

ILE-7/2000-ADM1JPM

REFERENCE USE

On 7/11/00 the following plant conditions exist:

- 100% power, stable
- 2235 psig RCS Pressure
- 584.4°F RCS Tave
- No Tech Spec Action Statements in effect

<u>Channel</u>	<u>I_{top}</u>	<u>I_{bottom}</u>
N41	192.2	199.9
N42	163.5	181.8
N43	180.3	189.2
N44	174.3	181.2

TASK: Calculate the QPTR per Section 6.3 of OSP-SE-00003, Quadrant Power Tilt Ratio Calculation using NI Detector Currents.

ILE-7/2000-ADM2JPM

REFERENCE USE

The following plant conditions exist:

- Mode 1, 100% power, BOL
- $C_B = 1200$ ppm (last sample)
- Currently in OTO-SF-00006, Failure of Control Banks to Move

TASK: The Control Room Supervisor has directed you to calculate the amount of boron required (gallons) to shutdown the plant to Mode 3, 557°F, Xenon free condition without using Control Rods. The use of the computer is not allowed.

ILE-7/2000-ADM3JPM

REFERENCE USE

The 'A' Closed Cooling Water Pump (PEB01A) must be tagged out to replace the outboard pump bearing.

TASK: Identify the following for this work and complete the provided Tagout Continuation Sheet:

- Type of Workman's Protection Assurance required
- Components to be tagged
- Tagged position of components

USE OF THE MAINFRAME COMPUTER IS NOT ALLOWED.

ILE-7/2000-ADM4JPM

REFERENCE USE

Callaway Plant is increasing power following a refueling outage. CVCS Mixed Bed Demineralizer 'A', FBG03A, was recently placed in service and subsequently removed when an increase in RCS leakage was observed. BGV0534, Mixed Bed 'A' Level Isolation Valve, is suspected of causing the leakage because it was worked on during the outage for the same problem.

TASK: The Shift Supervisor directs you to locate BGV0534 to assess it's condition. You are to:

- Determine the valve's location and demonstrate ability to locate valve in the plant (escort evaluator to valve room).
- Discuss radiological requirements to enter room.
(Is the room any of the following: Contamination Area (CA), High Contamination Area (HCA), Radiation Area (RA), Caution High Radiation Area (CHRA), Danger High Radiation Area (DHRA), Danger High Radiation Area – No Entry (DHRA-NE), Very High Radiation Area (VHRA), or Contact HP for Survey Prior to Entry (CHP)?)

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ILE-7/2000-ADM1QUE

MEMORY

A tornado has caused a loss of off-site power to Callaway Plant. The reactor has been tripped and a cooldown is in progress. The Emergency Coordinator has declared a Site Emergency and decided to perform accountability.

QUESTION: From memory, state one method that can be used to perform accountability.

ILE-7/2000-ADM2QUE

MEMORY

You are a Reactor Operator temporarily assigned to day staff working on the 2nd floor of the Service Building. An announcement has been made declaring a SITE EMERGENCY.

QUESTION: From memory, where should you report to?

ILE-7/2000-ADM5JPM

REFERENCE USE

INITIAL CONDITIONS:

You are the oncoming Shift Supervisor and the following plant conditions exist:

- RCS temperature is 163°F and heating up at 20°F/hr.
- RCS pressure is 330 psig and stable.

TASK: Assuming the RCS heatup rate continues without change, determine the FSAR Minimum Shift Crew Composition required in 2 hours (EXCLUDING FIRE BRIGADE REQUIREMENTS).

ILE-7/2000-ADM6JPM

REFERENCE USE

Callaway Plant is at 100% power, steady state conditions.

TASK:

- Part 1: Perform a review of the attached QPTR, using Detector Currents, surveillance.
- Part 2: Based on the results of the QPTR review, determine any required action statements from Technical Specifications.

ILE-7/2000-ADM7JPM

REFERENCE USE

The 'A' Closed Cooling Water Pump (PEB01A) has WPA prepared to hang to replace the outboard pump bearing.

TASK: Review the attached Tagout Continuation Sheet and determine if the WPA is adequate for the required maintenance.

ILE-7/2000-ADM7JPM

TAGOUT CONTINUATION SHEET

WPA TYPE: HOLD OFF

TAG SEQUENCE NUMBER	TAGGED COMPONENT	TAGGING POSITION
1	EBHIS0001	NORMAL AFTER STOP
2	PG13RBR5	OFF
3	EBV0037	CLOSED
4	EBV0004	CLOSED
5	EBV0120	CAP REMOVED OPEN
6	EBV0090	CAP REMOVED OPEN
7	EBV0089	CAP REMOVED OPEN

ILE-7/2000-ADM4JPM

REFERENCE USE

Callaway Plant is increasing power following a refueling outage. CVCS Mixed Bed Demineralizer 'A', FBG03A, was recently placed in service and subsequently removed when an increase in RCS leakage was observed. BGV0534, Mixed Bed 'A' Level Isolation Valve, is suspected of causing the leakage because it was worked on during the outage for the same problem.

TASK: The Shift Supervisor directs you to locate BGV0534 to assess it's condition. You are to:

- Determine the valve's location and demonstrate ability to locate valve in the plant (escort evaluator to valve room).
- Discuss radiological requirements to enter room.
(Is the room any of the following: Contamination Area (CA), High Contamination Area (HCA), Radiation Area (RA), Caution High Radiation Area (CHRA), Danger High Radiation Area (DHRA), Danger High Radiation Area – No Entry (DHRA-NE), Very High Radiation Area (VHRA), or Contact HP for Survey Prior to Entry (CHP)?)

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ILE-7/2000-ADM8JPM

REFERENCE USE

The following plant conditions exist:

- Reactor vessel head removed for core off-load.
- 144 fuel assemblies remain in the core.
- All wide range hot leg temperatures are 206°F and increasing.
- 'A' RHR pump tripped due to cavitation/overheating.
- NB02 bus removed from service for 'B' capacitor bank tie-in and will not return to service for 24 hours.

TASK: Classify the event based on current conditions.

This task is time critical within 15 minutes.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO:	ILE-7/2000-JPM1	KSA NO:	001A4.03
COMPLETION TIME:	12 MINUTES	KSA RATING:	4.0 /3.7
JOB TITLE:	URO/SRO	REVISION:	000127
DUTY:	CONTROL ROD DRIVE SYSTEM		
TASK TITLE:	REACTOR START UP CONTROL ROD REPOSITIONING		

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: OTG-ZZ-00002 REACTOR STARTUP, REV 27
CURVE BOOK TABLE 2-14

TOOLS/EQUIPMENT: CALCULATOR

FACILITY REPRESENTATIVE: _____ DATE: _____

CHIEF EXAMINER: _____ DATE: _____

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: IT IS NOW APRIL 22. CALLAWAY PLANT IS IN MODE 2 AT 10^{-8} AMPS AND STABLE. OPERATORS ARE CURRENTLY IN OTG-ZZ-00002, REACTOR STARTUP PERFORMING THE INTIAL STARTUP AFTER REFEUL 10. ALL SHUTDOWN BANKS ARE AT 228 STEPS PER OTG-ZZ-0001A, SHUTDOWN BANK WITHDRAWAL.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO REPOSITION EACH CONTROL AND SHUTDOWN BANK PER STEP 4.1.22. OF OTG-ZZ-00002, REACTOR STARTUP. A BRIEF HAS ALREADY BEEN HELD FOR THE CONTROL ROD REPOSITIONING. THE PRIMARY EO IS STANDING BY IN THE ROD DRIVE MG SET ROOM WITH KEY #149.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: USE IC 104. POSITION ALL S/D AND CONTROL BANKS 'A' & 'B' STEP COUNTERS TO 228 STEPS. POSITION CONTROL BANK 'C' STEP COUNTERS TO 215 STEPS AND 'D' TO 100 STEPS.

Task Standard: UPON COMPLETION OF THIS JPM, ALL FULLY WITHDRAWN SHUTDOWN AND CONTROL BANKS SHOULD BE REPOSITIONED TO 229 STEPS (CONTROL BANKS 'C' AND 'D' SHOULD BE MOVED OUTWARD 1 STEP).

START TIME: _____

STOP TIME: _____

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OTG-ZZ-00002, REACTOR STARTUP	PROVIDE OPERATOR WITH PROCEDURE	OPERATOR SHOULD OBTAIN A COPY OF OTG-ZZ-00002, REACTOR STARTUP	S U Comments:
2. REVIEW THE PRECAUTIONS AND LIMITATIONS OF OTG-ZZ-00002, REACTOR STARTUP STEP 2.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW THE PRECAUTIONS AND LIMITATIONS NOTE: IF ASKED, THE MONTHLY ROD POSITION TEST HAS NOT BEEN PERFORMED	S U Comments:
3. REVIEW THE INTIAL CONDITIONS OF OTG-ZZ-00002, REACTOR STARTUP STEP 3.0	ALL INITIAL CONDITIONS ARE SATISFIED	OPERATOR SHOULD REVIEW THE INTIAL CONDITONS	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. REPOSITION EACH CONTROL AND SHUTDOWN BANK AS FOLLOWS TO MINIMIZE FRETTING.</p> <p>STEP 4.1.22</p> <p>NOTE: BANKS MAY BE REPOSITIONED IN ANY ORDER</p>		<p>OPERATOR SHOULD REPOSITION EACH CONTROL AND SHUTDOWN BANK TO MINIMIZE FRETTING.</p> <p>OPERATOR MAY REPOSITION RODS IN ANY ORDER</p>	<p>S U</p> <p>Comments:</p>
<p>5. SELECT THE DESIRED CONTROL BANK WITH SEHS-9, ROD BANK AUTO/MAN SELECTOR SWITCH</p> <p>STEP 4.1.22.1</p>	<p>SEHS-9 IS IN THE 'CBA' POSITION</p>	<p>OPERATOR SHOULD PLACE HANDSWITCH SEHS-9 IN THE 'CBA' POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>6. DETERMINE CONTROL RODS SHOULD BE AT 229 STEPS PER CURVE BOOK TABLE 2-14 (APRIL)</p> <p>STEP 4.1.22.2</p>		<p>OPERATOR SHOULD USE THE CURVE BOOK TABLE 2-14 TO DETERMINE THE CONTROL RODS (FULL OUT ONLY) SHOULD BE AT 229 STEPS</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
7. SELECT CONTROL BANK 'A' WITH SEHS-9, ROD BANK AUTO/MAN SELECTOR SWITCH STEP 4.1.22.1	SEHS-9 IS IN THE 'CBA' POSITION	OPERATOR SHOULD PLACE HANDSWITCH SEHS-9 IN THE 'CBA' POSITION	S U Comments:
*8. WITHDRAW CONTROL BANK 'A' OUTWARD 1 STEP WITH SFHS-2 STEP 4.1.22.2	SC-CB-A1 AND A2 INDICATE 229 STEPS	OPERATOR SHOULD REPOSITION CONTROL BANK 'A' TO 229 STEPS	S U Comments:
9. SELECT CONTROL BANK 'B' WITH SEHS-9, ROD BANK AUTO/MAN SELECTOR SWITCH STEP 4.1.22.1	SEHS-9 IS IN THE 'CBB' POSITION	OPERATOR SHOULD PLACE HANDSWITCH SEHS-9 IN THE 'CBB' POSITION	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>*10. WITHDRAW CONTROL BANK 'B' OUTWARD 1 STEP WITH SFHS-2</p> <p>STEP 4.1.22.2</p>	<p>SC-CB-B1 AND B2 INDICATE 229 STEPS</p>	<p>OPERATOR SHOULD REPOSITION CONTROL BANK 'B' TO 229 STEPS</p>	<p>S U</p> <p>Comments:</p>
<p>11. DETERMINE THAT CONTROL BANK 'C' AND 'D' ARE NOT FULL OUT TO 228 STEPS AND THAT THEY SHOULD BE REPOSITIONED 1 STEP OUTWARD</p> <p>STEP 4.1.22.3</p>		<p>OPERATOR SHOULD DETERMINE THAT CONTROL BANK 'C' AND 'D' ARE NOT FULL OUT AND THAT THEY SHOULD BE REPOSITIONED 1 STEP OUTWARD</p>	<p>S U</p> <p>Comments:</p>
<p>12. SELECT CONTROL BANK 'C' WITH SEHS-9, ROD BANK AUTO/MAN SELECTOR SWITCH</p> <p>STEP 4.1.22.1</p>	<p>SEHS-9 IS IN THE 'CBC' POSITION</p>	<p>OPERATOR SHOULD PLACE HANDSWITCH SEHS-9 IN THE 'CBC' POSITION</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>*13. WITHDRAW CONTROL BANK 'C' OUTWARD 1 STEP WITH SFHS-2</p> <p>STEP 4.1.22.3</p>	<p>SC-CB-C1 AND C2 INDICATE 216 STEPS</p>	<p>OPERATOR SHOULD REPOSITION CONTROL BANK 'C' TO 216 STEPS</p>	<p>S U</p> <p>Comments:</p>
<p>14. SELECT CONTROL BANK 'D' WITH SEHS-9, ROD BANK AUTO/MAN SELECTOR SWITCH</p> <p>STEP 4.1.22.1</p>	<p>SEHS-9 IS IN THE 'CBD' POSITION</p>	<p>OPERATOR SHOULD PLACE HANDSWITCH SEHS-9 IN THE 'CBD' POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>*15. WITHDRAW CONTROL BANK 'D' OUTWARD 1 STEP WITH SFHS-2</p> <p>STEP 4.1.22.3</p>	<p>SC-CD-D1 AND D2 INDICATE 101 STEPS</p>	<p>OPERATOR SHOULD REPOSITION CONTROL BANK 'D' TO 101 STEPS</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>*19. WITHDRAW SHUTDOWN BANK 'B' OUTWARD 1 STEP WITH SFHS-2</p> <p>STEP 4.1.22.2</p>	<p>SC-SB-B1 AND B2 INDICATE 229 STEPS</p>	<p>OPERATOR SHOULD REPOSITION SHUTDOWN BANK 'B' OUTWARD 1 STEP</p>	<p>S U</p> <p>Comments:</p>
<p>20. SELECT SHUTDOWN BANK 'C' WITH SEHS-9, ROD BANK AUTO/MAN SELECTOR SWITCH</p> <p>STEP 4.1.22.1</p>	<p>SEHS-9 IS IN THE 'SBC' POSITION</p>	<p>OPERATOR SHOULD PLACE HANDSWITCH SEHS- 9 IN THE 'SBC' POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>*21. WITHDRAW SHUTDOWN BANK 'C' OUTWARD 1 STEP WITH SFHS-2</p> <p>STEP 4.1.22.2</p>	<p>SC-SB-C1 INDICATES 229 STEPS</p>	<p>OPERATOR SHOULD REPOSITION SHUTDOWN BANK 'C' OUTWARD 1 STEP</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>*25. WITHDRAW SHUTDOWN BANK 'E' OUTWARD 1 STEP WITH SFHS-2</p> <p>STEP 4.1.22.2</p>	<p>SC-SB-E1 INDICATES 229 STEPS</p>	<p>OPERATOR SHOULD REPOSITION SHUTDOWN BANK 'E' OUTWARD 1 STEP</p>	<p>S U</p> <p>Comments:</p>
<p>26. RETURN SEHS-9, ROD BANK AUTO/MAN SELECTOR SWITCH TO 'MAN'</p> <p>STEP 4.1.22.4</p>	<p>SEHS-9 IS IN THE 'MAN' POSITION</p>	<p>OPERATOR SHOULD RETURN SEHS-9 TO THE MAN POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>27. VERIFY THE BANK OVERLAP COUNTER IN ROD CONTROL CABINET SF110B AGREES WITH THE POSITION SPECIFIED IN CURVE BOOK TABLE 2-14</p> <p>STEP 4.1.22.5.1</p>	<p>IF REQUESTED, INFORM THE OPERATOR THAT SF110B BANK OVERLAP COUNTER INDICATES 445 STEPS</p>	<p>OPERATOR SHOULD CONTACT THE PRIMARY EO AND REQUEST THE BANK OVERLAP COUNTER READING IN ROD CONTROL CABINET SF110B</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>28. VERIFY THE BANK OVERLAP COUNTER IN ROD CONTROL CABINET SF110B AGREES WITH THE POSITION SPECIFIED IN CURVE BOOK TABLE 2-14</p> <p>STEP 4.1.22.5.1</p>		<p>OPERATOR SHOULD DETERMINE THE CORRECT BANK OVERLAP INDICATION IS 445 STEPS.</p> <p>(101 + 344 = 445)</p>	<p>S U</p> <p>Comments:</p>
<p>29. VERIFY THE PULSE TO ANALOG DISPLAY IN ROD CONTROL CABINET SF110A AGREES WITH THE STEPS COUNTERS FOR EACH CONTROL BANK</p> <p>STEP 4.1.22.5.2</p>	<p>IF REQUESTED, INFORM THE OPERATOR THAT CONTROL BANK 'A' IS 229 STEPS, CONTROL BANK 'B' IS 229 STEPS, CONTROL BANK 'C' IS 216 STEPS, AND CONTROL BANK 'D' IS 101 STEPS</p>	<p>OPERATOR SHOULD CONTACT THE PRIMARY EO AND REQUEST THE PULSE TO ANALOG READINGS IN ROD CONTROL CABINET SF110A</p>	<p>S U</p> <p>Comments:</p>
<p>30. VERIFY THE PULSE TO ANALOG DISPLAY IN ROD CONTROL CABINET SF110A AGREES WITH THE STEPS COUNTERS FOR EACH CONTROL BANK</p> <p>STEP 4.1.22.5.2</p>		<p>OPERATOR SHOULD VERIFY THE PULSE TO ANALOG READINGS FROM SF110A AGREE WITH THE STEP COUNTERS</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>31. VERIFY COMPUTER POINTS ON ATTACHMENT 1 AGREE WITH THE STEP COUNTERS FOR EACH CONTROL BANK</p> <p>STEPS 31 & 32 MAY BE PERFORMED IN ANY ORDER</p> <p>STEP 4.1.22.5.3</p>	<p>REU0049 AND REU0050 INDICATE 229 STEPS</p> <p>REU0051 INDICATES 216 STEPS</p> <p>REU0052 INDICATES 101 STEPS</p>	<p>OPERATOR SHOULD VERIFY COMPUTER POINTS REU0049, REU0050, REU0051, AND REU0052 AGREE WITH THE CONTROL BANK STEP COUNTERS</p>	<p>S U</p> <p>Comments:</p>
<p>32. VERIFY COMPUTER POINTS ON ATTACHMENT 1 AGREE WITH THE STEP COUNTERS FOR EACH SHUTDOWN BANK</p> <p>STEPS 31 & 32 MAY BE PERFORMED IN ANY ORDER</p> <p>STEP 4.1.22.5.3</p>	<p>REU0053, REU0054, REU0055, REU0056 AND REU0060 INDICATE 229 STEPS</p>	<p>OPERATOR SHOULD VERIFY COMPUTER POINTS REU0053, REU0054, REU0055, REU0056, AND REU0060 AGREE WITH THE SHUTDOWN BANK STEP COUNTERS</p>	<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: IT IS NOW APRIL 22. CALLAWAY PLANT IS IN MODE 2 AT 10^{-8} AMPS AND STABLE. OPERATORS ARE CURRENTLY IN OTG-ZZ-00002, REACTOR STARTUP PERFORMING THE INTIAL STARTUP AFTER REFEUL 10. ALL SHUTDOWN BANKS ARE AT 228 STEPS PER OTG-ZZ-0001A, SHUTDOWN BANK WITHDRAWAL.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO REPOSITION EACH CONTROL AND SHUTDOWN BANK PER STEP 4.1.22. OF OTG-ZZ-00002, REACTOR STARTUP. A BRIEF HAS ALREADY BEEN HELD FOR THE CONTROL ROD REPOSITIONING. THE PRIMARY EO IS STANDING BY IN THE ROD DRIVE MG SET ROOM WITH KEY #149.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO: ILE-7/2000-JPM2
COMPLETION TIME: 20 MINUTES
JOB TITLE: URO/SRO
DUTY: ESFAS
TASK TITLE: DE-ENERGIZE AND ENERGIZE A BOP ESFAS TRAIN

KSA NO: 013A2.05
KSA RATING: 3.7/4.2
REVISION: 000217

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: OTS-SA-00001, DEENERGIZING AND ENERGIZING ENGINEERED SAFETY FEATURE ACTUATION SYSTEM, REV 5

ATTACHMENT 2 OF OTS-SA-00001, DEENERGIZING AND ENERGIZING ENGINEERED SAFETY FEATURE ACTUATION SYSTEM

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: _____ DATE: _____

CHIEF EXAMINER: _____ DATE: _____

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 48VDC POWER SUPPLY HAS FAILED IN SA036E.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO REMOVE POWER TO SA036B AND SA036E (CH IV) AND ALLOW I&C TO REPLACE THE FAILED POWER SUPPLY, THEN RETURN SA036B AND SA036E TO SERVICE PER OTS-SA-00001, DEENERGIZING AND ENERGIZING ENGINEERED SAFETY FEATURE ACTUATION SYSTEM, SECTION 4.3 AND 4.4 RESPECTIVELY. COMPLIANCE WITH TECHNICAL SPECIFICATIONS AND APA-ZZ-01003, CALLAWAY PLANT OFF-SITE DOSE CALCULATION MANUAL, HAVE BEEN VERIFIED. A CREW BRIEFING HAS BEEN CONDUCTED.

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 SIMULATED REMOVING POWER AND RETURNING TO SERVICE SA036B AND SA036E.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OTS-SA-00001, DEENERGIZING AND ENERGIZING ENGINEERED SAFETY FEATURE ACTUATION SYSTEM	PROVIDE OPERATOR WITH PROCEDURE COPY	OPERATOR SHOULD OBTAIN A COPY OF OTS-SA-00001, DEENERGIZING ENGINEERED SAFETY FEATURE ACTUATION SYSTEM	S U Comments:
2. REVIEW THE PRECAUTIONS AND LIMITATIONS OF OTS-SA-00001, DEENERGIZING AND ENERGIZING ENGINEERED SAFETY FEATURE ACTUATION SYSTEM STEP 2.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW THE PRECAUTIONS AND LIMITATIONS	S U Comments:
3. REVIEW INITIAL CONDITIONS OF OTS-SA-00001, DEENERGIZING AND ENERGIZING ENGINEERED SAFETY FEATURE ACTUATION SYSTEM STEP 3.0	ALL INITIAL CONDITIONS ARE SATISFIED ASK IF THE OPERATOR UNDERSTANDS THE INITIAL CONDITIONS AND INITIATING CUES	OPERATOR SHOULD REVIEW THE INITIAL CONDITIONS	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. AT SA036D, PLACE THE BLOCK CROSS TRIP SWITCH IN THE BLOCK CROSS TRIP FROM CHANNEL IV POSITION</p> <p>STEP 4.3.1</p>	<p>THE BLOCK CROSS TRIP SWITCH IS IN THE TRIP FROM CHANNEL IV POSITION AT SA036D</p>	<p>OPERATOR SHOULD PLACE THE BLOCK CROSS TRIP SWITCH ON SA036D (RED TRAIN) IN THE BLOCK CROSS TRIP FROM CHANNEL IV POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>5. INITIAL ON ATTACHMENT 2 STEP 4.3.1 HAS BEEN PERFORMED</p> <p>STEP 4.3.1</p>	<p>STEP 4.3.1 HAS BEEN INITIALED ON ATTACHMENT 2</p>	<p>OPERATOR SHOULD INITIAL ON ATTACHMENT 2, SA036D BLOCK CROSS TRIP HAS BEEN PLACED IN THE TRIP FROM CHANNEL IV POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>6. AT SA036C, PLACE THE BLOCK CROSS TRIP SWITCH IN THE BLOCK CROSS TRIP FROM CHANNEL IV POSITION</p> <p>STEP 4.3.2</p>	<p>THE BLOCK CROSS TRIP SWITCH IS IN THE BLOCK CROSS TRIP FROM CHANNEL IV POSITION</p>	<p>OPERATOR SHOULD PLACE THE BLOCK CROSS TRIP SWITCH ON SA036C (WHITE TRAIN) IN THE BLOCK CROSS TRIP FROM CHANNEL IV POSITION</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7. INITIAL ON ATTACHMENT 2 STEP 4.3.2 HAS BEEN PERFORMED</p> <p>STEP 4.3.2</p>	<p>STEP 4.3.2 HAS BEEN INITIALED ON ATTACHMENT 2</p>	<p>OPERATOR SHOULD INITIAL ON ATTACHMENT 2, SA036C BLOCK CROSS TRIP HAS BEEN PLACED IN THE TRIP FROM CHANNEL IV POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>*8. AT SA036E, 48VDC POWER SUPPLY DRAWER, PLACE SWITCH 8N28-1 IN THE "OFF" POSITION</p> <p>STEP 4.3.3</p>	<p>SWITCH 8N28-1 IS IN THE "OFF" POSITION</p>	<p>OPERATOR SHOULD PLACE SWITCH 8N28-1 IN THE "OFF" POSITION AT SA036E</p>	<p>S U</p> <p>Comments:</p>
<p>9. INITIAL ON ATTACHMENT 2 STEP 4.3.3 HAS BEEN PERFORMED</p> <p>STEP 4.3.3</p>	<p>STEP 4.3.3 HAS BEEN INITIALED ON ATTACHMENT 2</p>	<p>OPERATOR SHOULD INITIAL ON ATTACHMENT 2 SA036E - 48VDC SWITCH 8N28-1 IS IN THE "OFF" POSITION</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>*10. AT SA036E DUAL VOLTAGE (15VDC / 48VDC) POWER SUPPLY DRAWER, PLACE SWITCH 8N26-1 IN THE "OFF" POSITION</p> <p>STEP 4.3.4</p>	<p>SWITCH 8N26-1 IS IN THE "OFF" POSITION</p>	<p>OPERATOR SHOULD PLACE SWITCH 8N26-1 AT SA036E DUAL VOLTAGE (15VDC / 48VDC) POWER SUPPLY DRAWER IN THE "OFF" POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>11. INITIAL ON ATTACHMENT 2 STEP 4.3.4 HAS BEEN PERFORMED</p> <p>STEP 4.3.4</p>	<p>STEP 4.3.4 HAS BEEN INITIALED ON ATTACHMENT 2</p>	<p>OPERATOR SHOULD INITIAL ON ATTACHMENT 2 SA036E DUAL VOLTAGE POWER SUPPLY HAS BEEN PLACED IN THE "OFF" POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>12. RECORD THE CABINET BEING DE-ENERGIZED IN THE EQUIPMENT OUT OF SERVICE LOG</p> <p>STEP 4.3.5</p>	<p>THE STA HAS ENTERED SA036B AND SA036E (CHANNEL IV) IN THE EOSL</p>	<p>OPERATOR SHOULD ENSURE THAT AN EOSL ENTRY HAS BEEN MADE FOR SA036B AND SA036E</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13.	THE BAD POWER SUPPLY HAS BEEN REPLACED AND THE SS HAS DIRECTED YOU TO RESTORE SA036B AND SA036E TO SERVICE PER SECTION 4.4 OF OTS-SA-00001		<p style="text-align: center;">S U</p> <p>Comments:</p>
<p>*14. AT SA036E DUAL VOLTAGE POWER SUPPLY DRAWER, PLACE SWITCH 8N26-1 IN THE "ON" POSITION</p> <p>STEP 4.4.1</p>	SWITCH 8N26-1 IS IN THE "ON" POSITION	OPERATOR SHOULD PLACE THE 15VDC / 48VDC DUAL VOLTAGE POWER SUPPLY SWITCH 8N26-1 AT SA036E IN THE "ON" POSITION	<p style="text-align: center;">S U</p> <p>Comments:</p>
15. INITIAL ON ATTACHMENT 2 STEP 4.4.1 HAS BEEN PERFORMED	STEP 4.4.1 HAS BEEN INITIALED ON ATTACHMENT 2	OPERATOR SHOULD INITIAL IN ATTACHMENT 2 THE DUAL VOLTAGE POWER SUPPLY SWITCH 8N26-1 IN THE "ON" POSITION FOR SA036E	<p style="text-align: center;">S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>16. ENSURE ALL BISTABLES AT SA036E ARE RESET</p> <p>STEP 4.4.2</p>		<p>OPERATOR SHOULD ENSURE ALL BISTABLES AT SA036E HAVE BEEN RESET</p>	<p>S U</p> <p>Comments:</p>
<p>17. PERFORM LAMP TEST ON PANEL 7N171-2, BY PRESSING THE LAMP TEST PUSHBUTTONS</p> <p>STEP 4.4.2.1</p>	<p>ALL LIGHTS ILLUMINATE AT PANEL 7N171-2 WHEN LAMP TEST PUSHBUTTONS ARE DEPRESSED</p>	<p>OPERATOR SHOULD PERFORM A LAMP TEST ON PANEL 7N171-2, MANUAL TEST / IND PANEL</p> <p>NOTE: LOCATED ON SA036E</p>	<p>S U</p> <p>Comments:</p>
<p>18. ENSURE ALL RED INDICATING LIGHTS ON MANUAL TEST/IND PANEL, 7N171-2 ARE NOT LIT</p> <p>STEP 4.4.2.2</p>	<p>ALL RED INDICATING LIGHTS ON MANUAL TEST / IND PANEL 7N171-2 ARE OUT</p>	<p>OPERATOR SHOULD ENSURE ALL RED INDICATING LIGHTS ON MANUAL TEST / IND PANEL 7N171-2 ARE OUT</p> <p>NOTE: LOCATED ON SA036E</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
19. INDEPENDENTLY VERIFY ALL ACTUATIONS ARE RESET PER 4.4.2.3 AND INITIAL ON ATTACHMENT 2 STEP 4.4.2.4	ALL ACTUATIONS HAVE BEEN VERIFIED RESET AND INITIALED ON ATTACHMENT 2	OPERATOR SHOULD HAVE ALL ACTUATIONS INDEPENDENTLY VERIFIED RESET AND PERSON INITIAL ON ATTACHMENT 2	S U Comments:
20* AT SA036E 48VDC POWER SUPPLY DRAWER, PLACE SWITCH 8N28-1 IN THE "ON" POSITION STEP 4.4.3	SWITCH 8N28-1 HAS BEEN PLACED TO THE "ON" POSITION	OPERATOR SHOULD PLACE SWITCH 8N28-1 TO THE "ON" POSITION AT SA036E, 48VDC POWER SUPPLY DRAWER	S U Comments:
21. ENTER ON ATTACHMENT 2 STEP 4.4.3 HAS BEEN PERFORMED STEP 4.4.3	STEP 4.4.3 HAS BEEN INITIALED ON ATTACHMENT 2	OPERATOR SHOULD ENTER IN ATTACHMENT 2 SWITCH 8N28-1 HAS BEEN PLACED TO THE "ON" POSITION AT SA036E, 48VDC POWER SUPPLY DRAWER	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>*22. AT SA036D, PLACE THE BLOCK CROSS TRIP SWITCH IN THE "OPERATE" POSITION</p> <p>STEP 4.4.4</p>	<p>THE BLOCK CROSS TRIP SWITCH AT SA036D HAS BEEN PLACED IN THE "OPERATE" POSITION</p>	<p>OPERATOR SHOULD ROTATE THE BLOCK CROSS TRIP SWITCH AT SA036D TO THE "OPERATE" POSITION</p>	<p>S U</p> <p>Comments:</p>
<p>23. INITIAL ON ATTACHMENT 2 STEP 4.4.4 HAS BEEN PERFORMED</p> <p>STEP 4.4.4</p>	<p>STEP 4.4.4 HAS BEEN INITIALED ON ATTACHMENT 2</p>	<p>OPERATOR SHOULD INITIAL IN ATTACHMENT 2 THE BLOCK CROSS TRIP SWITCH HAS BEEN PLACED IN THE "OPERATE" POSITION FOR SA036D</p>	<p>S U</p> <p>Comments:</p>
<p>*24. AT SA036C, PLACE THE BLOCK CROSS TRIP SWITCH IN THE "OPERATE" POSITION</p> <p>STEP 4.4.5</p>	<p>THE BLOCK CROSS TRIP SWITCH AT SA036C HAS BEEN PLACED IN THE "OPERATE" POSITION</p>	<p>OPERATOR SHOULD ROTATE THE BLOCK CROSS TRIP SWITCH AT SA036C TO THE "OPERATE" POSITION</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
25. INITIAL ON ATTACHMENT 2 STEP 4.4.5 HAS BEEN PERFORMED STEP 4.4.5	STEP 4.4.5 HAS BEEN INITIALED ON ATTACHMENT 2	OPERATOR SHOULD INITIAL IN ATTACHMENT 2 THE BLOCK CROSS TRIP SWITCH HAS BEEN PLACED IN THE "OPERATE" POSITION FOR SA036C	S U Comments:
26. RESET ATI AT SA036C AND VERIFY PROPER STEPPING STEP 4.4.6	THE ATI RESET PUSHBUTTON HAS BEEN PRESSED THE ATI STEP WINDOW IS CHANGING NUMBERS	OPERATOR SHOULD RESET THE ATI AT SA036C AND VERIFY PROPER OPERATION	S U Comments:
27. WHEN PROPER ATI STEPPING HAS BEEN VERIFIED, INITIAL ON ATTACHMENT 2 STEP 4.4.8	ATI INDICIATNG LIGHT IS STEPPING THROUGH WITHOUT HESITATION	OPERATOR SHOULD VERIFY ATI WORKING PROPERLY AND INITIAL ON ATTACHMENT 2	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
28. REMOVE SA036B AND SA036E FROM THE EOSL AND FILE ATTACHMENT 2 WITH THE EOSL AS A QA RECORD STEP 4.4.9	SA036B AND SA036E HAVE BEEN REMOVED FROM THE EOSL AND ATTACHMENT 2 HAS BEEN ATTACHED TO THE EOSL	OPERATOR SHOULD ENSURE SA036B AND SA036E HAVE BEEN REMOVED FROM THE EOSL AND ATTACHMENT 2 HAS BEEN ATTACHED TO THE EOSL	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. A 48VDC POWER SUPPLY HAS FAILED IN SA036E.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO REMOVE POWER TO SA036B AND SA036E (CH IV) AND ALLOW I&C TO REPLACE THE FAILED POWER SUPPLY, THEN RETURN SA036B AND SA036E TO SERVICE PER OTS-SA-00001, DEENERGIZING AND ENERGIZING ENGINEERED SAFETY FEATURE ACTUATION SYSTEM, SECTION 4.3 AND 4.4 RESPECTIVELY. COMPLIANCE WITH TECHNICAL SPECIFICATIONS AND APA-ZZ-01003, CALLAWAY PLANT OFF-SITE DOSE CALCULATION MANUAL, HAVE BEEN VERIFIED. A CREW BRIEFING HAS BEEN CONDUCTED.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO: ILE-7/2000-JPM3
COMPLETION TIME: 15 MINUTES
JOB TITLE: URO/SRO
DUTY: ACCUMULATOR SAFETY INJECTION
TASK TITLE: RAISING ACCUMULATOR LEVEL

KSA NO: 006A1.13
KSA RATING: 3.5/3.7
REVISION: 000217

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: OTN-EP-00001, ACCUMULATOR SAFETY INJECTION SYSTEM, REV 16

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: _____ DATE: _____

CHIEF EXAMINER: _____ DATE: _____

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 PLANT IS OPERATING IN MODE 1. THE 'A' SAFETY INJECTION ACCUMULATOR HAS A LOW LEVEL (28%) DUE TO CHEMISTRY SAMPLES. BOTH TRAINS OF CCW ARE IN SERVICE. SAFETY INJECTION SYSTEM AND RWST ARE ALIGNED PER OTN-EM-00001. EP-HCV-943 ACCUMULATOR VENT VALVE IS CAPPED. NO ADDITIONS HAVE BEEN MADE TO THE RWST SINCE THE LAST BORON SAMPLE OF 2400 PPM.

Initiating Cues: YOU HAVE BEEN DIRECTED TO RAISE THE LEVEL IN 'A' SAFETY INJECTION ACCUMULATOR TO 40% USING 'B' SAFETY INJECTION PUMP PER OTN-EP-00001 SECTION 4.2. IF REQUIRED TO LOWER ACCUMULATOR PRESSURE, SECTION 5.3 IS TO BE USED. INFORM THE CONTROL ROOM SUPERVISOR WHEN THE TASK IS COMPLETED.

Notes: USE IC 105. **ENSURE BOTH TRAINS OF CCW ARE IN SERVICE.**

- Notes:
- 1) **USE MONITOR MODE FOR THE FOLLOWING:**
 - 2) FOR FAULT SET CSISPMPA0=500. THIS WILL CHANGE THE SI PUMP DISCHARGE PRESSURE TO 500 PSIG.
 - 3) SET CSISPMPA0=1560 PRIOR TO STARTING 'A' SI PUMP
 - 4) SET ASISAL (1) = 51700 TO LOWER 'A' ACCUMULATOR LEVEL TO 28%.
 - 5) SET CSIS8950 = 1.25E-3 FOR ACCUM VENT RATE

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Task Standard: UPON COMPLETION OF THIS JPM, THE 'A' SI ACCUMULATOR WILL HAVE BEEN FILLED TO APPROXIMATELY 40% (BUT LESS THAN 80%) USING THE 'A' SI PUMP, WITH PRESSURE IN THE OPERABLE BAND. THE 'B' SI PUMP IS STOPPED.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OTN-EP-00001, ACCUMULATOR SAFETY INJECTION SYSTEM	PROVIDE OPERATOR WITH PROCEDURE	OPERATOR SHOULD OBTAIN A COPY OF OTN-EP-00001, SAFETY INJECTION SYSTEM	<p>S U</p> <p>Comments:</p>
2. REVIEW THE PRECAUTIONS AND LIMITATIONS OF OTN-EP-00001, ACCUMULATOR SAFETY INJECTION SYSTEM STEP 2.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW PRECAUTIONS AND LIMITATIONS	<p>S U</p> <p>Comments:</p>
3. REVIEW THE INITIAL CONDITIONS OF OTN-EP-00001, ACCUMULATOR SAFETY INJECTION SYSTEM STEP 3.0	NO INITIAL CONDITONS ARE REQUIRED	OPERATOR SHOULD REVIEW AND UNDERSTAND INITIAL CONDITIONS ARE COVERED IN SECTION 4.2	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. ENSURE SAFETY INJECTION SYSTEM AND RWST ARE ALIGNED PER OTN-EM-00001</p> <p>STEP 4.2.1</p>	<p>SAFETY INJECTION SYSTEM AND THE RWST ARE ALIGNED PER OTN-EM-00001</p>	<p>OPERATOR MAY VERIFY SAFETY INJECTION AND RWST ARE ALIGNED PER OTN-EM-00001</p> <p>NOTE: GIVEN IN INITIAL CONDITIONS</p>	<p>S U</p> <p>Comments:</p>
<p>5. ISOLATE THE SI TEST LINE TO THE RWST AS FOLLOWS</p> <p>STEP 4.2.2</p>		<p>OPERATOR SHOULD ISOLATE THE SI TEST LINE FROM THE RWST</p>	<p>S U</p> <p>Comments:</p>
<p>6. CLOSE EMHV8823, SI/ACC INJ TEST LINE VLV, USING EM HIS-8823 ON RL017</p> <p>STEP 4.2.2.1</p>	<p>EM HIS-8823 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT</p>	<p>OPERATOR SHOULD CLOSE EMHV8823, SI/ACC INJ TEST LINE VLV, USING EM HIS-8823</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK		CUE	STANDARD	SCORE
NUMBER - ELEMENT				
7. CLOSE EMHV8871, SI SYS TEST LINE INNER CTMT ISO VLV, USING EM HIS- 8871 ON RL017 STEP 4.2.2.2	THE GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT FOR EM HIS-8871	OPERATOR SHOULD CLOSE EMHV8871, SI SYS TEST LINE INNER CTMT ISO VLV, USING EM HIS- 8871 ON RL017	S U Comments:	
8. CLOSE EMHV8964, SI SYS TEST LINE OUTER ISO VLV, USING EM HIS-8964 ON RL017 STEP 4.2.2.3	EM HIS-8964 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD CLOSE EMHV8964, SI SYS TEST LINE OUTER ISO VLV, USING EM HIS-8964 ON RL017	S U Comments:	
9. OPEN EMHV8888 ACCUMULATOR FILL LINE ISO VALVE, USING EM HIS-8888. STEP 4.2.3	EM HIS-8888 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT	OPERATOR SHOULD OPEN EMHV8888, ACCUMULATOR FILL LINE ISO VALVE	S U Comments:	

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10. IF IN MODE 4, 5 OR MODE 6 WITH THE RX HEAD ON, ALIGN THE DESIRED SI PUMP PER OSP-EM-00002, INOPERATBEL SI PUMP VERIFICATION</p> <p>STEP 4.2.4</p>	<p>CALLAWAY PLANT IS IN MODE 1</p> <p>GIVEN IN INITIAL CONDITIONS</p>	<p>OPERATOR SHOULD REALIZE OSP-EM-00002 IS NOT REQUIRED</p>	<p>S U</p> <p>Comments:</p>
<p>11. ENSURE EMHV8802A, SI PMP A DISCH TO HOT LEG INJ ISO (3.0.3) IS CLOSED, USING EM HIS-8802A</p> <p>STEP 4.2.5</p>	<p>EM HIS-8802A GREEN LIGHT IS LIT AND RED LIGHT IS OUT</p>	<p>OPERATOR SHOULD VERIFY EMHV8802A, SI PMP A DISCH TO HOT LEG INJ ISO VALVE, IS CLOSED</p>	<p>S U</p> <p>Comments:</p>
<p>12. IF RCS PRESSURE IS LESS THAN 1600 PSIG, CLOSE EMHV8821A, SI PMP A DISCH TO COLD LEG INJ ISO</p> <p>STEP 4.2.6</p>	<p>RCS PRESSURE IS 2230 PSIG BY ALL RCS INDICATION</p>	<p>OPERATOR SHOULD REALIZE RCS PRESSURE IS ABOVE 1600 PSIG AND NOT CLOSE EMHV8821A, SI PMP A DISCH TO COLD LEG INJ ISO</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. ENSURE THE CCW TRAIN IS IN SERVICE FOR THE RESPECTIVE SI PUMP TO BE STARTED STEP 4.2.7	BOTH CCW TRAINS ARE IN SERVICE NOTE: GIVEN IN INITIAL CONDITIONS	OPERATOR MAY ENSURE 'B' CCW TRAIN IS IN SERVICE	S U Comments:
14. START 'B' SAFETY INJECTION PUMP WITH SWITCH EM HIS-0005 STEP 4.2.7.1	EM HIS-0005 RED LIGHT ILLUMINATED AND GREEN LIGHT GOES OUT	OPERATOR SHOULD START 'B' SI PUMP WITH SWITCH EM HIS-0005	S U Comments:
*15. VERIFY 'B' SI PUMP DISCHARGE PRESSURE OF 1500 PSIG FOR 'B' TRAIN WITH EMPI0923 STEP 4.2.7.1	DISCHARGE PRESSURE IS APPROXIMATELY 500 PSIG AS INDICATED ON EMPI0923	OPERATOR SHOULD RECOGNIZE A PROBLEM EXISTS FOR 'B' SI PUMP AND IT CAN'T BE USED TO FILL THE ACCUMULATOR	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>16. INFORM THE SS ABOUT THE PROBLEM WITH THE 'B' SI PUMP AND STOP THE 'B' SI PUMP</p> <p>NOTE: HAVE SIMULATOR OPERATOR SET CSISPMPA0=1560</p>	<p>THE SHIFT SUPERVISOR HAS DIRECTED YOU TO SECURE THE 'B' SI PUMP AND USE THE 'A' SI PUMP TO FILL THE ACCUMULATOR</p>	<p>OPERATOR SHOULD SECURE THE 'B' SI PUMP</p> <p>NOTE: HAVE SIMULATOR OPERATOR SET CSISPMPA0=1560</p>	<p>S U</p> <p>Comments:</p>
<p>*17. START 'A' SAFETY INJECTION PUMP WITH SWITCH EM HIS-0004</p> <p>STEP 4.2.7.1</p>	<p>EM HIS-0004 RED LIGHT ILLUMINATED AND GREEN LIGHT GOES OUT</p>	<p>OPERATOR SHOULD START 'A' SI PUMP WITH SWITCH EM HIS-0004</p>	<p>S U</p> <p>Comments:</p>
<p>18. VERIFY 'A' SAFETY INJECTION PUMP DISCHARGE PRESSURE INCREASES TO APPROXIMATELY 1500 PSIG ON EM PI0919</p> <p>STEP 4.2.7.1</p>	<p>DISCHARGE PRESSURE IS 1520 PSIG AS INDICATED ON EM PI0919</p>	<p>OPERATOR SHOULD VERIFY 'A' SAFETY INJECTION PUMPS DISCHARGE PRESSURE INCREASES TO APPROXIMATELY 1500 PSIG</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>*19. OPEN EPHV8878A, ACC TANK 'A' FILL LINE VLV, WITH EP HIS-8878A</p> <p>STEP 4.2.8</p>	<p>EP HIS-8878A RED LIGHT IS ILLUMINATED AND GREEN LIGHT GOES OUT</p> <p>LEVEL IS INCREASING IN 'A' ACC.</p> <p>LEVEL HAS REACHED 40%</p>	<p>OPERATOR SHOULD OPEN EPHV8878A, WITH EP HIS-8878A</p> <p>NOTE OPERATOR MAY VENT PER SECTION 5.3 ANY TIME DURING/AFTER FILL</p>	<p>S U</p> <p>Comments:</p>
<p>20. CLOSE EPHV8878A, ACC TANK 'A' FILL LINE VLV, WITH EP HIS-8878A</p> <p>STEP 4.2.8.1</p>	<p>EP HIS-8878A GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT</p>	<p>OPERATOR SHOULD CLOSE EPHV8878A, FILL LINE VLV, WITH EP HIS-8878A PRIOR TO RECEIVING ANN 43C ACC TK 'A' LEV HILO (80%)</p>	<p>S U</p> <p>Comments:</p>
<p>*21. STOP 'A' SAFETY INJECTION PUMP WITH SWITCH EM HIS-4</p> <p>STEP 4.2.9</p>	<p>EM HIS-4 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT</p>	<p>OPERATOR SHOULD STOP 'A' SI PUMP WITH SWITCH EM HIS-4 ON PANEL RL017</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>22. VERIFY POSITION OF EMHV8821A</p> <p>NOTE PRIOR TO STEP 4.2.10</p>	<p>EM HIS-8821A RED LIGHT IS LIT AND GREEN LIGHT IS OUT</p>	<p>OPERATOR SHOULD VERIFY POSITION OF EM HIS-8821A AND PROCEED TO STEP 4.2.10</p>	<p>S U</p> <p>Comments:</p>
<p>23. VERIFY PRESSURE ON 'A' SI PUMP DISCHARGE IS < 600 PSIG AND PROCEED TO STEP 4.2.11</p> <p>CAUTION PRIOR TO STEP 4.2.10</p>	<p>EMPI0919 INDICATES 310 PSIG</p>	<p>OPERATOR SHOULD VERIFY 'A' SI PUMP DISCHARGE PRESSURE IS LESS THAN 600 PSIG AND STEP 4.2.10 IS NOT REQUIRED. OPERATOR SHOULD PROCEED TO STEP 4.2.11</p>	<p>S U</p> <p>Comments:</p>
<p>24. CLOSE EMHV8888, ACCUMULATOR FILL LINE ISO VALVE WITH EM HIS-8888</p> <p>STEP 4.2.11</p>	<p>EM HIS-8888 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT</p>	<p>OPERATOR SHOULD CLOSE EMHV8888 ACCUMULATOR TANK FILL LINE ISO VALVE, WITH EM HIS-8888</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
25. OPEN EMHV8821A, IF CLOSED IN STEP 4.2.6 USING EM HIS- 8821A STEP 4.2.12	EM HIS-8821A RED LIGHT IS ILLUMINATED AND GREEN LIGHT IS OUT	OPERATOR MAY VERIFY EM HIS-8821A IS OPEN	S U Comments:
26. NOTIFY CHEMISTRY TO SAMPLE THE ACCUMULATOR BORON CONCENTRATION WITHIN SIX (6) HOURS OF A VOLUME INCREASE OF ≥ 70 GALLONS STEP 4.2.12.1	NO SAMPLE NECESSARY	OPERATOR SHOULD REALIZE NO SAMPLE NECESSARY DUE TO RWST IN SPEC	S U Comments:
27. ADJUST ACCUMULATOR NITROGEN PRESSURE AS REQUIRED STEP 4.2.13	NOTE: IF ALREADY ADJUSTED PRESSURE IS 620 PSIG	OPERATOR SHOULD ADJUST NITROGEN PRESSURE PER SECTION 5.3, ALTERNATE VENT METHOD, IF REQUIRED	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
28. RESTORE THE SAFETY INJECTION SYSTEM PER OSP-EM-00002, INOPERABLE SAFETY INJECTION PUMPS VERIFICATION, IF REQUIRED STEP 4.2.14		OPERATOR SHOULD REALIZE RESTORATION OF THE SAFETY INJECTION SYSTEM IS NOT REQUIRED	S U Comments:
29. RESTORE THE SI TEST LINE REGULATOR PER OTN-EM-00001, SECTION 5.2 IF DESIRED PER ENGINEERING STEP 4.2.15	RESTORATION OF THE SI TEST LINE IS NOT REQUIRED	OPERATOR SHOULD REALIZE THE SI TEST LINE REGULATOR IS NOT REQUIRED	S U Comments:
30. CONTACT HEALTH PHYSIS TO PERFORM A ROUTINE ROOM SURVEY ON THE SI PUMP ROOM USED TO FILL THE SI ACCUMULATOR STEP 4.2.16	HP ACKNOWLEDGES AND WILL PERFORM SURVEYS ON PUMP ROOMS	OPERATOR SHOULD CONTACT HP TO PERFORM A SURVEY ON 'A' SI PUMP ROOM	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: THE PLANT IS OPERATING IN MODE 1. THE 'A' SAFETY INJECTION ACCUMULATOR HAS A LOW LEVEL (28%) DUE TO CHEMISTRY SAMPLES. BOTH TRAINS OF CCW ARE IN SERVICE. SAFETY INJECTION SYSTEM AND RWST ARE ALIGNED PER OTN-EM-00001. EP-HCV-943 ACCUMULATOR VENT VALVE IS CAPPED. NO ADDITIONS HAVE BEEN MADE TO THE RWST SINCE THE LAST BORON SAMPLE OF 2400 PPM.

Initiating Cues: YOU HAVE BEEN DIRECTED TO RAISE THE LEVEL IN 'A' SAFETY INJECTION ACCUMULATOR TO 40% USING 'B' SAFETY INJECTION PUMP PER OTN-EP-00001 SECTION 4.2. IF REQUIRED TO LOWER ACCUMULATOR PRESSURE, SECTION 5.3 IS TO BE USED. INFORM THE CONTROL ROOM SUPERVISOR WHEN THE TASK IS COMPLETED.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO: ILE-7/2000-JPM4
COMPLETION TIME: 8 MINUTES
JOB TITLE: URO/SRO
DUTY: CONTAINMENT COOLING
TASK TITLE: START 'A' CTMT COOLER FAN

KSA NO: 022A4.01
KSA RATING: 3.6/3.6
REVISION: 000217

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: OTN-GN-00001, CONTAINMENT COOLING AND CRDM COOLING, REV 10

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: _____ DATE: _____

CHIEF EXAMINER: _____ DATE: _____

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: 'A' CTMT COOLER FAN WAS EARLIER SECURED DUE TO A HIGH VIBRATION PROBLEM. ONE (1) CAVITY COOLING FAN IS RUNNING, THREE (3) CRDM COOLING FANS ARE RUNNING, AND THE PZR COOLING FAN IS SECURED.

Initiating Cues: THE INVESTIGATION/REPAIRS ON 'A' CTMT COOLER FAN HAVE BEEN COMPLETED. YOU HAVE BEEN DIRECTED TO START THE 'A' CTMT COOLER FAN USING SECTION 4.2 OF OTN-GN-00001, CONTAINMENT COOLING AND CRDM COOLING, THEN NOTIFY THE CONTROL ROOM SUPERVISOR WHEN DONE.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: USE IC 105. STOP 'A' CTMT COOLER WITH GN HIS-5 AND PLACE HANDSWITCH GN-HS-5 IN SLOW. PARAMETER, GNS001, HI VIB, DELAY 31 SECONDS, EVENT TRIGGER = 1, INSERT. EVENT, TRIGGER #1, TYPE "x20i64r.eq.true", ACCEPT NEW EVENT.

Task Standard: UPON COMPLETION OF THIS JPM, THE 'A' CONTAINMENT COOLER FAN WILL HAVE BEEN STARTED AND SECURED DUE TO HIGH VIBRATIONS.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OTN-GN-00001, CTMT COOLING AND CRDM COOLING	PROVIDE OPERATOR WITH PROCEDURE	OPERATOR SHOULD OBTAIN A COPY OF ONT-GN-00001, CONTAINMENT COOLING AND CRDM COOLING	<p style="text-align: center;">S U</p> <p>Comments:</p>
2. REVIEW PRECAUTIONS AND LIMITATIONS OF OTN-GN-00001, CTMT COOLING AND CRDM COOLING STEP 2.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW THE PRECAUTIONS AND LIMITATIONS OF OTN-GN-00001	<p style="text-align: center;">S U</p> <p>Comments:</p>
3. REVIEW INITIAL CONDITIONS OF OTN-GN-00001, CTMT COOLING AND CRDM COOLING STEP 3.0	ALL INITIAL CONDITIONS ARE SATISFIED	OPERATOR SHOULD REVIEW THE INITIAL CONDITIONS OF OTN-GN-00001	<p style="text-align: center;">S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>*4. PLACE SELECTOR SWITCH GN HS-5 FOR SGN01A IN THE FAST POSITION</p> <p>STEP 4.2.1</p>	<p>SWITCH GN HS-5 IS IN THE FAST POSITION</p>	<p>OPERATOR SHOULD SELECT 'FAST' FOR GN HS-5, CTMT COOLER FAN 'A' SPEED SELECT, WITH GN HS-5 LOCATED ON RL020</p>	<p>S U</p> <p>Comments:</p>
<p>*5. START CTMT AIR COOLER 1A, SGN01A, WITH HANDSWITCH GN HIS-5</p> <p>STEP 4.2.2</p>	<p>GN HIS-5 RED SLOW LIGHT ILLUMINATES AND THE GREEN LIGHT GOES OUT</p>	<p>OPERATOR SHOULD SELECT "RUN" ON GN HIS-5, CTMT COOLER FAN 'A'</p>	<p>S U</p> <p>Comments:</p>
<p>6. SGN01A WILL SHIFT TO FAST AFTER 30 SECONDS</p> <p>NOTE PRIOR TO STEP 4.2.2.1</p>	<p>30 SECONDS AFTER SELECTING RUN, THE RED FAST LIGHT ILLUMINATES AND THE RED SLOW LIGHT GOES OUT</p>	<p>OPERATOR SHOULD OBSERVE THE RED FAST LIGHT ILLUMINATE AND THE RED SLOW LIGHT GO OUT</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
7. MONITOR VIBRATION ON SGN01A AT COMPUTER POINT GNY0007 STEP 4.2.2.1	GNY0007 INDICATES 'A' CTMT COOLER FAN HAS HIGH VIBRATION	OPERATOR SHOULD MONITOR VIBRATION ON SGN01A AT COMPUTER POINT GNY0007 FOR 'A' CONTAINMENT COOLER FAN	S U Comments:
8. DETERMINE A HIGH VIBRATION EXISTS ON 'A' CTMT COOLER FAN AND INFORM CONTROL ROOM SUPERVISOR STEP 4.2.2.2	THE CONTROL ROOM SUPERVISOR DIRECTS 'A' CTMT COOLER FAN BE SECURED PER SECTION 4.3 OF OTN-GN-00001	OPERATOR SHOULD DETERMINE 'A' CTMT COOLER HAS HIGH VIBRATIONS AND INFORM CONTROL ROOM SUPERVISOR	S U Comments:
*9. STOP 'A' CONTAINMENT COOLER FAN, SGN01A, WITH HANDSWITCH GN HIS-5 STEP 4.3.1	GN HIS-5 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD STOP 'A' CONTAINMENT COOLER WITH HANDSWITCH GN HIS-5	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
10. IF CONTAINMENT COOLER 1D HAS BEEN SECURED AND RCS TEMPERATURE IS >120°F START THE PZR COOLING FAN STEP 4.3.2		OPERATOR SHOULD REALIZE 'A' CTMT COOLER FAN WAS SECURED	S U Comments:
	THE JPM IS COMPLETE <u>RECORD STOP TIME</u> <u>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: 'A' CTMT COOLER FAN WAS EARLIER SECURED DUE TO A HIGH VIBRATION PROBLEM. ONE (1) CAVITY COOLING FAN IS RUNNING, THREE (3) CRDM COOLING FANS ARE RUNNING, AND THE PZR COOLING FAN IS SECURED.

Initiating Cues: THE INVESTIGATION/REPAIRS ON 'A' CTMT COOLER FAN HAVE BEEN COMPLETED. YOU HAVE BEEN DIRECTED TO START THE 'A' CTMT COOLER FAN USING SECTION 4.2 OF OTN-GN-00001, CONTAINMENT COOLING AND CRDM COOLING, THEN NOTIFY THE CONTROL ROOM SUPERVISOR WHEN DONE.

#1

NAME: _____

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO: ILE-7/2000-JPM5
COMPLETION TIME: 15 MINUTES
JOB TITLE: URO/SRO
DUTY: EMERGENCY DIESEL GENERATOR
TASK TITLE: SECURE D/G AFTER EMERGENCY START

KSA NO: 064A4.06
KSA RATING: 3.9/3.9
REVISION: 000405

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: OTN-NE-0001A, STANDBY DIESEL GENERATION SYSTEM-TRAIN 'A', REV 4

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: _____ DATE: _____

CHIEF EXAMINER: _____ DATE: _____

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 PLANT IS OPERATING IN MODE 2. NE01, 'A' EMERGENCY DIESEL GENERATOR STARTED DUE TO THE NORMAL FEEDER BREAKER NB0112 TRIPPING. NB0112 HAS BEEN INSPECTED AND RECLOSED.

Initiating Cues: THE CURRENT REACTOR OPERATOR HAS COMPLETED SECTION 5.5 UP TO STEP 5.5.3 OF OTN-NE-0001A, STANDBY DIESEL GENERATION SYSTEM-TRAIN 'A'. YOU HAVE BEEN DIRECTED TO COMPLETE SECURING NE01 BY COMPLETING STEP 5.5.3, SECTION 4.5 AND 4.6 AND INFORM THE CONTROL ROOM SUPERVISOR WHEN DONE. A BRIEF HAS BEEN HELD. AN EQUIPMENT OPERATOR IS STANDING BY AT NE01 WITH A STOPWATCH.

Notes: USE IC 104. PARALLEL NE01 TO NB01, LOAD NE01 TO 4 MWe AND 200 KVAR TO ENSURE A .9 pf. USE REMOTE MODE NFS003 TO RESET ATI.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Task Standard: UPON COMPLETION OF THIS JPM, THE 'A' DIESEL GENERATOR WILL BE SECURED WITH NO LOSS OF POWER TO NB01.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OTN-NE-0001A, STANDBY DIESEL GENERATION SYSTEM-TRAIN 'A'	PROVIDE OPERATOR WITH PROCEDURE	OPERATOR SHOULD OBTAIN A COPY OF OTN- NE-0001A, STANDBY DIESEL GENERATION SYSTEM-TRAIN 'A'	S U Comments:
2. REVIEW THE PRECAUTIONS AND LIMITATIONS OF OTN-NE-0001A, STANDBY DIESEL GENERATION SYSTEM-TRAIN 'A' STEP 2.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW PRECAUTIONS AND LIMITATIONS	S U Comments:
3. REVIEW THE INITIAL CONDITIONS OF OTN-NE-0001A, STANDBY DIESEL GENERATION SYSTEM-TRAIN 'A' STEP 3.0	ALL INITIAL CONDITONS ARE SATIFIED	OPERATOR SHOULD REVIEW AND UNDERSTAND INITIAL CONDITIONS ARE COVERED IN SECTION 4.2	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. VERIFY THAT THE D/G OUTPUT BREAKER, NB0111 IS OPEN. IF NOT, PRIOR TO STOPPING THE DIESEL GENERATOR PERFORM SECTION 4.5</p> <p>STEP 5.5.3</p>	<p>NE HIS-25, NB0111 HANDSWITCH , RED LIGHT IS LIT AND GREEN LIGHT IS OUT</p>	<p>OPERATOR SHOULD VERIFY NE01 OUTPUT BREAKER IS CLOSE AND PROCEED TO SECTION 4.5</p>	<p>S U</p> <p>Comments:</p>
<p>5. ENSURE OFFSITE POWER IS AVAILABLE AND ALIGNED TO NB01</p> <p>STEP 4.5.1</p>	<p>NB0112, NB01 NORMAL FEEDER BREAKER RED LIGHT IS LIT AND GREEN LIGHT IS OUT</p>	<p>OPERATOR SHOULD VERIFY POWR IS AVAILABLE TO NB01 FROM OFFSITE</p>	<p>S U</p> <p>Comments:</p>
<p>*6. REDUCE NE01 LOAD USING THE GOVERNOR CONTROL SWITCH KJ HS-7A TO APPROXIMATELY 200KW</p> <p>STEP 4.5.2</p>	<p>D/G LOAD IS DECREASING</p>	<p>OPERATOR SHOULD DECREASE LOAD ON NE01 WITH CONTROL SWITCH KJ HS-7A TO APPROXIMALTELY 200KW</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7. AS DIESEL GENERATOR LOAD IS REDUCED, REDUCE VAR LOADING CONCURRENTLY USING THE AUTO VOLTAGE REGULATOR CONTROL SWITCH, NE HS-13A TO MAINTAIN A .9 PF</p> <p>STEP 4.5.3</p>	<p>THE EQUIPMENT OPERATOR REPORTS THE POWER FACTOR IS .9 AS LOAD IS BEING LOWERED.</p> <p>NOTE: A .9 PF CAN BE MAINTAINED BY KEEPING KVAR=1/2 OF LOAD (KW)</p>	<p>OPERATOR SHOULD ADJUST POWER FACTOR WITH NE HS-13A TO MAINTAIN A POWER FACTOR OF .9</p>	<p>S U</p> <p>Comments:</p>
<p>8. VERIFY AS D/G LOAD DECREASES THAT A CORRESPONDING LOAD INCREASE IS INDICATED ON NB-II-1</p> <p>STEP 4.5.4</p>	<p>NB-II-1 DECREASES TO 0, THEN BEGINS TO INCREASE AS D/G LOAD IS LOWERED</p>	<p>OPERATOR SHOULD VERIFY LOAD IS CHANGING ON NB-II-1 AS LOAD IS BEING TRANSFERRED FROM NE01 TO OFFSITE POWER</p>	<p>S U</p> <p>Comments:</p>
<p>9. WAIT 3- 5 MINUTES AFTER NE01 LOAD IS LESS \leq 200 KW</p> <p>STEP 4.5.5</p>	<p>4 MINUTES HAS ELAPSED</p>	<p>OPERATOR SHOULD WAIT A MINIMUM OF 3 MINUTES</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>*10. OPEN THE D/G OUTPUT BREAKER NB0111 WITH HANDSWITCH NE HIS-25</p> <p>STEP 4.5.5</p>	<p>NE HIS-25 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT</p>	<p>OPERATOR SHOULD OPEN NE01 OUTPUT BREAKER WITH NE HIS-25</p>	<p>S U</p> <p>Comments:</p>
<p>11. VERIFY THAT THE D/G OUTPUT BREAKER NB0111 IS OPEN</p> <p>STEP 4.5.6</p>	<p>NE HIS-25 GREEN LIGHT IS LIT AND RED LIGHT IS OUT</p>	<p>OPERATOR SHOULD VERIFY NE01 OUTPUT BREAKER, NB0111, IS OPEN</p>	<p>S U</p> <p>Comments:</p>
<p>12. RESET THE ATI FOR BREAKER NB0111 AT NF039A</p> <p>STEP 4.5.7</p>	<p>THE ATI HAS BEEN RESET AND IS SEQUENCING</p>	<p>OPERATOR SHOULD INFORM ANOTHER PERSON TO RESET THE ATI AT NF039A</p> <p>RESET ATI WITH REMOTE MODE NFS003=PUSH TO RESET</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. PERFORM SECTION 4.6 DIESEL GENERATOR 'A' SHUTDOWN STEP 4.5.8		OPERATOR SHOULD PROCEED TO SECTION 4.6	S U Comments:
14. ENSURE THAT THE D/G OUTPUT BREAKER NB0111 IS OPEN STEP 4.6.1	NE HIS-25 GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD ENSURE NE01 OUTPUT BREAKER, NB0111, IS OPEN	S U Comments:
15. MOMENTARILY PLACE THE NE01 UNIT PARALLEL SW NE HS-5 TO THE RESET POSITION THEN OFF STEP 4.6.2	NE HS-5 HAS BEEN PLACED TO THE RESET POSITION THEN TO THE OFF POSITION	OPERATOR SHOULD TAKE THE UNIT PARALLELED SW, NE HS-5, TO THE RESET POSITION MOMENTARILY, THEN RETURN TO THE OFF POSITION	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>16. WHEN STOPPING THE D/G MEASURE THE TIME THE AMBER EXCITER SHUTDOWN LIGHT IS LIT ON NE 107</p> <p>STEP 4.6.3</p>	<p>THE EO ACKNOWLEDGES AND WILL MEASURE WHEN THE EXCITER SHUTDOWN LIGHT EXTINGUISHS</p>	<p>OPERATOR SHOULD INFORM THE EO AND HAVE HIM MEASURE THE TIME FROM SECURING NE01 TO WHEN THE AMBER SHUTDOWN LIGHT EXTINGUISHS ON NE 107</p>	<p>S U</p> <p>Comments:</p>
<p>17. PRESS THE DIESEL GENERATOR STOP PUSH-BUTTON, KJ HS-8A</p> <p>STEP 4.6.4</p>	<p>THE EO REPORTS NE01 HAS STOPPED AND HE IS MEASURING THE EXCITER SHUTDOWN LIGHT TIME</p> <p>THE EO REPORTS THE TIME FOR THE SHUTDOWN LIGHT IS 133 SECONDS</p>	<p>OPERATOR SHOULD SECURE NE01 WITH KJ HS-8A</p>	<p>S U</p> <p>Comments:</p>
<p>18. VERIFY THE WHITE PARALLEL OPERATION LIGHT ON PANEL NE 107 IS EXTINGUISHED</p> <p>STEP 4.6.5</p>	<p>THE EO REPORTS THE WHITE PARALLEL LIGHT ON NE 107 IS OUT</p>	<p>OPERATOR SHOULD CONTACT THE EO AT NE01 TO VERIFY THE WHITE PARALLEL LIGHT IS EXTINGUISHED ON PANEL NE 107</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
19. INFORM THE CONTROL ROOM SUPERVISOR THE TASK HAS BEEN COMPLETED	THE CRS ACKNOWLEDGES	OPERATOR SHOULD CONTACT THE CRS TO INFORM HIM THE TASK HE WAS ASIGNED HAS BEEN COMPLETED	<p style="text-align: center;">S U</p> <p>Comments:</p>
	<p>THE JPM IS COMPLETE</p> <p><u>RECORD STOP TIME ON PAGE 1</u></p>		<p style="text-align: center;">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: THE PLANT IS OPERATING IN MODE 2. NE01, 'A' EMERGENCY DIESEL GENERATOR STARTED DUE TO THE NORMAL FEEDER BREAKER NB0112 TRIPPING. NB0112 HAS BEEN INSPECTED AND RECLOSED.

Initiating Cues: THE CURRENT REACTOR OPERATOR HAS COMPLETED SECTION 5.5 UP TO STEP 5.5.3 OF OTN-NE-0001A, STANDBY DIESEL GENERATION SYSTEM-TRAIN 'A'. YOU HAVE BEEN DIRECTED TO COMPLETE SECURING NE01 BY COMPLETING STEP 5.5.3, SECTION 4.5 AND 4.6 AND INFORM THE CONTROL ROOM SUPERVISOR WHEN DONE. A BRIEF HAS BEEN HELD. AN EQUIPMENT OPERATOR IS STANDING BY AT NE01 WITH A STOPWATCH.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO:	ILE-7/2000-JPM6	KSA NO:	073A4.03
COMPLETION TIME:	8 MINUTES	KSA RATING:	3.1/3.2
JOB TITLE:	URO/SRO	REVISION:	000405
DUTY:	PROCESS RAD MONITORING		
TASK TITLE:	RADIATION MONITOR SOURCE CHECK		

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-SP-00001, RADIATION MONITORS SOURCE CHECK, REV 5
ATTACHMENT 1 OF OSP-SP-00001

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: _____ DATE: _____

CHIEF EXAMINER: _____ DATE: _____

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: MODE 1, NOP, NOT

Initiating Cues: YOU HAVE BEEN DIRECTED TO PERFORM THE SOURCE CHECK SURVEILLANCE FOR RAD MONITOR BM-RE-52 PER SECTION 6.1 OF OSP-SP-00001, RADIATION MONITORS SOURCE CHECK.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: USE IC 105.

Task Standard: AT THE COMPLETION OF THIS JPM, RAD MONITOR BM-RE-52 WILL HAVE BEEN SUCCESSFULLY SOURCE CHECKED.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OSP-SP-00001, RADIATION MONITORS SOURCE CHECK	PROVIDE OPERATOR WITH PROCEDURE	OPERATOR SHOULD OBTAIN A COPY OF OSP-SP-00001, RADIATION MONITORS SOURCE CHECK	S U Comments:
2. REVIEW THE ACCEPTANCE CRITERIA OF OSP-SP-00001, RADIATION MONITORS SOURCE CHECK STEP 2.0		OPERATOR SHOULD REVIEW THE ACCEPTANCE CRITERIA	S U Comments:
3. REVIEW THE PRECAUTIONS AND LIMITATIONS OF OSP-SP-00001, RADIATION MONITORS SOURCE CHECK STEP 3.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW THE PRECAUTIONS AND LIMITATIONS	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. REVIEW INITIAL CONDITIONS OF OSP-SP-00001, RADIATION MONITORS SOURCE CHECK STEP 4.0	ALL INITIAL CONDITIONS ARE SATISFIED	OPERATOR SHOULD REVIEW THE INITIAL CONDITIONS	S U Comments:
5. SELECT BM-RE-52, CHANNEL 526, FOR DISPLAY ON RM-11 STEP 6.1.1.1	BM-RE-52 IS DISPLAYED ON THE RM-11	OPERATOR SHOULD TYPE 526, PUSH SELECT ON RM-11 NOTE: WHITE BOX SHOULD BE AROUND BML526	S U Comments:
6. PRESS MOMENTARILY THE STATUS FUNCTION KEY TO DISPLAY CHANNEL STATUS STEP 6.1.1.2	STATUS FUNCTION KEY HAS BEEN DEPRESSED STATUS SCREEN IS NOW DISPLAYED ON THE RM-11	OPERATOR SHOULD PRESS STATUS FUNCTION KEY	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>*7. PRESS MOMENTARILY THE C/S SPECIAL FUNCTION KEY</p> <p>STEP 6.1.1.3</p>		<p>OPERATOR SHOULD DEPRESS C/S FUNCTION KEY</p>	<p>S U</p> <p>Comments:</p>
<p>8. VERIFY BACKLIGHT IS ON FOR C/S FUNCTION KEY</p> <p>STEP 6.1.1.3</p>	<p>C/S FUNCTION KEY IS BACKLIT</p>	<p>OPERATOR SHOULD VERIFY THE C/S FUNCTION KEY BACKLIGHT IS ON</p>	<p>S U</p> <p>Comments:</p>
<p>9. VERIFY RM-11 STATUS DISPLAY INDICATES CHANNEL CHECKSOURCE ENERGIZED FOR BM-RE-52</p> <p>STEP 6.1.1.4</p>	<p>CHECKSOURCE ENERGIZED IS HIGHLIGHTED AT BOTTOM OF SCREEN</p>	<p>OPERATOR SHOULD VERIFY CHECKSOURCE IS ENERGIZED FOR BM-RE-52</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10. VERIFY PRINTER MESSAGE IS CHECKSOURCE ENERGIZED</p> <p>STEP 6.1.1.5</p>	<p>PRINTER SHOWS CHECKSOURCE ENERGIZED</p>	<p>OPERATOR SHOULD OBSERVE CHECKSOURCE ENERGIZED MESSAGE ON PRINTER</p>	<p>S U</p> <p>Comments:</p>
<p>*11. CIRCLE SAT OR UNSAT ON ATTACHEMNT 1 OF THIS PROCEDURE UPON TEST SEQUENCE COMPLETION</p> <p>STEP 6.1.1.6</p>	<p>THERE ARE NOT ANY NEW ALARMS ON THE PRINTER</p>	<p>OPERATOR SHOULD CIRCLE "SAT" ON ATTACHMENT 1 FOR BM-RE-52</p>	<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: MODE 1, NOP, NOT

Initiating Cues: YOU HAVE BEEN DIRECTED TO PERFORM THE SOURCE CHECK SURVEILLANCE FOR RAD MONITOR BM-RE-52 PER SECTION 6.1 OF OSP-SP-00001, RADIATION MONITORS SOURCE CHECK.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO:	ILE-7/2000-JPM7	KSA NO:	008A4.01
COMPLETION TIME:	15 MINUTES	KSA RATING:	3.3/3.1
JOB TITLE:	URO/SRO	REVISION:	000405
DUTY:	COMPONENT COOLING WATER		
TASK TITLE:	SHIFT NON-ESSENTIAL CCW SUPPLY LOOPS		

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: OTN-EG-00001, COMPONENT COOLING WATER SYSTEM, REV 18

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: _____ DATE: _____

CHIEF EXAMINER: _____ DATE: _____

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 2. 'B' TRAIN CCW IS IN SERVICE. 'B' CCW PUMP IS RUNNING WITH 'A', 'C', AND 'D' CCW PUMPS SECURED. THE PRIMARY EQUIPMENT OPERATOR HAS A COPY OF OTN-EG-00001 CHECKOFF LIST 7.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO START 'A' CCW PUMP AND SHIFT THE SERVICE LOOP TO 'A' CCW TRAIN PER SECTION 4.5 OF OTN-EG-00001, COMPONENT COOLING WATER SYSTEM, AND INFORM HIM WHEN COMPLETE.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: USE IC 104. ENSURE COOLING WATER IS ALIGNED TO THE 'A' CCW HEAT EXCHANGER.

Task Standard: UPON COMPLETION OF THIS JPM, THE OPERATOR WILL HAVE STARTED 'A' CCW PUMP AND SHIFTED THE SERVICE LOOP TO THE 'A' CCW TRAIN.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OTN-EG-00001, COMPONENT COOLING WATER SYSTEM	PROVIDE OPERATOR WITH PROCEDURE	OPERATOR SHOULD OBTAIN A COPY OF OTN-EG-00001, COMPONENT COOLING WATER SYSTEM	S U Comments:
2. REVIEW THE PRECAUTIONS AND LIMITATIONS OF OTN-EG-00001, COMPONENT COOLING WATER SYSTEM STEP 2.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW THE PRECAUTIONS AND LIMITATIONS	S U Comments:
3. REVIEW THE INITIAL CONDITIONS OF OTN-EG-00001, COMPONENT COOLING WATER SYSTEM STEP 3.0	ALL INITIAL CONDITIONS ARE SATISFIED	OPERATOR SHOULD REVIEW THE INITIAL CONDITIONS	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. OBTAIN A COPY OF CHECKOFF LIST 7 AND PROVIDE IT TO THE EQUIPMENT OPERATOR PERFORMING THE SWAP</p> <p>STEP 4.5.1</p>	<p>PRIMARY EQUIPMENT OPERATOR HAS A COPY OF CHECKOFF LIST 7</p> <p>GIVEN IN INITIAL CONDITIONS</p>	<p>OPERATOR SHOULD UNDERSTAND AN EQUIPMENT OPERATOR WILL PERFORM CHECKOFF LIST 7 WHEN DIRECTED</p>	<p>S U</p> <p>Comments:</p>
<p>5. ENSURE SW/ESW IS IN SERVICE TO THE 'A' CCW HEAT EXCHANGER</p> <p>STEP 4.5.2</p>	<p>SERVICE WATER IS LINED UP TO 'A' CCW HEAT EXCHANGER</p>	<p>OPERATOR SHOULD VERIFY COOLING WATER IS ALIGNED TO 'A' CCW HEAT EXCHANGER</p>	<p>S U</p> <p>Comments:</p>
<p>6. ENSURE 'A' OR 'C' CCW PUMP IS RUNNING</p> <p>STEP 4.5.3</p>	<p>'A' CCW PUMP HANDSWITCH, EG HIS-21, GREEN LIGHT IS ILLUMINATED AND RED LIGHT IS OUT</p> <p>'C' CCW PUMP HANDSWITCH, EG HIS-23, GREEN LIGHT IS ILLUMINATED AND RED LIGHT IS OUT</p>	<p>OPERATOR SHOULD VERIFY 'A' AND 'C' CCW PUMPS ARE SECURED AND CONTINUE WITH STEP 4.5.3.1</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7. ENSURE THE 'A' CCW SURGE TANK LEVEL IS ≥ 50%</p> <p>STEP 4.5.3.1</p>	<p>'A' CCW SURGE TANK LEVEL IS GREATER THAN 50%</p>	<p>OPERATOR SHOULD VERIFY THE 'A' CCW SURGE TANK LEVEL IS ≥ 50%</p>	<p>S U</p> <p>Comments:</p>
<p>*8. START 'A' CCW PUMP WITH HANDSWITCH EG HIS-21</p> <p>STEP 4.5.3.2</p>	<p>EG HIS-21 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT</p> <p>IF ASKED 'A' CCW PUMP HAS THE LEAST RUN-TIME</p>	<p>OPERATOR SHOULD START 'A' CCW PUMP WITH HANDSWITCH EG HIS-21</p>	<p>S U</p> <p>Comments:</p>
<p>9. CLOSE EGRV009, 'A' CCW TRAIN VENT VALVE, WITH PUSHBUTTON EG HIS-9</p> <p>STEP 4.5.4</p> <p>NOTE: STEPS 9 AND 10 MAY BE PREFORMED IN ANY ORDER</p>	<p>EG HIS-9 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT</p>	<p>OPERATOR SHOULD CLOSE EGRV009, 'A' CCW TRAIN VENT VALVE, WITH PUSHBUTTON EG HIS-9</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10. CLOSE EGRV010, 'B' CCW TRAIN VENT VALVE, WITH PUSHBUTTON EG HIS-10</p> <p>STEP 4.5.4</p> <p>NOTE: STEPS 9 AND 10 MAY BE PERFORMED IN ANY ORDER</p>	<p>EG-HIS-10 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT</p>	<p>OPERATOR SHOULD CLOSE EGRV010, 'B' CCW TRAIN VENT VALVE, WITH PUSHBUTTON EG HIS-10</p>	<p>S U</p> <p>Comments:</p>
<p>*11. OPEN EGHV0015 AND EGHV0053, 'A' CCW TRAIN SUPPLY AND RETURN ISOLATION VALVES, WITH PUSHBUTTON EG HS-15</p> <p>STEP 4.5.5</p>	<p>EG ZL-15 AND EG ZL-53, CCW TRN 'A' SUPPLY AND RETURN VALVES, RED LIGHTS ILLUMINATE AND GREEN LIGHTS GO OUT</p>	<p>OPERATOR SHOULD OPEN EGHV0015 AND EGHV0053, 'A' CCW TRAIN SUPPLY AND RETURN ISOLATION VALVES, WITH PUSHBUTTON EG HS-15</p> <p>NOTE: BGV0062 CCW FROM INNER CTMT ISO VLV OR BB HV-13, 14, 15, 16 CCW FROM RCP, MAY CLOSE DUE TO HIGH CCW FLOW</p>	<p>S U</p> <p>Comments:</p>
<p>*12. CLOSE EGHV0016 AND EGHV0054, 'B' CCW TRAIN SUPPLY AND RETURN ISOLATION VALVES, WITH PUSHBUTTON EG HS-16</p> <p>STEP 4.5.6</p>	<p>EG ZL-16 AND EG ZL-54, CCW TRN 'B' SUPPLY AND RETURN VALVES, GREEN LIGHTS ILLUMINATE AND RED LIGHTS GO OUT</p>	<p>OPERATOR SHOULD CLOSE EGHV0016 AND EGHV0054, 'B' CCW TRAIN SUPPLY AND RETURN ISOLATION VALVES, WITH PUSHBUTTON EG HS-16</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>13. OPEN EGRV0009, 'A' CCW TRAIN VENT VALVE, WITH PUSHBUTTON EG HIS-9</p> <p>STEP 4.5.7</p> <p>NOTE: STEPS 13 AND 14 MAY BE PERFORMED IN ANY ORDER</p>	<p>EG HIS-9 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT</p>	<p>OPERATOR SHOULD OPEN EGRV0009,'A' CCW TRAIN VENT VALVE, WITH PUSHBUTTON EG HIS-9</p>	<p>S U</p> <p>Comments:</p>
<p>14. OPEN EGRV0010, 'B' CCW TRAIN VENT VALVE, WITH PUSHBUTTON EG HIS-10</p> <p>STEP 4.5.7</p> <p>NOTE: STEPS 13 AND 14 MAY BE PERFORMED IN ANY ORDER</p>	<p>EG HIS-10 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT</p>	<p>OPERATOR SHOULD OPEN EGRV0010,'B' CCW TRAIN VENT VALVE, WITH PUSHBUTTON EG HIS-10</p>	<p>S U</p> <p>Comments:</p>
<p>15. UNLOCK, OPEN, AND LOCK OPEN THE PASS COOLER 'A' TRAIN SUPPLY/RETURN VALVES EGV0414 AND EGV0416</p> <p>STEP 4.5.8</p>	<p>PRIMARY EO REPORTS EGV0414 AND EGV0416 HAVE BEEN OPENED AND LOCKED OPEN</p>	<p>OPERATOR SHOULD CONTACT AN EO TO OPEN AND LOCK OPEN EGV0414 AND EGV0416</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
16. UNLOCK, CLOSE, AND LOCK CLOSED THE PASS COOLER 'B' TRAIN SUPPLY/RETURN VALVES EGV0413 AND EGV0415 STEP 4.5.9	PRIMARY EO REPORTS EGV0413 AND EGV0415 HAVE BEEN CLOSED AND LOCKED CLOSED	OPERATOR SHOULD CONTACT AN EO TO CLOSE AND LOCK CLOSED EGV0413 AND EGV0415	S U Comments:
17. PERFORM CHECKOFF LIST 7, PASS SAMPLE COOLER CCW SUPPLY AND RETURN VALVE LINEUP. STEP 4.5.9.1	PRIMARY EO REPORTS CHECKOFF LIST 7 HAS BEEN COMPLETED	OPERATOR SHOULD CONTACT AN EO TO PERFORM CHECKOFF LIST 7	S U Comments:
18. ENSURE THE CCW TO PASS ISOLATION VALVES EGHV0072, EGHV0073, EGHV0074, AND EGHV0075, ARE OPEN STEP 4.5.9.2	EG HIS-72, EG HIS-73, EG HIS-74, AND EG HIS-75 RED LIGHTS ARE ILLUMINATED AND GREEN LIGHTS ARE OUT	OPERATOR SHOULD VERIFY THAT EGHV0072, EGHV0073, EGHV0074, AND EGHV0075 ARE OPEN	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>19. STOP THE 'B' AND OR 'D' CCW PUMP IF NOT REQUIRED FOR THE SAFETY LOOP LOADS</p> <p>STEP 4.5.10</p>	<p>IF ASKED: LEAVE THE 'B' CCW PUMP RUNNING AT THIS TIME</p>	<p>OPERATOR SHOULD DETERMINE 'B' CCW PUMP SHOULD STAY RUNNING DUE TO LINED UP FOR COOLING ON SPENT FUEL POOL</p>	<p>S U</p> <p>Comments:</p>
<p>20. OPEN 'B' RHR HX CCW ISO VLV EGHV0102 WITH SWITCH EG HIS-102</p> <p>STEP 4.5.11</p>	<p>EG HIS-102 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT</p>	<p>OPERATOR SHOULD OPEN EGHV0102, 'B' RHR HX CCW ISO VLV, WITH SWITCH EG HIS-102</p>	<p>S U</p> <p>Comments:</p>
<p>21. INFORM THE HOT LAB CHEM TECH THAT 'A' CCW TRAIN IS IN SERVICE</p> <p>STEP 4.5.12</p>	<p>HOT LAB CHEM TECH ACKNOWLEDGES</p>	<p>OPERATOR SHOULD INFORM HOT LAB CHEM TECH 'A' CCW TRAIN IS IN SERVICE</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
	<p>THE JPM IS COMPLETE</p> <p><u>RECORD STOP TIME</u> <u>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 2. 'B' TRAIN CCW IS IN SERVICE. 'B' CCW PUMP IS RUNNING WITH 'A', 'C', AND 'D' CCW PUMPS SECURED. THE PRIMARY EQUIPMENT OPERATOR HAS A COPY OF OTN-EG-00001 CHECKOFF LIST 7.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO START 'A' CCW PUMP AND SHIFT THE SERVICE LOOP TO 'A' CCW TRAIN PER SECTION 4.5 OF OTN-EG-00001, COMPONENT COOLING WATER SYSTEM, AND INFORM HIM WHEN COMPLETE.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO:	ILE-7/2000-JPM8	KSA NO:	039A4.07
COMPLETION TIME:	10 MINUTES	KSA RATING:	2.8/2.9
JOB TITLE:	URO/SRO	REVISION:	000217
DUTY:	EMERGENCY OPERATIONS		
TASK TITLE:	MANUALLY OPERATE 'B' S/G PORV		

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: OOA-AB-PV002, S/G 'B' ATMOSPHERIC STEAM DUMP VLV LOCAL
OPERATION, REV 0

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: _____ DATE: _____

CHIEF EXAMINER: _____ DATE: _____

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 WAS AT 100% POWER WHEN A FIRE IN AREA A-29 CAUSED A REACTOR TRIP AND DAMAGED THE CABLES FOR OPERATION OF 'B' S/G PORV.

Initiating Cues: THE SHIFT SUPERVISOR HAS DIRECTED YOU TO TAKE MANUAL CONTROL OF 'B' S/G PORV PER OOA-AB-PV002, S/G 'B' ATMOSPHERIC STEAM DUMP VALVE ABPV0002 LOCAL OPERATION. YOU HAVE ALSO BEEN DIRECTED TO INFORM THE BALANCE OF PLANT OPERATOR WHEN YOU HAVE 'B' S/G PORV IN MANUAL CONTROL.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

NOTES: ALL OPERATOR ACTOINS ARE TO BE SIMULATED.

KEY #16 IS NOT REQUIRED TO SIMULATE JPM.

Task Standard: UPON COMPLETION OF THIS JPM, THE OPERATOR WILL HAVE DEMONSTRATED THE ABILITY TO TAKE LOCAL CONTROL OF 'B' S/G PORV (AB-PV-0002)

START TIME: _____

STOP TIME: _____

**TASK
NUMBER - ELEMENT**

CUE

STANDARD

SCORE

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A CONTROLLED COPY OF OOA-AB-PV002, S/G 'B' ATMOSPHERIC STEAM DUMP VALVE ABPV002 LOCAL OPERATION	PROVIDE OPERATOR WITH PROCEDURE	OPERATOR SHOULD OBTAIN A COPY OF OOA-AB-PV002, S/G 'B' ATMOSPHERIC STEAM DUMP VALVE ABPV002 LOCAL OPERATION	<p style="text-align: center;">S U</p> <p>Comments:</p>
2. OBTAIN KEY #16 FROM THE CONTROL ROOM OR KEY ISSUE STATION STEP 1.1.1	KEY #16 HAS BEEN OBTAINED	OPERATOR SHOULD SIMULATE OBTAINING THE KEY	<p style="text-align: center;">S U</p> <p>Comments:</p>
3. GO TO AREA 5 AND LOCATE THE LOCAL CONTROL STATION FOR ABPV0002		OPERATOR SHOULD LOCATE ABPV0002 IN AREA 5	<p style="text-align: center;">S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. ESTABLISH COMMUNICATIONS WITH THE CONTROL ROOM</p> <p>STEP 1.1.2</p>	<p>COMMUNICATIONS HAVE BEEN ESTABLISHED WITH THE CONTROL ROOM</p>	<p>OPERATOR SHOULD SIMULATE ESTABLISHING COMMUNICATIONS WITH THE CONTROL ROOM</p>	<p>S U</p> <p>Comments:</p>
<p>5. UNLOCK AND OPEN THE PLEXIGLASS COVER ON ABPHC0002 WITH KEY #16</p> <p>STEP 1.1.3</p>	<p>ABPHC0002 HAS BEEN UNLOCKED AND OPENED WITH KEY 16</p>	<p>OPERATOR SHOULD SIMULATE UNLOCKING AND OPENING COVER ON ABPHC0002 WITH KEY #16</p>	<p>S U</p> <p>Comments:</p>
<p>*6. OPEN ABV0357 TO SUPPLY AIR TO THE CONTROLLER</p> <p>STEP 1.1.4</p>	<p>ABV0357 IS OPEN</p>	<p>OPERATOR SHOULD OPEN ABV0357 TO SUPPLY AIR TO 'B' S/G PORV CONTROLLER</p> <p>NOTE LOCATED JUST ABOVE CONTROLLER</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7. REMOVE REGULATOR KNOB FROM THE HOLDER IN THE PLEXIGLASS COVER</p> <p>STEP 1.1.5</p>	<p>HANDLE IS REMOVED</p>	<p>OPERATOR SHOULD REMOVE REGULATOR KNOB FROM HOLDER</p>	<p>S U</p> <p>Comments:</p>
<p>8. SCREW THE REGULATOR KNOB CLOCKWISE INTO THE REGULATOR UNTIL AIR PRESSURE IN THE RIGHT HAND PRESSURE GAUGE BEGINS TO INCREASE</p> <p>STEP 1.1.5</p>	<p>RIGHT HAND PRESSURE GAUGE INDICATES PRESSURE INCREASING SLOWLY</p>	<p>OPERATOR SHOULD SCREW THE REGULATOR KNOB INTO THE REGULATOR UNTIL PRESSURE ON THE RIGHT HAND GAUGE INCREASES, THEN STOP</p>	<p>S U</p> <p>Comments:</p>
<p>*9. ADJUST THE REGULATOR UNTIL THE PRESSURE READING ON THE RIGHT HAND GAUGE EQUALS THE PRESSURE READING ON THE LEFT HAND GAUGE</p> <p>STEP 1.1.6</p>	<p>PRESSURE READINGS ARE EQUAL</p>	<p>OPERATOR SHOULD ADJUST THE REGULATOR UNTIL THE PRESSURE READING ON THE RIGHT HAND GAUGE EQUALS THE PRESSURE READING ON THE LEFT HAND GAUGE</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
10. <u>CAUTION</u> : FAILURE TO DO THE ABOVE STEP COULD CAUSE VALVE APBV0002 TO OPEN OR CLOSE UNEXPECTEDLY WHEN THE NEXT STEP PLACES THE THREE-WAY VALVE TO THE MANUAL POSITION		OPERATOR SHOULD READ CAUTION	<p style="text-align: center;">S U</p> <p>Comments:</p>
<p>*11. TURN THE THREE-WAY VALVE FROM 'AUTOMATIC' TO THE 'MANUAL' POSITION</p> <p>STEP 1.1.7</p>	THE THREE-WAY VALVE HAS BEEN PLACED IN THE MANUAL POSITION	OPERATOR SHOULD TURN THE THREE-WAY VALVE TO THE 'MANUAL' POSITION	<p style="text-align: center;">S U</p> <p>Comments:</p>
12. ADJUST ABPV0002 AS DIRECTED BY THE CONTROL ROOM	THE BOP OPERATOR DIRECTS YOU TO OPEN ABPV0002 TO THE FULL OPEN POSITION	OPERATOR SHOULD ADJUST VALVE POSITION AS DIRECTED BY THE BOP OPERATOR	<p style="text-align: center;">S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. OPEN ABPV0002 FULLY	ABPV0002 IS FULL OPEN	OPERATOR SHOULD INCREASE AIR PRESSURE UNTIL ABPV0002 INDICATES FULL OPEN. FULL OPEN POSITION INDICAOR SHOULD POINT TO "0"	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 WAS AT 100% POWER WHEN A FIRE IN AREA A-29 CAUSED A REACTOR TRIP AND DAMAGED THE CABLES FOR OPERATION OF 'B' S/G PORV.

Initiating Cues: THE SHIFT SUPERVISOR HAS DIRECTED YOU TO TAKE MANUAL CONTROL OF 'B' S/G PORV PER OOA-AB-PV002, S/G 'B' ATMOSPHERIC STEAM DUMP VALVE ABPV0002 LOCAL OPERATION. YOU HAVE ALSO BEEN DIRECTED TO INFORM THE BALANCE OF PLANT OPERATOR WHEN YOU HAVE 'B' S/G PORV IN MANUAL CONTROL.

NOTES: ALL OPERATOR ACTOINS ARE TO BE SIMULATED.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO: ILE-7/2000-JPM9
COMPLETION TIME: 9 MINUTES
JOB TITLE: URO/SRO
DUTY: AC ELECTRIACL DISTRIBUTION SYSTEM
TASK TITLE: MANUALLY CLOSE A 4160V BREAKER

KSA NO: 062A4.04
KSA RATING: 2.6/2.7
REVISION: 000217

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: OTO-ZZ-00001, CONTROL ROOM INACCESSIBILITY, REV 17 (ATTACH 3)

TOOLS/EQUIPMENT: G.E. 4160V MAGA-BLAST BREAKER; 5/8" RATCHET WRENCH

FACILITY REPRESENTATIVE: _____ DATE: _____

CHIEF EXAMINER: _____ DATE: _____

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 CONTROL ROOM HAS BEEN EVACUATED DUE TO A FIRE. ALL IMMEDIATE OPERATOR ACTIONS HAVE BEEN TAKEN. YOU ARE THE REACTOR OPERATOR AND HAVE BEEN PERFORMING ATTACHMENT 3 OF OTO-ZZ-00001, REACTOR OPERATOR - CONTROL ROOM EVACUATION WITH FIRE. YOU HAVE PULLED CONTROL POWER FUSES TO NB02 EQUIPMENT AND THE BOP HAS OPENED BREAKER NK4401 TO REMOVE DC CONTROL POWER FROM NB02.

Initiating Cues: THE SHIFT SUPERVISOR HAS DIRECTED YOU TO START 'B' CCW PUMP PER STEP 6 OF ATTACHMENT 3 AND INFORM HIM WHEN 'B' CCW PUMP IS RUNNING.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

- Notes:
1. THIS JPM SHOULD BE PERFORMED ONLY ON THE G.E. 4160V MAGNA-BLAST BREAKER LOCATED IN THE TRAINING ANNEX.
 2. CLOSING SPRINGS SHOULD BE DISCHARGED, AND BREAKER OPEN FOR THE PERFORMANCE OF THIS JPM WITH THE UC FUSES REMOVED.

Task Standard: UPON COMPLETION OF THIS JPM, THE MAGNA-BLAST BREAKER LOCATED IN THE TRAINING ANNEX WILL BE CLOSED MANUALLY.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. LOCATE 'B' CCW PUMP BREAKER NB0206, (PEG01B)	<u>CAUTION: INFORM OPERATOR THAT THIS JPM WILL BE COMPLETED IN THE ELECTRICAL LAB ON THE NB TRAINING BREAKER</u>	OPERATOR SHOULD LOCATE 'B' CCW PUMP BREAKER NB0206	S U Comments:
2. OPEN COMPARTMENT DOOR FOR PEG01B, 'B' CCW PUMP, BREAKER NB0206 STEP 6.1	NB0206 COMPARTMENT DOOR IS OPEN	OPERATOR SHOULD OPEN 'B' CCW PUMP COMPARTMENT DOOR, BREAKER NB0206 (DOOR TO THE SPARE BREAKER IN THE TRAINING ANNEX)	S U Comments:
3. VERIFY THE INDICATING WINDOW SHOWS A YELLOW "CHGD" INDICATION STEP 6.2	NB0206 SHOWS A WHITE "DIS CHGD" FOR THE CLOSING SPRING INDICATING WINDOW	OPERATOR SHOULD VERIFY THE CONDITION OF THE CLOSING SPRINGS FOR 'B' CCW PUMP, BREAKER NB0206, AND PERFORM STEP 9 OF ATTACHMENT 3	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. VERIFY THAT DC CONTROL POWER IS REMOVED FROM BREAKER</p> <p>STEP 9.1</p>	<p>DC CONTROL POWER HAS BEEN REMOVED</p>	<p>OPERATOR SHOULD VERIFY CONTROL POWER HAS BEEN REMOVED</p> <p>NOTE: GIVEN IN INITIAL CONDITIONS</p>	<p>S U</p> <p>Comments:</p>
<p>5. VERIFY THE CLOSING SPRINGS INDICATING WINDOW IS SHOWING A "DIS CHGD" INDICATION</p> <p>STEP 9.2</p>	<p>NB0206 CLOSING SPRINGS INDICATING WINDOW IS SHOWING A WHITE "DIS CHGD"</p>	<p>OPERATOR SHOULD VERIFY NB0206 CLOSING SPRINGS INDICATING WINDOW IS SHOWING A WHITE "DIS CHGD"</p>	<p>S U</p> <p>Comments:</p>
<p>6. INSTALL A 5/8" RATCHET WRENCH ON THE END OF THE DRIVING ECCENTRIC</p> <p>STEP 9.3</p>	<p>5/8" RATCHET WRENCH IS ON THE END OF THE DRIVING ECCENTRIC</p>	<p>OPERATOR SHOULD INSTALL A 5/8" RATCHET WRENCH ON THE END OF THE DRIVING ECCENTRIC</p> <p>NOTE: LOCATED TO RIGHT OF BKR JUST BELOW FRONT PANEL</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
7. TURN THE DRIVING ECCENTRIC TO ADVANCE THE RATCHET WHEEL AND COMPRESS THE SPRINGS STEP 9.4	RATCHET WHEEL IS ADVANCING AND CLOSING SPRINGS ARE BEING COMPRESSED	OPERATOR SHOULD TURN THE DRIVING ECCENTRIC TO ADVANCE THE RATCHET WHEEL AND COMPRESS THE CLOSING SPRINGS FOR NB0206, 'B' CCW PUMP BREAKER	S U Comments:
*8. CONTINUE TO TURN THE DRIVING ECCENTRIC UNTIL THE INDICATING WINDOW SHOWS THE YELLOW "CHGD" INDICATION STEP 9.5	INDICATING WINDOW SHOWS THE YELLOW "CHGD" INDICATION	OPERATOR SHOULD CONTINUE TO TURN THE DRIVING ECCENTRIC UNTIL THE YELLOW "CHGD" INDICATOR SHOWS FOR NB0206, 'B' CCW PUMP BREAKER	S U Comments:
9. REMOVE THE 5/8" RATCHET FROM THE DRIVING ECCENTRIC DEVICE STEP 9.6	THE 5/8" RATCHET IS REMOVED NOTE: DO NOT ALLOW OPERATOR TO CLOSE BREAKER WITHOUT REMOVING THE 5/8" RATCHET.	OPERATOR SHOULD REMOVE THE 5/8" RATCHET FROM THE DRIVING ECCENTRIC DEVICE	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10. RETURN TO STEP IN PROGRESS OF THIS ATTACHMENT</p> <p>STEP 9.7</p>		<p>OPERATOR SHOULD RETURN TO STEP 6.3 OF ATTACHMENT 3</p>	<p>S U</p> <p>Comments:</p>
<p>11. VERIFY THAT THE INDICATING WINDOW IS SHOWING "OPEN"</p> <p>STEP 6.3</p>	<p>THE GREEN BREAKER "OPEN" INDICATOR IS SHOWING</p>	<p>OPERATOR SHOULD VERIFY THE GREEN BREAKER "OPEN" INDICATOR IS SHOWING FOR NB0206, 'B' CCW PUMP BREAKER</p>	<p>S U</p> <p>Comments:</p>
<p>*12. MANUALLY CLOSE THE BREAKER BY PUSHING THE MECHANICAL MANUAL CLOSE LEVER</p> <p>STEP 6.4</p>	<p>THE MECHANICAL MANUAL CLOSE LEVER HAS BEEN DEPRESSED</p>	<p>OPERATOR SHOULD MANUALLY CLOSE THE 'B' CCW PUMP BY DEPRESSING THE MECHANICAL MANUAL CLOSE LEVER</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. VERIFY THAT THE INDICATING WINDOW IS SHOWING A "CLOSED" INDICATION STEP 6.5	THE RED BREAKER "CLOSED" INDICATOR IS SHOWING	OPERATOR SHOULD VERIFY THAT THE "CLOSED" BREAKER INDICATING WINDOW IS SHOWING FOR NB0206, 'B' CCW PUMP BREAKER	S U Comments:
14. CHECK THE AMP METER ABOVE THE COMPARTMENT INDICATING THE PUMP HAS STARTED STEP 6.6	THE 'B' CCW PUMP AMP METER INDICATES 90 AMPS NOTE: NB0206 HAS A LOWER RANGE AMP METER	OPERATOR SHOULD VERIFY 'B' CCW PUMP HAS STARTED BY USING AMP METER INDICATION ABOVE BREAKER NB0206	S U Comments:
15. INFORM THE SS THAT 'B' CCW PUMP HAS STARTED STEP 6.7	THE SS ACKNOWLEDGES	OPERATOR SHOULD INFORM THE SS 'B' CCW PUMP HAS BEEN STARTED	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 CONTROL ROOM HAS BEEN EVACUATED DUE TO A FIRE. ALL IMMEDIATE OPERATOR ACTIONS HAVE BEEN TAKEN. YOU ARE THE REACTOR OPERATOR AND HAVE BEEN PERFORMING ATTACHMENT 3 OF OTO-ZZ-00001, REACTOR OPERATOR - CONTROL ROOM EVACUATION WITH FIRE. YOU HAVE PULLED CONTROL POWER FUSES TO NB02 EQUIPMENT AND THE BOP HAS OPENED BREAKER NK4401 TO REMOVE DC CONTROL POWER FROM NB02.

Initiating Cues: THE SHIFT SUPERVISOR HAS DIRECTED YOU TO START 'B' CCW PUMP PER STEP 6 OF ATTACHMENT 3 AND INFORM HIM WHEN 'B' CCW PUMP IS RUNNING.

NOTE: ALL ACTIONS IN THE PLANT ARE TO BE SIMULATED.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO: ILE-7/2000-JPM10
COMPLETION TIME: 12 MINUTES
JOB TITLE: URO/SRO
DUTY: FIRE SYSTEMS
TASK TITLE: MAINTAIN FIRE SYSTEM PRESSURE

KSA NO: 086A4.01
KSA RATING: 3.3/3.3
REVISION: 000405

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-KC-00001, FIRE PROTECTION SYSTEM, REV 10

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: _____ DATE: _____

CHIEF EXAMINER: _____ DATE: _____

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 AT 100% POWER. FIRE BRIGADE TRAINING IS ABOUT TO START. BOTH FIRE WATER STORAGE TANKS ARE FILLED TO GREATER THAN 31 FEET. YOU ARE AN EXTRA EQUIPMENT OPERATOR WORKING ON DAY SHIFT.

Initiating Cues: THE REACTOR OPERATOR HAS DIRECTED YOU TO START THE ELECTRIC DRIVEN FIRE PUMP TO MAINTAIN FIRE SYSTEM HEADER PRESSURE PER SECTION 4.2 OF OTN-KC-00001, FIRE PROTECTION SYSTEM.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: ALL OPERATOR ACTIONS ARE TO BE SIMULATED.

Task Standard: UPON COMPLETION OF THIS JPM, THE ELECTRIC DRIVEN FIRE PUMP WILL HAVE BEEN USED TO MAINTAIN FIRE SYSTEM PRESSURE FOR FIRE BRIGADE USE AND PLACED IN SERVICE TO SUPPORT A PLANT FIRE.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A COPY OF OTN-KC-00001, FIRE PROTECTION SYSTEM	PROVIDE OPERATOR WITH PROCEDURE	OPERATOR SHOULD OBTAIN A COPY OF OTN-KC-00001, FIRE PROTECTION SYSTEM	<p style="text-align: center;">S U</p> <p>Comments:</p>
2. REVIEW THE PRECAUTIONS AND LIMITATIONS OF OTN-KC-00001, FIRE PROTECTION SYSTEM STEP 2.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW THE PRECAUTIONS AND LIMITATIONS	<p style="text-align: center;">S U</p> <p>Comments:</p>
3. REVIEW INITIAL CONDITIONS OF OTN-KC-00001, FIRE PROTECTION SYSTEM STEP 3.0	ALL INITIAL CONDITIONS ARE SATISFIED	OPERATOR SHOULD REVIEW THE INITIAL CONDITIONS	<p style="text-align: center;">S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>4. ROTATE FIRE PROT WTR MAKE-UP SWITCH, HSKC1001A, TO THE "OFF" POSITION</p> <p>STEP 4.2.1</p> <p>NOTE: STEPS 4 AND 5 MAY BE PERFORMED IN ANY ORDER</p>	<p>FIRE PROT WTR MAKE-UP SWITCH HSKC1001A IS IN THE "OFF" POSITION</p>	<p>OPERATOR SHOULD ROTATE FIRE PROT WTR MAKE-UP SWITCH HSKC1001A TO THE "OFF" POSITION</p> <p>NOTE: SWITCH HSKC1001A IS LOCATED ON LOADCENTER PG105A B4</p>	<p>S U</p> <p>Comments:</p>
<p>5. ROTATE FIRE PROT WTR MAKE-UP SWITCH HSKC1001B TO THE "OFF" POSITION</p> <p>STEP 4.2.1</p> <p>NOTE: STEPS 4 AND 5 MAY BE PERFORMED IN ANY ORDER</p>	<p>FIRE PROT WTR MAKE-UP SWITCH HSKC1001B IS IN THE "OFF" POSITION</p>	<p>OPERATOR SHOULD ROTATE FIRE PROT WTR MAKE-UP SWITCH HSKC1001B TO THE "OFF" POSITION</p> <p>NOTE: SWITCH HSKC1001B IS LOCATED ON LOADCENTER PG105A B4</p>	<p>S U</p> <p>Comments:</p>
<p>*6. OPEN VKC1038C, ELECTRIC FIRE PUMP TO FIRE WATER STORAGE TANK ISOLATION</p> <p>STEP 4.2.2</p>	<p>VKC1038C IS OPEN</p> <p>THE ELECTRIC FIRE PUMP HAS STARTED</p>	<p>OPERATOR SHOULD OPEN VKC1038C</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>7. IF PKC1001A HAS NOT STARTED, SLIGHTLY OPEN VKC1038D, DIESEL/ELECTRIC FIRE PUMPS TO WATER STORAGE TANK HDR ISO</p> <p>STEP 4.2.3</p>	<p>PKC1001A IS RUNNING</p>	<p>OPERATOR SHOULD REALIZE PKC1001A IS RUNNING AND CONTINUE WITH THE PROCEDURE</p>	<p>S U</p> <p>Comments:</p>
<p>*8. THROTTLE OPEN VKC1038D UNTIL FLOW RATE ON FIKC1001 INDICATES BETWEEN 1100 GPM AND 1300 GPM</p> <p>STEP 4.2.4.1</p>	<p>FIKC1001 INDICATES 1200 GPM</p>	<p>OPERATOR SHOULD THROTTLE OPEN VKC1038D</p>	<p>S U</p> <p>Comments:</p>
<p>9. VERIFY PKC1001A PROPER OPERATION WITH NO SIGN OF OVERHEATING</p> <p>STEP 4.2.5</p>	<p>THERE IS A SMALL AMOUNT OF WATER LEAKING FROM THE PACKING GLAND AND ALL TEMPERATURES ARE NORMAL</p>	<p>OPERATOR SHOULD CHECK PKC1001A FOR SIGNS OF OVERHEATING</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>10. CHECK HOLES IN THE LOWER PUMP CASING ALLOWING PACKING LEAKOFF TO DRAIN TO THE FLOOR</p> <p>STEP 4.2.5</p>	<p>THE HOLES IN THE LOWER PUMP CASING ARE ALLOWING PACKING LEAKOFF TO DRAIN TO THE FLOOR</p>	<p>OPERATOR SHOULD CHECK THE HOLES IN THE LOWER PUMP CASING TO ENSURE PACKING LEAKOFF DRAINS TO THE FLOOR</p>	<p>S U</p> <p>Comments:</p>
<p>11. NO WATER IS DISCHARGING FROM THE AIR RELIEF VALVE ON TOP OF THE PUMP CASING</p> <p>STEP 4.2.5</p>	<p>THERE IS NO WATER DISCHARGING FROM THE AIR RELIEF VALVE</p>	<p>OPERATOR SHOULD CHECK PKC1001A AIR RELIEF VALVE TO ENSURE NO WATER IS DISCHARGING</p>	<p>S U</p> <p>Comments:</p>
<p>12. PKC1001A RUNS SMOOTHLY WITHOUT EXCESSIVE VIBRATION</p> <p>STEP 4.2.5</p>	<p>PKC1001A IS RUNNING SMOOTHLY</p>	<p>OPERATOR SHOULD CHECK THAT PKC1001A IS RUNNING SMOOTHLY</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13.	THE PLANT FIRE ALARM HAS SOUNDED AND A FIRE HAS BROKEN OUT IN THE TURBINE BUILDING	OPERATOR SHOULD CONTINUE WITH STEP 4.2.6 AND PERFORM STEPS 4.2.7.1, 4.2.7.2, 4.2.7.4 AND 4.2.8	<p style="text-align: center;">S U</p> <p>Comments:</p>
14. IF A FIRE OCCURS WHILE PKC1001A IS IN RECIRCULATION IMMEDIATELY PERFORM STEPS 4.2.7.1, 4.2.7.2 AND 4.2.7.4 THROUGH 4.2.8 STEP 4.2.6		OPERATOR SHOULD CONTINUE WITH STEP 4.2.7.1	<p style="text-align: center;">S U</p> <p>Comments:</p>
*15. CLOSE VKC1038D, DIESEL/ELECTRIC FIRE PUMPS TO WATER STORAGE TANK HDR ISO STEP 4.2.7.1	VKC1038D IS CLOSED	OPERATOR SHOULD CLOSE VKC1038D PERFORMING EITHER STEP 15 OR 16 WILL ISOLATE FIRE HEADER RECIRC LINE AND SATISFY CRITICAL STEP CRITERIA	<p style="text-align: center;">S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>*16. CLOSE VKC1038C, ELECTRIC FIRE PUMP TO FIRE WATER STORAGE TANK ISOLATION</p> <p>STEP 4.2.7.2</p>	<p>VKC1038C IS CLOSED</p>	<p>OPERATOR SHOULD CLOSE VKC1038C</p> <p>PERFORMING EITHER STEP 15 OR 16 WILL ISOLATE FIRE HEADER RECIRC LINE AND SATIFY CRITICAL STEP CRITERIA</p>	<p>S U</p> <p>Comments:</p>
<p>17. ON CPKC1001, ENSURE THE CIRCUIT BREAKER FOR PKC1001A IS IN THE "ON" POSITION</p> <p>STEP 4.2.7.4</p>	<p>CIRCUIT BREAKER FOR PKC1001A IS IN THE "ON" POSITION</p>	<p>OPERATOR SHOULD ENSURE THE CIRCUIT BREAKER FOR PKC1001A IS IN THE "ON" POSITION</p> <p>NOTE: LOCATED ON CONTROLLER FOR ELECTRIC FIRE PUMP</p>	<p>S U</p> <p>Comments:</p>
<p>18. CHECK IF A DEMINERALIZED REGENERATION IS IN PROGRESS</p> <p>STEP 4.2.8</p>	<p>THERE ARE NO REGENS IN PROGRESS IN THE DEMIN BUILDING</p>	<p>OPERATOR SHOULD CHECK IF A REGEN IS IN PROGRESS PRIOR TO PLACING THE FIRE PROTECTION WATER M/U PUMPS IN "AUTO"</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>19. ROTATE FIRE PROT WTR MAKE-UP SWITCH HSKC1001A TO THE "AUTO" POSITION</p> <p>STEP 4.2.8</p> <p>NOTE: STEPS 19 AND 20 MAY BE PERFORMED IN ANY ORDER</p>	<p>HSKC100A IS IN THE "AUTO" POSITION</p>	<p>OPERATOR SHOULD ROTATE FIRE PROT WTR MAKE-UP SWITCH HSKC1001A TO THE "AUTO" POSITION</p> <p>NOTE: SWITCH HSKC1001A IS LOCATED ON LOADCENTER PG105A B4</p>	<p>S U</p> <p>Comments:</p>
<p>20. ROTATE FIRE PROT WTR MAKE-UP SWITCH HSKC1001B TO THE "AUTO" POSITION</p> <p>STEP 4.2.8</p> <p>NOTE: STEPS 19 AND 20 MAY BE PERFORMED IN ANY ORDER</p>	<p>HSKC100B IS IN THE "AUTO" POSITION</p>	<p>OPERATOR SHOULD ROTATE FIRE PROT WTR MAKE-UP SWITCH HSKC1001B TO THE "AUTO" POSITION</p> <p>NOTE: SWITCH HSKC1001A IS LOCATED ON LOADCENTER PG105A B4</p>	<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 AT 100% POWER. FIRE BRIGADE TRAINING IS ABOUT TO START. BOTH FIRE WATER STORAGE TANKS ARE FILLED TO GREATER THAN 31 FEET. YOU ARE AN EXTRA EQUIPMENT OPERATOR WORKING ON DAY SHIFT.

Initiating Cues: THE REACTOR OPERATOR HAS DIRECTED YOU TO START THE ELECTRIC DRIVEN FIRE PUMP TO MAINTAIN FIRE SYSTEM HEADER PRESSURE PER SECTION 4.2 OF OTN-KC-00001, FIRE PROTECTION SYSTEM.

Notes: ALL OPERATOR ACTIONS ARE TO BE SIMULATED.

CALLAWAY PLANT JOB PERFORMANCE MEASURE

JPM NO: ILE-72000-JPM B/U
COMPLETION TIME: 14 MINUTES
JOB TITLE: URO/SRO
DUTY: ESSENTIAL SERVICE WATER
TASK TITLE: MANUALLY OPERATE AN ESW TRAIN

KSA NO: 076A4.04
KSA RATING: 3.5/3.5
REVISION: 000217

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: OTN-EF-00001, ESSENTIAL SERVICE WATER SYSTEM, REV 21

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: _____ DATE: _____

CHIEF EXAMINER: _____ DATE: _____

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: TWO SERVICE WATER PUMPS ARE RUNNING SUPPLYING BOTH SERVICE WATER AND ESSENTIAL SERVICE WATER LOADS. 'A' AND 'B' ESW PUMPS HAVE NOT BEEN STARTED IN THE LAST 45 MINUTES. 'B' TRAIN CCW IS SUPPLYING NON-SAFETY LOADS.

Initiating Cues: A REVIEW OF THE INSIDE OPERATOR LOGS INDICATES THAT THE UHS POND LEVEL IS 80%. YOU HAVE BEEN INSTRUCTED TO LOWER UHS POND LEVEL USING 'A' ESW PUMP PER OTN-EF-00001, SECTION 5.6.1. INFORM THE CONTROL ROOM SUPERVISOR WHEN THE ESW PUMP DOWN HAS BEEN COMPLETED.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: USE IC 104 OR 105. SET ANNUNCIATOR USING D055 SET TO 'ON'. ENSURE EFHV0051 AND EFHV0052 OPEN AND EFHV0059 AND EFHV0060 CLOSED.

Task Standard: UPON COMPLETION OF THIS JPM, THE OPERATOR WILL HAVE LOWERED THE UHS POND LEVEL USING 'A' ESW PUMP.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A CONTROLLED COPY OF OTN-EF-00001, ESSENTIAL SERVICE WATER SYSTEM	PROVIDE OPERATOR WITH PROCEDURE COPY	OPERATOR SHOULD OBTAIN PROCEDURE COPY	<p>S U</p> <p>Comments:</p>
2. REVIEW PRECAUTIONS AND LIMITATIONS OF OTN-EF-00001, ESSENTIAL SERVICE WATER SYSTEM STEP 2.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW PRECAUTIONS AND LIMITATIONS	<p>S U</p> <p>Comments:</p>
3. REVIEW INITIAL CONDITIONS OF OTN-EF-00001, ESSENTIAL SERVICE WATER SYSTEM STEP 3.0	<p>ALL INITIAL CONDITIONS ARE SATISFIED</p> <p>NOTE: UHS LEVEL IS 80% IF ASKED</p>	OPERATOR SHOULD REVIEW THE INITIAL CONDITIONS	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. ENSURE EFHV0051, ESW TRN 'A' TO CCW HX 'A', IS OPEN USING EF HIS-51 STEP 5.6.1.1	EF HIS-51 RED LIGHT IS ILLUMINATED AND GREEN LIGHT IS OUT	OPERATOR SHOULD VERIFY EFHV0051, ESW TRN 'A' TO CCW HX 'A' IS OPEN WITH PUSHBUTTON EF HIS- 51	S U Comments:
5. ENSURE EFHV0059, ESW TRN A RETURN FROM CCW HX 'A', IS CLOSED USING PUSHBUTTON EF HIS-59 STEP 5.6.1.2	EF HIS-59 GREEN LIGHT IS ILLUMINATED AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY EFHV59 ESW TRN A RETURN FROM CCW HX A IS CLOSED WITH PUSHBUTTON EF HIS- 59	S U Comments:
*6. START 'A' ESW PUMP USING EF HIS-55A STEP 5.6.1.3	EF HIS-55A RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT	OPERATOR SHOULD PLACE HANDSWITCH EF HIS-55A, ESW PUMP 'A' IN THE RUN POSITON	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>*7. CLOSE EFHV23, SERVICE WATER SUPPLY CROSS CONNECT VALVE BY PRESSING PUSHBUTTON EF HIS-23</p> <p>STEP 5.6.1.4</p> <p>NOTE: STEPS 7 AND 8 MAY BE PERFORMED IN ANY ORDER</p>	<p>EF HIS-23 GREEN LIGHT ILLUMINATES AND THE RED LIGHT GOES OUT</p>	<p>OPERATOR SHOULD PRESS CLOSE ON PUSHBUTTON EF HIS- 23, SERVICE WATER/ESW CROSS CONNECT</p> <p>NOTE: STEP 7 OR 8 IS A CRITICAL STEP. THE OPERATOR ONLY NEEDS TO CLOSE V23 OR V25 TO ISOLATE ESW TO SERVICE WATER</p>	<p>S U</p> <p>Comments:</p>
<p>*8. CLOSE EFHV25, SERVICE WATER SUPPLY CROSS CONNECT VALVE BY PRESSING PUSHBUTTON EF HIS-25</p> <p>STEP 5.6.1.4</p> <p>NOTE: STEPS 7 AND 8 MAY BE PERFORMED IN ANY ORDER</p>	<p>EF HIS-25 GREEN LIGHT ILLUMINATES AND THE RED LIGHT GOES OUT</p>	<p>OPERATOR SHOULD PRESS CLOSE ON PUSHBUTTON EF HIS- 25, SERVICE WATER/ESW CROSS CONNECT</p> <p>NOTE: STEP 7 OR 8 IS A CRITICAL STEP. THE OPERATOR ONLY NEEDS TO CLOSE V23 OR V25 TO ISOLATE ESW FROM SERVICE WATER</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
9. MONITOR COOLING TOWER BASIN LEVEL AT LIDA3102A TO PREVENT OVERFLOWING THE BASIN STEP 5.6.1.5	COOLING TOWER BASIN LEVEL IS 846 FEET	LIDA3102A, COOLING TOWER BASIN LEVEL, MONITORED TO ENSURE LEVEL REMAINS BELOW 847 FEET ON RL014	S U Comments:
10. IF ESW PUMP 'A' WILL BE INSERVICE FOR LONGER THAN 30 MINUTES OPEN BREAKER QB5012, ESW PUMP 'A' MOTOR SPACE HEATER, ESW PUMP ROOM 'A' SW CORNER STEP 5.6.1.5.1	'A' ESW PUMP WILL NOT RUN > 30 MINUTES	OPERATOR SHOULD REALIZE OPENING MOTOR SPACE HEATER BREAKER IS <u>NOT</u> REQUIRED	S U Comments:
11. STEP 5.6.1.6	INSIDE OPERATOR CALLS AND REPORTS THE UHS LEVEL IS 77% AS READ ON THE LOCAL INDICATOR EFLS0027A	NOTE: CLEAR D055 ANNUNCIATOR PRIOR TO CALL AS INSIDE OPERATOR	S U Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>12. MONITOR UHS LEVEL AT EFLS0027A, WHEN THE UHS IS NEAR ITS NORMAL OPERATING LEVEL OF 76.6% PERFORM THE FOLLOWING TO STOP THE ESW PUMP</p> <p>STEP 5.6.1.6</p>	<p>LOCAL LEVEL INDICATION IS AT 76.8%</p>	<p>OPERATOR SHOULD REALIZE UHS LEVEL IS LOW ENOUGH TO STOP 'A' ESW PUMP</p>	<p>S U</p> <p>Comments:</p>
<p>*13. OPEN EFHV23, SERVICE WATER TO ESW CROSS CONNECT BY PRESSING THE OPEN PUSHBUTTON EF HIS-23</p> <p>STEP 5.6.1.6.1</p>	<p>EF HIS-23 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT</p>	<p>OPERATOR SHOULD OPEN EFHV23, SERVICE WATER/ESW CROSS CONNECT BY PRESSING PUSHBUTTON EF HIS-23</p>	<p>S U</p> <p>Comments:</p>
<p>14. VERIFY EFHV23, SERVICE WATER TO ESW CROSS CONNECT, IS FULLY OPEN WITH PUSHBUTTON EF HIS-23</p> <p>STEP 5.6.1.6.1</p>	<p>EF HIS-23 RED LIGHT IS ILLUMINATED AND GREEN LIGHT IS OUT</p>	<p>OPERATOR SHOULD VERIFY EFHV23 FULLY OPEN WITH PUSHBUTTON EF HIS-23</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>*15. OPEN EFHV25, SERVICE WATER TO ESW CROSS CONNECT BY PRESSING THE OPEN PUSHBUTTON EF HIS-25</p> <p>STEP 5.6.1.6.2</p>	<p>EF HIS-25 RED LIGHT ILLUMINATES</p>	<p>OPERATOR SHOULD OPEN EFHV25 WITH PUSHBUTTON EF HIS- 25</p>	<p>S U</p> <p>Comments:</p>
<p>16. OPERATOR SHOULD VERIFY EFHV25, SERVICE WATER/ESW TRAIN 'A' CROSS CONNECT OPENING BY A DECREASE IN PUMP DISCHARGE PRESSURE ON EF-PI-1</p> <p>STEP 5.6.1.6.2</p>	<p>EF HIS-25 RED AND GREEN LIGHTS ARE LIT. PRESSURE <u>INDICATION ON</u> <u>EF-PI-1 IS</u> <u>DECREASING</u></p> <p>NOTE: SIMULATOR PRESSURE MAY NOT DROP SUFFICIENTLY. INFORM OPERATOR THAT PRESSURE IS DECREASING</p>	<p>OPERATOR SHOULD OBSERVE THE RED AND GREEN LIGHTS ARE LIT FOR EF HIS- 25, SERVICE WATER/ESW TRAIN 'A' CROSS CONNECT, THAT PRESSURE IS DECREASING ON EF-PI-1, AND CONTINUE TO STEP 17</p>	<p>S U</p> <p>Comments:</p>
<p>17. IMMEDIATELY STOP THE 'A' ESW PUMP USING EF HIS-55A</p> <p>STEP 5.6.1.6.2</p>	<p>EF HIS-55A GREEN LIGHT ILLUMINATES AND THE RED GOES OUT</p>	<p>OPERATOR SHOULD SELECT STOP ON 'A' ESW HANDSWITCH EF HIS-55A</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
<p>18. ENSURE THAT VALVE EFHV25 IS IN THE FULLY OPEN POSITION</p> <p>STEP 5.6.1.6.3</p> <p>NOTE: STEPS 18 AND 19 MAY BE PERFORMED IN ANY ORDER</p>	<p>EF HIS-25 RED LIGHT IS LIT AND GREEN LIGHT IS OUT</p>	<p>OPERATOR SHOULD ENSURE EFHV25 IS FULL OPEN WITH PUSHBUTTON EF HIS-25</p>	<p>S U</p> <p>Comments:</p>
<p>19. ENSURE THAT 'A' ESW PUMP HAS STOPPED</p> <p>STEP 5.6.1.6.3</p> <p>NOTE: STEPS 18 AND 19 MAY BE PERFORMED IN ANY ORDER</p>	<p>EF HIS-55A GREEN LIGHT IS LIT AND RED LIGHT IS OUT</p>	<p>OPERATOR SHOULD OBSERVE THE GREEN LIGHT LIT AND THE RED LIGHT IS OUT FOR HANDSWITCH EF HIS-55A, 'A' ESW PUMP</p>	<p>S U</p> <p>Comments:</p>
<p>20. IF NECESSARY REALIGN ESW TO AND FROM CCW HX 'A' TO SUPPORT SERVICE PUMP OPERATION</p> <p>STEP 5.6.1.6.4</p>	<p>IT IS <u>NOT</u> NECESSARY TO REALIGN ESW</p>	<p>OPERATOR SHOULD DETERMINE IT IS NOT NECESSARY TO REALIGN ESW TO AND FROM CCW HX 'A'</p>	<p>S U</p> <p>Comments:</p>

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
21. IF COOLING TOWER ELECTRICAL ROOM SUPPLY FAN CGD02A IS RUNNING, STOP THE FAN USING GD HIS-51A STEP 5.6.1.6.5	GD HIS-51A GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY COOLING TOWER ELECTRICAL ROOM SUPPLY FAN CGD02A IS SECURED USING HANDSWITCH GD HIS-51A. NOTE LOCATED ON RP068	S U Comments:
22. IF ESW PMP ROOM SUPPLY FAN CGD01A IS RUNNING, STOP THE FAN USING GD HIS-1A STEP 5.6.1.6.6	GD HIS-1A GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD SECURE ESW PMP ROOM SUPPLY FAN CGD01A WITH HANDSWITCH GD HIS-1A ON RP068	S U Comments:
23. CLOSE OR VERIFY CLOSED MOTOR SPACE HTR BKR QB5012, ESW PUMP ROOM A, SW CORNER STEP 5.6.1.6.7	INSIDE EQUIPMENT OPERATOR REPORT BREAKER QB5012 IS CLOSED	OPERATOR MAY CONTACT AN EQUIPMENT OPERATOR TO VERIFY 'A' ESW MOTOR SPACE HEATER QB5012 IS CLOSED	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: TWO SERVICE WATER PUMPS ARE RUNNING SUPPLYING BOTH SERVICE WATER AND ESSENTIAL SERVICE WATER LOADS. 'A' AND 'B' ESW PUMPS HAVE NOT BEEN STARTED IN THE LAST 45 MINUTES. 'B' TRAIN CCW IS SUPPLYING NON-SAFETY LOADS.

Initiating Cues: A REVIEW OF THE INSIDE OPERATOR LOGS INDICATES THAT THE UHS POND LEVEL IS 80%. YOU HAVE BEEN INSTRUCTED TO LOWER UHS POND LEVEL USING 'A' ESW PUMP PER OTN-EF-00001, SECTION 5.6.1. INFORM THE CONTROL ROOM SUPERVISOR WHEN THE ESW PUMP DOWN HAS BEEN COMPLETED.

CALLAWAY PLANT TRAINING DEPARTMENT

DYNAMIC SIMULATOR SCENARIO

SIMULATOR SCENARIO: ILE-7/2000-DS1

REVISION DATE: 000418

SCENARIO TITLE:
FAULTED/RUPTURED STEAM GENERATOR

EXAM #: ILE-7/2000-DS1

INITIAL CONDITIONS:

The plant is at 30% reactor power increasing load at 3%/hr. with 'A' MDAFP tagged out.

Event TITLE	KSA #	(RATING)
A) Swap Charging From NCP To CCP	004A4.08	3.8 / 3.4
B) Pressurizer Pressure Channel Failure High	027AA2.15	3.7 / 4.0
C) Steam Flow Channel Failure On 'D' S/G	059A2.11	3.0 / 3.3
D) Steam Generator Tube Leak On 'D' S/G	037AK3.05	3.7 / 4.0
E) Steam Generator Tube Rupture On 'D' S/G	038EA2.02	4.5 / 4.8
F) Failure Of Turbine To Automatically Trip	007EA1.01	3.7 / 3.4
G) Failure Of 'D' FWIV To Automatically Close	013A4.01	4.5 / 4.8
H) S/G Safety Stuck Open On 'D' S/G	035A2.01	4.5 / 4.6

SCENARIO LENGTH:

Approximately 70 minutes.

SCENARIO COMPLETION CRITERIA:

This scenario is complete when the crew transitions to ECA-3.1, "SGTR With Loss of Reactor Coolant Subcooled Recovery Desired".

The plant is operating at 30% power increasing load at 3%/hr. with the 'A' MDAFP tagged out for a breaker inspection. The 'A' MDAFP should be returned to service in 3 hours. This is an 'A' train week for maintenance.

The NCP is required to be tagged out for an oil change. Since the 'B' CCW train is in service the crew should start the 'B' CCP and secure the NCP. If the crew decides to start 'A' CCP they should also start 'A' CCW train.

Pressurizer Pressure Channel BB PT-455 fails high, causing spray valves to open and pressurizer heaters to turn off. The crew should respond per OTO-BB-00006, "Pressurizer Pressure Channel Failure", and stabilize pressurizer pressure.

Controlling Steam Flow Channel AB FT-542 fails high, causing a level perturbation on 'D' S/G and an increase in the speed of the MFP in automatic. This will also cause a steam generator tube leak to develop. The crew should respond per OTO-AB-00002, "Steam Flow Channel Failure", and stabilize 'D' S/G level.

A 15 gpm steam generator tube leak develops on 'D' S/G. This will place the crew in Action Level 3 in APA-ZZ-01023, "Primary to Secondary Leakage Program", and enter OTO-BB-00001, "Steam Generator Tube Leak". The crew should commence a controlled shutdown to Mode 3 at a rate to be in Mode 3 within 3 hours.

Once the crew has commenced the power reduction, the steam generator tube leak in 'D' S/G will increase to 150 gpm. This will cause a reactor trip and safety injection. The crew should enter E-0, "Reactor Trip or Safety Injection".

In conjunction with the reactor trip, the main turbine will fail to automatically trip and must be manually tripped by the crew.

'D' Feedwater Isolation Valve, AE HV-42, fails to close on the FWIS. The crew must fast close feedwater isolation valves with push-button AE HS-80 or AE HS-81.

When steam pressure increases Safety Valve, ABV045, on 'D' S/G will open and remain open causing a faulted/ruptured steam generator.

The crew should enter E-2, "Faulted Steam Generator Isolation", then transition to E-3, "Steam Generator Tube Rupture".

The scenario is complete with the transition to ECA-3.1, "SGTR With Loss of Reactor Coolant Subcooled Recovery Desired".

- 1) Initialize at IC-101, 30% power increasing at 3%/hr, BOL.
- 2) Run Batch File DS1ILE.TXT.
 - Runs Batch File AL01A.TXT ('A' MDAFP OOS).
 - Preloads failure of main turbine to automatically trip.
 - Preloads failure of 'D' FWIV to automatically close.
 - Preloads Pressurizer Pressure Channel failure.
 - Preloads Steam Flow Channel failure.
 - Preloads S/G Tube Leak.
 - Preloads S/G Safety Valve failure.
- 3) Place Hold Off Tag on 'A' MDAFP Handswitch and place in PTL.
- 4) Update Status Board T/S LCO 3.7.5, Condition C (72 hours).
- 5) Ensure the Decrease Loading Rate Button is "ON".
- 6) Update Status Board for CCP Boron Concentrations:
 - 'A' CCP: 1338 ppm
 - 'B' CCP: 1325 ppm

INSERT

<u>TIME</u>	<u>EVENT</u>	<u>MALF</u>	<u>DESCRIPTION</u>
N/A	A	n/a	Swap Charging From NCP To CCP
5	B	prs01a (1) 2500 5	PZR Press Channel Failure (455)
15	C	mss02d (2) 4.8 20	Steam Flow Channel Failure (542)
20	D	rcs02d (3) 15 60	'D' S/G Tube Leak
35	E	rcs02d (4) 150 30 15	'D' S/G Tube Rupture
37	H	mss14d (5) 200 30	'D' S/G Safety Fails Open
P	F	tur08b	Failure Of Auto Turbine Trip
P	G	sas010d	'D' FWIV Auto Close Failure

EVENT INITIATING CUE (Instructor enters times ACTUATED)

Start	_____	Time	Completion Of Shift Turnover
A	_____	Time	Shift From NCP To CCP
B	_____	Time	Pressurizer Pressure Channel 455 Failure
C	_____	Time	'D' S/G Steam Flow Channel Failure
D	_____	Time	'D' S/G Tube Leak
E	_____	Time	'D' S/G Tube Rupture
H	_____	Time	'D' S/G Safety Fails Open
End	_____	Time	Completion Of Scenario

PRESENT CONDITIONS:

Mode 1
30% power BOL increasing power at 3%/hr.
Bank 'D' @ 132 steps
C_B= 1323 ppm
MWe= 367

POWER HISTORY:

Returning to power after refueling.

EQUIPMENT STATUS:

'A' MDAFP OOS for breaker checks (3 hour duration)
T/S LCO 3.7.5 Condition C (72 hours)

ABNORMAL CONDITIONS:

None.

SURVEILLANCES DUE/IN PROGRESS:

None.

ADDITIONAL INSTRUCTIONS:

Maintenance request to have NCP removed from service for oil change.

EVENT

ADDITIONAL INFORMATION

- A When contacted as HP, request which CCP is to be started if not informed.
- B Act as I&C, acknowledge the failure of BB PT-455. To trip bistables if requested:
- BAT dooropen.txt
 - BAT bb012.txt
 - BAT doorshut.txt
- Inform crew that troubleshooting/repair will be pursued.
- C Act as I&C, acknowledge the failure of AB FT-542, and inform them that the troubleshooting/repair will begin.
- D Act as Chemistry and begin to sample steam generators. Request operator to open Blowdown Sample Valves using Remote Mode to open BMV5-8.
- 45 minutes later inform the crew that 'D' S/G has a leak indication of 18 gpm.
- Act as HP and acknowledge direction to survey main steam lines and inform operator later that 'D' steam line is much higher 15 mr on contact.
- Act as EDO and encourage CRS to shutdown the plant as rapidly and safe as possible. Call back if necessary.
- Act as Power Supervisor and acknowledge plant shutdown.
- E Act as Chemistry and inform crew you will take more S/G samples.
- H Act as Insides Equipment Operator and inform crew steam is coming from Area 5 roof.
- Act as Primary Equipment Operator and inform crew 'D' S/G Safety ABV045 has failed open and you cannot close it.

EVENT: **A** **POSITION:** **EXAM #** **ILE-7/2000-DS1**

BRIEF DESCRIPTION: **Swap Charging From NCP To CCP**

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

ANNUNCIATORS:

NONE

1) Refer to OTN-BG-00001, "Chemical and Volume Control System", and perform the following:

- Notify HP of which CCP is to be started _____
- Verify CCW is aligned _____
- Place CCP Flow Controller, BG FK-121 in manual and set to minimum _____
- 'B' CCP Recirc Valve, BG HV8111 is open _____
- Verify 'B' CCP Aux L. O. pump is running _____
- Start 'B' CCP with BG HIS-2A _____
- Place NCP Flow Controller, BG FK-124 in manual _____
- Open NCP Recirc Valve with BG HIS-8109 when NCP flow <100 gpm _____
- Increase CCP flow / decrease NCP flow _____

COMMENTS:

* Denotes Critical Task

EVENT: **A** **POSITION:** **EXAM #** **ILE-7/2000-DS1**

BRIEF DESCRIPTION: **Swap Charging From NCP To CCP**

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

1) (continued)

- Stop NCP with BG HIS-3 _____

- Verify PZR level is stable and place BG FK-121 in auto _____

COMMENTS:

* Denotes Critical Task

EVENT: **E/F/G/H** **POSITION:** **EXAM #** **ILE-7/2000-DS1**

BRIEF DESCRIPTION: **‘D’ SGTR, Failure of Turbine to Trip, ‘D’ FWIV Fails to Close, and S/G Safety Valve Failure**

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

- | | | | |
|--|-------|-------|-------|
| 1) Identify S/G Tube Leak exceeds 50 gpm and trip reactor per OTO-BB-00001, “Steam Generator Tube Leak”, Attachment 2. | _____ | _____ | _____ |
| 2) Implement E-0, “Reactor Trip or Safety Injection”. | | | _____ |
| • Verify reactor trip. | _____ | | _____ |
| * • Identify failure of the main turbine to trip and manually trip the turbine. | | _____ | _____ |
| • Verify power to NB01/NB02. | _____ | _____ | _____ |
| • Check if SI is actuated. | _____ | _____ | _____ |
| 3) Determine that SI is required and initiate manual SI or ensure automatic SI initiation. | _____ | | _____ |
| * 4) Identify failure of ‘D’ FWIV to close and fast close FWIV with AE-HS-80 or AE-HS-81. | _____ | _____ | _____ |

COMMENTS:

* Denotes Critical Task

EVENT: **E/F/G/H** **POSITION:** **EXAM #** **ILE-7/2000-DS1**

BRIEF DESCRIPTION: **‘D’ SGTR, Failure of Turbine to Trip, ‘D’ FWIV Fails to Close, and S/G Safety Valve Failure**

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

5) Continue in E-0, “Reactor Trip or Safety Injection”.

- Ensure CIS ‘A’ _____
- Ensure AFW actuation _____
- Ensure SI initiation _____
- CCW _____
- ESW _____
- CTMT Coolers _____
- CPIS _____
- Check if Steamlines should be isolated _____
- Check if Containment Spray is required _____
- Ensure CRVIS _____
- Ensure ECCS Flow _____

COMMENTS:

* Denotes Critical Task

EVENT:	E/F/G/H	POSITION:	EXAM #	ILE-7/2000-DS1
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BRIEF DESCRIPTION: 'D' SGTR, Failure of Turbine to Trip, 'D' FWIV Fails to Close, and S/G Safety Valve Failure

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

5) (continued)

- | | | | |
|---|-------|-------|-------|
| • Ensure AFW Valve alignment | _____ | _____ | _____ |
| • Ensure SI Valve alignment | _____ | | _____ |
| • Check RCS temperature | _____ | | _____ |
| • Check PZR PORVs and Spray Valves | _____ | _____ | _____ |
| • Check if RCPs should be stopped | _____ | _____ | _____ |
| • Check if S/Gs are faulted and transition to E-2, "Faulted Steam Generator Isolation". | _____ | _____ | _____ |
| • Implement CSF-1 | | | _____ |

6) Perform actions of E-2, "Faulted Steam Generator Isolation".

- | | | | |
|---|-------|-------|-------|
| • Check MSIVs and MSIV Bypass Valves closed | _____ | _____ | _____ |
| • Check intact S/G | | _____ | _____ |
| • Identify Faulted S/G | | _____ | _____ |

COMMENTS:

* Denotes Critical Task

EVENT: **E/F/G/H** **POSITION:** **EXAM #** **ILE-7/2000-DS1**

BRIEF DESCRIPTION: **‘D’ SGTR, Failure of Turbine to Trip, ‘D’ FWIV Fails to Close, and S/G Safety Valve Failure**

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

6) (continued)

- | | | | |
|---|-------|-------|-------|
| • Isolate Faulted S/G | _____ | _____ | _____ |
| • Check CST Level >18% | _____ | _____ | _____ |
| • Check Secondary Radiation normal | _____ | _____ | _____ |
| • Transition to E-3, “Steam Generator Tube Rupture” | _____ | _____ | _____ |

7) Perform actions of E-3, “Steam Generator Tube Rupture”.

- | | | | |
|--|-------|-------|-------|
| • Check if RCPs should be stopped | _____ | _____ | _____ |
| • Identify ruptured S/G | _____ | _____ | _____ |
| • Isolate flow from ruptured S/G | _____ | _____ | _____ |
| • Check ruptured S/G level | _____ | _____ | _____ |
| • Check PZR PORV and PZR PORV block valves | _____ | _____ | _____ |
| • Check S/Gs are not faulted | _____ | _____ | _____ |

COMMENTS:

* Denotes Critical Task

EVENT: **E/F/G/H** **POSITION:** **EXAM #** **ILE-7/2000-DS1**

BRIEF DESCRIPTION: **‘D’ SGTR, Failure of Turbine to Trip, ‘D’ FWIV Fails to Close, and S/G Safety Valve Failure**

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

7) (continued)

- | | | | |
|---|-------|-------|-------|
| • Check intact S/G levels | _____ | _____ | _____ |
| • Reset SI | _____ | _____ | _____ |
| • Reset CIS ‘A’ | _____ | _____ | _____ |
| • Establish Instrument Air to Containment | _____ | _____ | _____ |
| • Verify All AC Service Buses energized by OFFSITE power | _____ | _____ | _____ |
| • Check if RHR pumps should be stopped | _____ | _____ | _____ |
| • Check ruptured S/G pressure >430 psig | _____ | _____ | _____ |
| • Transition to ECA-3.1, “SGTR With Loss of Reactor Coolant Subcooled Recovery Desired” | _____ | _____ | _____ |

COMMENTS:

* Denotes Critical Task

CALLAWAY PLANT TRAINING DEPARTMENT

DYNAMIC SIMULATOR SCENARIO

SIMULATOR SCENARIO: ILE-7/2000-DS2

REVISION DATE: 000418

SCENARIO TITLE:
LARGE BREAK LOSS OF COOLANT ACCIDENT

EXAM #: ILE-7/2000-DS2

INITIAL CONDITIONS:

The plant is operating at 80% steady state power. EGHV0101 is OOS for preplanned maintenance.

Event TITLE	KSA #	(RATING)
A) Increase Letdown Flow From 75 to 120 GPM	004A4.06	3.6 / 3.1
B) Stator Cooling Water Turbine Runback	045K4.12	3.3 / 3.6
C) Reactor Coolant System RTD Failure	016A4.01	2.9 / 2.8
D) Steam Header Pressure Channel Failure	041A4.05	3.1 / 3.3
E) Annunciator Field Power Supply Failure	G2.4.31	3.3 / 3.4
F) Loss of Coolant Accident (LOCA)	009EK3.21	4.2 / 4.5
G) NB02 Bus Lockout	055EA2.06	3.7 / 4.1
H) 'A' Train LOCA Sequencer Failure	013A4.01	4.5 / 4.8
I) 'A' Train CISA Failure	103A2.03	3.5 / 3.8

SCENARIO LENGTH:

Approximately 70 minutes.

SCENARIO COMPLETION CRITERIA:

This scenario is complete when the crew determines that a transition from E-1, "Loss of Reactor or Secondary Coolant", to ECA-1.1, "Loss of Emergency Coolant Recirculation", is required because cold leg recirculation capability can not be verified.

The plant is at 80% steady state power, holding for Reactor Engineering surveillances.

The crew will be directed to increase CVCS letdown from 75 gpm to 120 gpm for chemistry control.

A Stator Cooling Water Turbine Runback will occur. The crew should respond per OTO-MA-00001, "Turbine Runback".

Loop 1 T_H RTD fails high. The crew should respond per OTO-BB-00004, "RTD Channel Failures". Technical Specifications LCO 3.3.1 and LCO 3.3.2 actions should be applied.

Steam Header Pressure Channel ABPT0507 fails high. The crew should respond per OTO-AB-00004, "Steam Header Pressure Channel Failure", and take manual control of main feedwater pumps.

Control Room Annunciator Field Power Supply failure will occur. The crew should respond per OTO-RK-00001, "Loss of Control Room Alarms", and determine that only one Field Power Supply has failed and that the Control Room alarms are all operable.

A Large Break LOCA will occur. The crew should respond per E-0, "Reactor Trip or Safety Injection". Subsequent to the reactor trip, a NB02 Bus Lockout will occur when the 'B' CCP attempts to start. The 'A' Train LOCA Sequencer and 'A' Train CISA will fail to occur. The crew should manually start the 'A' Train ESFAS equipment and manually actuate 'A' Train CISA.

The crew should transition to E-1, "Loss of Reactor or Secondary Coolant". At step 12 of E-1, the crew should determine a transition to ECA-1.1, "Loss of Emergency Coolant Recirculation", is required.

- 1) Initialize at IC-102, 80% steady state power, BOL.
- 2) Run Batch File DS2ILE.TXT.
 - Removes EGHV0101 from service.
 - Preloads Stator Cooling Water Valve Failure.
 - Preloads RCS Loop 1 T_H Failure.
 - Preloads Steam Header Pressure Channel Failure.
 - Preloads Annunciator Field Power Supply Failure.
 - Preloads RCS Loop 2 LOCA.
 - Preloads NB02 Bus Lockout.
 - Preloads 'A' Train LOCA Sequencer Failure.
 - Preloads CIS 'A' Failure.
- 3) Place Hold Off Tag on EGHV101.
- 4) Update Status Board T/S LCO 3.5.2, Condition A (72 hours).

INSERT

<u>TIME</u>	<u>EVENT</u>	<u>MALF</u>	<u>DESCRIPTION</u>
N/A	A	n/a	Increase Letdown Flow
5	B	tur07a (1) 100	Stator Cooling Water Runback
15	C	rcs01a (2) 650 5	Loop 1 T _H Fails High
30	D	mss13b (3) 1500	ABPT0507 Fails High
35	E	aux060 (4)	Annunciator Field Power Supply Fails
40	F	rcs06b (5) 750 400	Large Break LOCA
P	G	nbs005 (6,5) trip	NB02 Bus Lockout
P	H	pcs8a 0	'A' Train LOCA Sequencer Failure
P	I	sbi002 both	'A' Train CISA Failure

EVENT INITIATING CUE (Instructor enters times ACTUATED)

Start	_____	Time	Completion Of Shift Turnover
A	_____	Time	Increase Letdown Flow
B	_____	Time	Stator Cooling Water Runback
C	_____	Time	Loop 1 T _H Fails High
D	_____	Time	ABPT0507 Fails High
E	_____	Time	Annunciator Field Power Supply Fails
F	_____	Time	Large Break LOCA
G, H, I	_____	Time	NB02 Bus Lockout, 'A' Train LOCA Sequencer Failure, 'A' Train CISA Failure
End	_____	Time	Completion Of Scenario

PRESENT CONDITIONS:

80% reactor power
Control Bank 'D' @ 190 steps
C_B= 1172 ppm
MWe= 975

POWER HISTORY:

80% for 12 hours following a 3%/hour increase from refueling.

EQUIPMENT STATUS:

EGHV0101 OOS for preplanned maintenance. Valve Motor Operator is removed and valve is blocked closed.

T/S LCO 3.5.2 Condition A (72 hours).

ABNORMAL CONDITIONS:

None.

SURVEILLANCES DUE/IN PROGRESS:

Holding power for Reactor Engineering surveillances.

ADDITIONAL INSTRUCTIONS:

Continue power increase per OTG-ZZ-00004, "Power Operations", step 5.1.14.7 when Reactor Engineering notifies the Control Room their surveillances are completed SAT.

Chemistry requests that we increase CVCS letdown to 120 gpm.

EVENT

ADDITIONAL INFORMATION

- B Respond as the Secondary Operator and report CEPV013, Stator Cooling Water Supply PV, was stuck but now is operating properly.
- Reset bistable CEF007 to clear MCB alarm 132C.
- C Respond as I&C to troubleshoot failed channel. To trip Loop 1 RTD bistables:
- BAT dooropen.txt
 - BAT bb082.txt
 - BAT doorshut.txt
- Inform crew that troubleshooting/repair will be pursued.
- D Respond as I&C to troubleshoot failed channel.
- E Place the following information on an easel behind the Main Control Boards:
- #1 Field Power Supply – 0 VDC, 0 AMPS
 - #2, 3, & 4 Field Power Supplies – 130 VDC, 1.0 AMPS
 - Power Supply Fuses – All 7 of the blown fuse indicators are NOT lit.
 - Logic Power Supply's Power Monitor Boards – All 56 of the LED indicators are lit.
- G Respond as Secondary Equipment Operator and report a Lockout on NB02 bus with overcurrent relays actuated and a smell of burnt insulation. NO fire present.

EVENT: B POSITION: EXAM # ILE-7/2000-DS2

BRIEF DESCRIPTION: Stator Cooling Water Turbine Runback

EXPECTED OPERATOR / PLANT RESPONSE RO BOP CRS

1) (continued)

- Ensure Tav_g is being reduced to match Tref _____ _____ _____

- Ensure PZR pressure and level are returning to normal _____ _____

2) Notify EDO of entry into an off-normal procedure. _____

COMMENTS:

* Denotes Critical Task

EVENT: **C** **POSITION:** **EXAM #** **ILE-7/2000-DS2**

BRIEF DESCRIPTION: **Reactor Coolant System RTD Failure**

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

ANNUNCIATORS:

Loop 2, 3, & 4 TAVG LO DEV	67D, 68D, 69D
Loop 2, 3, & 4 ΔT LO DEV	67B, 68B, 69B
Tref/Tauct LO	65E
PZR LO LEVEL DEV	32C

- | | | | |
|--|-------|-------|-------|
| 1) Implement OTO-BB-00004, "RTD Channel Failures". | | | _____ |
| • Identify Loop 1 as the failed channel | _____ | | _____ |
| • Defeat the Loop 1 input from the Tavg and ΔT auctioneering circuits | _____ | | _____ |
| • Ensure the plant is stable | _____ | _____ | _____ |
| 2) Refer to Technical Specifications 3.3.1 and 3.3.2 for required actions. | | | _____ |
| 3) Have I&C trip bistables per Attachment 1 of OTO-BB-00004. | _____ | _____ | _____ |
| 4) Notify EDO of entry into an off-normal procedure. | | | _____ |

COMMENTS:

* Denotes Critical Task

EVENT: **F/G/H/I** **POSITION:** **EXAM #** **ILE-7/2000-DS2**

BRIEF DESCRIPTION: **LOCA, NB02 Lockout With ‘A’ LOCA Sequencer and CIS ‘A’ Failure**

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

- | | | | |
|--|-------|-------|-------|
| 1) Identify RCS leakage exceeds 50 gpm and trip reactor/turbine per OTO-BB-00003, “RCS Excessive Leakage”. | _____ | _____ | _____ |
| 2) Implement E-0, “Reactor Trip or Safety Injection”. | | | _____ |
| • Verify reactor trip | _____ | | _____ |
| • Verify turbine trip | | _____ | _____ |
| • Verify power to NB01 | _____ | _____ | _____ |
| • Try to restore power to NB02 per Attachment 10 | _____ | _____ | _____ |
| • Check if SI is actuated | _____ | _____ | _____ |
| 3) Determine that SI is required and initiate manual SI or ensure automatic SI initiation. | _____ | | _____ |

COMMENTS:

* Denotes Critical Task

EVENT: **F/G/H/I** **POSITION:** **EXAM #** **ILE-7/2000-DS2**

BRIEF DESCRIPTION: **LOCA, NB02 Lockout With 'A' LOCA Sequencer and CIS 'A' Failure**

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

- | | | | |
|--|-------|-------|-------|
| 4) Identify failure of 'A' LOCA sequencer and manually start components. | _____ | _____ | _____ |
| * • CCP or | _____ | | _____ |
| * • SI | _____ | _____ | _____ |
| • RHR | _____ | _____ | _____ |
| • MDAFP | | _____ | _____ |
| • CCW | _____ | _____ | _____ |
| • ESW | _____ | _____ | _____ |
| • CTMT Coolers | _____ | _____ | _____ |
| • Ensure Feedwater Isolation | | _____ | _____ |
| * • Identify failure of 'A' Train CIS 'A' and manually initiate | _____ | _____ | _____ |
| • Ensure AFW Actuation | | _____ | _____ |

COMMENTS: * Denotes Critical Task

EVENT: **F/G/H/I** **POSITION:** **EXAM #** **ILE-7/2000-DS2**

BRIEF DESCRIPTION: **LOCA, NB02 Lockout With ‘A’ LOCA Sequencer and CIS ‘A’ Failure**

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

4) (continued)

- Ensure SI initiation _____
- CCW _____
- ESW _____
- CTMT Coolers _____
- CPIS _____
- Check if steam lines should be isolated _____
- Check if containment spray is required _____
- Ensure ‘A’ Train CRVIS _____
- Ensure ECCS Flow _____
- Ensure 300,000 lbm/hr AFW flow _____
- Ensure AFW Valve alignment _____

COMMENTS:

* Denotes Critical Task

EVENT: **F/G/H/I** **POSITION:** **EXAM #** **ILE-7/2000-DS2**

BRIEF DESCRIPTION: **LOCA, NB02 Lockout With ‘A’ LOCA Sequencer and CIS ‘A’ Failure**

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

4) (continued)

- | | | | |
|--|-------|-------|-------|
| • Ensure SI Valve alignment (red train ESW valves require repositioning) | _____ | _____ | _____ |
| • Check RCS temperature | _____ | _____ | _____ |
| • Check PZR PORVs and Spray Valves | _____ | _____ | _____ |
| • Check if RCPs stopped | _____ | _____ | _____ |
| • Check if S/Gs are faulted | _____ | _____ | _____ |
| • Check if S/G tubes are ruptured | _____ | _____ | _____ |

5) Identify that the RCS is not intact and transition to E-1, “Loss of Reactor or Secondary Coolant”.	_____	_____	_____
---	-------	-------	-------

6) Ensure CSFs are monitored.	_____	_____	_____
-------------------------------	-------	-------	-------

COMMENTS:

* Denotes Critical Task

EVENT: **F/G/H/I** **POSITION:** **EXAM #** **ILE-7/2000-DS2**

BRIEF DESCRIPTION: **LOCA, NB02 Lockout With ‘A’ LOCA Sequencer and CIS ‘A’ Failure**

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

- | | | | |
|--|-------|-------|-------|
| 7) Perform actions of E-1, “Loss of Reactor or Secondary Coolant”. | | | _____ |
| • Check if RCPs should be stopped | _____ | _____ | _____ |
| • Check if S/Gs are faulted | | _____ | _____ |
| • Check intact S/G levels | | _____ | _____ |
| • Check secondary radiation | _____ | _____ | _____ |
| • Check ‘A’ Train PZR PORV and Block Valve | _____ | _____ | _____ |
| • Check if SI flow should be reduced | _____ | | _____ |
| • Check if ‘A’ RHR pump should be stopped | _____ | _____ | _____ |
| • Check RCS and S/G pressures | _____ | _____ | _____ |
| • Check if D/G should be stopped | | _____ | _____ |
| • Verify cold recirculation capability does not exist per Attachment 5 | _____ | _____ | _____ |

COMMENTS:

* Denotes Critical Task

EVENT: **F/G/H/I** **POSITION:** **EXAM #** **ILE-7/2000-DS2**

BRIEF DESCRIPTION: **LOCA, NB02 Lockout With ‘A’ LOCA Sequencer and CIS ‘A’ Failure**

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

8) Transition to ECA-1.1, “Loss of Emergency Coolant Recirculation”.

COMMENTS:

* Denotes Critical Task

CALLAWAY PLANT TRAINING DEPARTMENT

DYNAMIC SIMULATOR SCENARIO

SIMULATOR SCENARIO: ILE-7/2000-DSB/U

REVISION DATE: 000418

SCENARIO TITLE:
FAULTED/RUPTURED STEAM GENERATOR

EXAM #: ILE-7/2000-DSBU

INITIAL CONDITIONS:

The plant is operating at 100% steady state power with 'B' MDAFP tagged out.

Event TITLE	KSA #	(RATING)
A) Pressurizer Level Channel 459 Failure	011A2.11	3.4 / 3.6
B) Letdown Isolation Valve Failure	011A1.02	3.3 / 3.5
C) Place Excess Letdown In Service	028AA1.05	2.8 / 2.9
D) 'A' RCP High Vibration Requiring Power Reduction	015AA1.23	3.1 / 3.2
E) 'A' S/G PORV Controller Failure	041A4.06	2.9 / 3.1
F) 'A' RCP Trip	015AA1.03	3.7 / 3.8
G) Automatic/Manual Trip Failure	029EA1.12	4.1 / 4.0
H) Turbine Driven Aux. Feed Pump Fails To Auto Start	061A2.04	3.4 / 3.8

SCENARIO LENGTH:

Approximately 70 minutes.

SCENARIO COMPLETION CRITERIA:

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

The plant is at 100% power with 'B' MDAFP tagged out for maintenance.

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. When letdown restoration is attempted, BG LCV-0459 will not open. The crew should place excess letdown in service.

An RCP Vibration annunciator is received and 'A' RCP is indicating just over 15 mils on the shaft. The crew should reduce reactor power in preparation for securing the 'A' RCP.

During the power reduction, the 'A' S/G Atmospheric PORV fails open. The crew should respond per OTO-AB-00001, "Steam Dump Malfunction", and manually close the failed PORV. Technical Specification 3.7.4 should be reviewed.

A mechanical failure causes the 'A' RCP to trip. This initiates a reactor trip signal, but the reactor fails to trip. The crew should enter E-0, "Reactor Trip or Safety Injection", and attempt to manually trip the reactor.

The crew should transition to FR-S.1, "Response to Nuclear Power Generation", and will have to manually start the TDAFP.

After completing FR-S.1 the crew should then transition back to E-0 and complete E-0 Step 7 thru 27 and transition to ES-1.1, "SI Termination", where the scenario will end.

- 1) Initialize at IC-103, 100% steady state power, BOL.
- 2) Run Batch File DSBUILE.TXT.
 - This will tag out the 'B' MDAFP.
 - Preloads TDAFP Auto Start Failure.
 - Preloads Auto/Manual Rx Trip Failure.
 - Preloads Pressurizer Level Channel Failure.
 - Preloads Letdown Isolation Valve Failure.
 - Preloads S/G PORV Failure.
 - Preloads 'A' RCP High Vibration.
 - Preloads 'A' RCP Locked Rotor.
- 3) Ensure that an easel is set up around back of the simulator with the following information:
 - 'A' RCP Shaft Vibration 15.1 mils
 - 'A' RCP Frame Vibration 1.5 mils
 - 'A' RCP Shaft Vibration is ↑ @ 1.8 mils/hr.
 - 'A' RCP Frame Vibration is ↑ @ .2 mils/hr.
 - 'B', 'C', & 'D' RCP Shaft Vibration is 1.4 mils
 - 'B', 'C', & 'D' RCP Frame Vibration is .5 mils
- 4) Place a Hold-Off tag on the 'B' MDAFP.
- 5) Update Status Board T/S LCO 3.7.5, Condition C (72 hours).
- 6) Ensure the Decrease Loading Rate button is "ON".

INSERT

<u>TIME</u>	<u>EVENT</u>	<u>MALF</u>	<u>DESCRIPTION</u>
0	A, B	prs02a (1) 0 1	PZR Level Channel Failure
N/A	C	n/a	Place Excess Letdown In Service
20	D	b070 (2) 0	RCP High Vibration
30	E	mss07a (3) 100 10	S/G PORV Failure
35	F, G	rcs04a (4) crf13 2	RCP Trip – RX Trip Failure
P	H	sbi006 inhibit	TDAFW Pump Auto Start Failure

EVENT INITIATING CUE (Instructor enters times ACTUATED)

Start	_____	Time	Completion Of Shift Turnover
A, B	_____	Time	PZR Level Channel Failure
C	_____	Time	Place Excess Letdown In Service
D	_____	Time	RCP High Vibration
E	_____	Time	S/G PORV Failure
F, G	_____	Time	RCP Trip – RX Trip Failure
H	_____	Time	TDAFW Pump Auto Start Failure
End	_____	Time	Completion Of Scenario

PRESENT CONDITIONS:

100%
Bank D @ 215
 $C_B = 1121$
 $MWe = 1215$

POWER HISTORY:

100% for 22 days following a 3%/hour power increase from refueling.

EQUIPMENT STATUS:

'B' MDAFP tagged out for breaker inspection and PMs.

T/S LCO 3.7.5, Condition C (72 hours).

ABNORMAL CONDITIONS:

None.

SURVEILLANCES DUE/IN PROGRESS:

None.

ADDITIONAL INSTRUCTIONS:

None.

EVENT

ADDITIONAL INFORMATION

- A 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 Report 'A' RCP shaft vibration is just over 15 mils and increasing at 1.8 mils/hr.
- If called, answer as the RCP and Vibration Engineers and recommend securing the RCP as soon as possible.
- If EDO contacted, answer and agree plant should be shutdown.
- G If the crew calls the Primary EO to locally open trip breakers, acknowledge, wait 30 seconds, and clear malfunction CRF13. Ensure reactor trip breakers open.
- H Report as Secondary EO that the TDAFP looks fine and should be able to be started.

EVENT: **B/C** **POSITION:** **EXAM #** **ILE-7/2000-DSBU**

BRIEF DESCRIPTION: **Place Excess Letdown In Service Due To A Normal Letdown Isolation Valve Failure**

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

1) (continued)

- Slowly turn BG HC-123, "EX LTDN EX OUT FLOW HAND CTRL", to the open position to establish excess letdown flow. _____ _____
- Monitor Excess Letdown HX Outlet temperature using BG TI-122 on panel RL002; do not allow outlet temperature to exceed 175°F. _____ _____
- Verify RCP seal water leak-off flow is within normal operating range per OTN-BB-00003, "Reactor Coolant Pumps", Attachment 1 page 4 of 4, as indicated on the flow recorders on panel RL022. _____ _____
- After a sufficient period of time (approximately 1 minute), excess letdown flow may be directed to the VCT if that flow path is available. _____ _____
- Slowly turn BG HC-123 to the closed position to secure excess letdown flow. _____ _____
- With BG HC-123 in the closed position, select BGHV8143 to the VCT position using BG HIS-8143. _____ _____
- Slowly turn BG HC-123 to the open position to re-establish excess letdown flow. _____ _____
- Notify Radwaste that excess letdown flow is now directed to the VCT. _____ _____

COMMENTS:

* Denotes Critical Task

EVENT: **B/C** **POSITION:** **EXAM #** **ILE-7/2000-DSBU**

BRIEF DESCRIPTION: **Place Excess Letdown In Service Due To A Normal Letdown Isolation Valve Failure**

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

1) (continued)

- Verify RCP seal water leak-off is 1-5 gpm with normal operating pressure. Refer to OTN-BB-00003, "Reactor Coolant Pump", Attachment 1. _____ _____

- Notify H.P. that excess letdown is in service. Identify the flowpath for excess letdown so that H.P. can monitor rooms and components in the flowpath for increased radiation levels. _____ _____

COMMENTS:

* Denotes Critical Task

EVENT: **E** **POSITION:** **EXAM #** **ILE-7/2000-DSBU**

BRIEF DESCRIPTION: **'A' S/G PORV Fails Open**

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

ANNUNCIATORS:

S/G PORV OPEN 109F

- 1) Identify AB-PV-1 failure. _____

- 2) Implement OTO-AB-00001, "Steam Dump Malfunction". _____
 - Place the controller for the failed valve in manual and close. _____
 - Reduce turbine load as necessary _____

- 3) Contact I&C to have the failure investigated/repaired. _____

- 4) Determine that Technical Specification 3.7.4 applies. _____

- 5) Notify EDO of OTO procedure entry. _____

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 RCP trip and need for reactor trip. | _____ | _____ | _____ |
| 2) Implement E-0, "Reactor Trip or Safety Injection", and manually trip the reactor. | _____ | _____ | _____ |
| 3) Transition to FR-S.1, "Response to Nuclear Power Generation", from Step 1 of E-0. | | | _____ |
| • Implement CSF-1 | | | _____ |
| 4) Perform actions of FR-S.1 | | | |
| • Manually trip reactor | _____ | _____ | _____ |
| • Open supply breaker to PG19 and PG20 | _____ | _____ | _____ |
| * • Insert RCCAs | _____ | | _____ |
| * • Identify failure of the main turbine to trip and manually trip the turbine. | | _____ | _____ |
| • Check AFPs running/manually start TDAFP | | _____ | _____ |
| • Initiate immediate boration | _____ | | _____ |
| • Check for reactor trip and turbine trip | _____ | _____ | _____ |

COMMENTS:

* Denotes Critical Task

BRIEF DESCRIPTION: RCP Trip With Reactor Trip Failure

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
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4) (continued)

- | | | | |
|--|-------|-------|-------|
| • Check S/G levels | | _____ | _____ |
| • Ensure all dilution paths isolated | _____ | | _____ |
| • Check for reactivity insertion from uncontrolled RCS
cooldown | _____ | _____ | _____ |
| • Check core exit TCs less than 1200°F | _____ | | _____ |
| • Ensure reactor subcritical | _____ | | _____ |
| • Return to E-0, step 1 | | | _____ |

5) Perform actions of E-0.

- | | | | |
|---------------------------------------|-------|-------|-------|
| • Verify reactor trip | _____ | | _____ |
| • Verify turbine trip | | _____ | _____ |
| • Verify NB01/NB02 energized | _____ | _____ | _____ |
| • Verify safety injection is actuated | _____ | _____ | _____ |
| • Ensure feedwater isolation | | _____ | _____ |
| • Ensure CIS 'A' | _____ | _____ | _____ |
| • Ensure Aux Feed Actuation | | _____ | _____ |
| • Ensure SI initiation | _____ | | _____ |
| • Ensure CCW pumps running | _____ | | _____ |
| • Ensure ESW pump running | _____ | _____ | _____ |

COMMENTS:

* Denotes Critical Task

BRIEF DESCRIPTION: **RCP Trip With Reactor Trip Failure**

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

5) (continued)

- | | | | |
|---|-------|-------|-------|
| • Check CTMT coolers running | _____ | _____ | _____ |
| • Ensure CPIS | _____ | _____ | _____ |
| • Check if main steamlines should be isolated | _____ | _____ | _____ |
| • Check if CTMT spray is required | _____ | _____ | _____ |
| • Ensure CRVIS | _____ | _____ | _____ |
| • Ensure ECCS flow | _____ | _____ | _____ |
| • Ensure total AFW flow | _____ | _____ | _____ |
| • Ensure AFW alignment | _____ | _____ | _____ |
| • Ensure SI valve alignment | _____ | _____ | _____ |
| • Check RCS temperature | _____ | _____ | _____ |
| • Check PZR PORVs and spray valves | _____ | _____ | _____ |
| • Check if RCPs should be stopped | _____ | _____ | _____ |
| • Check if S/Gs are faulted | _____ | _____ | _____ |
| • Check if S/G tubes are ruptured | _____ | _____ | _____ |
| • Check if RCS is intact | _____ | _____ | _____ |
| • Check if SI flow should be reduced | _____ | _____ | _____ |
| • Transition to ES-1.1, "SI Termination" | _____ | _____ | _____ |

COMMENTS:

* Denotes Critical Task

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>015AA1.07</u>	
	Importance Rating	<u>3.5</u>	<u>3.4</u>

Proposed Question:

Loss of RCP seal injection flow will have which ONE of the following effects on CCW ΔT in the Thermal Barrier Heat Exchanger?

- A. It will decrease since there is no longer any seal injection flow to cool.
- B. It will remain nearly constant since most of the heat load is from the RCP internals.
- C. It will increase since hot reactor coolant will replace the cool seal injection flowing past the thermal barrier.
- D. It will remain nearly constant since no seal injection flow flows past this heat exchanger.

Proposed Answer: C

Distracter Explanation:

Normally 5 gpm of cool seal injection water flows downward through the thermal barrier heat exchanger into the RCS. If seal injection flow is lost, then hot RCS water will flow upward through the thermal barrier heat exchanger. This will place a large heat load on the heat exchanger and cause the CCW ΔT to increase.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: G T61.0110.6, LP-9, Reactor Coolant 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 55.41 14

Comments: (IPE/PRA)

Outline #: R002 **Author:** DGL

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>E09EK2.2</u>	
	Importance Rating	<u>3.6</u>	<u>3.9</u>

Proposed Question:

The following plant conditions exist:

- A Loss of Coolant Accident has occurred.
- RCS is being cooled by natural circulation.
- All MSIVs are closed.
- Nitrogen from SI Accumulator Injection has collected in the U-tubes of the 'C' S/G inhibiting natural circulation in the 'C' loop. Natural circulation is normal in the other 3 loops.
- All S/G PORVs are in manual and set at 20% open.

Which ONE of the following will be the best indication of the failure of natural circulation in the 'C' loop?

- 'C' Loop T_C will equal T_{SAT} for 'C' S/G pressure.
- 'C' Loop flow will increase relative to the unaffected loops.
- 'C' S/G pressure will increase relative to the unaffected loops.
- 'C' S/G pressure will rapidly decrease to near zero.

Proposed Answer: D

Distracter Explanation:

Under these conditions, heat will no longer be delivered to the 'C' S/G. As such, the only source of steam will be the stored heat of the affected S/G which will be quickly dissipated. The MSIVs being closed prevent equalization of S/G pressures. The vent size of each S/G is fixed (20% open) so the 'C' S/G will depressurize fairly rapidly. T_H in all four loops will still be controlled by the active loops. T_C of the affected loop will be stagnant and lose temperature slowly to ambient.

Outline #: R003 Page 1 of 2

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None**Learning Objective:** J, K T61.003D.6, LP 2, Executive Volume**Question Source:****Bank****Modified Bank****New** X

(Note changes or attach parent)

Question History:**Previous NRC Exam****Previous Quiz / Test**NoNo**Question Cognitive Level:****Memory or Fundamental Knowledge****Comprehension or Analysis**
 X **10 CFR Part 55 Content:** 55.43 55.41 14 **Comments:** (IPE/PRA)**Outline #:** R003 Page 2 of 2**Author:** DGL

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>2</u>
	K/A #	<u>027AA1.01</u>	
	Importance Rating	<u>4.0</u>	<u>3.9</u>

Proposed Question:

The plant is operating at 100% power with Pressurizer Pressure Control selected to P455(upper) / P456(lower) when BBPT0455 fails low.

Which ONE of the following will occur with NO operator actions taken?

- A. Reactor will trip on high pressurizer pressure.
- B. Reactor will trip on low pressurizer pressure.
- C. Pzr PORV BBPCV0455A will control pressurizer pressure.
- D. Pzr PORV BBPCV0456A will control pressurizer pressure.

Proposed Answer: D

Distracter Explanation:

- A. Incorrect because Pzr PORV BBPCV0456A will open before reaching trip setpoint.
- B. Incorrect because only 1 channel will be below low pressure trip setpoint. Requires 2/4.
- C. Incorrect because Pzr PORV BBPCV0455A will remain closed.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective(s):

<u> J </u>	<u> T61.0110.6, LP 30, Reactor Instrumentation </u>
<u> K </u>	<u> T61.0110.6, LP 30, Reactor Instrumentation </u>

Question Source:

Bank

Modified Bank

New

_____ (Note changes or attach parent)

 X

Question History:

Previous NRC Exam

Previous Quiz / Test

 No

 No

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

 X

10 CFR Part 55 Content: 55.43 5 55.41 7

Comments:

Outline #: R006

Author: DGL

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>E08EK1.2</u>	
	Importance Rating	<u>3.4</u>	<u>4.0</u>

Proposed Question:

The following plant conditions exist:

- Large Steam Break has resulted in an excessive cooldown.
- Currently in FR-P.1, Response to Imminent Pressurized Thermal Shock Condition.
- Operators are 30 minutes into the 1-hour soak period.
- RCS pressure is 700 psig and RCS WR T_C is 350°F.

Which ONE of the following actions is allowed? Refer to FR-P.1, Attachment 7, on the following page.

- A. Opening the 'A' S/G PORV to cooldown 50°F.
- B. Energizing Pzr B/U Heaters to raise RCS pressure 100 psig.
- C. Borate the RCS 25 ppm to increase Shutdown Margin.
- D. Starting the 'C' RCP for a heatup to enter Mode 3.

Proposed Answer: C

Distracter Explanation:

- A. Cooldown is not allowed. Outside acceptable region of Attachment 7.
- B. Pressure increase is not allowed. Outside acceptable region of Attachment 7.
- D. Not allowed due to potential for pressure increase and mechanical shock.

Technical Reference(s): FR-P.1, Step 23
(Attach if not previously provided)

Proposed references provided to applicants during examination: FR-P.1, Attachment 7

Learning Objective: E T61.003D.6, LP 28, FRG Integrity (P) Series

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

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

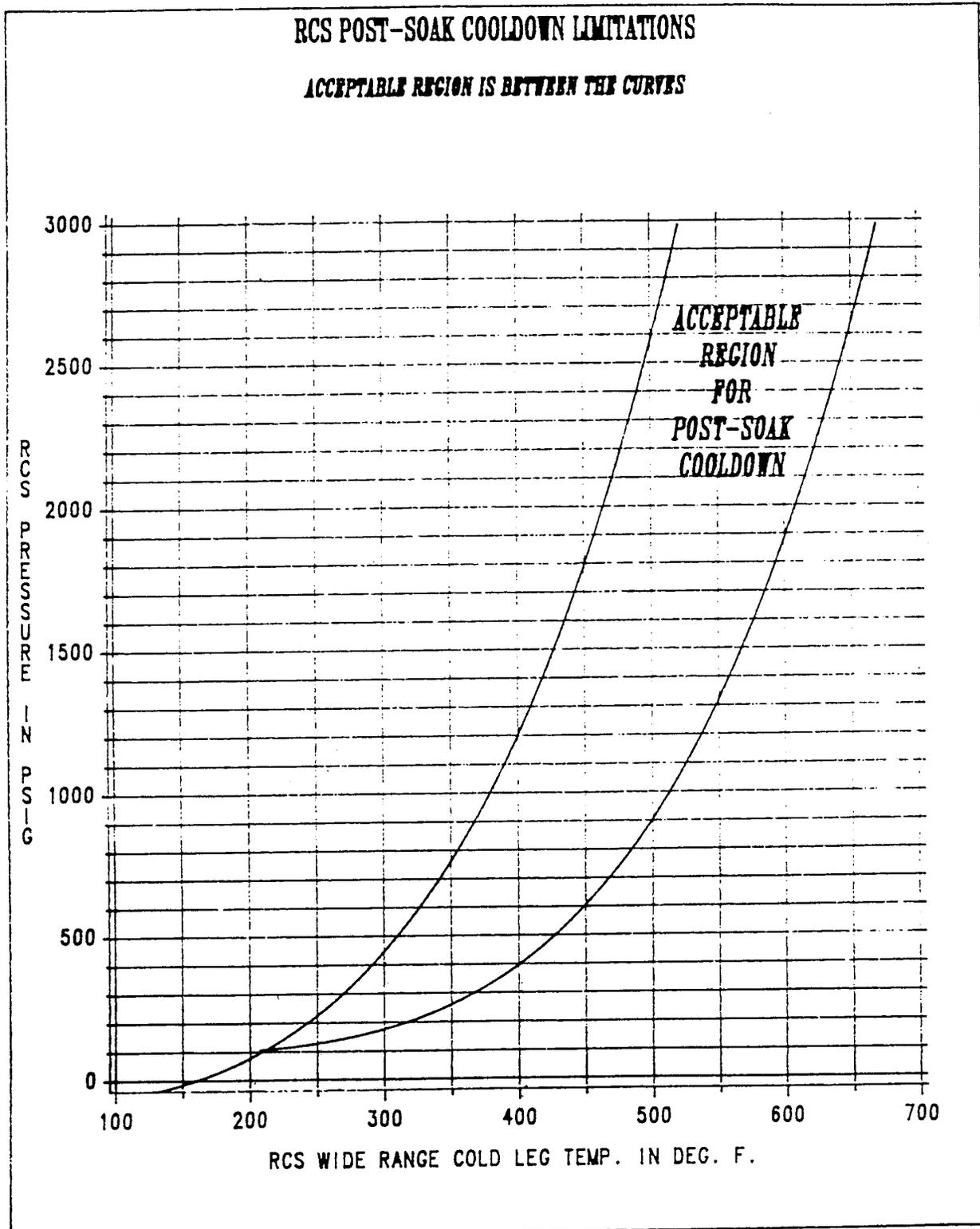
Question Cognitive Level: **Memory or Fundamental Knowledge**
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43** 5 **55.41** 10

Comments: _____

Proced. No. FR-P.1	RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION	Attachment 7	Rev. 1B1
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RCS POST-SOAK COOLDOWN LIMITATIONS CURVE



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>055EA2.03</u>	
	Importance Rating	<u>3.9</u>	<u>4.7</u>

Proposed Question:

Callaway Plant operators are conducting ECA-0.0, Loss of All AC Power, and no AC power has been restored. An SIS is then received.

Which ONE of the following describes the actions required concerning the SIS?

- A. Allow it to remain in effect to ensure rapid initiation when power is restored.
- B. Allow it to remain in effect to provide an auto start signal for the diesel when it becomes available.
- C. Reset the SIS to ensure the MSLIS will remain active.
- D. Reset the SIS to allow manual loading of equipment on an ESF bus when it becomes available.

Proposed Answer: D

Distracter Explanation:

- A. All ESF equipment is placed in P-T-L , so it will not load.
- B. The UV start failed and operators will be manually starting D/G.
- C. SIS and MSLIS are not related. This is a common misconception.

Technical Reference(s): ECA-0.0, Loss of All AC Power, Caution #2, Page 7
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective(s): K T61.003D.6, LP 22, ECA-0.0, Loss of All AC 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 55.41 8

Comments: (IPE/PRA)

Outline #: R010

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>057AK3.01</u>	
	Importance Rating	<u>4.1</u>	<u>4.4</u>

Proposed Question:

The following plant conditions exist:

- Mode 1, 100% reactor power.
- Loss of NN01 occurs.
- Power to NN01 can NOT be restored at this time.
- Operators have selected away from failed instruments per OTO-NN-00001, Loss of Safety Related Instrument Power.

Which ONE of the following describes why charging flow is minimized?

- To maintain Pzr level at 50%.
- To minimize boron increase in the RCS.
- To accommodate the RCS being on excess letdown.
- To prevent excessive flow through RCP seals.

Proposed Answer: B

Distracter Explanation:

- Program Pzr Level is 57% at 100% power.
- RCS does not go on excess letdown.
- Flow through RCP will not change because of this evolution.

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**
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43** **55.41** 3

Comments: _____

Outline #: R011

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>067AA2.16</u>	
	Importance Rating	<u>3.3</u>	<u>4.0</u>

Proposed Question:

The Fire Detection System has detected a fire in the 'A' Emergency Diesel Generator Room.

Which ONE of the following describes the effect this will have on the operation of the 'A' Emergency Diesel Generator?

- A. The 'A' Emergency Diesel Generator will automatically shutdown if running.
- B. The 'A' Emergency Diesel Generator will only automatically start on an SIS.
- C. The 'A' Fuel Oil Transfer Pump will stop if the diesel is running.
- D. The 'A' Fuel Oil Transfer Pump will stop if the diesel is not running.

Proposed Answer: D

Distracter Explanation:

- A. Fire detection only effects fuel oil transfer pump operation.
- B. Diesel will also start on NB01 Bus U/V.
- C. Fire signal shutdown contact is bypassed if the diesel is running.

Technical Reference(s):

(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	<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 55.41 8

Comments: _____

Outline #: R012

Author: DGL

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>068AK2.01</u>	
	Importance Rating	<u>3.9</u>	<u>4.0</u>

Proposed Question:

Which ONE of the following sets of indications is available on the Auxiliary Shutdown Panel?

- A. Auxiliary Feedwater Flow, Containment Pressure, RCS Subcooling Indication.
- B. Emergency Boration Flow, UHS Pond Level, Pressurizer Pressure.
- C. CST Level, Auxiliary Feedpump Discharge Pressure, Steam Generator Wide Range Levels.
- D. RCS Letdown Flow, Charging Pump Discharge Pressure, Wide Range RCS Pressure.

Proposed Answer: C

Distracter Explanation:

- A. No containment pressure or RCS subcooling.
- B. No emergency borate flow or UHS pond level.
- D. No RCS letdown flow or charging pump discharge pressure.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: B T61.0110.6, LP 48, CR Isolation/Auxiliary Shutdown Panel

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 _____ 55.41 8

Comments: _____

Outline #: R013 **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>069AK3.01</u>	
	Importance Rating	<u>3.8</u>	<u>4.2</u>

Proposed Question:

The following plant conditions exist:

- A faulted steam generator exists.
- All ECCS equipment is functioning normally.
- Containment spray pumps have automatically started.
- Operators are currently in FR-Z.1, Response to High Containment Pressure.

Which ONE of the following describes proper operation of the RCPs and why?

- A. Left running to provide core cooling.
- B. Left running to provide RCS pressure control.
- C. Secured to prevent RCP damage due to overheating.
- D. Secured due to loss of seal water injection flow.

Proposed Answer: C

Distracter Explanation:

- A. RCPs are secured.
- B. RCPs are secured.
- D. A loss of seal water injection flow does not exist.

Technical Reference(s): FR-Z.1, Response to High Containment Pressure
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

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

Question Source:

Bank	<u> </u>	<small>(Note changes or attach parent)</small>
Modified Bank	<u> </u>	
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 5 55.41 7

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>074G2.4.22</u>	
	Importance Rating	<u>3.0</u>	<u>4.0</u>

Proposed Question:

The following plant conditions exist:

- A large break LOCA has occurred.
- Operators are performing E-1, Loss of Reactor or Secondary Coolant.
- Conditions for a GREEN path on Subcriticality are satisfied for CSF status.
- Conditions for an ORANGE path on Core Cooling exist for CSF status.

Which ONE of the following actions must be taken in response to this situation?

- A. Immediately enter the appropriate FR-C procedure.
- B. Concurrently perform E-1 and the appropriate FR-C procedure.
- C. Monitor the remaining CSF Status Trees. If no RED path exists, exit E-1 and enter the appropriate FR-C procedure.
- D. Monitor the remaining CSF Status Trees. When E-1 is complete, enter the appropriate FR-C procedure.

Proposed Answer: C

Distracter Explanation:

- A. Must check for subsequent RED paths first.
- B. FR-C.1 takes precedence over E-1, they are not performed in parallel.
- D. Don't wait for completion of E-1. It is exited as soon as dictated by CSF Status Trees.

Outline #: R015 Page 1 of 2

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None**Learning Objective:** A.12 T61.003D.6, LP 1, ERG Intro & User's Guide**Question Source:****Bank****Modified Bank****New** X

(Note changes or attach parent)

Question History:**Previous NRC Exam****Previous Quiz / Test**NoNo**Question Cognitive Level:****Memory or Fundamental Knowledge****Comprehension or Analysis**
 X **10 CFR Part 55 Content:** **55.43** 5 **55.41** 10 **Comments:****Outline #:** R015 Page 2 of 2**Author:** DGL

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>076AK2.01</u>	
	Importance Rating	<u>2.6</u>	<u>3.0</u>

Proposed Question:

Which ONE of the following valid RED alarms requires entry into OTO-BB-00005, RCS High Activity?

- A. BMRE25, S/G Blowdown Monitor
- B. SJRE01, CVCS Letdown Monitor
- C. SJRE02, S/G Sample Monitor
- D. GTRE31, CTMT Atmosphere Monitor

Proposed Answer: B

Distracter Explanation:

- A. Requires entry into OTO-BB-00001, S/G Tube Leak.
- C. Requires entry into OTO-BB-00001, S/G Tube Leak.
- D. Requires entry into OTO-BB-00003, RCS Excessive Leakage.

Technical Reference(s): OTO-BB-00005, RCS High Activity
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.003B.6, LP SB-16, Control Board Cert. – Mod B

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 4 55.41 12

Comments: _____

Outline #: R016 **Author:** DGL

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 #	001AK1.03	
	Importance Rating	<u>3.9</u>	<u>4.0</u>

Proposed Question:

The following plant conditions exist:

- Reactor power level is 102% and increasing.
- Pressurizer level is following program level.
- Actual Tave is increasing above program value.
- Pressurizer pressure is normal.
- All systems are in normal mode.
- No operator actions have been taken.
- Core life is EOL.

Which ONE of the following could be the cause of these conditions?

- A. RCS T_{HOT} failure high.
- B. Continuous rod withdrawal.
- C. Steam leak outside containment.
- D. Closure of one MSIV.

Proposed Answer: B

Distracter Explanation:

- A. T_{HOT} failure would not cause power to increase or actual Tave to increase.
- C. Steam leak would cause actual Tave to decrease and Pzr level to decrease.
- D. Closure of one MSIV may cause Tave to increase, but would lower power.

Outline #: R017 Page 1 of 2

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>008AA1.08</u>	
	Importance Rating	<u>3.8</u>	<u>3.8</u>

Proposed Question:

The following plant conditions exist:

- 'B' PZR SAFETY VALVE fails open while at 100% power.
- PRT PRESS HI alarm comes in.
- Operator notices PRT pressure is 10 psig and increasing.
- Later, the operator notices PRT pressure is 0 psig.

Which ONE of the following explains why PRT pressure decreased?

- A. BB-HV-8026, PRT Vent to Radwaste, automatically opened venting the PRT.
- B. BB-HV-8045, Rx M/U to PRT, opened on high PRT pressure reducing PRT pressure to 0 psig.
- C. BB-HV-8031, PRT to RCDT, opened due to high PRT level, lowering PRT level and pressure.
- D. BBPSE 001/002, PRT rupture disks, blew venting the PRT to containment.

Proposed Answer: D

Distracter Explanation:

- A. BB-HV-8026 does not automatically open.
- B. BB-HV-8045 will not open on high PRT pressure.
- C. BB-HV-8031 is controlled by operators only.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C.9 T61.0110.6, LP 9, Reactor Coolant 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** _____ **55.41** 3

Comments: _____

Outline #: R020

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	1	1
Group #	2	2	
K/A #	009G2.4.48		
Importance Rating	<u>3.5</u>	<u>3.8</u>	

Proposed Question:

The following plant conditions exist:

- A small break LOCA has occurred.
- Core Exit Thermocouples (CETC) temperatures are 542°F.
- RCS wide range pressure is 1050 psig.
- All ECCS equipment is functioning as expected.
- All RCPs are secured.

Which ONE of the following describes the condition of the fluid at the core exit?

- A. Superheated steam
- B. Saturated steam
- C. Saturated liquid
- D. Subcooled liquid

Proposed Answer: D

Distracter Explanation:

D. Only correct answer using the steam tables.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: Steam Tables

Learning Objective: B T61.0070.6, LP 13, Characteristics of Steam and 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

Comprehension or Analysis X

10 CFR Part 55 Content: 55.43 55.41 14

Comments: (IPE/PRA)

Outline #: R021

Author: DGL

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>011EK3.14</u>	
	Importance Rating	<u>4.1</u>	<u>4.2</u>

Proposed Question:

A large break LOCA exists. Operators are currently in E-0, Reactor Trip or Safety Injection.

Which ONE of the following describes when and why RCPs are tripped?

- A. When RCS pressure decreases to 1400 psig, at least one SI pump running, to reduce RCS inventory loss.
- B. When RCS subcooling decreases to 0°F, at least one RHR pump running, to prevent core damage from a water hammer event.
- C. When containment pressure increases to 27 psig, containment spray pumps running, to prevent RCP motor damage from spray.
- D. When RCS cooldown rate exceeds 100°F/hr., any ECCS pump running, to reduce risk of pressurized thermal shock.

Proposed Answer: A

Distracter Explanation:

- B. RCPs are not tripped on subcooling.
- C. An SIS or CCP must be verified running, not RHR pump.
- D. PTS is not a concern for a large break LOCA. RCS pressure should not return.

Technical Reference(s): E-0, Reactor Trip or Safety Injection
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A T61.003D.6, LP 2, Executive Volume

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 55.41 10

Comments: _____

Outline #: R022

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #	1	1
Group #	2	1	
K/A #	E04EA1.3		
Importance Rating	3.8	4.0	

Proposed Question:

A LOCA outside containment has resulted in RCS subcooling dropping to 0°F. When attempting to determine if the leak has been isolated in accordance with ECA-1.2, LOCA Outside Containment, which ONE of the following is the PRIMARY indication that the completed actions have been successful?

- A. ECCS flow decreasing.
- B. CTMT sump level increasing.
- C. Pzr level increasing.
- D. RCS pressure increasing.

Proposed Answer: D

Distracter Explanation:

- A. Not used as criteria in ECA-1.2, but would decrease as pressure increases.
- B. Not used as criteria in ECA-1.2, would not change.
- C. Not used as criteria in ECA-1.2, but would increase as break is isolated.

Technical Reference(s): ECA-1.2, LOCA Outside Containment
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.003D.6, LP 14, ECA-1.2 LOCA Outside Containment

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 5 55.41 10

Comments: _____

Outline #: R023

Author: DGL

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 #	E03EK3.3	
	Importance Rating	<u>3.9</u>	<u>3.9</u>

Proposed Question:

During the performance of ES-1.2, Post LOCA Cooldown and Depressurization, the operator is directed to stop the RHR pumps and place them in standby if RCS pressure is 320 psig and stable or increasing.

During subsequent recovery actions, which ONE of the following applies regarding operation of the RHR pumps?

- A. RHR pumps will no longer be required, even if RCS pressure drops uncontrollably, since the RHR System will be placed in the cooldown mode.
- B. RHR pumps will no longer be required, even if RCS pressure drops uncontrollably, since CCP and SI pumps are capable of providing sufficient flow to remove decay heat.
- C. If RCS pressure drops in an uncontrolled manner to less than 320 psig, the LOCA sequencer will automatically start the RHR pumps.
- D. If RCS pressure drops in an uncontrolled manner to less than 320 psig, the operator will be required to start the RHR pumps.

Proposed Answer: D

Distracter Explanation:

- A. RHR pumps are required when RCS pressure drops to < 320 psig.
- B. RHR pumps are required when RCS pressure drops to < 320 psig.
- C. RHR pumps would have to be started manually.

Outline #: R024 Page 1 of 2

Author: EBS

Technical Reference(s): ES-1.2, Post LOCA Cooldown and Depressurization
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C T61.003D.6, LP 10, Post LOCA Cooldown and
Depressurization

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** _____ **55.41** 10

Comments: _____

Outline #: R024 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	E11EK2.2	
	Importance Rating	<u>3.9</u>	<u>4.3</u>

Proposed Question:

Which ONE of the following explains the reason for the caution in FR-Z.1, Response to High Containment Pressure, giving ECA-1.1, Loss of Emergency Coolant Recirculation, priority over FR-Z.1 for directing containment spray operation?

- A. The caution is a reminder that the rules of usage gives all ECAs priority over FRGs.
- B. ECA-1.1 is designed to conserve RWST inventory to be utilized for core cooling.
- C. FR-Z.1 could cause the spray pumps to run without adequate NPSH if ECA-1.1 was in effect before transitioning to the FR.
- D. To prevent the spray pumps from being removed from service before adequate mixing of TSP has occurred.

Proposed Answer: B

Distracter Explanation:

- A. ECAs (with the exception of ECA-0.0) do not take priority over FRGs.
- C. The RWST empty alarm will cause operators to place ECCS and spray pumps in P-T-L.
- D. TSP mixing is not a concern while in FR-Z.1 or ECA-1.1.

Technical Reference(s): FR-Z.1, Response to High Containment Pressure
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.003D.6, FR-Z.1, FR-Z.2, FR-Z.3, CTMT FRGs

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** 5 **55.41** 10

Comments: _____

Outline #: R025

Author: EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	025AA2.04	
	Importance Rating	<u>3.3</u>	<u>3.6</u>

Proposed Question:

The following plant conditions exist:

- Plant is in Mode 6 with the vessel head installed.
- Mid-loop operations in progress.
- S/G hot and cold leg manways removed.
- S/G nozzle dams installed on hot legs.
- S/G nozzle dams NOT installed on cold legs.
- No other vents are open in the RCS.
- Loss of RHR cooling occurs.

Which ONE of the following will occur as a long-term result of this event?

- A. Steam formation in the upper head will increase pressure and cause the Pzr to refill rapidly.
- B. Steam formation in the upper head will increase pressure and displace water out the S/G cold leg manways.
- C. Steam formation in the upper head will increase pressure enough to blow out the hot leg nozzle dams.
- D. Steam formation in upper head and resultant steam bubble expansion will displace water out the hot leg manways.

Proposed Answer: B

Distracter Explanation:

- A. Pzr is at a higher elevation and would prevent this from happening.
- C. Pressure will not increase because the cold legs are open to atmosphere.
- D. Steam would vent out the cold legs.

Outline #: R027 Page 1 of 2

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None**Learning Objective:** A, B T61.003E.6, LP 3, Loss of RHR Flow**Question Source:****Bank****Modified Bank****New** X

(Note changes or attach parent)

Question History:**Previous NRC Exam****Previous Quiz / Test**NoNo**Question Cognitive Level:****Memory or Fundamental Knowledge****Comprehension or Analysis**
 X **10 CFR Part 55 Content:** 55.43 55.41 2 **Comments:****Outline #:** R027 Page 2 of 2**Author:** EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>1</u>
	K/A #	<u>029EA2.01</u>	
	Importance Rating	<u>4.4</u>	<u>4.7</u>

Proposed Question:

Which ONE of the following CSF Status Tree parameters requires entry into FR-S.1, Response to Nuclear Power Generation?

- A. Six control rods not fully inserting following a reactor trip.
- B. The 'A' reactor trip breaker fails to open.
- C. Nuclear power 15% and decreasing slowly following a reactor trip.
- D. Intermediate range indicated power 10E-8 amps and decreasing following a reactor trip.

Proposed Answer: C

Distracter Explanation:

- A. Control rods are not on CSF-1 (E-0 RNO).
- B. Reactor trip breakers are not on CSF-1 (E-0 RNO).
- D. Intermediate range has a negative SUR.

Technical Reference(s): CSF-1, Critical Safety Function Status Trees
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: 11 T61.003D.6, LP-1, ERG Intro and User Guide

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 5 55.41 10

Comments: _____

Outline #: R028

Author: EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	033AK3.02	
	Importance Rating	<u>3.6</u>	<u>3.9</u>

Proposed Question:

During a normal plant shutdown, intermediate range channel N36 fails high with reactor power at 6%.

Which ONE of the following statements describes how this failure affects the reactor and subsequent operation of the Nuclear Instrument System?

- A. NOT trip, and source range NIs will have to be manually re-energized.
- B. Trip on high IR flux, and source range NIs will have to be manually re-energized.
- C. NOT trip, and source range NIs will re-energize when N35 reaches the proper setpoint.
- D. Trip on high IR flux, and source range NIs will re-energize when N35 reaches the proper setpoint.

Proposed Answer: B

Distracter Explanation:

- A. Reactor will trip when N36 reaches current equivalent to 25% power.
- C. Reactor will trip when N36 reaches current equivalent to 25% power.
- D. Source range NI will have to be manually re-energized.

Technical Reference(s): OTO-SE-00002, Intermediate Range Channel Failure
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective(s): A T61.003B.6, LP B-50, IR Nuclear Channel Failure
C T61.003B.6, LP B-50, IR Nuclear Channel Failure

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** 6 **55.41** 3

Comments: _____

Outline #: R029 **Author:** EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		<u>1</u>
Group #		<u>2</u>	<u>2</u>
K/A #		037G2.4.4	
Importance Rating		<u>4.0</u>	<u>4.3</u>

Proposed Question:

The following plant conditions exist:

- Reactor power is 100%.
- At 1200 a known tube leak of 0.05 gpm exists in 'A' S/G.
- At 1300 the leak increases to 0.075 gpm.
- At 1400 the leak increases to 0.090 gpm.
- At 1500 the leak increases to 0.12 gpm.

Which ONE of the following actions is required as a result of the increasing S/G tube leak as directed by APA-ZZ-01023, Primary to Secondary Leakage Program?

- A. Mode 1 operation can continue.
- B. The reactor should be tripped immediately.
- C. A rapid shutdown must be completed within 1 hour.
- D. A controlled shutdown must be completed within 6 hours.

Proposed Answer: D

Distracter Explanation:

- A. Operations cannot continue due to leak > 150 gpd.
- B. The reactor is not tripped unless leak is > 50 gpm.
- C. A rapid shutdown is not initiated unless leakage rate > 60 gpd in 1 hour. The S/D must be completed in 3 hours.

Outline #: R030 Page 1 of 2

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>038EA2.02</u>	
	Importance Rating	<u>4.5</u>	<u>4.8</u>

Proposed Question:

Which ONE of the following indications would confirm that a Steam Generator Tube Rupture was occurring?

- A. Pressurizer level DECREASE with affected S/G steam flow DECREASING as feed flow DECREASES.
- B. Pressurizer pressure DECREASE with affected S/G steam flow GREATER than feed flow.
- C. Pressurizer level DECREASE with affected S/G steam flow EQUAL to feed flow.
- D. Pressurizer pressure DECREASE with affected S/G steam flow LESS than feed flow.

Proposed Answer: B

Distracter Explanation:

- A. Steam flow should not decrease on a SGTR.
- C. Steam flow would be higher than feed flow.
- D. Steam flow would be higher than feed flow.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: L T61.003D.6, LP 3, Accident Analysis

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** _____ **55.41** 4

Comments: _____

Outline #: R031 **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>060AK2.01</u>	
	Importance Rating	<u>2.6</u>	<u>2.9</u>

Proposed Question:

A Waste Gas Decay Tank release is in progress.

Which ONE of the following malfunctions occurring during the release could result in a release outside of permitted limits assuming no operator action?

- A. GH-RE-10A, Radwaste Bldg Exh Radiation Monitor, fails low.
- B. GH-RE-10B, Radwaste Bldg Exh Radiation Monitor, fails high.
- C. HA-HCV-14, Waste Gas Decay Tank Discharge Control Valve, fails closed.
- D. HA-FIT-23, Waste Gas Decay System Flow Indicator, fails to 0%.

Proposed Answer: A

Distracter Explanation:

- B. GH-RE-10B failing high would terminate the release.
- C. HA-HCV-14 failing would terminate the release.
- D. HA-FIT-23 failure affects indication only.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A.4 T61.0110.6, LP16, Radwaste Systems

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 4 55.41 13

Comments: _____

Outline #: R033 **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>028AA2.02</u>	
	Importance Rating	<u>3.4</u>	<u>3.8</u>

Proposed Question:

During operation at 95% power with pressurizer level at 54%, the Tave input (Auctioneered High) to the pressurizer level controller fails low.

Which ONE of the following is an indication that this failure has occurred?

- A. Backup heaters energize,
Charging flow control valve opens,
PZR LO LEV DEV alarm actuates.
- B. Backup heaters energize,
Charging flow control valve closes,
PZR HI LEV DEV HTRS ON alarm actuates.
- C. Backup heaters de-energize,
Charging flow control valve closes,
PZR HI LEV DEV HTRS ON alarm actuates.
- D. Backup heaters de-energize,
Charging flow control valve opens,
PZR LO LEV DEV alarm actuates.

Proposed Answer: B

Distracter Explanation:

- A. Charging flow control valve closes.
- C. Backup heaters energize.
- D. Backup heaters energize.

Outline #: R034 Page 1 of 2

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>056AA1.07</u>	
	Importance Rating	<u>3.2</u>	<u>3.2</u>

Proposed Question:

A loss of all AC power has occurred and operators are conducting ECA-0.0, Loss of All AC Power. If midway through the execution of ECA-0.0, power is restored to an NB Bus, which ONE of the following pumps can be expected to start without operator action?

- A. Charging
- B. Safety Injection
- C. Component Cooling Water
- D. Essential Service Water

Proposed Answer: D

Distracter Explanation:

- A. CCPs are in P-T-L and cannot start.
- B. SIPs are in P-T-L and cannot start.
- C. CCW pumps are in P-T-L and cannot start.

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: L T61.003D.6, LP 22, ECA-0.0, Loss of All AC 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> </u>
Comprehension or Analysis	<u> X </u>

10 CFR Part 55 Content: 55.43 5 55.41 10

Comments: _____

Outline #: R035

Author: EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>3</u>	<u>2</u>
	K/A #	065AK3.03	
	Importance Rating	<u>2.9</u>	<u>3.4</u>

Proposed Question:

Instrument air pressure is 90 psig due to an instrument air malfunction.

Which ONE of the following is a correct statement?

- A. Transfer of resin at the condensate polishers would NOT be affected.
- B. The 'A' main feed pump recirculation valve will fail closed.
- C. The 'B' steam generator PORV would be controlled by nitrogen pressure.
- D. KA-PV-29, Instrument Air to Containment, will close automatically.

Proposed Answer: C

Distracter Explanation:

- A. Resin transfer will stop.
- B. Main feed pump recirc valve has N₂ as a backup.
- D. KA-PV-29 will not auto close, but will start to drift at 70 psig.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C.2.f T61.0110.6, LP 14, Service/Instrument Air

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 55.41 4

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>001K2.01</u>	
	Importance Rating	<u>3.5</u>	<u>3.6</u>

Proposed Question:

The plant is operating at 100% power when the supply breaker to 480 VAC Load Center PG19 opens.

Which ONE of the following describes the effect that this will have on the rod control system?

- A. One Control Rod Drive MG set will be de-energized.
- B. One reactor trip breaker will open and the reactor will trip.
- C. A Power Cabinet Urgent Failure alarm is lit and loss of the ability to move rods in auto or manual modes.
- D. The affected rod control power cabinets will swap to their backup power source and continue to operate normally.

Proposed Answer: A

Distracter Explanation:

The candidate must recognize that PG19 is the power supply to one of the rod drive MG sets (MG#1). From there it must be recognized that the bus of an MG set has no functional effect since both operate in parallel.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: H T61.0110.6, LP 26, Rod Control

Question Source:

Bank	<u> </u>	(Note changes or attach parent)
Modified Bank	<u> </u>	
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 6 55.41 6

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>003K6.04</u>	
	Importance Rating	<u>2.8</u>	<u>3.1</u>

Proposed Question:

The following plant conditions exist:

- Reactor tripped from 100% power.
- Pressurizer pressure is 1870 psig.
- Containment pressure is 3.8 psig.

Where is RCP #1 seal leak off being directed?

- A. VCT
- B. PRT
- C. Containment Sump
- D. RCDT

Proposed Answer: B

Distracter Explanation:

- A. Normally directed to VCT but CIS A has altered that.
- C. This is the #3 seal leak off.
- D. This is the #2 seal leak off.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective(s): M T61.0110.6, LP 11, CVCS

Question Source:

Bank	<u> </u>	(Note changes or attach parent)
Modified Bank	<u> </u>	
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 55.41 3

Comments: _____

Outline #: R040

Author: EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	004A2.06	
	Importance Rating	<u>4.2</u>	<u>4.3</u>

Proposed Question:

The Reactor Operator is making a blended flow addition to the RCS and sets up the controls as follows:

- Makeup Mode Selector Switch, BG HS-25, to MANUAL.
- BG FK-110 is set at desired flowrate and in AUTO.
- BG FK-111 is set at desired flowrate and in AUTO.
- Total Flow Counter set for 400 gallons.
- Boric Acid Flow Counter set for 70 gallons.
- BG HIS-111B (VCT Inlet) is in hard close.
- BG HIS-110B (VCT Outlet) is in open.
- Makeup Water Control Switch, BG HS-26, to RUN.

Due to a malfunction, the Total Flow Counter stops counting the gallons added part way through the operation.

Assuming the malfunction goes unnoticed by the operator, which ONE of the following describes the effect of the malfunction?

- A. Reactor Makeup Water will continue to inject causing a dilution of the RCS.
- B. Boric Acid will continue to inject causing a boration of the RCS.
- C. Boric Acid and Reactor Makeup Water will continue to inject until operator action is taken.
- D. Boric Acid and Reactor Makeup Water will both stop injecting into the RCS immediately.

Proposed Answer: A

Distracter Explanation:

When the Boric Acid Flow Counter reaches 70 gallons, the boric acid flow will stop. Since the Total Flow Counter will never reach 400 gallons, the dilution water will continue to inject into the RCS.

Outline #: R041 Page 1 of 2

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	004K6.37	
	Importance Rating	<u>2.9</u>	<u>3.4</u>

Proposed Question:

The plant is at 75% power when a new CVCS cation bed is placed in service.

Which ONE of the following will occur if the boron saturation of this demineralizer is incomplete?

- A. Tave will increase.
- B. Reactor power will decrease.
- C. Lithium concentration will go up.
- D. Demineralizer resin channeling.

Proposed Answer: A

Distracter Explanation:

- B. Reactor power should remain stable.
- C. Lithium concentration will decrease by placing a new cation bed in service.
- D. Demineralizer resin channeling is caused by excessive flow, not boration.

Technical Reference(s): OTN-BG-00001, CVCS
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.0110.6, LP 11, CVCS

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 55.41 1

Comments: _____

Outline #: R042

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:

The following sequence of events occurs:

- A Safety Injection has occurred.
- The emergency diesels operated per design.
- Fifty seconds after the SIS, off-site power is lost.

Which ONE of the following describes the expected response of the ECCS pumps to the loss of off-site power?

- A. All ECCS pumps restart when their train's D/G breaker closes.
- B. The LOCA Sequencers will restart the ECCS pumps.
- C. The Shutdown Sequencers will restart the ECCS pumps.
- D. The SIS will have to be reset and the pumps started by operator action.

Proposed Answer: B

Distracter Explanation:

- A. The LOCA Sequencer will restart the ECCS pumps.
- C. The LOCA Sequencer will override the Shutdown Sequencer.
- D. The LOCA Sequencer will restart the ECCS pumps.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: D, F T61.0110.6, LP 51, LSELS

Question Source:

Bank	<u> </u>	(Note changes or attach parent)
Modified Bank	<u> </u>	
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 55.41 8

Comments: _____

Outline #: R043 **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 #	013A1.05	
	Importance Rating	<u>3.4</u>	<u>3.6</u>

Proposed Question:

A normal plant shutdown is in progress with the following conditions:

- Pressurizer pressure is 2000 psig.
- Steam line pressure is 800 psig.
- All other conditions are normal.

A large steam line break occurs upstream of 'B' MSIV resulting in a complete depressurization of 'B' steam generator in 1 minute.

Which ONE of the following describes the expected response of the ESFAS to this event?

- A. MSLIS due to high rate of 'B' steam line pressure decrease. No SIS.
- B. SIS and MSLIS due to high rate of 'B' steam line pressure decrease.
- C. SIS due to low 'B' steam line pressure. No MSLIS.
- D. SIS and MSLIS due to low 'B' steam line pressure.

Proposed Answer: D

Distracter Explanation:

- A. High neg rate MSLIS not enabled above P-11.
- B. SIS and MSLIS will actuate due to steamline pressure of < 615 psig.
- C. Both SIS and MSLIS will actuate.

Outline #: R044 Page 1 of 2

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>015K4.01</u>	
	Importance Rating	<u>3.1</u>	<u>3.3</u>

Proposed Question:

Callaway Plant is in Mode 6, with refueling in progress. I&C has been instructed to reduce the Hi Flux Trip Setpoints for all Power Ranges (PR) to 25% for Physics Testing. The I&C Foreman requests to work two power range NIs simultaneously to save time.

Which ONE of the following describes what effect, if any, this could have on the current plant status?

- A. No effect, PR channels are not required for this mode.
- B. Both trains of SIS may actuate.
- C. Both source range channels may become de-energized.
- D. Both trains of MSLIS may actuate.

Proposed Answer: C

Distracter Explanation:

Above P-10 setpoint (2/4 PR channels) automatically blocks both Source Range and causes a loss of voltage to the Source Range instruments.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A T61.0110.6, LP 28, Excore Nuclear Instrumentation

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 6 55.41 6

Comments: _____

Outline #: R045

Author: EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	015K5.05	
	Importance Rating	<u>4.1</u>	<u>4.4</u>

Proposed Question:

A reactor startup is in progress and the reactor is approaching criticality.

Which ONE of the following sets of parameters correctly describes the indications used to declare criticality?

- A. Neutron count rate increasing, SUR positive, rods being withdrawn.
- B. Neutron count rate decreasing, SUR negative, rods being inserted.
- C. Neutron count rate increasing, SUR positive, rod motion stopped.
- D. Neutron count rate decreasing, SUR zero, rod motion stopped.

Proposed Answer: C

Distracter Explanation:

- A. The reactor will give false critical data with outward rod motion.
- B. The reactor cannot be critical with a negative SUR and decreasing neutron count rate.
- D. The reactor cannot be critical with decreasing neutron count rate.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: I T61.0070.6, LP 6, Subcritical Rx Behavior

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** 6 **55.41** 1

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>017A1.01</u>	
	Importance Rating	<u>3.7</u>	<u>3.9</u>

Proposed Question:

Which ONE of the following combinations of incore thermocouple temperatures and RCS pressures indicate that the core is uncovered?

- A. Temperature 506°F, pressure 485 psig.
- B. Temperature 538°F, pressure 935 psig.
- C. Temperature 580°F, pressure 1385 psig.
- D. Temperature 629°F, pressure 1935 psig.

Proposed Answer: A

Distracter Explanation:

The candidate must determine that choice 'A' is a superheated condition and that all others are either saturated or subcooled. The only way to bring about superheat conditions is to uncover the core.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: Steam Tables

Learning Objective(s): B T61.0070.6, LP 12, Characteristics of Steam & Water
 3.1.6 T61.003C.6, LP 3, CSF Analysis

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 55.41 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>017K1.02</u>	
	Importance Rating	<u>3.3</u>	<u>3.5</u>

Proposed Question:

Which ONE of the following is correct with regard to the Incore Instrumentation System?

- A. The incore thermocouples are located over the fuel assemblies in the core to measure fuel assembly outlet temperature.
- B. The incore thermocouples are inserted into the reactor core through tubes and measure the coolant temperature axially through the core.
- C. The incore thermocouples are located only in the center of the core to measure the maximum fuel assembly temperature.
- D. The incore thermocouples are located beneath the fuel assemblies to measure the coolant temperature after it passes through the core.

Proposed Answer: A

Distracter Explanation:

- B. MIDS system is inserted through tubes.
- C. Incore thermocouples are located at the top of the fuel.
- D. Incore thermocouples at the top of the core.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: F T61.0110.6, LP 29, Incore Nuclear Instruments

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

Question History: **Previous NRC Exam** No
Previous Quiz / Test Yes (Quiz #3, April 1999)

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

10 CFR Part 55 Content: **55.43** _____ **55.41** 2

Comments: _____

Outline #: R048

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 #	022K4.02	
	Importance Rating	<u>3.1</u>	<u>3.4</u>

Proposed Question:

Callaway Plant was in Mode 1, 100% steady-state conditions, when the following plant conditions changed:

- RCS pressure decreased to 1830 psig.
- S/G pressure decreased to 845 psig.
- CTMT pressure increased to 2 psig.
- CTMT cooler selected speed – FAST.
- NE01 and NE02 supplying NB01 and NB02 buses.

Which ONE of the following correctly describes containment cooler fan speed and basis?

- Containment coolers running in FAST to allow hydrogen to collect in upper region of containment so it can be vented by the containment purge system.
- Containment coolers running in SLOW, to prevent a fan motor overload due to dense moist air.
- Containment coolers running in FAST, to maintain containment pressure and temperature below design limits.
- Containment coolers running in SLOW, to reduce power requirements on NB01/NB02 due to increased loads from safeguards equipment.

Proposed Answer: B

Distracter Explanation:

The candidate is required to know SIS setpoints have been exceeded. The candidate also has to know the SIS starts fans in slow to reduce/prevent motor overload due to dense moist air in containment.

Outline #: R049 Page 1 of 2

Technical Reference(s): _____
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B 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** _____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43** _____ **55.41** 9

Comments: _____

Outline #: R049 Page 2 of 2

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 #	022A3.01	
	Importance Rating	<u>4.1</u>	<u>4.3</u>

Proposed Question:

Which ONE of the following is TRUE concerning the hydrogen mixing fans and a safety injection?

- A. Hydrogen mixing fans start in slow speed 60 seconds after the safety injection off a timer.
- B. Hydrogen mixing fans start in slow speed at the 35 second timer off the LOCA sequencer.
- C. 'B' & 'D' hydrogen mixing fans are load shed due to the safety injection.
- D. 'A' & 'C' hydrogen mixing fans start at the 30 second 'A' train LOCA sequencer, while 'B' & 'D' start on the 'B' LOCA sequencer at 35 seconds.

Proposed Answer: A

Distracter Explanation:

The candidate must realize the hydrogen mixing fans start after the LOCA sequencer has completed. These fans are started from a separate timer after 60 seconds.

Technical Reference(s): _____

(Attach if not previously provided) _____

Proposed references provided to applicants during examination: _____**Learning Objective:** D T61.0110.6, LP 40, Containment Ventilation

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

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** **55.41** 9

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:

- 8% Reactor Power.
- 'A' & 'C' Condensate Pumps in-service.
- 'B' Main Feed Pump in-service.

Which ONE of the following is the FIRST automatic action to occur on a loss of PA01?

- A. Reactor trip (RCS low flow).
- B. TD AFAS (S/Gs low levels).
- C. FWIS (LO S/G level).
- D. MD AFAS (MFP trip).

Proposed Answer: D

Distracter Explanation:

The candidate is required to know a loss of PA01 will trip 'A' & 'C' Condensate Pumps. Trip of all Condensate Pumps will trip MFPs. Loss of Main Feed Pumps will cause a MDAFAS.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective(s): D T61.0110.6, LP 23, Main Feedwater System
 H T61.0110.6, LP 25, Auxiliary 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** _____ **55.41** 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>059A3.06</u>	
	Importance Rating	<u>3.2</u>	<u>3.3</u>

Proposed Question:

A plant heatup is in progress and RCS temperature is 530°F. All control rods are fully inserted and the reactor trip breakers are being tested.

Which ONE of the following Engineered Safety Features could be inadvertently initiated under these conditions?

- A. FWIS
- B. MSLIS
- C. SIS
- D. BSPIS

Proposed Answer: A

Distracter Explanation:

The candidate must realize cycling reactor trip breakers would generate a P-4 signal, and RCS temperature is less than 564°F, this combination would cause a FWIS.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C T61.0110.6, LP 23, Main Feedwater 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 55.41 7

Comments: _____

Outline #: R052

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>059K3.03</u>	
	Importance Rating	<u>3.5</u>	<u>3.7</u>

Proposed Question:

The plant has been operating at 40% power for 24 hours when a feedline breaks on 'A' S/G. Level in 'A' S/G rapidly blows down to zero. Levels in 'B', 'C' and 'D' S/Gs decrease to a minimum of 25% NR.

Which ONE of the following describes the response of AMSAC to this event?

- A. AMSAC will not respond to this event.
- B. Immediately trips the main turbine.
- C. Immediately trips the main turbine. Initiates auxiliary feed, after a 25-second delay, to all S/Gs.
- D. After a 25-second delay, it trips the main turbine and initiates auxiliary feedwater to all S/Gs.

Proposed Answer: A

Distracter Explanation:

The candidate must predict the response of the plant to a given set of conditions. It is expected that only 'A' S/G will lose level completely. Since AMSAC requires low level in 3 of 4 S/Gs, it will not respond to this event.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.0110.6, LP 54, AMSAC

Question Source:

Bank

Modified Bank

New

 X

(Note changes or attach parent)

Question History:

Previous NRC Exam

Previous Quiz / Test

 No

 No

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

 X

10 CFR Part 55 Content: 55.43 55.41 4

Comments:

Outline #: R053

Author: EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	061K1.07	
	Importance Rating	<u>3.6</u>	<u>3.8</u>

Proposed Question:

The following plant conditions exist:

- All three AFW pumps automatically started due to low levels in all S/Gs.
- The source of water for all three AFW pumps is the CST.
- A low CST level causes suction pressure to drop to 0 psig.
- A failure in 'B' train results in actuation of only 'A' train LSP protection.

Which ONE of the following describes the expected response of the AFW System water source to these events?

- There will be no change in water source alignment.
- The suctions of all three AFW pumps will realign to the ESW System.
- Only 'A' MDAFP will realign to ESW. The other pumps will be unaffected.
- 'A' MDAFP and TDAFP will realign to ESW. 'B' MDAFP will be unaffected.

Proposed Answer: D

Distracter Explanation:

The candidate must predict plant response from stated conditions. All three suction pressure transmitters monitor essentially the same point, the common suction line from the CST. All three feed both Train A and Train B logic, thus under normal circumstances Train A and B will act together. Each MDAFW pump has its own suction from ESW and the TDAFW pump has two such suctions in parallel, one for each train. Either Train A or B will close the single CST suction for the TDAFW pump as well as their respective MDAFW pump suctions. Since only Train A actuates the CST suctions for the TDAFW pump and the A MDAFW pump will close and their suctions will realign to ESW.

Outline #: R054 Page 1 of 2

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None**Learning Objective:** B T61.0110.6, LP 52, ESFAS**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 55.41 7 **Comments:** **Outline #:** R054 Page 2 of 2**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>061K4.02</u>	
	Importance Rating	<u>4.5</u>	<u>4.6</u>

Proposed Question:

The plant had been operating at full power when a ground fault resulted in bus NB01 being de-energized. Sixty seconds has elapsed and NB01 is still de-energized. All S/G levels are within their normal operating ranges.

Which ONE of the following describes the expected status of the AFW pumps?

- A. No pumps are running.
- B. All three pumps are running.
- C. The TD and 'B' MD AFW pumps are running.
- D. Only the TD AFW pump is running.

Proposed Answer: D

Distracter Explanation:

The candidate must recognize that the TD pump gets a direct start if either NB01 or NB02 is de-energized. The 'A' MDAFP will not start because NB01 is still de-energized. The 'B' MDAFP has not received an automatic start signal.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: H T61.0110.6, LP 25, AFW

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 55.41 4

Comments: _____

Outline #: R055

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>068K1.07</u>	
	Importance Rating	<u>2.7</u>	<u>2.9</u>

Proposed Question:

Which ONE of the following tanks does the Clean Radwaste (CRW) pumps discharge to?

- A. Recycle Holdup Tank
- B. Waste Holdup Tank
- C. Floor Drain Tank
- D. SLW Monitor Tank

Proposed Answer: B

Distracter Explanation:

The candidate must realize the CRW pumps discharge to the Waste Holdup Tank.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C T61.0110.6, LP 16, Radwaste Systems

Question Source:

Bank	<u> X </u>	
Modified Bank	<u> </u>	(Note changes or attach parent)
New	<u> </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 4 55.41 13

Comments: _____

Outline #: R056

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>068G2.3.11</u>	
	Importance Rating	<u>2.7</u>	<u>3.2</u>

Proposed Question:

A liquid radwaste release from Discharge Monitor Tank 'B' is in progress when the RW Building Discharge Monitor, HBRE18, alarms HIHI.

Which ONE of the following will automatically occur?

- A. PHB01A, Waste Monitor Tank Pump stops.
- B. PHB11B, LRW Discharge Pump 'B' stops.
- C. HBFV0866, LRW Discharge FCV closes.
- D. HBFV0887, LRW DMT Inlet Iso closes.

Proposed Answer: C

Distracter Explanation:

The candidate must realize the only action to occur is to stop the discharge. This is done by closing HBFV0866, LRW Discharge FCV.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: F T61.0110.6, LP 16, Radwaste Systems

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 4 55.41 11

Comments: _____

Outline #: R057 **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>071G2.1.27</u>	
	Importance Rating	<u>2.8</u>	<u>2.9</u>

Proposed Question:

Which ONE of the following is an input to the Gaseous Radwaste System?

- A. VCT Purge
- B. S/G Blowdown Flash Tank
- C. Condenser Air Removal Exhaust
- D. Unit Vent

Proposed Answer: A

Distracter Explanation:

The candidate must realize only the VCT purge system is an input to the Gaseous Radwaste System. All other either vent to the condenser, unit vent or discharge out of the plant.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A T61.0110.6, LP 16, Radwaste Systems

Question Source:

Bank	<u> X </u>
Modified Bank	<u> </u> (Note changes or attach parent)
New	<u> </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 55.41 13

Comments: _____

Outline #: R058

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>072A4.03</u>	
	Importance Rating	<u>3.1</u>	<u>3.1</u>

Proposed Question:

Concerning an Area Radiation Monitor (ARM), which ONE of the following correctly describes the method of performing a SOURCE CHECK?

- A. Pushing the source check push-button on the keypad.
- B. Pushing the green normal indicating light push-button on the ARM module.
- C. Pushing the amber indicating light push-button on the ARM module.
- D. Pushing the red indicating light push-button on the ARM module.

Proposed Answer: B

Distracter Explanation:

The candidate must realize the proper way to perform a source check for an area radiation monitor is using the green normal indicating light push-button.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: F T61.0110.6, LP 36, Process & Area Radiation Monitor

Question Source:

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

Question History:

Previous NRC Exam	<u> No </u>
Previous Quiz / Test	<u> Yes (Quiz #3, April 1999) </u>

Question Cognitive Level:

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

10 CFR Part 55 Content: 55.43 55.41 11

Comments: _____

Outline #: R059 **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>002A4.02</u>	
	Importance Rating	<u>4.3</u>	<u>4.5</u>

Proposed Question:

The following plant conditions exist:

- A loss of off-site power caused a reactor trip from full power 30 minutes ago.
- Main steam pressure is being maintained at 985 psig.
- Emergency D/Gs are supplying NB buses with power.

Which ONE of the following would be expected from the above conditions?

- A. Hot leg temperature of 550°F and rising.
Cold leg temperature of 530°F and lowering.
- B. Hot leg temperature of 570°F and lowering.
Cold leg temperature of 545°F and stable.
- C. Hot leg temperature of 587°F and rising.
Cold leg temperature of 545°F and stable.
- D. Hot leg temperature of 570°F and lowering.
Cold leg temperature of 530°F and lowering.

Proposed Answer: B

Distracter Explanation:

The candidate must apply the indications of natural circulation (hot leg stable or decreasing; cold leg near saturation for steam generator) and combine it with 1000 psia main steam pressure to determine 'B' is the correct answer.

Outline #: R060 Page 1 of 2

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>010K2.01</u>	
	Importance Rating	<u>3.0</u>	<u>3.4</u>

Proposed Question:

Following a loss of off-site power, which ONE of the following statements describes the pressurizer heater groups that will be available to maintain pressurizer pressure? (Assume all equipment operated per design and that off-site power has not been restored.)

- A. Heater group A only.
- B. Heater group C only.
- C. Heater groups A and B.
- D. All heater groups.

Proposed Answer: C

Distracter Explanation:

The candidate must realize 'A' and 'B' heater groups are backup heaters that are capable of being powered from the emergency D/G.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C.8 T61.0110.6, LP 9, Reactor Coolant System
 A 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** _____ **55.41** 3

Comments: _____

Outline #: R062

Author: EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	011A2.02	
	Importance Rating	<u>3.2</u>	<u>3.2</u>

Proposed Question:

A maintenance worker inadvertently shears the air line off Charging Flow Control Valve, BG FCV-121, when the plant is at 40% reactor power with the 'B' CCP in service.

Which ONE of the following will occur if NO operator action is taken?

- A. Reactor trip on high pressurizer level.
- B. Reactor trip on low pressure due to low pressurizer level.
- C. RCP seal damage due to inadequate seal injection flow.
- D. RCP seal flow isolation due to high seal flow.

Proposed Answer: A

Distracter Explanation:

BG FCV-121 fails open on a loss of air pressure. The result will be maximum charging with no change in letdown. The candidate will also have to understand P-7 trips are active since power is greater than 10%.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A T61.003B.6, LP SB-16, Power Ops With Off-Normals

Question Source:

Bank

Modified Bank

New

 X

(Note changes or attach parent)

Question History:

Previous NRC Exam

Previous Quiz / Test

 No

 No

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

 X

10 CFR Part 55 Content:

55.43

55.41

 3

Comments:

Outline #: R063

Author: EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	012K6.10	
	Importance Rating	<u>3.3</u>	<u>3.5</u>

Proposed Question:

Callaway Plant is in Mode 3 preparing for a reactor startup when Turbine Impulse Pressure Channel, AC-PT-506, fails high.

Which ONE of the following reactor trip signals is ENABLED under these conditions?

- A. Turbine trip.
- B. Low pressurizer pressure.
- C. Loss of RCS flow in one loop.
- D. Pressurizer low water level.

Proposed Answer: B

Distracter Explanation:

The candidate must realize AC-PT-506 will cause P-13 to energize which will enable the P-7 trips. Then the candidate must pick out the P-7 trip (pzs low pressure) from the P-8 and P-9 trips.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: E T61.0110.6, LP 27, Reactor Protection

Question Source:

Bank

Modified Bank

New

(Note changes or attach parent)

 X

Question History:

Previous NRC Exam

Previous Quiz / Test

 No

 No

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

 X

10 CFR Part 55 Content: 55.43 55.41 7

Comments:

Outline #: R064

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>014A1.02</u>	
	Importance Rating	<u>3.2</u>	<u>3.6</u>

Proposed Question:

Which ONE of the following describes the actual position of a rod whose indicated DRPI position is 102 steps with a Data 'A' failure present?

- A. 98 – 106 steps
- B. 92 – 106 steps
- C. 98 – 112 steps
- D. 92 – 112 steps

Proposed Answer: C

Distracter Explanation:

The candidate must know how a Data 'A' failure affects RPI accuracy and then apply the knowledge to this specific case. With a Data 'A' failure the accuracy changes from ± 4 to $+10 / -4$ steps.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: S 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 55.41 2

Comments:

Outline #: R065

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>016K3.03</u>	
	Importance Rating	<u>3.0</u>	<u>3.1</u>

Proposed Question:

Callaway Plant is operating at 77% power performing a power ascension when the Reactor Operator notices the following conditions.

- C-7 Loss of Load Control light illuminated.
- Tave is 578.7°F.
- Tref is 578.1°F.

Which ONE of the following is responsible for these indications?

- A. Turbine Impulse Pressure Channel PT-505 has failed low.
- B. Turbine Impulse Pressure Channel PT-505 has failed high.
- C. Turbine Impulse Pressure Channel PT-506 has failed low.
- D. Turbine Impulse Pressure Channel PT-506 has failed high.

Proposed Answer: C

Distracter Explanation:

The candidate must realize only Turbine Impulse Pressure Channel PT-506 failing low could affect steam dumps by arming them with C-7. The candidate must also realize that the non-selected channel has failed since Tref is still correct for current power level.

Technical Reference(s): _____
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A T61.003B.6, LP B-8, OTO-AC-00003, P_{IMP} Channel Failure

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 55.41 7

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 #	026A3.01	
	Importance Rating	<u>4.3</u>	<u>4.5</u>

Proposed Question:

The following plant conditions exist:

- A large break LOCA has occurred.
- Containment pressure peaked at 32 psig.
- Present containment pressure is 15 psig.
- All safeguards equipment is functioning per design.

Which ONE of the following describes the response of the Containment Spray System when RWST level has decreased to 36%?

- A. The pumps will continue to run and their suctions remain aligned to the RWST.
- B. The pumps will continue to run but their suctions will auto swap to the RHR pump discharge.
- C. The pumps will continue to run but their suctions will auto swap to the containment sumps.
- D. The pumps will trip and their suctions will be manually aligned to the containment sumps.

Proposed Answer: A

Distracter Explanation:

- B. Spray pumps can not be supplied from RHR discharge.
- C. No auto swap for CS pump suctions.
- D. Pumps are not manually realigned until 12% RWST level.

Outline #: R067 Page 1 of 2

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None**Learning Objective:** F T61.0110.6, LP 18, Containment Spray System**Question Source:****Bank****Modified Bank****New** X

(Note changes or attach parent)

Question History:**Previous NRC Exam****Previous Quiz / Test**NoNo**Question Cognitive Level:****Memory or Fundamental Knowledge****Comprehension or Analysis** X**10 CFR Part 55 Content:** **55.43** 5 **55.41** 9**Comments:****Outline #:** R067 Page 2 of 2**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:

The following plant conditions exist:

- Callaway Plant is in Mode 6.
- S/D Purge is in service.

During core off-load a fuel assembly is dropped. Radiation Monitor GTRE22 alarms HIHI and GTRE33 alarms HI.

Which ONE of the following describes the response to the Containment Purge System?

- A. All S/D Purge isolation dampers close.
- B. Continues to operate normally.
- C. Only Train 'A' S/D Purge isolation dampers close.
- D. Only Train 'B' S/D Purge isolation dampers close.

Proposed Answer: A

Distracter Explanation:

- B. CPIS is generated to secure system.
- C. GTRE22 will provide cross trip and close all dampers.
- D. Even though GTRE33 won't cause CPIS, GTRE22 will still close all dampers.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.0110.6, LP 52, ESFAS

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** 7 **55.41** 9

Comments: _____

Outline #: R068

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>033A2.02</u>	
	Importance Rating	<u>2.7</u>	<u>3.0</u>

Proposed Question:

The 'A' Spent Fuel Pool Cooling Train is in operation when a loss of off-site power occurs. Assuming NO operator action, which ONE of the following describes the expected status of Spent Fuel Pool Cooling five minutes after the diesel generators have repowered their buses?

- A. 'A' Spent Fuel Pool Cooling Pump is running with CCW flow to its heat exchanger.
- B. 'A' Spent Fuel Pool Cooling Pump is running but CCW to its heat exchanger has been isolated.
- C. No Spent Fuel Cooling Pumps are running but there is CCW flow to the heat exchangers.
- D. No Spent Fuel Cooling Pumps are running and there is no CCW flow to the heat exchangers.

Proposed Answer: C

Distracter Explanation:

The candidate must predict both CCW and Spent Fuel Cooling Systems response to a loss of off-site power.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A.1,G T61.0110.6, LP 51, LSELS

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 55.41 8

Comments: _____

Outline #: R069

Author: EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	039K5.08	
	Importance Rating	<u>3.6</u>	<u>3.6</u>

Proposed Question:

The following plant conditions exist:

- Callaway Plant is at 5% power.
- RCS temperature is being maintained by the steam dumps.
- Isothermal Temperature Coefficient (ITC) is POSITIVE.
- All systems are in automatic.

Which ONE of the following correctly describes the reactor response to a C-9 Interlock failure which causes all of the steam dumps to close?

- A. Positive reactivity will be added and the reactor will trip on high IR NI power.
- B. Negative reactivity will be added and reactor power will stabilize above the point of adding heat.
- C. Negative reactivity will be added and reactor power will stabilize below the point of adding heat.
- D. Positive reactivity will be added and reactor power will increase until the S/G PORVs lift.

Proposed Answer: D

Distracter Explanation:

- A. S/G PORVs will open at 561°F. This will limit the power increase to < 25% (IR Hi Flux Trip).
- B. Temperature increase will add positive reactivity.
- C. Temperature increase will add positive reactivity. Power will be above the POAH.

Outline #: R071 Page 1 of 2

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	062G2.1.11	
	Importance Rating	<u>3.0</u>	<u>3.8</u>

Proposed Question:

The following plant conditions exist:

- RCS average temperature is 295°F.
- Maintenance is being conducted in the switchyard.
- At 0900 the crane operator loses control of the crane causing it to strike the line between V41 and V43 which de-energizes the S/U transformer.
- Electricians inspect the line and inform you it has received only minor damage and should be able to be energized by 1100.

Which ONE of the following actions is required by Technical Specifications?

- A. No actions are required since the LCO is still met.
- B. Within 1 hour perform surveillance test on both D/Gs.
- C. Take action to suspend any positive reactivity additions until the second off-site circuit is energized.
- D. Within 1 hour verify correct breaker alignment and power availability for the operable off-site circuit.

Proposed Answer: D

Distracter Explanation:

The candidate will have to realize the plant is in Mode 4, the off-site source T/S is for Modes 1-4 and apply the T/S.

Outline #: R072 Page 1 of 2

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>1</u>
	K/A #	063K1.03	
	Importance Rating	<u>2.9</u>	<u>3.5</u>

Proposed Question:

Which ONE of the following is correct concerning normal power supplied to a 125 VDC ESF Bus?

- A. The bus is normally supplied from one battery charger. A battery bank will supply power to the bus in the event the battery charger fails. The battery is kept charged by “floating” on the bus.
- B. The bus is normally supplied from one battery charger. Vital AC power will supply power to the bus through inverters in the event the battery charger fails. The bus is kept charged by “floating” on the battery.
- C. The bus is normally supplied from one battery bank. The bus will be supplied directly from a charger if the battery bank fails. The bus is kept charged by “floating” on the battery.
- D. The bus is normally supplied from one battery bank. Vital AC power will supply power to the bus through inverters in the event the battery bank fails. The battery is kept charged by “floating” on the bus.

Proposed Answer: A

Distracter Explanation:

- B. There are no inverters that supply the bus.
- C. The battery is kept charged by floating on the bus.
- D. There are no inverters that supply the bus.

Outline #: R073 Page 1 of 2

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None**Learning Objective:** A 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** X**Comprehension or Analysis** **10 CFR Part 55 Content:** 55.43 55.41 8**Comments:** **Outline #:** R073 Page 2 of 2**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:

Which ONE of the following describes how the D/G Fuel Oil Transfer pump operates to maintain Day Tank level?

- A. With the D/G running, the pump will start on low level and run continuously. With the D/G in standby, the pump cycles to maintain level between its high and low setpoints.
- B. The pump always cycles to maintain level between the high and low setpoints.
- C. With the D/G running, the Transfer Pump is stopped and level is maintained by the Shaft Driven Pump. With the D/G in standby, the Transfer Pump cycles to maintain Day Tank level between its high and low setpoints.
- D. The pump always runs continuously to keep the Day Tank full. Any overflow is returned back to the Fuel Oil Storage Tank.

Proposed Answer: A

Distracter Explanation:

- B. Pump runs continuously whenever D/G is running.
- C. Pump runs continuously whenever D/G is running.
- D. Pump cycles between high and low setpoints when D/G is in standby.

Technical Reference(s): _____
 (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 55.41 8

Comments: _____

Outline #: R074

Author: EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	<u>064G.2.2.12</u>	
	Importance Rating	<u>3.0</u>	<u>3.4</u>

Proposed Question:

An Emergency Diesel Generator (D/G) 1-hour load test surveillance is being performed.

Which ONE of the following satisfies the acceptance criteria?

- A. D/G load is 4600 kW for 65 minutes.
- B. Fuel Oil Storage Tank level is 95,000 gallons.
- C. D/G reached rate speed/voltage in 15.2 seconds.
- D. Fuel Oil Day Tank level is 410 gallons.

Proposed Answer: B

Distracter Explanation:

- A. Must be greater than 5580 kW.
- C. Must be less than 12 seconds.
- D. Must be greater than 510 gallons.

Technical Reference(s): OSP-NE-0001A

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: E T61.003A.6, LP SA-8, Normal System Operations

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** 2 **55.41** 10

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>073A4.02</u>	
	Importance Rating	<u>3.7</u>	<u>3.7</u>

Proposed Question:

Main Control Board Annunciator 61C, Process Rad Monitor Failure, has alarmed. When you check the status at the RM-11 panel, you find channel 223 CTMT Purge Monitor is flashing and its color is MAGENTA.

Which ONE of the following could be causing the failure of channel 223?

- A. Communications Failure.
- B. Filter Paper Not Moving.
- C. Loss Of Process Flow.
- D. Low Vacuum Alarm.

Proposed Answer: A

Distracter Explanation:

- B. Status would be DARK BLUE.
- C. Status would be LIGHT BLUE.
- D. Status would be LIGHT BLUE.

Technical Reference(s): OOA-SP-00001
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.0110.6, LP 36, Process & Area Radiation Monitor

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

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** **55.41** 11

Comments: _____

Outline #: R076

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:

The following plant conditions exist:

- Mode 1, 100% reactor power, 1215 MWe.
- 'A' and 'C' Circ Water pumps in operation.
- Outside air temperature is -10°F, Cooling Tower Basin temperature is 55°F.

Utilizing Attachment 1 of OTN-DA-00001 on the following page, which ONE of the following is the correct status of the cooling tower?

- A. Only two bypass valves will open when two circ water pumps are running.
- B. All water flow is directed to the center of the cooling tower.
- C. All bypass valves open regardless of the number of circ water pumps running.
- D. All water flow is directed to the outer portion of the cooling tower.

Proposed Answer: D

Distracter Explanation:

- A. Answer for Bypass Operation. Correct answer is freeze protect.
- B. All water is directed to the outer portion.
- C. Requires three pumps running.

Technical Reference(s): OTN-DA-00001, Attachment 1
(Attach if not previously provided)

Proposed references provided to applicants during examination: OTN-DA-00001, Attachment 1

Learning Objective: E 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** _____ **55.41** 5

Comments: _____

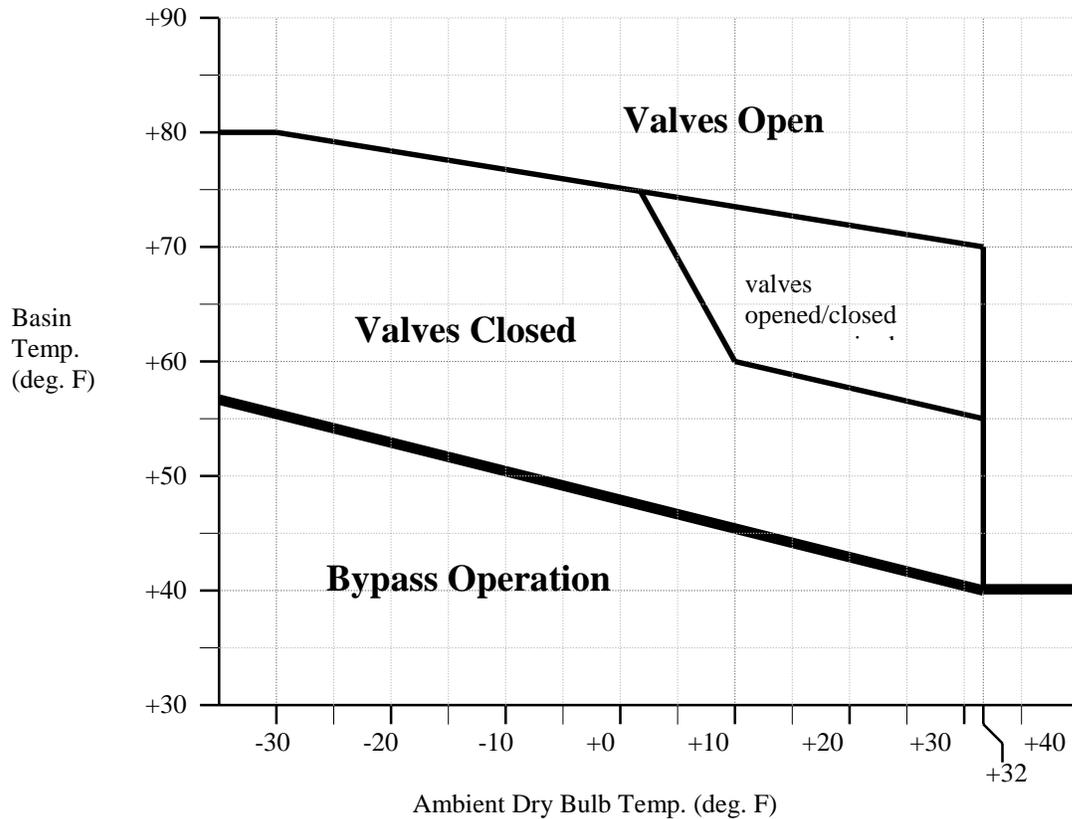
Outline #: R077

Author: DGL

OTN-DA-00001

Rev. 11

Cooling Tower Freeze Protection Curve



Select one of the following to maintain back pressure at approximately 2.1 HgA:

- I. 3 pump operation and throttle the lower C.W. passes
- II. 3 pump operation and FREEZE-PROTECT or FREEZE-PROTECT and throttled
- III. 2 pump operation and normal throttle

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:

Which ONE of the following components has its air supply AUTOMATICALLY isolated if air pressure decreases to 108 psig?

- A. Closed Cooling Water Temperature Controller
- B. First Stage RHDT Level Control Valves
- C. Main Feedwater Reg Bypass Valves
- D. Auxiliary Feedwater Pump Room Sump Pumps

Proposed Answer: D

Distracter Explanation:

The candidate must determine the Aux Feed Pump Room Sump Pumps are the only service air load and will have its air supply isolated if pressure drops to 110 psig.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C T61.0110.6, LP 14, Service & Instrument Air

Question Source:

Bank	<u> X </u>
Modified Bank	<u> </u> (Note changes or attach parent)
New	<u> </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 55.41 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>086K4.05</u>	
	Importance Rating	<u>3.0</u>	<u>3.4</u>

Proposed Question:

Which ONE of the following areas is protected by halon?

- A. NK Battery Rooms
- B. North Piping Pen Room
- C. Aux Shutdown Panel Room
- D. MG Sets Room

Proposed Answer: D

Distracter Explanation:

- A. No longer protected by halon.
- B. Protected by water sprinklers.
- C. Protected by water sprinklers.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: F T61.0110.6, LP 35, Fire Protection

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 55.41 7

Comments: _____

Outline #: R079 **Author:** EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>3</u>	<u>3</u>
	K/A #	005K4.10	
	Importance Rating	<u>3.1</u>	<u>3.1</u>

Proposed Question:

The following plant conditions exist:

- RCS pressure is 320 psig.
- RCS wide range temperature (Hot Leg) is 290°F.
- 'B' Train RHR Heat Exchanger flow controller valve (HCV607) is 15% open.

Which ONE of the following would correctly describe the plant response if the 'B' Train RHR Heat Exchanger flow transmitter (FT619) failed LOW?

- The RHR Heat Exchanger flow control valve (HCV607) will automatically CLOSE to prevent exceeding RCS cooldown rates.
- The RHR pump discharge to HX Bypass flow control valve (FCV619) will automatically CLOSE to maintain RHR discharge pressure and flow constant.
- The RHR Heat Exchanger flow control valve (HCV607) will automatically OPEN to compensate for the apparent low-flow condition.
- The RHR pump discharge to HX Bypass flow control valve (FCV619) will automatically OPEN to maintain the operator set RHR system flow rate.

Proposed Answer: D

Distracter Explanation:

- There will be NO automatic response from HCV607.
- FCV619 will OPEN in response to this failure.
- There will be NO automatic response from HCV607.

Outline #: R080 Page 1 of 2

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None**Learning Objective:** B 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 55.41 7**Comments:** **Outline #:** R080 Page 2 of 2**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>3</u>
	K/A #	007A2.02	
	Importance Rating	<u>2.6</u>	<u>3.2</u>

Proposed Question:

The following plant conditions exist:

- Mode 1, 100% Reactor Power.
- PRT Temp Hi Annunciator 34D and PRT Press Hi Annunciator 34E are LIT.
- PRT temperature is 140°F and increasing.
- PRT level is 87% and increasing.
- PRT pressure is 8 psig and increasing.

Which ONE of the following sets of relief valves could be the cause of the Pressurizer Relief Tank conditions?

- BB8010A Pzr Safety Relief, EM8858A SI Pump Suction Relief, and EJ8708A RHR Pump Suction Relief.
- BG8121 Seal Water Return Relief, BG8120 VCT Relief, and BBPCV0455A Pzr PORV.
- BG8117 CVCS Letdown Relief, BB8010C Pzr Safety Relief, and BBPCV0456A Pzr PORV.
- BB8010B Pzr Safety Relief, BG8124 CCP Suction Relief, and BG8117 CVCS Letdown Relief.

Proposed Answer: C

Distracter Explanation:

- EM8858A relieves to the RHUT, not the PRT.
- BG8120 relieves to the RHUT, not the PRT. BG8121 temperature to low.
- BG8124 relieves to the RHUT, not the PRT.

Outline #: R081 Page 1 of 2

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None**Learning Objective:** E T61.0110.6, LP 9, Reactor Coolant 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 55.41 3**Comments:** **Outline #:** R081 Page 2 of 2**Author:** DGL

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>027K1.01</u>	
	Importance Rating	<u>3.4</u>	<u>3.7</u>

Proposed Question:

Which ONE of the following is the purpose of the Trisodium Phosphate Dodecahydrate (TSP-C) added to the Containment Recirc Sumps?

- A. Minimize the evolution of hydrogen from containment sump water.
- B. Minimize the evolution of oxygen from containment sump water.
- C. Lower pH of containment sump water.
- D. Raise pH of containment sump water.

Proposed Answer: D

Distracter Explanation:

The candidate will have to recall the purpose of adding TSP-C to the Containment Recirc Sumps.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: F T61.0110.6, LP 18, Containment Spray

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 55.41 9

Comments: _____

Outline #: R083 **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>028A4.03</u>	
	Importance Rating	<u>3.1</u>	<u>3.3</u>

Proposed Question:

A large break LOCA has resulted in a CISA and CISB.

Which ONE of the following must be done to open the flowpath for a Hydrogen Analyzer?

- A. Reset the CISA and manually open the sample isolation valves.
- B. Reset the CISB and manually open the sample isolation valves.
- C. Placing the Hydrogen Analyzer in service will automatically open the valves.
- D. The sample isolation valves may be manually opened. No reset is needed.

Proposed Answer: A

Distracter Explanation:

- B. Reset of CISA is required, CISB reset not required.
- C. Sample valves have no auto open feature.
- D. Reset of CISA is required.

Technical Reference(s): OTN-GS-00001, Page 4
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: J.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 55.41 9

Comments: _____

Outline #: R084

Author: DGL

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>034K4.01</u>	
	Importance Rating	<u>2.6</u>	<u>3.4</u>

Proposed Question:

While operating the Refueling Machine, which ONE of the following will prevent the operator from disengaging the fuel gripper?

- A. SLACK CABLE blue icon not illuminated.
- B. GEARED HOIST DOWN yellow light illuminated.
- C. HOIST UP blue icon not illuminated.
- D. GRIPPER LATCHED green light illuminated.

Proposed Answer: A

Distracter Explanation:

- B. Hoist full down allows disengagement.
- C. Hoist full down allows disengagement.
- D. Gripper must be latched in order to disengage.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: H.4 T61.003E.6, E-5, Refueling Equipment

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 7 55.41 13

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>3</u>
	K/A #	<u>041A1.02</u>	
	Importance Rating	<u>3.1</u>	<u>3.2</u>

Proposed Question:

The following plant conditions exist:

- Mode 3, cooling down for a refueling outage.
- RCS pressure is 2235 psig.
- All four RCPs are in operation.
- RCS Tave being maintained by the steam dumps at 547°F.

Which ONE of the following temperatures should Tave stabilize at, with NO operator action, following a complete loss of condenser vacuum?

- A. 547°F
- B. 550°F
- C. 557°F
- D. 561°F

Proposed Answer: D

Distracter Explanation:

D. Only correct answer using Steam Tables. T_{SAT} for S/G PORV setpoint.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: Steam Tables

Learning Objective: B T61.0070.6, LP 13, Characteristics of Steam & Water
 F T61.0110.6, LP 20, Main Steam

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** _____ **55.41** 14

Comments: _____

Outline #: R086

Author: DGL

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>3</u>	<u>3</u>
	K/A #	076A4.02	
	Importance Rating	<u>2.6</u>	<u>2.6</u>

Proposed Question:

Following a Safety Injection Signal (SIS), which ONE of the following statements describes the condition of the service water and essential service water supply and return cross-connect valves (EFHV23-26 and EFHV39-42)?

- A. All supply and return valves close.
- B. All supply valves close and return valves remain open.
- C. All supply valves remain open and return valves close.
- D. The valves are not affected by a SIS.

Proposed Answer: A

Distracter Explanation:

- B. Return valves also close.
- C. Supply valves also close.
- D. All supply and return valves close.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: D T61.0110.6, LP 5, Essential Service Water

Question Source:

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

Question History:

Previous NRC Exam	<u> No </u>
Previous Quiz / Test	<u> Yes (Systems Final, June 1999) </u>

Question Cognitive Level:

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

10 CFR Part 55 Content: 55.43 55.41 8

Comments: _____

Outline #: R087

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 #	G2.1.1	
	Importance Rating	<u>3.7</u>	<u>3.8</u>

Proposed Question:

Which ONE of the following locations is included in the “At The Controls Area” per ODP-ZZ-00001, Operations Department – Code of Conduct?

- A. RP068 Panel
- B. Control Room Foyer
- C. SS Office
- D. SA075 (MSFIS Cabinet)

Proposed Answer: C

Distracter Explanation:

Operator must recall at the control boundaries.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A.1 T61.003A.6, LP A-1, ODP-ZZ-00001

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 1 55.41 10

Comments: _____

Outline #: R088

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 #	G2.1.12	
	Importance Rating	<u>2.9</u>	<u>4.0</u>

Proposed Question:

In accordance with Technical Specifications, which ONE of the following describes the type and limit for RCS leakage into the Pressurizer Relief Tank (PRT)?

- A. UNIDENTIFIED leakage with a limit of 1 gpm.
- B. UNIDENTIFIED leakage with a limit of 10 gpm.
- C. IDENTIFIED leakage with a limit of 1 gpm.
- D. IDENTIFIED leakage with a limit of 10 gpm.

Proposed Answer: D

Distracter Explanation:

The candidate must remember leakage to the PRT is a contained source, therefore is IDENTIFIED leakage and the limit is 10 gpm.

Technical Reference(s): T/S 3.4.13 RCS Operational Leakage
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: I.1.g T61.003A.6, LP A-2, Procedures

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** 2 **55.41** 10

Comments: _____

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 #	G2.1.17	
	Importance Rating	<u>3.5</u>	<u>3.6</u>

Proposed Question:

During a transient the SRO gives a complex direction to the RO. Before performing the directed actions, what must be completed to comply with Callaway Plant Communications Policy?

- A. Offer a clear acknowledgement that the instruction was understood.
- B. Repeat back the instruction.
- C. Repeat back the instruction and receive affirmation from the SRO.
- D. Make appropriate log entries.

Proposed Answer: C

Distracter Explanation:

- A. Three-way communication is required.
- B. Three-way communication is required.
- D. Log entries are not required prior to performing actions.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: N T61.003A.6, LP A-6, Policies

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 55.41 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 #	G2.1.18	
	Importance Rating	<u>2.9</u>	<u>3.0</u>

Proposed Question:

A containment vent was initiated but a log entry was not made for several hours.

Which ONE of the following is the correct way for this entry to be made?

- A. Late entry is entered in the time column and the actual time is entered in the information column.
- B. Make a log entry with the time the action was actually performed and denote it as a late entry in the information column.
- C. Make a normal log entry and then draw an arrow to the page location where it should have been entered initially.
- D. Make a normal log entry but include both the time of log entry and the time the action was actually performed.

Proposed Answer: B

Distracter Explanation:

- A. Late entry is marked in the information column.
- C. Arrows are not used to denote chronological order.
- D. Only one time is allowed per each log entry.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.003A.6, LP A-2, Procedures

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 55.41 10

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>2</u>	<u>2</u>
	K/A #	G2.2.1	
	Importance Rating	<u>3.7</u>	<u>3.6</u>

Proposed Question:

The following plant conditions exist:

- Reactor tripped from 100% power equilibrium conditions.
- Boron concentration remains constant.
- Tave is at the no-load value.

Which ONE of the following reactor startups will result in the HIGHEST critical rod height?

- A. 2 hours following the trip.
- B. 10 hours following the trip.
- C. 24 hours following the trip.
- D. 80 hours following the trip.

Proposed Answer: B

Distracter Explanation:

- A. Xenon is increasing but not yet peaked.
- C. Xenon is decreasing and equal to pre trip value.
- D. Xenon free condition.

Technical Reference(s): OSP-SF-00005, Estimated Critical Position Calculation
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective(s): O.6 T61.0070.6, LP 4, Reactivity Variation & Rx Control
 B.4 T61.003A.6, LP A-23, Control Board Cert. – 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** 6 **55.41** 1

Comments: _____

Outline #: R092

Author: DGL

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 #	G2.2.11	
	Importance Rating	<u>2.5</u>	<u>3.4</u>

Proposed Question:

Which ONE of the following procedure changes can be accomplished using a TCN per APA-ZZ-00114, Temporary Changes to Procedures?

- A. Changing initial conditions in OSP-NE-0001A, Standby D/G 'A' Periodic Test.
- B. Changing an indicator for a site emergency in EIP-ZZ-00101, Classification of Emergency.
- C. Removing the SS approval step in Attachment 1 of OTO-SE-00003, Power Range NI Failure.
- D. Adding a caution about vortexing in OTN-BB-00002, RCS Draining.

Proposed Answer: D

Distracter Explanation:

- A. Changes to initial conditions is not allowed with a TCN.
- B. Changes to EALs is not allowed with a TCN.
- C. Deletion of approvals is not allowed with a TCN.

Technical Reference(s): APA-ZZ-00114, Temporary Changes to Procedures
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: J.1 T61.003A.6, LP A-29, Admin Procedures

Question Source:

Bank	<u> </u>	(Note changes or attach parent)
Modified Bank	<u> </u>	
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** 3 **55.41** 10

Comments: _____

Outline #: R093

Author: EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	G2.2.13	
	Importance Rating	<u>3.6</u>	<u>3.8</u>

Proposed Question:

Callaway Plant is in Mode 1.

Which ONE of the following tags is required to be verified during the monthly WPA audit?

- A. Hold Off tag hung 3 weeks ago.
- B. Local Control tag hung 5 weeks ago.
- C. Equipment Maintenance/Removal tag hung 7 weeks ago.
- D. Caution tag hung in containment 9 weeks ago.

Proposed Answer: B

Distracter Explanation:

- A. Must be hung longer than one month.
- C. Equipment Maintenance/Removal tags are not audited.
- D. Tags in containment are not verified during Modes 1, 2, and 3.

Technical Reference(s): ODP-ZZ-00310, WPA Tagging
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B.7 T61.003A.6, LP A-33, Procedures

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 55.41 10

Comments: _____

Outline #: R094

Author: EBS

Examination Outline Cross-reference:	Level	RO	SRO
	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:

The maximum dose rate in a room is 1500 mrem/hour one foot from a valve. According to HDP-ZZ-01500, Radiological Posting, this room should be classified as which ONE of the following?

- A. Radiation Area
- B. Caution High Radiation Area
- C. Danger High Radiation Area
- D. Very High Radiation Area

Proposed Answer: C

Distracter Explanation:

- A. 5-100 mrem/hr.
- B. 100-1000 mrem/hr.
- D. > 500 rads/hr.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: D T61.003A.6, LP A-31, Procedures

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** 4 **55.41** 12

Comments:

Outline #: R096

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 #	G2.4.17	
	Importance Rating	<u>3.1</u>	<u>3.8</u>

Proposed Question:

Which ONE of the following definitions best defines the word VERIFY, as it is used in the emergency operating procedures?

- A. To control a plant parameter to a guideline requirement.
- B. To observe that an expected characteristic or condition exists.
- C. To make a continued effort when success may not be immediate.
- D. To evaluate using formulas and/or graphs.

Proposed Answer: B

Distracter Explanation:

- A. Definition of maintain.
- C. Definition of try.
- D. Definition of determine.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A.1.L.5 T61.003D.6, LP 1, ERG Intro & User's Guide

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 55.41 10

Comments: _____

Outline #: R098 **Author:** DGL

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 #	G2.4.20	
	Importance Rating	<u>3.3</u>	<u>4.0</u>

Proposed Question:

Many of the level setpoints found in the EOPs give one value followed by another in parenthesis (). Under which ONE of the following conditions would you use the value in parenthesis?

- A. If containment recirc sump level is 120 inches and decreasing.
- B. If containment radiation is more than twice normal full power background.
- C. If containment pressure is presently 5 psig following a peak of 15 psig.
- D. If containment temperature is presently 170°F and increasing.

Proposed Answer: D

Distracter Explanation:

- A. Adverse CTMT is determined using CTMT Temp and Rad Level.
- B. Less than 10⁵ R/hr.
- C. Adverse CTMT is determined using CTMT Temp and Rad Level.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: R T61.003D.6, LP 4, E-0 Rx Trip or Safety Injection

Question Source:

Bank	<u> </u>	(Note changes or attach parent)
Modified Bank	<u> </u>	
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 55.41 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>G2.4.23</u>	
	Importance Rating	<u>2.8</u>	<u>3.8</u>

Proposed Question:

Which ONE of the following is the basis for the following NOTE in ECA-0.0, Loss of All AC Power?

NOTE

CSF Status Trees should be monitored for information only.
FRGs should NOT be implemented.

- A. Functional Restoration Guidelines should not be entered until all EOPs are exited.
- B. Functional Restoration Guidelines assume that at least one AC emergency bus is energized.
- C. Implementing ECA-0.0 and Functional Restoration Guidelines concurrently could result in a Technical Specification violation.
- D. ECA-0.0 performs the same actions as those performed during the Functional Restoration Guidelines.

Proposed Answer: B

Distracter Explanation:

ECA-0.0 has priority over all FRGs and is written to implicitly monitor and maintain critical safety functions. This priority is necessary since all FRGs are written on the premise that at least one AC emergency bus is energized.

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: G 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** X
Comprehension or Analysis _____

10 CFR Part 55 Content: **55.43** _____ **55.41** 10

Comments: _____

Outline #: R100

Author: DGL

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		<u>1</u>
Group #		<u>2</u>	<u>1</u>
K/A #		<u>E01/E02EA2.1</u>	
Importance Rating		<u>3.3</u>	<u>4.2</u>

Proposed Question:

The following plant conditions exist:

- A small break LOCA has occurred.
- SI has been reset.
- Operators have just completed Step 1 of E-1, Loss of Reactor or Secondary Coolant.

The Shift Technical Advisor reports the following:

- RCS pressure is 1800 psig and slowly decreasing.
- RCS subcooling is 40°F.
- Pressurizer level is off scale low 0%.
- S/G A/B/C/D NR levels are 8%, 10%, 17% and 19% respectively.
- Total AFW flow – 220,000 lbm/hr.
- Adverse CTMT conditions do NOT exist.

Which ONE of the following actions will the operators perform?

- Manually actuate SI and transition to E-0, Reactor Trip or Safety Injection.
- Transition to FR-H.1, Response to Loss of Secondary Heat Sink.
- Transition to FR-P.1, Response to Anticipated Pressurized Thermal Shock.
- Remain in E-1, Loss of Reactor or Secondary Coolant.

Proposed Answer: D

Distracter Explanation:

- SI equipment has not been secured so there is no need to actuate SI.
- FR-H.1, Transition criteria has not been met.
- FR-P.1, Transition criteria has not been met.

Outline #: S001 Page 1 of 2

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective(s):

<u>B</u>	<u>T61.003D.6, LP 8, E-1, Loss of Rx or Secondary Coolant</u>
<u>C</u>	<u>T61.003D.6, LP 8, E-1, Loss of Rx or Secondary Coolant</u>

Question Source:**Bank****Modified Bank****New** X

(Note changes or attach parent)

Question History:**Previous NRC Exam****Previous Quiz / Test**NoNo**Question Cognitive Level:****Memory or Fundamental Knowledge****Comprehension or Analysis**
 X **10 CFR Part 55 Content:** 55.43 5 55.41 10 **Comments:****Outline #:** S001 Page 2 of 2**Author:** EBS

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>2</u>	<u>1</u>
	K/A #	<u>029G2.4.16</u>	
	Importance Rating	<u>3.0</u>	<u>4.0</u>

Proposed Question:

Which ONE of the following conditions would require entry into SACRG-1, Severe Accident Control Room Guideline Initial Response?

- A. Currently in FR-S.1, Response to Nuclear Power Generation and Core Exit TCs are 1325°F and increasing.
- B. Currently in FR-Z.1, Response to High Containment Pressure and Containment Pressure is 60 psig and increasing.
- C. Currently in FR-P.1, Response to Imminent Pressurized Thermal Shock Condition and RCS is at 1600 psig and 273°F with a 300°F/hr cooldown.
- D. Currently in FR-H.1, Response to Loss of Secondary Heat Sink and Wide Range S/G Levels are 12% and decreasing with 0 gpm total AFW flow.

Proposed Answer: A

Distracter Explanation:

- B. Remain in FR-Z.1 until ≤ 27 psig and then return to procedure in effect.
- C. Depressurize RCS and perform 1 hr. soak and then return to procedure in effect.
- D. Perform RCS bleed and feed immediately.

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: EVCR1.1 T61.0300.6, RERP – Operations SAMG

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 5 55.41 10

Comments: _____

Outline #: S002

Author: DGL

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u>1</u>
	Group #	<u>1</u>	<u>1</u>
	K/A #	<u>055G2.4.20</u>	
	Importance Rating	<u>3.3</u>	<u>4.0</u>

Proposed Question:

When responding to a loss of all AC power in accordance with ECA-0.0, Loss of All AC Power, the intact steam generators are depressurized at the maximum rate.

Which ONE of the following is the reason for depressurizing at the maximum rate?

- A. To minimize secondary inventory loss.
- B. To minimize RCS inventory loss.
- C. To minimize RCP seal damage.
- D. To minimize reactor vessel upper head voiding.

Proposed Answer: B

Distracter Explanation:

- A. Depressurizing S/G will cause a loss of secondary inventory.
- C. Reducing RCP seal damage is an added benefit but not the main objective of S/G depressurization.
- D. Reduce Rx vessel head voiding is an added benefit but not the main objective in S/G depressurization.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: S 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 X
Comprehension or Analysis

10 CFR Part 55 Content: **55.43** 5 **55.41** 10

Comments: (PRA/IPE)

Outline #: S003

Author: EBS

Examination Outline Cross-reference:	Level	<u>RO</u>	<u>SRO</u>
	Tier #		1
Group #		2	2
K/A #		058AK1.01	
Importance Rating		2.8	3.1

Proposed Question:

The plant is in Mode 1 when NK21 charger fails.

Which ONE of the following satisfies Technical Specifications for continued operation?

- A. Place NK26 in service supplying NK01; NK26 supplied from NG04.
- B. Place NK26 in service supplying NK01; NK26 supplied from PG20.
- C. Place NK25 in service supplying NK01; NK25 supplied from PG19.
- D. Place NK25 in service supplying NK01; NK25 supplied from NG01.

Proposed Answer: D

Distracter Explanation:

- A. NK26 is the wrong train.
- B. PG20 will not satisfy Technical Specifications.
- C. PG19 will not satisfy Technical Specifications.

Technical Reference(s): LCO 3.8.4 Bases
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective(s): G T61.0110.6, LP 6, Safeguards 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** 2 **55.41** 10

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>036G2.1.12</u>	
	Importance Rating	<u>2.9</u>	<u>4.0</u>

Proposed Question:

Callaway Plant is currently in Mode 6 with refueling operations in progress.

Which ONE of the following is the bases for the operability of Source Range NIs for this condition?

- A. To provide a means to measure core reactivity.
- B. To provide input for the flux doubling circuit.
- C. To provide protection from a fuel assembly mispositioning event during core reload.
- D. To provide protection from an inadvertent rod withdrawal accident during CRDM latching.

Proposed Answer: A

Distracter Explanation:

- B. The flux doubling circuit is not required in Mode 6.
- C. Source Range NIs do not provide any protection from mispositioning events.
- D. Source Range NIs provide protection for a rod withdrawal accident during Modes 1, 2 & 3 by tripping the reactor.

Technical Reference(s): LCO 3.9.3 Background Bases
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.003E.6, LP E-4, Refueling Tech Specs

Question Source:

Bank	<u> </u>	<small>(Note changes or attach parent)</small>
Modified Bank	<u> </u>	
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** 2 **55.41** 10

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>1</u>	<u>1</u>
	K/A #	<u>068G2.3.11</u>	
	Importance Rating	<u>2.7</u>	<u>3.2</u>

Proposed Question:

A discharge from Discharge Monitor Tank (DMT) 'A' is in progress when HBRE18, Liquid Radwaste Discharge Monitor fails low.

Which ONE of the following will allow the discharge to re-commence?

- A. The Superintendent, Rad Chem must approve the release permit.
- B. The liquid release may continue up to 14 days with no further action.
- C. Two independent samples, release rate calculations, and discharge valve lineup verifications must be performed.
- D. The liquid release cannot re-commence until HBRE18, Liquid Radwaste Discharge Monitor is restored to operable.

Proposed Answer: C

Distracter Explanation:

- A. Superintendent, Rad Chem is the senior member of Radwaste Management.
- B. May continue for 14 days but requires actions as described in C.
- D. Discharge is allowed with inoperable monitor as described in C.

Technical Reference(s): FSAR Chapter 16, Table 16.11-2
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective(s): G T61.0110.6, LP 36, Process Radiation Monitors
 B.1 T61.003A.6, LP A-34, 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** 4 **55.41** 13

Comments: _____

Outline #: S008

Author: DGL

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u>2</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	012K4.06	
	Importance Rating	<u>3.2</u>	<u>3.5</u>

Proposed Question:

Which ONE of the following Reactor Protection Systems (RPS) trips is required by Technical Specifications in Mode 2?

- A. Pressurizer Pressure – Low
- B. Pressurizer Pressure – High
- C. Pressurizer Level – Low
- D. Pressurizer Level – High

Proposed Answer: B

Distracter Explanation:

- A. Is not active until >10% power (P-7).
- C. Common misconception – does not exist.
- D. Is not active until >10% power (P-7).

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: H T61.0110.6, LP 27, Reactor Protection

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** 2 **55.41** 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>3</u>	<u>2</u>
	K/A #	<u>034G2.1.12</u>	
	Importance Rating	<u>2.9</u>	<u>4.0</u>

Proposed Question:

Which ONE of the following combinations of initial enrichment (w/o U-235) and assembly exposure (MWD/MTU) shown below would be allowed to be stored in Region 2 and Region 3 of the Spent Fuel Pool with NO restrictions? (Refer to Figure 3.7.17-1 on the following page.)

	<u>Initial Enrichment</u>	<u>Fuel Assembly Cumulative Exposure</u>
A.	3.0	20000
B.	3.5	25000
C.	4.0	30000
D.	4.5	45000

Proposed Answer: D

Distracter Explanation:

- A. Able to store in Region 3 ONLY.
- B. Able to store in Region 1 ONLY.
- C. Able to store in Region 1 ONLY.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: Tech. Spec. Figure 3.7.17-1

Learning Objective: A T61.003E.6, LP E-4, Refueling Tech. Spec.

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** 2 **55.41** 10

Comments: _____

Outline #: S010 Page 1 of 2

Author: EBS

Spent Fuel Assembly Storage
3.7.17

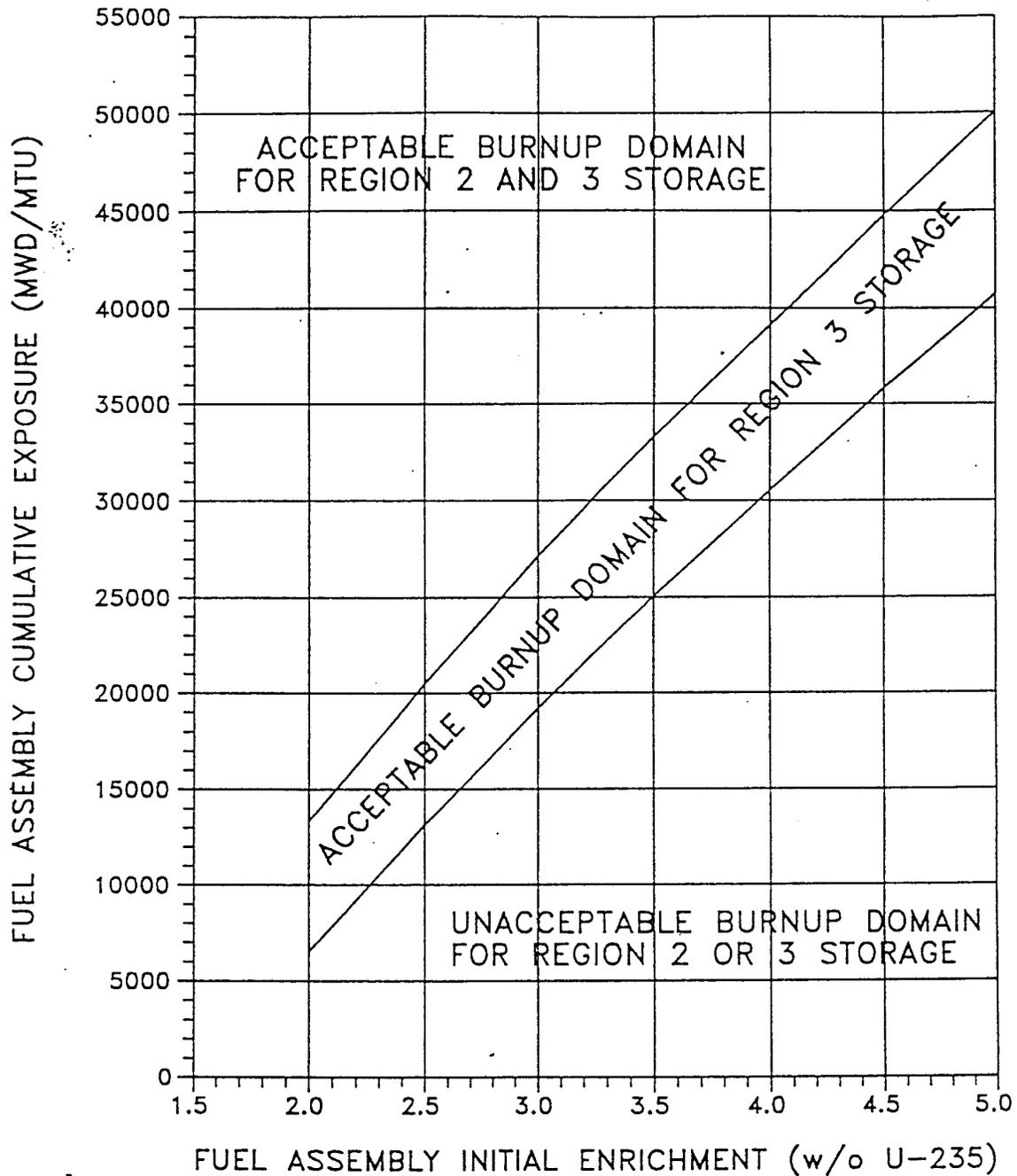


Figure 3.7.17-1 (page 1 of 1)
MINIMUM REQUIRED FUEL ASSEMBLY BURNUP AS A FUNCTION
OF INITIAL ENRICHMENT TO PERMIT STORAGE IN REGIONS 2 AND 3

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 #	035A1.01	
	Importance Rating	<u>3.6</u>	<u>3.8</u>

Proposed Question:

The following plant conditions exist:

- The plant is in Mode 5 with RCS loops filled.
- Heat removal is being provided by 'A' RHR Train.
- 'B' RHR Train is operable but not in operation.
- S/G WR levels are 'A' 55%; 'B' 70%; 'C' 22%; 'D' 50%.

It is desired to remove 'B' RHR Train from operable status for a system upgrade.

Which ONE of the following describes the acceptability of removing 'B' RHR Train from service under these conditions?

- It may be done as long as the RCS loops remain filled.
- It may be done as long as RCS temperature remains < 200°F.
- It may not be done because the S/Gs are not an adequate heat sink.
- It may not be done because a Loss of Safety Function would result.

Proposed Answer: C

Distracter Explanation:

- The S/Gs are not an adequate heat removal source.
- The plant would have to remain below 200°F and additionally S/G wide range levels are required to be > 66%.
- There is no Loss of Safety Function as long as 'A' RHR Train is operable.

Outline #: S011 Page 1 of 2

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None**Learning Objective:** B.4 T61.003A.6, LP A-21, Procedures**Question Source:****Bank****Modified Bank****New** X

(Note changes or attach parent)

Question History:**Previous NRC Exam****Previous Quiz / Test**NoNo**Question Cognitive Level:****Memory or Fundamental Knowledge****Comprehension or Analysis** X**10 CFR Part 55 Content:** **55.43** 2 **55.41** 10 **Comments:****Outline #:** S011 Page 2 of 2**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>064K6.07</u>	
	Importance Rating	<u>2.7</u>	<u>2.9</u>

Proposed Question:

The Secondary EO while performing his rounds finds the following conditions at 'A' Diesel Generator:

- Starting air receiver 'A' tank indicates 625 psig.
- Starting air receiver 'B' tank indicates 275 psig.

Which ONE of the following correctly describes the condition of 'A' Diesel Generator and why?

- A. Operable because starting air receivers are not a required subsystem for D/G operability.
- B. Inoperable because one starting air receiver is < 435 psig.
- C. Inoperable because one starting air receiver is < 300 psig while the other starting air receiver is > 610 psig.
- D. Operable because one starting air receiver is > 610 psig.

Proposed Answer: D

Distracter Explanation:

- A. Starting air receivers ARE a required subsystem for D/G operability.
- B. If one receiver is > 610 psig, the D/G is operable.
- C. If one receiver is > 610 psig, the D/G is operable.

Technical Reference(s): _____
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: L T61.0110.6, LP 3, Standby Generation

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 2 55.41 10

Comments: _____

Outline #: S012

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>3</u>
	K/A #	<u>005G2.1.12</u>	
	Importance Rating	<u>2.9</u>	<u>4.0</u>

Proposed Question:

The plant is in Mode 6 with water level ≥ 23 ft. above the vessel flange. The core reload is complete. The Refueling SRO calls and requests that the running RHR pump be secured for 60 minutes during the performance of the core map. A review of the RO log shows the running RHR pump was secured for 30 minutes 5 hours ago.

Which ONE of the following is the maximum time the running RHR pump can be secured for the Refueling SRO?

- A. The pump can NOT be secured at this time.
- B. The pump can be secured for 30 minutes.
- C. The pump can be secured for 45 minutes.
- D. The pump can be secured for 60 minutes.

Proposed Answer: B

Distracter Explanation:

The pump may be secured for ≤ 1 hour per 8-hour period. During the last 5 hours the pump has been secured for 30 minutes. An additional 30 minutes is allowed during the next 3 hours.

Technical Reference(s): Technical Specification 3.9.5
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A T61.003E.6, LP E-4, Refueling Tech Specs/FSAR

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 2 55.41 10

Comments: _____

Outline #: S014 **Author:** DGL

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 #	G2.1.4	
	Importance Rating	<u>2.3</u>	<u>3.4</u>

Proposed Question:

Which ONE of the following violates the administrative limit on overtime?

- A. Working 16 hours in 24 hours.
- B. Working 24 hours in 48 hours.
- C. Working 40 hours in 72 hours with 8 hours between shifts.
- D. Working 80 hours in 5 consecutive days with 8 hours between shifts.

Proposed Answer: D

Distracter Explanation:

- A. Does not exceed OT limitations.
- B. Does not exceed OT limitations.
- C. Does not exceed OT limitations.

Technical Reference(s): APA-ZZ-00905, Working Hour Limitations
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: E.1 T61.003A.6, LP A-29, Procedures

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** 1 **55.41** 10

Comments: _____

Outline #: S015

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 #	G2.1.11	
	Importance Rating	<u>3.0</u>	<u>3.8</u>

Proposed Question:

The following plant conditions exist:

- RCS temperature is 210°F.
- RCS pressure is 250 psig.
- S/G temperature is 65°F.
- S/G pressure is 0 psig.

Which ONE of the following is required per FSAR Chapter 16?

- A. Increase S/G pressure to > 200 psig within 30 minutes.
- B. Increase S/G pressure to > 200 psig within 1 hour.
- C. Decrease RCS pressure to ≤ 200 psig within 30 minutes.
- D. Decrease RCS pressure to ≤ 200 psig within 1 hour.

Proposed Answer: C

Distracter Explanation:

The temperature of both coolants in the S/G shall be > 70°F when the pressure of either coolant is > 200 psig. Otherwise, reduce the pressure of the applicable coolant to ≤ 200 psig within 30 minutes.

Technical Reference(s): FSAR 16.7.1.1
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: F.10 T61.003A.6, LP A-1, Control Board Cert. – 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 2 55.41 14

Comments: _____

Outline #: S017

Author: DGL

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 #	G2.2.12	
	Importance Rating	<u>3.0</u>	<u>3.4</u>

Proposed Question:

While reviewing the test data for a surveillance, OSP-AL-P001A, Motor Driven Feedwater Pump 'A' In Service Test, it was found the surveillance failed to meet the acceptance criteria.

Which ONE of the following actions is required?

- A. Write an Operations Information Report (OIR) on the failed surveillance.
- B. Write a Night Order on the failed surveillance and notify the System Engineer.
- C. Initiate an SOS on the failed surveillance and enter the surveillance in EOSL logs.
- D. Immediately test the 'B' MDAFW Pump for operability.

Proposed Answer: C

Distracter Explanation:

- A. An OIR is not required.
- B. A Night Order is not required. Not required to notify System Engineer.
- D. Not required to immediately test opposite train.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: G.2 T61.003A.6, LP 29, Procedures

Question Source:

Bank

Modified Bank

New

 X

(Note changes or attach parent)

Question History:

Previous NRC Exam

Previous Quiz / Test

 No

 No

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

 X

10 CFR Part 55 Content:

55.43 1 **55.41** 10

Comments:

Outline #: S018

Author: EBS

ODP-ZZ-00002
Rev. 016

Train being taken OOS

	AL-T (4)	AL-A (5)	AL-B (5)	BG-A	BG-B	EM-A	EM-B	EJ-A	EJ-B	EG-A	EG-PA	EG-PC	EG-B	EG-PB	EG-PD	EF-A	EF-B	EA (1)	NE-A	NE-B	SWYD (2)	PZR (3)	GN-A	GN-B	EN-A	EN-B
AL-T (4)	X																									
AL-A (5)		X																								
AL-B (5)			X																							
BG-A				X																						
BG-B					X																					
EM-A						X																				
EM-B							X																			
EJ-A								X																		
EJ-B									X																	
EG-A										X	NA	NA														
EG-PA											X															
EG-PC												X														
EG-B													X	NA	NA											
EG-PB														X												
EG-PD															x											
EF-A																X										
EF-B																	X									
EA (1)																		X								
NE-A																			X							
NE-B																				X						
SWYD(2)																					X					
PZR(3)																						X				
GN-A																							X			
GN-B																								X		
EN-A																									X	
EN-B																										X

Key:

	Increased Risk Undesirable.
	Not allowed by Tech. Spec.
	X Same train.
	NA Not applicable.
	Train is not functional. Can also be removed from service.
	Increased Risk Acceptable

See Notes and Cautions for Matrix usage on Page 2 of this attachment.

ODP-ZZ-00002

Rev. 016

NOTES:

- (1) At least 2 service Water Pumps and their discharge valves are required to be available for the 'EA' function.
- (2) The Switchyard scope consists of the following:
 - a) NB02 to V41 & V43
 - b) NB01 to the Ring Bus including SFGD XFMR A & B
 - c) Main Generator O/P to V53 & V55
- (3) Both PZR PORV's and their block valves are required to be available for the PZR function.
- (4) ALT SSC function requirements from AB, AE, and BM systems:
 - a) AB system
 - 1) B and C SG MSIVs are required to be operable or be closed.
 - 2) ABHV00005 and ABHV00006 are required to be operable or be open.
 - b) AE system – FWIVs are required to be operable or be closed.
 - c) BM system – SG Blowdown ISO valves are required to be operable or be closed.
- (5) ALA and ALB SSC function requirements from AE, and BM systems:
 - a) AE system – FWIVs are required to be operable or be closed.
 - b) BM system – SG Blowdown ISO valves are required to be operable or be closed.

CAUTIONS FOR MATRIX USE:

1. This table is valid for only 2 Risk Significant SSC's OOS at a time, and does not consider effects such as system draining.
 - a) For PLANNED activities which make more than 2 SSC's OOS at a time an evaluation should be performed prior to taking the SSC's OOS by the Regulatory Operations Group PRA Analyst to ensure that the risk is acceptable.
 - b) For UNPLANNED events which make more than 2 SSC's OOS at a time a conservative decision should be made to restore the SSC's which are OOS considering, risk, return to service time, and available resources.
2. Not all Risk Significant SSC's are listed on the matrix. The reason for the difference between the matrix and Attachment 5 is that there are certain risk significant SSC's that we do not intend to remove from service on-line, except in case of failure. In these cases the LCO Action time is so short that appropriate attention is placed on returning the SSC to service as soon as possible and/or preparations are being made to shutdown the unit.
3. This table does not include unit reliability concerns. These should be evaluated by the Daily Scheduling and the SS/OS prior to authorizing work.
4. For ESW system draining of 34 hours is allowed, see PRAER 98-099 evaluation.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>2</u>	<u>2</u>
	K/A #	G2.2.25	
	Importance Rating	<u>2.5</u>	<u>3.7</u>

Proposed Question:

Which ONE of the following correctly describes the basis for the Auxiliary Feedwater Technical Specification?

- A. One pump at full flow is sufficient to remove decay heat and cool the unit to RHR entry conditions.
- B. Two motor driven or the turbine driven pump is required to remove decay heat and cool the unit to RHR entry conditions.
- C. Any two AFW pumps at full flow are required to provide the heat removal to prevent a challenge to the Pzr Safeties during a full power ATWS followed by a complete loss of off-site power.
- D. One AFW pump at full flow is sufficient to provide the heat removal to prevent a challenge to the Pzr Safeties during a full power ATWS followed by a complete loss of off-site power.

Proposed Answer: A

Distracter Explanation:

- B. Only one pump is required.
- C. Only one pump is required, no ATWS or loss of off-site power is described.
- D. No loss of off-site power or ATWS is required in bases.

Outline #: S020 Page 1 of 2

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>3</u>	<u>3</u>
	K/A #	G2.3.2	
	Importance Rating	<u>2.5</u>	<u>2.9</u>

Proposed Question:

You are the Shift Supervisor and one of the Equipment Operators on your shift will soon exceed his administrative limit for Whole Body TEDE. You and the duty H. P. Supervisor determine that an extension of 500 mR will be sufficient for the rest of the year.

Which ONE of the following is required for approval for such an extension?

- A. Your approval as Shift Supervisor.
- B. Superintendent, Radiation Protection & Chemistry.
- C. Vice President and Chief Nuclear Officer.
- D. Extensions are not permitted in non-emergency situations.

Proposed Answer: C

Distracter Explanation:

Authorization to exceed an administrative dose limit may be granted only by the Vice President and Chief Nuclear Officer or during declared emergencies, the Recovery Manager or the Emergency Coordinator.

Technical Reference(s): APA-ZZ-01000, Callaway Plant Health Physics Program
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B.9 T61.003A.6, LP A-31, APA-ZZ-01000

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 4 55.41 12

Comments: _____

Outline #: S021

Author: DGL

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 #	G2.3.10	
	Importance Rating	<u>2.9</u>	<u>3.3</u>

Proposed Question:

A job must be performed under the following conditions:

- Dose rate at job location is 90 mrem/hr.
- Internal dose if respirator is worn is 0 mrem.
- Internal dose if no respirator is worn is 22 mrem.
- Time to complete job while wearing a respirator is 3.5 hours.
- Time to complete job without wearing a respirator is 3 hours.

Which ONE of the following is correct concerning the wearing of a respirator for this job?

- A. A respirator must be worn anytime airborne radiation is present.
- B. Wearing a respirator will make no difference to the total exposure.
- C. Wearing a respirator will increase total exposure.
- D. Wearing a respirator will decrease total exposure.

Proposed Answer: C

Distracter Explanation:

Without respirator: Total dose = 90 mrem/hr x 3 hours + 22 mrem = 292 mrem.
 With respirator: Total dose = 90 mrem/hr x 3.5 hours = 315 mrem.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T68.0410.8, Radiation Worker Category II

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** 4 **55.41** 12

Comments: _____

Outline #: S022

Author: DGL

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>3</u>	<u>3</u>
	Group #	<u>4</u>	<u>4</u>
	K/A #	G2.4.21	
	Importance Rating	<u>3.7</u>	<u>4.3</u>

Proposed Question:

The following plant conditions exist:

- Reactor trip due to seismic induced LOCA.
- All RCPs are tripped.
- Containment spray has been actuated.
- Crew currently performing E-1, Loss of Reactor or Secondary Coolant.

The STA notes the following:

- Source Range NI 10^3 CPS, -.2 DPM SUR
- RVLIS pumps off – 38%.
- Incore thermocouples – 762°F.
- Total Aux Feed flow – 360,000 lbm/hr.
- All S/G NR levels – off scale low.
- Containment pressure – 12 psig.
- Containment temperature – 183°F.

Which ONE of the following identifies the monitoring frequency required for the Critical Safety Function Status Trees?

- A. Continuous
- B. Every 5 minutes
- C. Every 15 minutes
- D. Every 30 minutes

Proposed Answer: A

Distracter Explanation:

The candidate is required to realize the plant is in a red path on core cooling and apply it to CSF scanning frequency rules.

Outline #: S023 Page 1 of 2

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 #	G2.4.29	
	Importance Rating	<u>2.6</u>	<u>4.0</u>

Proposed Question:

Which ONE of the following is the FIRST action the Emergency Coordinator should perform when an Emergency Action Level (EAL) has been exceeded?

- A. Notify facility personnel.
- B. Notify on-site personnel.
- C. Notify off-site agencies.
- D. Manually initiate ERFIS.

Proposed Answer: A

Distracter Explanation:

- B. Notify on-site personnel is the third action.
- C. Notify off-site agencies is required, but not the first.
- D. Manually initiate ERFIS is the second action.

Technical Reference(s): _____
 (Attach if not previously provided)

Proposed references provided to applicants during examination: None.

Learning Objective(s): D T68.1020.6, RERP / Emergency Coordinator

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** 1 **55.41** 10

Comments: _____

Outline #: S024

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 #	G2.4.44	
	Importance Rating	<u>2.1</u>	<u>4.0</u>

Proposed Question:

At which ONE of the following Emergency Action Levels is a Protective Action Recommendation first mandatory?

- A. Unusual event
- B. Alert
- C. Site Emergency
- D. General Emergency

Proposed Answer: D

Distracter Explanation:

Initial recommendations must be made at the General Emergency level. Subsequent recommendations will be made in accordance with EIP-ZZ-00212, Attachment 1.

Technical Reference(s):

(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: H T68.1020.6, RERP / Emergency Coordinator

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** 1 **55.41** 10

Comments: _____

Outline #: S025

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