isolate CCW only. This will prevent a breach in CTMT due to the CCW system.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>015K5.10</u>	
	Importance Rating	<u>2.8</u>	<u>3.0</u>

Proposed Question:

The following plant conditions exist:

- Large LOCA has occurred
- All RCPs have been tripped
- ECCS flow NOT available
- Reactor coolant is at saturated conditions

Which ONE of the following describes the expected response of the source range NIs with the above conditions?

- Count rate indication rises because the level in the downcomer drops.
- Count rate indication lowers because the level in the downcomer drops.
- Count rate indication lowers because there are fewer neutrons generated.
- Count rate indication rises because there are more neutrons generated.

Proposed Answer: A

Distracter Explanation:

- Correct. Candidate will determine that as level in the downcomer decreases this will allow more neutrons to leak out and count rate will increase.
- Level in downcomer lowers as water is lost.
- Count rate rises.
- There are fewer neutrons generated as leakage factor increases.

Technical Reference(s): T61.003C.6 LP #30, Accident Response of Instrumentation
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.003C.6 LP #30, Accident Response of Instrumentation

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** 6 **55.41(b)** 3

Comments: _____

Outline #: R046

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>017K5.03</u>	
	Importance Rating	<u>3.7</u>	<u>4.1</u>

Proposed Question:

The following plant conditions exist:

- A small break LOCA has occurred.
- RCPs were secured.
- RCS pressure is stable at 1400 psig.
- Core exit thermocouples indicate 550°F.
- RCS wide range T_h indicates 520°F.

Which ONE of the following describes the condition of the RCS?

- A. 68°F Subcooled
- B. 68°F Superheated
- C. 38°F Subcooled
- D. 38°F Superheated

Proposed Answer: C

Distracter Explanation:

- A & B are incorrect because core exit TCs are more conservative (higher value).
 C Correct. Candidate must convert psig to psia and determine the core exit TCs are most conservative.
 D answer is subcooled.

Technical Reference(s): T61.0070.6 LP #13, Characteristics of Steam Tables
 (Attach if not previously provided)

Proposed references provided to applicants during examination: Steam Tables

Learning Objective: B T61.0070.6 LP #13, Characteristic of Steam Tables

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 14

Comments: _____

Outline #: R047

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>022A1.04</u>	
	Importance Rating	<u>3.2</u>	<u>3.3</u>

Proposed Question:

The plant is in Mode 1, 100% power with all systems in their normal alignment. Service water temperature was observed to be 58°F.

Which ONE of the following is the required configuration for the CTMT Cooling Fans?

	<u>FAN A</u>	<u>FAN B</u>	<u>FAN C</u>	<u>FAN D</u>
A.	Fast	Fast	Fast	Fast
B.	Fast	Fast	Slow	Slow
C.	Slow	Slow	Fast	Fast
D.	Slow	Slow	Slow	Slow

Proposed Answer: D

Distracter Explanation:

A, B, C are incorrect because the fans would be operating near their thermal overload setpoint.

D. Correct. Candidate will analyze plant conditions and determine all CTMT cooler fans should be in the slow speed.

Technical Reference(s): OTN-GN-00001 precautions and limitations
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A.3 T61.003A.6 LP #A20, CBC – Mod A

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** 5 **55.41(b)** 10

Comments: _____

Outline #: R049

Author: SMP

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>022A3.01</u>	
	Importance Rating	<u>4.1</u>	<u>4.3</u>

Proposed Question:

'A' containment cooler fan is running in fast speed when a safety injection occurs.

Which ONE of the following describes the response of 'A' containment cooler to the safety injection?

- A. It will continue to run in fast speed.
- B. It will trip, then start in slow speed when the LOCA sequencer times out (60 seconds).
- C. It will shift to slow speed when the LOCA sequencer reaches 35 seconds.
- D. It will trip, then restart in fast speed if containment pressure reaches 17 psig.

Proposed Answer: C

Distracter Explanation:

- A. 'A' CTMT cooler fan shifts to slow speed at 35 seconds on LOCA sequencer.
- B. This is correct for a hydrogen mixing fan.
- C. Correct. Candidate is required to recall that a LOCA sequencer will cause the CTMT cooler fans to shift to slow speed.
- D. 'A' CTMT cooler fan shifts to slow speed at 35 seconds on LOCA sequencer.

Technical Reference(s): T61.0110.6 LP #40, Containment Ventilation
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: D T61.0110.6 LP #40, Containment Ventilation

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 8

Comments: _____

Outline #: R050

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>056A2.04</u>	
	Importance Rating	<u>2.6</u>	<u>2.8</u>

Proposed Question:

The following plant conditions exist:

- 7% reactor power
- 'B' condensate pump running
- All controls are in automatic
- Condensate pump 'B' trips

Which ONE of the following conditions will occur due to 'B' condensate pump tripping?

- A. 'A' condensate pump will auto start.
- B. Running main feed pump will trip.
- C. Running heater drain pump will trip.
- D. 'C' condensate pump will auto start.

Proposed Answer: B

Distracter Explanation:

- A. & D. There is no auto start feature between condensate pumps.
- B. Correct. Candidate is required to remember all condensate pump breakers in the trip position will generate a MFP trip signal.
- C. Heater drain pump trips only due to low heater drain tank level.

Technical Reference(s): T61.0110.6 LP #23, Main Feedwater
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: D T61.0110.6 LP #23, Main Feedwater

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 4

Comments: _____

Outline #: R051

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>059K1.04</u>	
	Importance Rating	<u>3.4</u>	<u>3.4</u>

Proposed Question:

Callaway Plant is at 50% power. The selected steam flow channel for 'A' S/G fails high.

Which ONE of the following describes the effect on 'A' Main Feed Reg Valve and the Main Feed Pump running in the Auto Mode?

	<u>'A' FRV</u>	<u>Auto MFP</u>
A.	Valve opens	Speed increases
B.	Valve closes	Speed decreases
C.	Valve opens	No effect
D.	No effect	Speed decreases

Proposed Answer: A

Distracter Explanation:

- A. Correct, steam flow failure high will cause FRV to open and Main Feed Pump speed to increase.
 B, C, D. Valve would open; speed would increase.

Technical Reference(s): T61.0110.6 LP #23, Feedwater System
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: E, F T61.0110.6 LP #23, Feedwater System

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 5

Comments: _____

Outline #: R053

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>071K4.04</u>	
	Importance Rating	<u>2.9</u>	<u>3.4</u>

Proposed Question:

The following plant conditions exist:

- Mode 1.
- Gas decay tank discharge is in progress.
- HA-PCV-7896, Gas Decay Flow Control Valve fails from 15 psid to 25 psid.

Which ONE of the following describes the effect on the GDT discharge for the event?

- GDT discharge will continue. Dilution flow will automatically increase to compensate for higher discharge flow.
- GDT discharge will continue. Radiation vent monitor indications will be inaccurate.
- The discharge will automatically terminate on high discharge flow.
- The discharge will automatically terminate on high discharge header pressure.

Proposed Answer: B

Distracter Explanation:

- Dilution flow would not change.
- Correct. HA-PCV-7896 maintains a constant 15 psid across the flow path to ensure accurate reading. Candidate will have to evaluate the effect this will have on the GDT discharge.
- Discharge flow will not terminate the release.
- High discharge header pressure will not terminate the release.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>071A2.09</u>	
	Importance Rating	<u>3.0</u>	<u>3.5</u>

Proposed Question:

The following plant conditions exist:

- VCT is lined up to radwaste.
- VCT pressure is 26 psig.
- VCT level is 40%.
- Radwaste gas system is lined up in HIGH PRESSURE MODE to GDT 'A'.
- GDT 'A' relief valve (HA7821A) fails open.

Which ONE of the following describes how an overexposure event is prevented in the radwaste building?

- 'A' Gas Decay Tank relief is directed to 'D' Gas Decay Tank.
- 'A' Gas Decay Tank relief is directed to the unit vent.
- VCT relief valve opens and relieves to the waste hold up tanks.
- VCT purge valve (BG-PCV-115), to the waste gas compressor, closes on high radiation.

Proposed Answer: A

Distracter Explanation:

- Correct. Candidate will recall the method for preventing a release to the Radwaste building is for the Normal Gas Decay Tanks to relieve to the Shutdown Gas Decay Tanks.
- 'A' GDT is directed to 'D' GDT, not unit vent.
- VCT relief valve will not open. VCT relief valve discharges to RHUT, not to waste hold up tank.
- BG-PCV-15 does not isolate on high radiation.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>072A1.01</u>	
	Importance Rating	<u>3.4</u>	<u>3.6</u>

Proposed Question:

The plant is in Mode 5 with new fuel receipt in progress. Annunciator 62B, AREA RAD HI, has alarmed. The computer display for AREA RADIATION MONITORS has the following indications:

- SDRE0035, FB-2026 New Fuel Storage Area, reads 1 mr/hr with a green numerical display.
- SDRE0041, RB-2047, Manipulator Crane, reads 17 mr/hr with a green numerical display.
- SDRE0018, AB-2000, Aux Bldg Vlv Room Corridor, reads 8.7 mr/hr with a yellow numerical display.

Which ONE of the following events could be the cause?

- A. LOCA inside CTMT.
- B. LOCA outside CTMT.
- C. Fuel handling accident inside CTMT.
- D. Fuel handling accident outside CTMT.

Proposed Answer: B

Distracter Explanation:

- A. Incorrect because SDRE0041 is not in alarm.
- B. Correct. Candidate must apply plant conditions to determine a LOCA exists outside CTMT.
- C. Incorrect because fuel handling inside CTMT is not allowed in Mode 5.
- D. Incorrect because SDRE0035 is not in alarm.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>002K5.17</u>	
	Importance Rating	<u>3.8</u>	<u>4.2</u>

Proposed Question:

The following plant conditions exist:

- Small break LOCA is in progress.
- All pressurizer pressure detectors indicate 1700 psig.
- All wide range pressure detectors indicate 1400 psig.
- All wide range T_H detectors indicate 540°F.
- Core exit thermocouples indicate 560°F.
- CTMT temperature is 166°F.
- All RCPs are secured.

The crew is currently in E-1, Loss of Reactor or Secondary Coolant, Step 6, checking if SI flow should be reduced. Using the attachment, determine RCS conditions and crew actions.

- A. Wide range T_H and wide range pressures indicates the RCS is subcooled, transition to ES-1.1, SI Termination may be made.
- B. Thermocouples and pressurizer pressure indicates the RCS is subcooled, transition to ES-1.1, SI Termination may be made.
- C. Thermocouples and wide range pressure indicates the RCS is not subcooled, continue in E-1, Loss of Reactor or Secondary Coolant.
- D. Wide range T_H and pressurizer pressure indicates the RCS is not subcooled, continue in E-1, Loss of Reactor or Secondary Coolant.

Proposed Answer: C

Distracter Explanation:

The candidate must determine adverse containment conditions apply and use the dashed curve. The candidate must also select the most conservative indication (thermocouples) and determine subcooling does not exist and crew should continue in E-1.

Technical Reference(s): E-1, "Loss of Reactor or Secondary Coolant", Attachment 2
 (Attach if not previously provided)

Proposed references provided to applicants during examination: E-1, "Loss of Reactor or Secondary Coolant", Attachment 2

Learning Objective: P T61.003D.6 LP #8, Loss of Reactor or Secondary Coolant

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 5

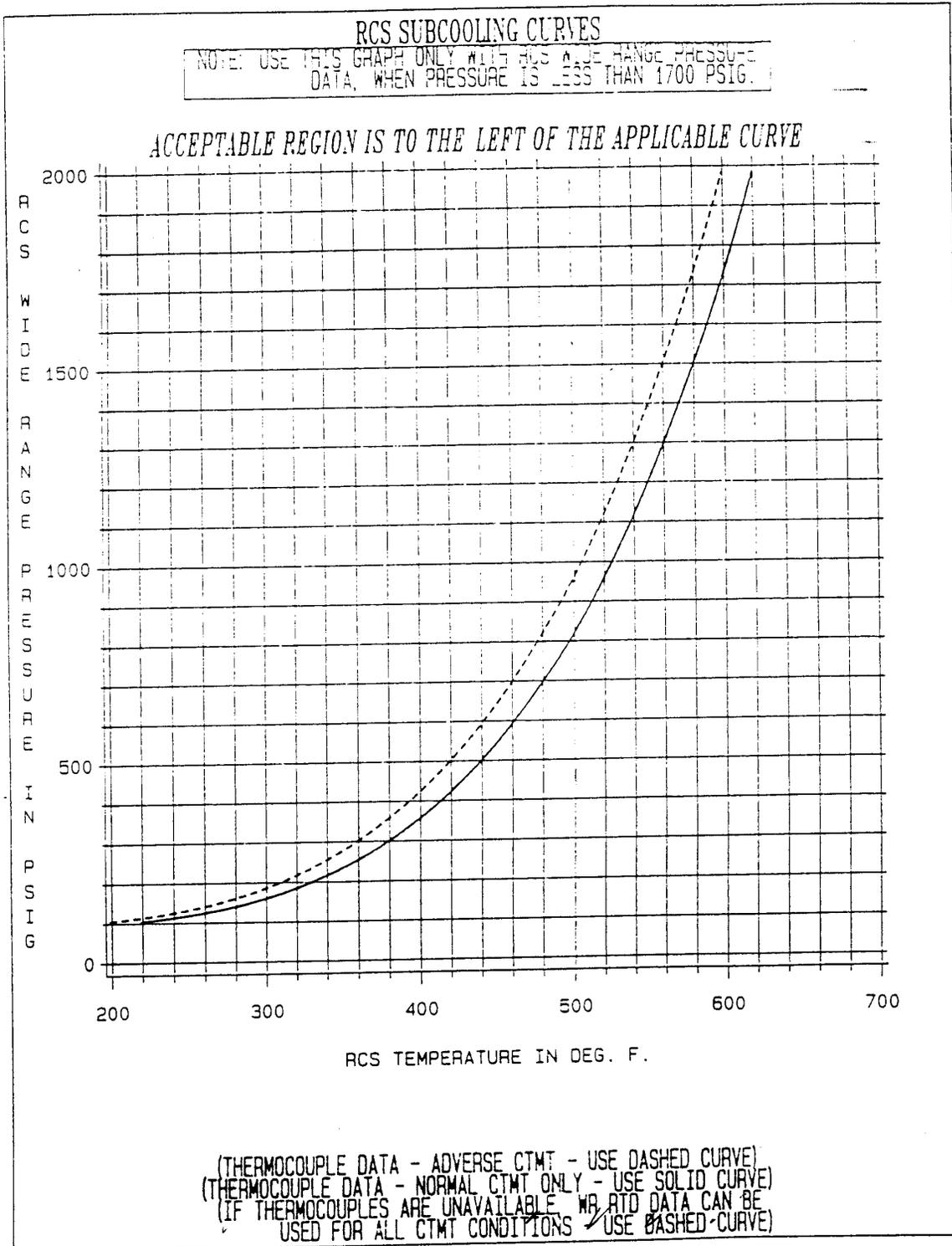
Comments: _____

Outline #: R060

Author: EBS

Proced. No. E-1	LOSS OF REACTOR OR SECONDARY COOLANT	Attachment 2	Rev. 1B2
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RCS SUBCOOLING CURVES



Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>006K2.01</u>	
	Importance Rating	<u>3.6</u>	<u>3.9</u>

Proposed Question:

Callaway Plant was at full power when the main turbine tripped. The reactor failed to trip, operators entered FR-S.1, "Response to Nuclear Power Generation." The following plant conditions exist:

- CTMT pressure 0.7 psig.
- Reactor trip breakers closed.
- RCS Tave - 568°F.
- RCS pressure – 1830 psig.
- S/G pressure – 1150 psig.

The Reactor Operator noticed that both SI pumps discharge pressure indicates 0 psig.

Which ONE of the following is the cause?

- A. PG19 and PG20 are de-energized, removing power to the indicators.
- B. No auto start signal exists to the SI pumps.
- C. A S/D sequencer signal exists, blocking the SI pump auto start.
- D. NB01 is de-energized, removing power to the indicators.

Proposed Answer: A

Distracter Explanation:

- A. Correct. Candidate must synthesize the relationship between SI actuations at 1849 psig and PG-19 & 20 in P-T-L for FR-S.1.
- B. Pressurizer pressure of 1849 psig causes a SI and LOCA sequencer to start the SI pumps.
- C. The LOCA sequencer blocks the S/D sequencer.
- D. NB01 does not supply power to the indicators.

Technical Reference(s): FR-S.1, "Response to Nuclear Power Generation"
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C T61.003D.6 LP #29, FRG Subcriticality

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** 6 **55.41(b)** 8

Comments: _____

Outline #: R061 **Author:** EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>011K6.01</u>	
	Importance Rating	<u>2.8</u>	<u>3.2</u>

Proposed Question:

The plant is in Mode 1, 100% reactor power, all systems are in their normal alignment and the NCP is in service.

CVCS letdown flow was 75 gpm and has been increased to 120 gpm. BGHV8109, CVCS NCP RECIRC HV, is open and WILL NOT close. One CCP was started and the NCP was secured.

Which ONE of the following best explains the basis for this action?

- A. To prevent automatic letdown isolation.
- B. To prevent NCP damage from high flow.
- C. To prevent a reactor trip on low pressurizer level.
- D. To prevent RCP seal damage from inadequate seal injection flow.

Proposed Answer: B

Distracter Explanation:

- A. Letdown could have been reduced to 75 gpm.
- B. Correct. Candidate must analyze plant conditions and determine the NCP would reach runout conditions and be damaged by high flow.
- C. Adequate charging flow was available from the NCP.
- D. Seal injection flow is not affected.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>016G2.1.31</u>	
	Importance Rating	<u>4.2</u>	<u>3.9</u>

Proposed Question:

The following plant conditions exist:

- Mode 1, 50% power.
- 600 MWe.
- Steam dumps arm light illuminated.
- ATWS trouble annunciator in alarm.

Which ONE of the following correctly describes the indication expected when the Reactor Operator take logs on AC-PT-505 and 506?

	<u>505</u>	<u>506</u>
A.	325 psig	0 psig
B.	325 psig	700 psig
C.	0 psig	325 psig
D.	700 psig	325 psig

Proposed Answer: A

Distracter Explanation:

- A. Correct. Steam dumps will arm when 506 fails low.
 B. 700 psig is a common misconception for 506 failure and steam dumps.
 C, D. 505 feeds steam dumps, but to compare to T_{ave} .

Technical Reference(s): T61.0110.6 LP #23, Main Feedwater
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.003B.6 LP-SB8, Plant C/D with Off-normals

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 4

Comments: _____

Outline #: R066

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>1</u>
	K/A #	<u>026A3.01</u>	
	Importance Rating	<u>4.3</u>	<u>4.5</u>

Proposed Question:

The following plant conditions exist:

- Mode 2.
- 3% reactor power.
- All equipment in automatic control.
- No T/S action statements in effect.

A large break LOCA occurs.

Which ONE of the following sets of valves will OPEN due to the containment spray actuation signal (CSAS)?

- CTMT Spray Pump test line to RWST iso valves ENV0024 and ENV0025.
- RWST to CTMT Spray Pump BNHV0003 and BNHV0004.
- CTMT Spray Pump Discharge ENHV0006 and ENHV0012.
- CTMT Recirc Sump to CTMT Spray Pump ENHV0001 and ENHV0007.

Proposed Answer: C

Distracter Explanation:

- Manual valves that are not affected by any signal.
- Valves receive an open signal, but are normally open valves.
- Candidate must realize these valves receive an open signal from a CSAS and are normally closed.
- Only receive a closed signal from a CIS 'A'.

Technical Reference(s): T61.0110.6 LP #18, Containment Spray
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: H T61.0110.6 LP #18, Containment Spray

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 9

Comments: _____

Outline #: R067

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>029K4.03</u>	
	Importance Rating	<u>3.2</u>	<u>3.5</u>

Proposed Question:

Callaway Plant is in Mode 5. Preparations for CTMT entry are in progress with the S/D purge system in service.

Which ONE of the following describes the response of the containment S/D purge system if a manual CPIS is initiated on 'B' train?

- A. Containment S/D purge supply air unit fan remains running, S/D purge exhaust fan remains running.
- B. Containment S/D purge supply air unit fan trips, S/D purge exhaust fan trips.
- C. Containment S/D purge supply air unit fan trips, S/D purge exhaust fan remains running.
- D. Containment S/D purge supply air unit fan remains running, S/D purge exhaust fan trips.

Proposed Answer: D

Distracter Explanation:

- A. Containment supply air unit fan does not trip.
- B. Containment supply air unit fan does not trip.
- C. Supply air unit does not trip. Purge exhaust unit does trip.
- D. Candidate must determine manual is not a cross-trip and evaluate which components are 'B' train.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>035A4.08</u>	
	Importance Rating	<u>4.1</u>	<u>4.4</u>

Proposed Question:

The following are radiation readings from the RM-11 console:

<u>Monitor</u>	<u>Location</u>	<u>Reading at 0700</u>	<u>Reading at 0800</u>
AB-RE-16A	S/G A N-16	0 GPD	0 GPD
AB-RE-16B	S/G B N-16	8 GPD	58 GPD
AB-RE-16C	S/G C N-16	40 GPD	240 GPD
AB-RE-16D	S/G D N-16	0 GPD	0 GPD
BM-RE-25	S/G B/D	9E-6 C/ml	8E-5 C/ml
GE-RE-92	Condenser Air Discharge	7E-5 C/ml	4E-4 C/ml

Which ONE of the following actions is required?

- A. 'B' SGTL > 50 GPM, Trip Rx, Enter E-0.
- B. 'C' SGTL > 50 GPM, Trip Rx, Enter E-0.
- C. 'B' SGTL > 30 GPD/Hr, be in Mode 3 in 3 hours.
- D. 'C' SGTL > 150 GPD, be in Mode 3 in 3 hours.

Proposed Answer: D

Distracter Explanation:

- A & B are incorrect because the leakage is less than 50 GPM.
- C is incorrect because the leakage must be greater than 75 GPD and the shutdown requirements are Mode 3 in 3 hours.
- D. Correct. Candidate must determine 'C' S/G has had an increase of 200 gpd in one hour and determine this exceeds limits in APA-ZZ-01023.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>055A3.03</u>	
	Importance Rating	<u>2.5</u>	<u>2.7</u>

Proposed Question:

A 600 gpm tube rupture occurred in 'A' S/G during Mode 1 operations. During the recovery phase, the BOP RO notices the condenser air removal vacuum pumps have tripped with the discharge dampers closed.

Which ONE of the following is cause for the condenser air removal system being secured?

- A. SGBSIS
- B. SIS
- C. CIS 'B'
- D. CIS 'A'

Proposed Answer: B

Distracter Explanation:

A, C & D incorrect because the safety injection causes dampers to close and the interlock causes pumps to trip.

B is correct because SIS closes the discharge dampers which are interlocked to trip the pumps.

Technical Reference(s): T61.0110.6 LP #22, Condensate System
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: N T61.0110.6 LP #22, Condensate System

Question Source:

Bank	<u> </u>	
Modified Bank	<u> </u>	(Note changes or attach parent)
New	<u> X </u>	

Question History:

Previous NRC Exam	<u> No </u>
Previous Quiz / Test	<u> No </u>

Question Cognitive Level:

Memory or Fundamental Knowledge	<u> </u>
Comprehension or Analysis	<u> X </u>

10 CFR Part 55 Content: 55.43(b) 55.41(b) 7

Comments: _____

Outline #: R072

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>063K3.02</u>	
	Importance Rating	<u>3.5</u>	<u>3.7</u>

Proposed Question:

The following plant conditions exist:

- 2% reactor power.
- NK01, 125 VDC power fails to 'A' MD AFP breaker.
- 'A' and 'B' MD AFP supplying feedwater to S/Gs.

Which ONE of the following describes how the loss of DC control power affects the 'A' MD AFP breaker?

- 'A' MD AFP breaker will trip, and cannot be closed from the MCB.
- 'A' MD AFP breaker will trip, but can be reclosed from the MCB.
- 'A' MD AFP breaker will fail in its current position, but can be tripped from the MCB.
- 'A' MD AFP breaker will fail in its current position, and cannot be tripped from the MCB.

Proposed Answer: D

Distracter Explanation:

- Breaker will not trip.
- Breaker will not trip.
- Breaker cannot be tripped from MCB.
- Correct. All BKR control is lost when DC control power is lost.

Technical Reference(s): T61.0110.6 LP #6, Safeguards Power
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: E T61.0110.6 LP #6, Safeguards Power

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 7

Comments: _____

Outline #: R074

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>064A4.01</u>	
	Importance Rating	<u>4.0</u>	<u>4.3</u>

Proposed Question:

NE01 has been paralleled with 4160VAC bus NB01 and is carrying 5 MWe of load. A large break loss of coolant accident occurs and containment pressure increases to 19 psig.

Which ONE of the following describes the response of the 'A' train safeguards power system?

- A. NB01 Normal Feeder Breaker will remain closed, NE01 will remain running, 'A' train LOCA sequencer will start.
- B. NB01 Normal Feeder Breaker will open, NE01 will remain running, 'A' train S/D sequencer will start.
- C. NB01 Normal Feeder Breaker will remain closed, NE01 will trip, 'A' train LOCA sequencer will start.
- D. NB01 Normal Feeder Breaker will open, NE01 will trip and will restart on 'A' train S/D sequencer.

Proposed Answer: A

Distracter Explanation:

- A. Correct. Candidate is required to determine NE01 running will have no effect on NB01 Normal Feeder Breaker, and that the LOCA sequencer will block the S/D sequencer.
- B. NB01 Feeder Breaker will not open.
- C. NE01 will not trip.
- D. NB01 Feeder Breaker will not open, NE01 will not trip.

Technical Reference(s): T61.0110.6 LP #6, Safeguards Power
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: J T61.0110.6 LP #6, Safeguards Power

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 8

Comments: _____

Outline #: R075

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>075K4.01</u>	
	Importance Rating	<u>2.5</u>	<u>2.8</u>

Proposed Question:

Callaway Plant is at 60% power.

Which ONE of the following will cause a loss of the Main Turbine within 5 minutes?

- A. Trip of all condenser vacuum pumps.
- B. Loss of PB04.
- C. Service water pressure at 45 psig.
- D. High condenser pit level.

Proposed Answer: D

Distracter Explanation:

- A. Losing all condenser vacuum pumps will cause a loss of vacuum and a turbine trip but not for 24 hours – a common misconception.
- B. Losing PB04 will cause a trip of 'B' condensate pump and 'B' heater drain pump, but at 60% power should not cause a turbine trip.
- C. Normal service water pressure is ~65 psig. Decreasing pressure may reduce flow and cause overheating in lube oil coolers for the main turbine and feed pump as well as for the generator. These actions will not happen for a least one hour.
- D. Correct. High condenser pit level will cause all circ pumps to trip, and a loss of heat sink is almost immediate. A turbine trip will follow.

Technical Reference(s): OTN-DA-00001, "Circ Water System"
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C T61.0110.6 LP #4, Circ & Service Water Systems

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 5

Comments: _____

Outline #: R077

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>079K1.01</u>	
	Importance Rating	<u>3.0</u>	<u>3.1</u>

Proposed Question:

A hose connected to the service air system has ruptured.

Which ONE of the following will prevent a total loss of the instrument air system?

- A. Orifices installed in the service air lines will restrict flow to within the capacity of one air compressor.
- B. Nitrogen backup is available to the instrument air system.
- C. KAPV0011, Compress Air Sys Service Air Supply Valve, closes.
- D. KAFV0029, Reactor Building Instrument Air Supply Flow Control Valve, closes.

Proposed Answer: C

Distracter Explanation:

- A. Orifices are installed in the instrument air lines, not service air.
- B. N₂ backup will not prevent a loss of the instrument air system.
- C. Correct. Candidate must determine service air will isolate from instrument air as pressure decreases.
- D. KAFV29 will drift close < 70 psig header pressure and isolation the Rx building only.

Technical Reference(s): T61.0110.6 LP #14, IAS
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C.2.f T61.0110.6 LP #14, IAS

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 7

Comments: _____

Outline #: R078

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>086G2.4.27</u>	
	Importance Rating	<u>3.0</u>	<u>3.5</u>

Proposed Question:

The following plant conditions exist:

- Mode 6.
- NE01 ('A' D/G) is running for a surveillance.
- Electric driven fire pump has started.
- KC008 alarms (Red and Amber) are activated for the East Diesel Generator Room.

Which ONE of the following describes the response of NE01 fuel oil transfer pump?

- A. NE01 fuel oil transfer pump will trip.
- B. NE01 fuel oil transfer pump will continue to run.
- C. NE01 fuel oil transfer pump will divert and recirc the fuel oil storage tank.
- D. NE01 fuel oil transfer pump will trip once the fuel oil day tank reaches the high level alarm.

Proposed Answer: B

Distracter Explanation:

- A. Fuel oil transfer pump will continue to run.
- B. Correct. Fuel oil transfer pump will trip only if D/G is not running.
- C. Fuel oil transfer pump will not divert flow.
- D. Fuel oil transfer pump will continue to run, high level trip is bypassed.

Technical Reference(s): T61.0110.6 LP #3, Standby Generation
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C.6 T61.0110.6 LP #3, Standby Generation

Question Source:
Bank _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History:
Previous NRC Exam No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 8

Comments: _____

Outline #: R079

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>3</u>	<u>1</u>
	K/A #	<u>027K5.01</u>	
	Importance Rating	<u>3.1</u>	<u>3.4</u>

Proposed Question:

Charcoal filters in the containment purge filter adsorber units primary purpose is to remove which ONE of the following?

- A. Removes radioiodine
- B. Removes Xenon
- C. Removes ultra-fine particles
- D. Removes N-16

Proposed Answer: A

Distracter Explanation:

- A. Correct. Candidate should remember purpose is to prevent the release of radioiodine to the atmosphere.
- B. Xenon is a gas and the filter adsorber units will have no affect.
- C. HEPA filters remove these.
- D. N-16 is a gas and the filter adsorber units will have no affect.

Technical Reference(s): T61.0110.6 LP #40, CTMT Ventilation
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: M.3 T61.0110.6 LP #40, CTMT Ventilation.

Question Source:

Bank	<u> </u>	
Modified Bank	<u> </u>	(Note changes or attach parent)
New	<u> X </u>	

Question History:

Previous NRC Exam	<u> No </u>
Previous Quiz / Test	<u> No </u>

Question Cognitive Level:

Memory or Fundamental Knowledge	<u> X </u>
Comprehension or Analysis	<u> </u>

10 CFR Part 55 Content: 55.43(b) 4 55.41(b) 13

Comments: _____

Outline #: R082

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #		<u>2</u>
Group #		<u>3</u>	<u>3</u>
K/A #		041K3.04	
Importance Rating		<u>3.5</u>	<u>3.4</u>

Proposed Question:

The following plant conditions exist:

- Control rods in manual.
- 6% reactor power.
- IR SUR 0.0 DPM indicated.
- Steam pressure mode for steam dumps controlling pressure at 1092 psig.
- RCS boron 400 ppm.
- All other systems in automatic.

Which ONE of the following describes how the plant would respond by changing ABPT-507, steam header pressure setting to 7.0 turns?

- A. T_{ave} would decrease and reactor power would increase.
- B. T_{ave} would increase and reactor power would remain the same.
- C. T_{ave} would remain the same and reactor power would increase.
- D. T_{ave} and reactor power would remain the same.

Proposed Answer: A

Distracter Explanation:

- A. Changing the pot setting to 7.0 turn (150 psig/turn) would cause steam pressure to control at 1050 psig. The candidate has to combine this with negative MTC and realize T_{ave} would decrease and reactor power would increase.
- B. T_{ave} will decrease, power will increase.
- C. T_{ave} will decrease.
- D. T_{ave} will decrease, reactor power will increase.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>3</u>	<u>3</u>
	K/A #	<u>045A4.02</u>	
	Importance Rating	<u>2.7</u>	<u>2.6</u>

Proposed Question:

Which ONE of the following is the correct sequence for synchronizing the main generator to the grid?

- A. 1. Adjust main turbine speed as necessary with load selection to ensure synchroscope revolving slowly in the fast direction.
2. Adjust generator voltage so generator is slightly higher than switchyard.
3. Close the generator exciter field breaker.
4. Close selected switchyard breaker.
- B. 1. Close the generator exciter field breaker.
2. Adjust main turbine speed as necessary with load selection to ensure synchroscope revolving slowly in the fast direction.
3. Adjust generator voltage so generator is slightly higher than switchyard.
4. Close selected switchyard breaker.
- C. 1. Close the generator exciter field breaker.
2. Adjust generator voltage so generator is slightly higher than switchyard.
3. Adjust main turbine speed as necessary with load selection to ensure synchroscope revolving slowly in the fast direction.
4. Close selected switchyard breaker.
- D. 1. Adjust main turbine speed as necessary with load selection to ensure synchroscope revolving slowly in the fast direction.
2. Close the generator exciter field breaker.
3. Adjust generator voltage so generator is slightly higher than switchyard.
4. Close selected switchyard breaker.

Proposed Answer: C

Distracter Explanation:

- A. Incorrect because the exciter field breaker must be closed before turbine speed is adjusted.
- B. Incorrect because generator voltage must be adjusted before turbine speed is adjusted.
- C. Correct. Candidate will determine the generator field breaker must be closed so the generator voltage can be adjusted. He will have to determine the main turbine speed is adjusted just prior to closing the switchyard breaker.
- D. Incorrect because adjusting turbine speed must be performed after adjusting generator voltage.

Technical Reference(s): OTN-AC-00001, "Main Turbine and Generator System"
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: G T61.003A.6 LP #SA25, Plant S/U BOL

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 5

Comments: _____

Outline #: R085

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>3</u>	<u>2</u>
	K/A #	<u>103A3.01</u>	
	Importance Rating	<u>3.9</u>	<u>4.2</u>

Proposed Question:

Which ONE of the following describes the containment atmosphere radiation monitors GT-RE-31 and GT-RE-32?

- A. Both radiation monitor sample containment via the hydrogen control system and are isolated from containment by a CIS 'A' actuation.
- B. Both radiation monitor sample containment via shutdown purge exhaust system and are isolated by a CSAS actuation.
- C. Both radiation monitor sample between the containment isolation valves on the mini-purge exhaust line and initiate a CPIS on high high activity.
- D. Both radiation monitor sample from the containment purge exhaust line outside containment and initiate a CPIS on high high activity.

Proposed Answer: A

Distracter Explanation:

- A. Correct.
- B. GTRE22/33 sample off S/D purge exhaust line, CSAS does not isolate.
- C. Do not sample between CTMT iso valves, does not generate a CPIS.
- D. They do not generate a CPIS.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>G2.1.1</u>	
	Importance Rating	<u>3.7</u>	<u>3.8</u>

Proposed Question:

The plant is at 50% power. The second main feed pump is being placed in service by the BOP operator. The Reactor Operator is going to dilute 25 gallons to maintain T_{ave} matched with T_{ref} .

Which ONE of the following must be done prior to performing the dilution?

- A. The RO must attend a pre-job brief.
- B. The RO must notify the BOP operator and STA.
- C. The RO must have another licensed operator perform a peer check.
- D. The RO may have any individual in the control room verify the control board manipulation.

Proposed Answer: C

Distracter Explanation:

- A. A pre-job brief is for a task with a frequency less frequent than monthly.
- B. This is a requirement for transient operations only.
- C. Correct. This is a routine operation and requires peer check, touch star, and notification of the CRS.
- D. Reactivity manipulations require peer check by an RO or SRO.

Technical Reference(s): ODP-ZZ-00001, "Operations Department – Code of Conduct"

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: E T61.003A.6 LP #SA4, CBC – Mod A

Question Source:

Bank	<u> </u>	
Modified Bank	<u> </u>	(Note changes or attach parent)
New	<u> X </u>	

Question History:

Previous NRC Exam	<u> No </u>
Previous Quiz / Test	<u> No </u>

Question Cognitive Level:

Memory or Fundamental Knowledge	<u> X </u>
Comprehension or Analysis	<u> </u>

10 CFR Part 55 Content: 55.43(b) 55.41(b) 10

Comments: Reference is from Rev. 11 which will be issued prior to exam.

Outline #: R089

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>G2.1.2</u>	
	Importance Rating	<u>3.0</u>	<u>4.0</u>

Proposed Question:

The plant is in Mode 5.

Which ONE of the following satisfies personnel staffing requirements per the FSAR?

	<u>RO(s)</u>	<u>SRO(s)</u>	<u>Fire Brigade</u>
A.	1	1	4
B.	1	1	5
C.	0	2	5
D.	2	0	4

Proposed Answer: B

Distracter Explanation:

- A. Need 1 additional Fire Brigade member.
- B. Correct. Answer directly from FSAR Table 16.12-11 and 16.12.1.b.
- C. Need 1 RO.
- D. Need 1 SRO and 1 additional Fire Brigade member.

Technical Reference(s): FSAR Table 16.12-11
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B.5.a T61.003A.6 LP-A29 CBC – MOD A

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 10

Comments: _____

Outline #: R090

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>G2.1.23</u>	
	Importance Rating	<u>3.9</u>	<u>4.0</u>

Proposed Question:

The following plant conditions exist:

- Mode 5.
- RCS temperature is 165°F.
- The pressurizer is solid.
- RCS pressure is being maintained between 260 and 285 psig.
- The RHR system is in service.

Which ONE of the following describes the system response to an RCS heatup of 10°F?

- Letdown pressure control valve, BG-PCV-131, opens to maintain RCS pressure constant. Letdown flow through BG-HV-128 will decrease.
- Letdown pressure control valve, BG-PCV-131, closes to maintain RCS pressure constant. Letdown flow through BG-HCV-128 will decrease.
- Letdown pressure control valve, BG-PCV-131, opens to maintain RCS pressure constant. Letdown flow through BG-HCV-128 will increase.
- Letdown pressure control valve, BG-PCV-131, closes to maintain RCS pressure constant. Letdown flow through BG-HCV-128 will increase.

Proposed Answer: C

Distracter Explanation:

- A & B. Letdown flow through BG-HCV-128 increases.
- C. Correct. Candidate is required to determine to 10°F heatup will cause a pressure increase and flow will increase through BG-HCV-128 because BG-PCV-131 will open.
- D. Letdown pressure control valve, PCV-131, opens.

Technical Reference(s): T61.0110.6 LP #7 (RHR) & 11 (CVCS)
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.003A.6 LP #SA18, CBC – Mod A

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** _____ **55.41(b)** 5

Comments: _____

Outline #: R091

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>3</u>	<u>3</u>
	K/A #	G2.3.1	
	Importance Rating	<u>2.6</u>	<u>3.0</u>

Proposed Question:

A surveillance is to be performed on a piece of equipment with the following conditions:

- Contact radiation on equipment is 5 R/hr.
- Radiation level is 500 mrem/hr at 12 inches from equipment.
- General area radiation for the room is 125 mrem/hr.

Which ONE of the following is the proper classification for the room?

- Radiation Area (RA).
- High Radiation Area (CHRA).
- Danger High Radiation Area (DHRA).
- Danger High Radiation Area – No Entry (DHRA-NE).

Proposed Answer: B

Distracter Explanation:

- RA is > 5 mrem; < 100 mrem/hr and 12 inches.
- Correct. Procedure uses this term, student may know it as Caution High Rad Area.
- DHRA is >1000 mrem/hr at 12 inches.
- DHRA-NE, no survey exists.

Technical Reference(s): HDP-ZZ-01500, "Radiological Posting"
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: D.1.b T61.003A.6 LP #A31, CBC – Mod A

Question Source: **Bank**
Modified Bank (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis

10 CFR Part 55 Content: **55.43(b)** 4 **55.41(b)** 11

Comments:

Outline #: R097

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>4</u>	<u>4</u>
	K/A #	G2.4.19	
	Importance Rating	<u>2.7</u>	<u>3.7</u>

Proposed Question:

You have been directed to scan the critical safety functions status trees (CSFs). While scanning you observe the following:

Yes



Which ONE of the following is the correct color coding scheme?

- A. Red path
- B. Orange path
- C. Yellow path
- D. Green path

Proposed Answer: B

Distracter Explanation:

- A. Red paths are solid lines with the pie full.
- B. Orange path is a dashed line with the pie 2/3 full.
- C. Yellow paths are dotted lines with the pie 1/3 full.
- D. Green paths are outlined in black with the pie 0% filled.

Technical Reference(s): CSF-1, "Critical Safety Function Status"
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: J T61.003D.6 LP #1, ERG Introduction

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43(b)** 5 **55.41(b)** 10

Comments: _____

Outline #: R099

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>4</u>	<u>4</u>
	K/A #	<u>G.2.4.29</u>	
	Importance Rating	<u>2.6</u>	<u>4.0</u>

Proposed Question:

The SS/EC has declared a SITE EMERGENCY. A radiation release is NOT in progress.

Which ONE of the following is required to be notified within 15 minutes using the "SENTRY" computerized notification system?

- A. Montgomery County.
- B. NRC Resident Inspector.
- C. American Nuclear Insurers.
- D. Department of Natural Resources.

Proposed Answer: A

Distracter Explanation:

- A. Correct. This is one of the four counties simultaneously notified by the "SENTRY" system.
- B. Required to be contacted within 1 hour.
- C. Required to be contacted at Alert or higher within 24 hours.
- D. Required to be contacted if a liquid release is in progress.

Technical Reference(s): EIP-ZZ-00201, Notifications
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T68.1020.8

Question Source:

Bank	<u> </u>	
Modified Bank	<u> </u>	(Note changes or attach parent)
New	<u> X </u>	

Question History:

Previous NRC Exam	<u> No </u>
Previous Quiz / Test	<u> No </u>

Question Cognitive Level:

Memory or Fundamental Knowledge	<u> X </u>
Comprehension or Analysis	<u> </u>

10 CFR Part 55 Content: **55.43(b)** 1 **55.41(b)** 10

Comments: _____

Outline #: R100

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>1</u>
	K/A #	<u>001AA2.05</u>	
	Importance Rating	<u>4.4</u>	<u>4.4</u>

Proposed Question:

The following plant conditions exist:

- 45% reactor power.
- Control rod selector switch in manual.
- All other systems in auto.
- All control bank 'D' rods start withdrawing with no operator action.

Which ONE of the following describes the required sequence of immediate operator actions for the above event?

- Place rod bank selector switch (SE-HS-9) in auto. If rods continue to withdraw immediately borate and trip the reactor.
- Insert the control rods with rod control switch (SF-HS-2) as required to match T_{ave} to T_{ref} . If rods continue to withdraw, trip reactor and manually safety inject.
- Place rod bank selector switch (SE-HS-9) in auto. If rods continue to withdraw, raise turbine load to match T_{ref} with T_{ave} .
- Insert the control rods with rod control switch (SF-HS-2) as required to match T_{ave} with T_{ref} . If rods continue to withdraw, trip the reactor.

Proposed Answer: D

Distracter Explanation:

- No immediate borate required within immediate operator actions.
- No SI required.
- Control rods are not required to be placed in auto.
- Correct. Candidate is required to recall Immediate Operator actions of OTO-SF-00002, Continuous control rod withdrawal.

Technical Reference(s): OTO-SF-00002, "Continuous Control Rod Withdrawal Immediate Operator Actions"
(Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: B T61.003B.6 LP #B53, Continuous Control Rod Withdrawal

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43(b)** 6 **55.41(b)** 6

Comments: _____

Outline #: S001

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>1</u>
	K/A #	<u>WE04EA2.1</u>	
	Importance Rating	<u>3.4</u>	<u>4.3</u>

Proposed Question:

The following plant conditions exist:

- Reactor trip and safety injection have occurred.
- Aux building has high radiation.
- All CTMT parameters are normal.
- ECA-1.2, "LOCA Outside CTMT," has been entered.

After closing EM-HV-8835, SI pumps to COLD LEG INJECTION, the reactor operator notices RCS pressure is 1850 psig and increasing with ECCS flow decreasing.

Which ONE of the following describes the status of the LOCA and required transition?

- A. The LOCA is isolated. Transition will be made to E-1, "Loss of Reactor or Secondary Coolant."
- B. The LOCA is isolated. Transition will be made to E-0, "Reactor Trip or Safety Injection."
- C. The LOCA has not been isolated. Transition will be made to E-0, "Reactor Trip or Safety Injection."
- D. The LOCA has not been isolated. Transition will be made to E-1, "Loss of Reactor or Secondary Coolant."

Proposed Answer: A

Distracter Explanation:

- A. Correct. Candidate will determine leak is isolated due to RCS pressure increasing and ECCS flow decreasing after closing EM-HV-8835. He then must determine the correct transition is to E-1, "Loss of Reactor or Secondary Coolant."
- B.& C. E-0 transition should not be made.
- D. LOCA has been isolated.

Technical Reference(s): ECA-1.2, "LOCA Outside CTMT"
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C T61.003D.6, ECA-1.2, "LOCA Outside CTMT"

Question Source:
Bank
Modified Bank (Note changes or attach parent)
New X

Question History:
Previous NRC Exam No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge**
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** 5 **55.41(b)** 10

Comments: _____

Outline #: S002

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>1</u>
	K/A #	<u>059AK3.01</u>	
	Importance Rating	<u>3.5</u>	<u>3.9</u>

Proposed Question:

The liquid radwaste discharge monitor, HB-RE-18, has been declared inoperable.

Which ONE of the following describes the actions that will permit discharging a DMT?

- A. Liquid waste discharge will not be permitted until the discharge radiation monitor, HB-RE-18, is returned to operable.
- B. A temporary monitor may be used, provided its alarm setpoint is more conservative than the HB-RE-18 setpoint to allow the operator sufficient time to manually secure the discharge.
- C. Two independent samples of the DMT must be analyzed, and two technically qualified staff members must independently verify the release rate calculation and discharge valve line up.
- D. Samples must be taken every 30 minutes while the discharge is in progress to verify the effluent is within FSAR requirements.

Proposed Answer: C

Distracter Explanation:

- A. Discharge can continue.
- B. No temporary monitors are mentioned.
- C. Correct. Candidate must recall FSAR Table 16.11-2 requirements that 2 samples must be taken and reviewed.
- D. No frequency of sampling mentioned.

Technical Reference(s): FSAR Table 16.11-2
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A.1 T61.003A.6 LP #A34, Discharge Regulations

Question Source: **Bank** _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: **Previous NRC Exam** No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43(b)** 1 **55.41(b)** 13

Comments: _____

Outline #: S003

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>062AA1.03</u>	
	Importance Rating	<u>3.6</u>	<u>3.6</u>

Proposed Question:

The following plant conditions exist:

- 35% power.
- NE01, 'A' D/G tagged out for preplanned maintenance.
- NB0111, NB01 Normal Feeder Breaker, trips open on a bus lockout.

Which ONE of the following describes the status of 'A' train ESW?

- A. Operable, flow thru 'A' ESW train is provided by service water.
- B. Inoperable, flow thru 'A' ESW train is provided by service water.
- C. Operable, service water is isolated to 'A' ESW train.
- D. Inoperable, service water is isolated to 'A' ESW train.

Proposed Answer: B

Distracter Explanation:

- A. 'A' ESW train cannot perform its safeguard function so it is inoperable.
- B. Candidate must determine if the support system causes the supported system to be inoperable, that a loss of power will not allow the 'A' train ESW valves to realign, and there is no swap feature for the 'B' train valves in 'A' train. Common confusion is that 'B' train will start, but a low flow condition exists.
- C. 'A' ESW train is inoperable.
- D. 'Service water is not isolated.

Technical Reference(s): ODP-ZZ-00027, "Safety Function Determination Program"
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: D T61.0110.6 LP #5, ESW

Question Source:
Bank
Modified Bank (Note changes or attach parent)
New X

Question History:
Previous NRC Exam No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge**
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** 2 **55.41(b)** 10

Comments: _____

Outline #: S004

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>WE06/WE07EK1.02</u>	
	Importance Rating	<u>4.6</u>	<u>4.8</u>

Proposed Question:

Which ONE of the following sets of conditions requires entry into FR-C.1, "Response to Inadequate Core Cooling?"

- A. No RCPs are running, RVLIS (pumps off) indicates 44%, the 5 highest reading core exit TCs are between 750°F and 800°F.
- B. No RCPs are running, RVLIS (pumps off) indicates 35%, the 5 highest reading core exit TCs are between 700°F and 750°F.
- C. One RCP is running, RVLIS (pumps on) indicates 45%, the 5 highest reading core exit TCs are between 850°F and 900°F.
- D. One RCP is running, RVLIS (pumps on) indicates 95%, the 5 highest reading core exit TCs are between 1100°F and 1150°F.

Proposed Answer: B

Distracter Explanation:

- A. Requires RVLIS (pumps off) $\leq 40\%$.
- B. Correct. The candidate must determine RVLIS is $< 40\%$ combines with core exit TCs $> 700^\circ\text{F}$. Candidate must also determine that FR-C.1, "Response to Inadequate Core Cooling" is a red path.
- C & D. Requires no RCPs, or core exit TC $> 1200^\circ\text{F}$.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>038G2.3.11</u>	
	Importance Rating	<u>2.7</u>	<u>3.2</u>

Proposed Question:

The plant has sustained a Steam Generator tube rupture concurrent with a loss of off-site power. All safeguards systems functioned as designed.

Actions of E-3, "Steam Generator Tube Rupture," have been performed. The crew is preparing to cool down and depressurize the RCS to Mode 5.

Based on current plant conditions, which ONE of the following cooldown methods is preferred and why?

- A. ES-3.1, "Post SGTR Cooldown Using Backfill," because it minimizes radiological release.
- B. ES-3.2, "Post SGTR Cooldown Using Blowdown," because it minimizes the spread of contamination to secondary plant components.
- C. ES-3.3, "Post SGTR Cooldown Using Steam Dump," because it is the fastest method of cooldown.
- D. ES-3.3, "Post SGTR Cooldown Using Steam Dump," because it conserves CST inventory.

Proposed Answer: A

Distracter Explanation:

- A. Candidate must determine ES-3.1 can still be used with a loss of off-site power and reason is correct.
- B. Does not minimize spread to secondary plant.
- C & D. ES-3.3 is not the preferred method.

Technical Reference(s): E-3, "Steam Generator Tube Rupture"
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: BB T61.003D.6 LP #17, SGTR

Question Source:
Bank
Modified Bank (Note changes or attach parent)
New X

Question History:
Previous NRC Exam No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge**
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** 4 **55.41(b)** 13

Comments: _____

Outline #: S006

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>3</u>	<u>3</u>
	K/A #	<u>056AA1.12</u>	
	Importance Rating	<u>3.2</u>	<u>3.3</u>

Proposed Question:

The following plant conditions exist:

- Plant tripped from 100% due to a grid fault.
- Loss of off-site power still exists.
- All emergency equipment functioned per design.
- Operators are currently in ES-0.2, "Natural Circulation Cooldown," preparing to cooldown to Mode 5.

Which ONE of the following is the correct configuration of operating CRDM fans and required subcooling?

- A. A & C CRDM fans running, 100°F more subcooled than instrument error.
- B. B & D CRDM fans running, 100°F more subcooled than instrument error.
- C. All CRDM fans running, 50°F more subcooled than instrument error.
- D. All CRDM fans running, 100°F more subcooled than instrument error.

Proposed Answer: B

Distracter Explanation:

- A. A & C CRDM fans are powered from PG19 and PG20 and would be de-energized.
- B. Correct. Candidate is required to determine only B & D CRDM fans are running and evaluate subcooling.
- C. Only B & D are running, correct subcooling for all CRDM fans running.
- D. Only B & D fans running.

Technical Reference(s): ES-0.2, "Natural Circulation Cooldown"
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: S T61.003D.6 LP #7, ES-0.2 thru ES-0.4

Question Source:
Bank
Modified Bank (Note changes or attach parent)
New X

Question History:
Previous NRC Exam No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge**
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** 5 **55.41(b)** 9

Comments: _____

Outline #: S007

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>1</u>
	K/A #	<u>014K5.02</u>	
	Importance Rating	<u>2.8</u>	<u>3.3</u>

Proposed Question:

Callaway Plant was at full power with Control Bank 'D' step counters indicating 215 steps. In response to a failure in data 'B', the accuracy mode select switch was placed in the data 'A' position.

Which ONE of the following describes the operability and accuracy of rod position indication system or action required if rod position indication is inoperable?

- A. Rod position indication is INOPERABLE. Thermal power must be reduced <50% of rated thermal power within 8 hours.
- B. Rod position indication is OPERABLE and capable of determining rod position within ±12 steps.
- C. Rod position indication in INOPERABLE. Power operations may continue if a flux map is performed every 8 hours.
- D. Rod position indication is OPERABLE and capable of determining rod position with ±6 steps.

Proposed Answer: B

Distracter Explanation:

- A. DRPI is operable (actions per T/S 3.1.7 for 1 rod per group inoperable).
- B. Correct. Accuracy is -10, +4. Candidate must determine half accuracy applies.
- C. DRPI is operable.
- D. DRPI accuracy is now -10, +4 with data 'B' failure.

Technical Reference(s): T/S 3.1.7
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: S, U T61.0110.6 LP#26, Rod Control

Question Source:
Bank
Modified Bank (Note changes or attach parent)
New X

Question History:
Previous NRC Exam No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge**
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** 6 **55.41(b)** 6

Comments: _____

Outline #: S008

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>1</u>
	K/A #	<u>026K3.02</u>	
	Importance Rating	<u>4.2</u>	<u>4.3</u>

Proposed Question:

Callaway Plant has sustained a large break LOCA. The following plant conditions exist:

- RWST level at minimum allowed per T/S.
- 'A' and 'B' RHR pumps are injecting 3,500 gpm each.
- 'A' and 'B' SI pumps are injecting 550 gpm each.
- 'A' and 'B' CCPs are injecting 400 gpm each.
- 'A' and 'B' CTMT spray pumps are injecting 2000 gpm each.
- 'B' CTMT spray pump suction valve from containment sump is inoperable and WILL NOT open.

RWST Lo-Lo 1 will alarm at 36% (162,982 gallons)
 RWST Lo-Lo 2 will alarm at 11.7% (65,604 gallons)
 RWST EMPTY will alarm at 5.6% (41,345 gallons)

Which ONE of the following is the correct time before initiation of swapover to COLD LEG RECIRC and what actions should then be taken with 'B' CTMT spray pump?

- A. 18 minutes, place 'B' CTMT spray pump in P-T-L at RWST Lo-Lo 1 alarm.
- B. 18 minutes, place 'B' CTMT spray pump in P-T-L at RWST EMPTY alarm.
- C. 25 minutes, place 'B' CTMT spray pump in P-T-L at RWST Lo-Lo 1 alarm.
- D. 25 minutes, place 'B' CTMT spray pump in P-T-L at RWST EMPTY alarm.

Proposed Answer: B

Distracter Explanation:

Minimum T/S level = 394,000 gallons.
 RWST swapover 162, 982 gallons.
 Total usage 12,900 gpm.
 $231,018/12,900 = 17.91$ minutes

Technical Reference(s): Tank Data Book TBN01
(Attach if not previously provided) ES-1.3, "Transfer to Cold Leg Recirc"

Proposed references provided to applicants during examination: None

Learning Objective: D T61.003D.6 LP #11, CBC – Mod D

Question Source: Bank _____
Modified Bank _____ (Note changes or attach parent)
New X

Question History: Previous NRC Exam No
Previous Quiz / Test No

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.43(b) 5 55.41(b) 10

Comments: _____

Outline #: S009

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>002K3.02</u>	
	Importance Rating	<u>4.2</u>	<u>4.5</u>

Proposed Question:

Callaway Plant is in Mode 2.

Which ONE of the following is the correct minimum temperature for criticality per T/S and the bases?

- A. 550°F, fuel integrity.
- B. 551°F, neutron fast leakage factor remains constant.
- C. 550°F, brittle fracture of reactor vessel.
- D. 551°F, Moderator Temperature Coefficient within analyzed range.

Proposed Answer: D

Distracter Explanation:

- A. 550°F is the P-12 steam dump interlock number.
- B. Fast leakage factor is not a concern.
- C. 550°F is not correct.
- D. Candidate must determine 551°F is correct and the moderator temperature coefficient is the first concern.

Technical Reference(s): T/S 3.4.2 and bases
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B.3.a T61.003A.6 LP #A23, Reactor S/U

Question Source:

Bank	<u> </u>	
Modified Bank	<u> </u>	(Note changes or attach parent)
New	<u> X </u>	

Question History:

Previous NRC Exam	<u> No </u>
Previous Quiz / Test	<u> No </u>

Question Cognitive Level:

Memory or Fundamental Knowledge	<u> X </u>
Comprehension or Analysis	<u> </u>

10 CFR Part 55 Content: 55.43(b) 2 55.41(b) 10

Comments: _____

Outline #: S011

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>010A1.03</u>	
	Importance Rating	<u>2.9</u>	<u>3.2</u>

Proposed Question:

Callaway Plant is at full power. The following data has been gathered concerning RCS leakage:

- 3.5 gpm leakage into the PRT from PZR PORV BBPCV456.
- 12 gph leakage from all RCP #2 seals to RCDT.
- 1.8 gpm leakage from RCS valve packing.
- 112 gpd primary to secondary leakage 'A' S/G.
- 450 gpd primary to secondary leakage for B, C, and D S/G.

Which ONE of the following is correct concerning the RCS leakage per T/S?

- A. Unidentified leakage has exceeded the limit.
- B. Identified leakage has exceeded the limit.
- C. No technical specification entry required.
- D. Primary to secondary leakage has exceeded the limit.

Proposed Answer: C

Distracter Explanation:

- A. No unidentified leakage exit. RCP seal leakage is excluded.
- B. Identified leakage is 3.5 to 1.8 = 5.3 < 10 gpm limit.
- C. Candidate must determine types of leakage and amounts.
- D. Primary to secondary leakage limits are 1 S/G < 150 gpd; all <600 gpd.

Technical Reference(s): T/S 3.4.13
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: I.3 T61.003A.6 LP #A2, CBC – Mod A

Question Source:
Bank
Modified Bank (Note changes or attach parent)
New X

Question History:
Previous NRC Exam No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge**
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** 2 **55.41(b)** 10

Comments: _____

Outline #: S012

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u> </u>	<u> </u>
	Importance Rating	<u>2.3</u>	<u>3.4</u>
		G2.1.5	

Proposed Question:

Callaway Plant has implemented 12 hour shifts for EOs and ROs. During the implementation, a reactor operator worked the following hours:

<u>Date</u>	<u>Hours Worked</u>
11/13/00	0700 to 2000
11/14/00	0700 to 1800
11/15/00	0700 to 2200
11/16/00	0700 to 2200
11/17/00	0700 to 1900

On which ONE of the following dates did the reactor operator first exceed working hour limitations?

- A. 11/13/00
- B. 11/14/00
- C. 11/15/00
- D. 11/16/00

Proposed Answer: C

Distracter Explanation:

Candidate must recall APA-ZZ-00905, "Limitations of Callaway Plant Staff Working Hours" and determine when the RO exceeded hours. On 11/15/00 the RO would have exceeded 24 hours in a 48 hour period at 2100 hours.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	G2.1.7	
	Importance Rating	<u>3.7</u>	<u>4.4</u>

Proposed Question:

A steam line break has occurred on 'B' main steam line inside containment. The crew has completed actions in E-2, "Faulted S/G Isolation," and is performing actions of E-1, "Loss of Reactor or Secondary Coolant." The following conditions exist:

- Containment temperature is 140°F and stable.
- Containment pressure is 5 psig and stable.
- RCS pressure is 1770 psig and slowly increasing.
- RCS subcooling is 40°F and slowly increasing.
- Total AFW flow is 240,000 lbm/hr.
- Wide range level in A, C and D S/Gs is 55% and increasing.
- Narrow range level in all S/Gs is offscale low.
- Pressurizer level is 9% and stable.

Which ONE of the following conditions must be changed to allow transition to ES-1.1, "SI Termination?"

- A. RCS subcooling must be increased.
- B. Pressurizer level must be increased.
- C. AFW flow must be increased.
- D. RCS pressure must be increased.

Proposed Answer: C

Distracter Explanation:

Candidate must determine adverse CTMT conditions do not apply. Also, that subcooling is adequate for plant conditions (23°F required). The candidate must recall secondary heat sink requires 4% NR level in 1 S/G or >300,000 lbm/hr AFW flow.

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>G2.1.33</u>	
	Importance Rating	<u>3.4</u>	<u>4.0</u>

Proposed Question:

Callaway Plant is in Mode 6 with core reload in progress. Train 'A' control room A/C unit fails and is declared inoperable.

Which ONE of the following actions is required?

- A. Place 'B' control room A/C unit in service, restore 'A' A/C unit to operable status within 7 days.
- B. Restore 'A' control room A/C unit to operable status within 30 days.
- C. Immediately suspend all operation involving core alterations or positive reactivity changes.
- D. No action required. ONLY 1 control room A/C unit required.

Proposed Answer: B

Distracter Explanation:

- A. 'B' control room A/C unit not required to be placed in service, 30 days required to repair.
- B. Correct. Candidate must recall actions of T/S 3.7.11.
- C. Fuel movement can continue.
- D. Two CRACS trains are required to be operable.

Technical Reference(s): T/S 3.7.11
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: F.1.d T61.003A.6 LP #A12, CBC – Mod A

Question Source: **Bank**

Modified Bank (Note changes or attach parent)

New X

Question History: **Previous NRC Exam** No

Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X

Comprehension or Analysis

10 CFR Part 55 Content: **55.43(b)** 2 **55.41(b)** 10

Comments: _____

Outline #: S016

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>G.2.2.13</u>	
	Importance Rating	<u>3.6</u>	<u>3.8</u>

Proposed Question:

Callaway Plant is in Mode 6. Two different work groups are working on the main feedwater system under the same WPA. One work group requires temporary lifting of 2 tags to verify pump rotation.

Which ONE of the following describes the actions that must be performed?

- A. Notification to work group supervisors is required prior to lifting tags only.
- B. Tags cannot be moved. Two new tag outs must be written and hung.
- C. Tags cannot be moved. Pump rotation check must wait.
- D. A pre-job brief must be held with both work groups in attendance.

Proposed Answer: D

Distracter Explanation:

- A. Both groups must attend a pre-job brief.
- B. This is an option, but the TLT can be performed.
- C. Work can continue, WPA is normally placed on SS hold while the TLT is in progress.
- D. Correct. Candidate must recall temporary lifting of tag requirements of ODP-ZZ-00310.

Technical Reference(s): ODP-ZZ-00310, "WPA Tagging"
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B.6 T61.003A.6 LP #A33, WPA

Question Source:

Bank	<u> </u>	
Modified Bank	<u> </u>	(Note changes or attach parent)
New	<u> X </u>	

Question History:

Previous NRC Exam	<u> No </u>
Previous Quiz / Test	<u> No </u>

Question Cognitive Level:

Memory or Fundamental Knowledge	<u> X </u>
Comprehension or Analysis	<u> </u>

10 CFR Part 55 Content: **55.43(b)** 1 **55.41(b)** 10

Comments: _____

Outline #: S017

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	G.2.29	
	Importance Rating	<u>1.6</u>	<u>3.8</u>

Proposed Question:

Callaway Plant is in Mode 6 with the core reload in progress. You have 10 fuel assemblies remaining for reload when source range channel N31 becomes inoperable.

Which ONE of the following describes actions allowed by Technical Specifications?

- A. Suspend core reload until a IR channel can be verified operable.
- B. Continue core reload, only one source range channel is required.
- C. Suspend core reload until portable neutron measuring equipment is available at N31 location.
- D. Continue core reload, gamma metrics can be used in place of N31.

Proposed Answer: D

Distracter Explanation:

- A. Gamma metric can be used.
- B. Both source ranges are required.
- C. No provision for portable equipment.
- D. Correct. Candidate must determine gamma metric can be used if the core is "coupled" to gamma metrics. With 10 fuel assemblies remaining, they would have to be coupled with the reload pattern used at Callaway.

Technical Reference(s): T/S 3.9.3
(Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: A/B T61.003E.6 LP #E4, Refueling T/S

Question Source:

Bank	<u> </u>	
Modified Bank	<u> </u>	(Note changes or attach parent)
New	<u> X </u>	

Question History:

Previous NRC Exam	<u> No </u>
Previous Quiz / Test	<u> No </u>

Question Cognitive Level: **Memory or Fundamental Knowledge**
Comprehension or Analysis X

10 CFR Part 55 Content: 55.43(b) 2 55.41(b) 11

Comments: _____

Outline #: S018

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u> </u>	<u> </u>
	Importance Rating	<u>2.6</u>	<u>3.8</u>

G.2.24

Proposed Question:

Which ONE of the following conditions represents a violation of "Containment Systems" as described in Technical Specifications?

- A. While in Mode 1, EP-HV-8880, N₂ supply to SI Accumulators Isolation, fails its required stroke time, and is presently closed.
- B. While in Mode 2, the outer air lock door fails its leak rate test and has to be opened to facilitate repairs that will take 2 hours.
- C. While in Mode 3, SJ-HV-12, PZR Vapor Space Inner Sample Iso Vlv, fails to close completely and SJ-HV-13, PZR Vapor Space Outer Iso Valve, is closed.
- D. While in Mode 4, a mechanic opens the outer door to perform maintenance activities on the inoperable inner CTMT door.

Proposed Answer: D

Distracter Explanation:

Candidate must recall T/S for CTMT operability and apply to stated conditions.

- A. EP-HV-8893 may be closed.
- B. Does not become inoperable for 7 days.
- C. SJ-HV-13 in the closed position isolates CTMT.
- D. Correct. Candidate is required to analyze plant conditions and determine the containment system is required operable in Mode 4 and having both CTMT doors open is a violation.

Technical Reference(s): T/S 3.6.2 and 3.6.1
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: F.1 T61.003A.6 LP #A6, CBC – Mod A

Question Source:
Bank
Modified Bank (Note changes or attach parent)
New X

Question History:
Previous NRC Exam No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge**
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43(b)** 2 **55.41(b)** 10

Comments: _____

Outline #: S020

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>4</u>	<u>4</u>
	K/A #	G2.4.6	
	Importance Rating	<u>3.1</u>	<u>4.0</u>

Proposed Question:

The Emergency Response Guideline (ERG) network for E-0, "Reactor Trip or Safety Injection," assumes the plant is in Modes 1 thru 3.

Which ONE of the following describes the applicability of E-0, "Reactor Trip or Safety Injection," while in Mode 4?

- A. E-0 cannot be used in Mode 4, therefore procedure ES-0.1, "Reactor Trip Response," must be used.
- B. E-0 can be used in Mode 4 since all OTOs still apply in Mode 4.
- C. E-0 can only be used in Mode 4 if directed by a ECA procedure.
- D. E-0 can be used if a step by step evaluation is made to determine if the action still applies.

Proposed Answer: D

Distracter Explanation:

Candidate must recall E-0, "Reactor Trip or Safety Injection" applicability for Mode 4-6.

- A. E-0 can be used.
- B. Not all OTOs apply.
- C. E-0 can be used, but not directed by ECA-0.0 only.
- D. Correct. Candidate is required to recall E-0 can be used as long as each step is reviewed before implementing.

Technical Reference(s): T61.003D.6 LP#1, ERG Intro & User Guide
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: Y T61.003D.6 LP#1, ERG Intro & User Guide

Question Source:
Bank
Modified Bank (Note changes or attach parent)
New X

Question History:
Previous NRC Exam No
Previous Quiz / Test No

Question Cognitive Level: **Memory or Fundamental Knowledge** X
Comprehension or Analysis

10 CFR Part 55 Content: **55.43(b)** 5 **55.41(b)** 10

Comments: _____

Outline #: S023

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>4</u>	<u>4</u>
	K/A #	<u>G2.4.28</u>	
	Importance Rating	<u>2.3</u>	<u>3.3</u>

Proposed Question:

Callaway Plant is at full power when the SS is notified by the Security Shift Supervisor that a confirmed penetration has occurred by unauthorized personnel into NB02 switchgear room. The plant emergency alarm is sounded and a code red is announced over the gaitronics.

Which ONE of the following includes actions the control room personnel should take?

- A. Trip the reactor, start 'A' train equipment, secure all 'B' train equipment, and direct EOs to take shelter.
- B. Shut the control room missile door, trip the reactor, and commence an RCS cooldown.
- C. Shut the control room missile door, trip the reactor, increase monitoring of MCB indications, and have all EOs report to the field office.
- D. Trip the reactor, perform control room evacuation, and commence RCS cooldown from the ASP.

Proposed Answer: B

Distracter Explanation:

- A. Operating ECCS equipment is not a direction given by OTO-SK-00001.
- B. Correct. Candidate must determine a threat exists to Callaway Plant and the missile door must be shut and actions that could be taken to place the plant in a safe condition.
- C & D. Personnel should not be directed to move during a code red.

