NRC EXAM SCHEDULE - CALLAWAY, 7/10/00

Assignments: E1=I1,R2,U1; E2=I2,I3; E3=R1,I4 Note: See assignment list for applicant names.

MON - JPMs S1, S2[1], S3[1], A1, A2

1400-1600 ☞ I1,I2,R1 [E1,E2,E3]

1600-1800 ☞ R2,I3,I4 [E1,E2,E3]

1800-1900 ☞ U1 [E1]

TUE - JPMs S4, S5[1], S6[1], C1, P1, P2[1]

1500-1800 ☞ I1,I2,R1 [E1,E2,E3]

1800-1830 ☞ Supper

1830-2130 ☞ R2,I3,I4 [E1,E2,E3]

2130-2300 ☞ U1 [E1]

WED[2] - Scenario 1[3], JPMs A4, P3

1500-1730 ☞ I1,I2,R1 [E1,E2,E3]

1730-1800 ☞ Supper

1800-2030 ☞ I3,I4[E2,E3]

2030-2300 ☞ R2[E1]

THU - Scenario 2[3], JPMs A3, A5

1500-1730 ☞ I3,I4,R2 [E2,E3,E1]

1730-1800 ☞ Supper

1800-2030 ☞ I1,I2 [E1,E2]

2030-2300 ☞ U1,R1[E1,E3]

NOTES:

1. JPMs S2 and S3 and S5 and S6, respectively, should be designed for simultaneous administration. U1 will not perform these JPMs.
2. U1 will be available at 1800 on Wednesday to perform JPMs.
3. Crew rotation for scenarios is attached.
4. Exit will be Friday at 9am.

NRC EXAM SCHEDULE - CALLAWAY, 7/10/00

DYNAMIC SIMULATOR CREW ROTATIONS

First Day of Dynamic Simulator Exams

Scenario #1	Scenario #1	Scenario #1
I1 - CRS	I3 - RO	S1 -CRS
I2 - RO	I4 - CRS	S2 -BOP
R1 - BOP	S1 - BOP	R2 - RO

Second Day of Dynamic Simulator Exams

Scenario #2	Scenario #2	Scenario #2
I3 - CRS	I1 - RO	U1 -CRS
I4 - RO	I2 - CRS	S1 -BOP
R2 - BOP	S2- BOP	R1 -RO

U1 - Upgrade SRO
I1, I2, I3, and I4 - Instant SROs
R1 and R2 - ROs
S1 and S2 - Surrogates

This will ensure that each Instant SRO is evaluated as a CRS and RO, that each RO is evaluated as an RO and BOP, and the Upgrade SRO is evaluated as a CRS.

Assignment List For Applicant Names

NRC EXAM SCHEDULE - CALLAWAY, 7/10/00

EXAM SCHEDULE MATERIAL CROSS REFERENCE

JPMs

S1 : ILE-7/2000-JPM1
S2 : ILE-7/2000-JPM5
S3 : ILE-7/2000-JPM7

These three JPMs are designed for simultaneous administration.

S4 : ILE-7/2000-JPM4
S5 : ILE-7/2000-JPM3
S6 : ILE-7/2000-JPM6

These three JPMs are designed for simultaneous administration.

C1 : ILE-7/2000-JPM2

P1 : ILE-7/2000-JPM9
P2 : ILE-7/2000-JPM10
P3 : ILE-7/2000-JPM8

RO ADMIN

A1 : ILE-7/2000-ADM1JPM
A2 : ILE-7/2000-ADM2JPM
A3 : ILE-7/2000-ADM3JPM
A4 : ILE-7/2000-ADM4JPM
A5 : ILE-7/2000-ADM1QUE
A5 : ILE-7/2000-ADM2QUE

SRO ADMIN

A1 : ILE-7/2000-ADM5JPM
A2 : ILE-7/2000-ADM6JPM
A3 : ILE-7/2000-ADM7JPM
A4 : ILE-7/2000-ADM4JPM
A5 : ILE-7/2000-ADM8JPM

DYNAMIC SCENARIOS

Scenario 1 : ILE-7/2000-DS1
Scenario 2 : ILE-7/2000-DS2

CALLAWAY PLANT
ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO:	ILE-7/2000-ADM1JPM	KSA NO:	G2.1.23
COMPLETION TIME:	15 MINUTES	KSA RATING:	3.9/4.0
JOB TITLE:	URO	REVISION:	000512
DUTY:	NUCLEAR INSTRUMENTATION		
TASK TITLE:	PERFORM A QPTR CALCULATION		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: OSP-SE-00003, CURVE BOOK TABLE 11-1 AFD=0%

TOOLS/EQUIPMENT: CALCULATOR

FACILITY REPRESENTATIVE: //EDWARD B. STEWART// DATE: 6/1/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/1/00

ADMIN JPM NO: ILE-7/2000-ADM1JPM

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

Initial Conditions: CALLAWAY IS AT 100% POWER WITH STABLE PLANT CONDITIONS. THE PLANT COMPUTER IS INOPERABLE AND THE PC PROGRAM OSPSE3 IS NOT AVAILABLE FOR USE.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PERFORM A QPTR PER SECTION 6.3 OF OSP-SE-00003, QUADRANT POWER TILT RATIO CALCULATION USING THE FOLLOWING NI DETECTOR CURRENTS:

CHANNEL	I_{top}	I_{bottom}
N41	192.2	199.9
N42	163.5	181.8
N43	180.3	189.2
N44	174.3	181.2

INFORM THE CONTROL ROOM SUPERVISOR WHEN DONE.

TASK STANDARD: UPON COMPLETION OF THIS TASK THE CANDIDATE WILL HAVE PERFORMNED A QPTR USING THE MANUAL METHOD. THE CALCULATED POWER TILT RATIOS WILL BE:

	N41	**N42**	**N43**	**N44**
UPPER	1.01	1.01	0.98	1.00
LOWER	0.99	1.00	1.00	1.01

SEE ATTACHMENT 1 FOR CALCULATIONS. APPLICANT'S CALCULATIONS SHOULD BE WITHIN ± 0.01.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
1. OBTAIN A COPY OF OSP-SE-00003, QUADRANT POWER TILT RATIO CALCULATION	CANDIDATE SHOULD OBTAIN A COPY OF OSP-SE-00003, QUADRANT POWR TILT RATIO CALCULATION PROVIDE CANDIDATE WITH COPY OF OSP-SE-00003	**S** **U** Comments:
2. REVIEW ACCEPTANCE CRITERIA OF OSP-SE-00003 QUADRANT POWER TILT RATIO CALCULATION STEP 2.0	CANDIDATE SHOULD REVIEW ACCEPTANCE CRITERIA OF OSP-SE-00003, QUADRANT POWER TILT RATIO CALCULATION	**S** **U** Comments:
3. REVIEW PRECAUTIONS AND LIMITATIONS OF OSP-SE-00003, QUADRANT POWER TILT RATIO CALCULATION STEP 3.0	CANDIDATE SHOULD REVIEW PRECAUTIONS AND LIMITATIONS OF OSP-SE-00003, QUADRANT POWER TILT RATIO CALCULATION	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
4. AT THE NUCLEAR INSTRUMENT PANEL (SE054) READ AND RECORD THE CURRENT OUTPUT FROM THE UPPER AND LOWER DETECTOR OF EACH OPERABLE CHANNEL ON ATTACHMENT 1 STEP 6.3.1	CANDIDATE SHOULD USE THE PROVIDED DATA AND ENTER 192.2 (N41), 163.5 (N42), 180.3 (N43) AND 174.3 (N44) FOR THE UPPER AND 199.9 (N41), 181.8 (N42), 189.2 (N43) AND 181.2 (N44) AT STEP 6.3.1 (DETECTOR CURRENT) ON ATTACHMENT 1	**S U** Comments:
5. RECORD THE 100% POWER LEVEL DETECTOR CURRENT FOR THE UPPER AND LOWER DETECTORS OF EACH OPERABLE CHANNEL FROM CURVE BOOK TABLE 11-1 AFD=0% STEP 6.3.2	PROVIDE CANDIDATE WITH TABLE 11-1. OPERATOR SHOULD RECORD 190.3 (N41), 161.9 (N42), 184.0 (N43) AND 174.3 (N44) FOR THE UPER DETECTORS AND 199.9 (N41), 180.0 (N42), 187.3 (N43), AND 177.6 (N44) FOR THE LOWER DETECTORS AT STEP 6.3.2 ON ATTACHMENT 1	**S U** Comments:
6. DIVIDE EACH OPERABLE DETECTOR CURRENT BY ITS 100% POWER DETECTOR CURRENT AND ENTER IT AS THE NORMALIZED DETECTOR CURRENT FOR EACH CHANNEL ON ATTACHMENT 1 STEP 6.3.3	CANDIDATE SHOULD DIVIDE THE FOLLOWING UPPER CHANNEL: (N41) 192.2/190.3=1.01 (N42) 163.5/161.9=1.01 (N43) 180.3/184.0=0.98 (N44) 174.3/174.3=1.00 RECORD AT STEP 6.3.3 ON ATTACHMENT 1	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
7. DIVIDE EACH OPERABLE DETECTOR CURRENT BY ITS 100% POWER DETECTOR CURRENT AND ENTER IT AS THE NORMALIZED DETECTOR CURRENT FOR EACH CHANNEL ON ATTACHMENT 1 STEP 6.3.3	CANDIDATE SHOULD DIVIDE THE FOLLOWING LOWER CHANNEL: (N41) 199.9/199.9=1.00 (N42) 181.8/180.8=1.01 (N43) 189.2/187.3=1.01 (N44) 181.2/177.6=1.02 RECORD AT STEP 6.3.3 ON ATTACHMENT 1	**S U** Comments:
8. ADD THE NORMALIZED UPPER DETECTOR CURRENTS AND DIVIDE BY THE NUMBER OF OPERABLE CHANNELS TO DERIVE THE UPPER DETECTOR NORMALIZED CURRENT AVERAGE AND RECORD ON ATTACHMENT 1 STEP 6.3.4	CANDIDATE SHOULD ADD THE 4 NORMALIZED UPPER DETECTOR CURRENTS FROM STEP 6.3.3 AND DIVIDE BY 4 1.01 + 1.01 + 0.98 + 1.00 = 4.00 4.00/4 = 1.00 RECORD 1.00 AT STEP 6.3.4 ON ATTACHMENT 1	**S U** Comments:
9. ADD THE NORMALIZED LOWER DETECTOR CURRENTS AND DIVIDE BY THE NUMBER OF OPERABLE CHANNELS TO DERIVE THE LOWER DETECTOR NORMALIZED CURRENT AVERAGE AND RECORD ON ATTACHMENT 1 STEP 6.3.5	CANDIDATE SHOULD ADD THE 4 NORMALIZED LOWER DETECTOR CURRENTS FROM STEP 6.3.3 AND DIVIDE BY 4 1.00 + 1.01 + 1.01 + 1.02 = 4.04 4.04/4 = 1.01 RECORD 1.01 AT STEP 6.3.5 ON ATTACHMENT 1	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
10.* DIVIDE THE UPPER NORMALIZED DETECTOR CURRENT BY THE UPPER NORMALIZED DETECTOR CURRENT AVERAGE TO OBTAIN THE POWER TILT RATIO FOR EACH OPERABLE UPPER CHANNEL AND RECORD ON ATTACHMENT 1 STEP 6.3.6	CANDIDATE SHOULD DIVIDE THE UPPER NORMALIZED DETECTOR CURRENTS (STEP 6.3.3) BY THE VALUE FROM STEP 6.3.4 (N41) 1.01/1.00=1.01 (N42) 1.01/1.00=1.01 (N43) 0.98/1.00=0.98 (N44) 1.00/1.00=1.00 RECORD ON STEP 6.3.6 ON ATTACHMENT 1	**S U** Comments:
11.* DIVIDE THE LOWER NORMALIZED DETECTOR CURRENT BY THE LOWER NORMALIZED DETECTOR CURRENT AVERAGE TO OBTAIN THE POWER TILT RATIO FOR EACH OPERABLE LOWER CHANNEL AND RECORD ON ATTACHMENT 1 STEP 6.3.7	CANDIDATE SHOULD DIVIDE THE LOWER NORMALIZED DETECTOR CURRENTS (STEP 6.3.3) BY THE VALUE FROM STEP 6.3.5 (N41) 1.00/1.01=0.99 (N42) 1.01/1.01=1.00 (N43) 1.01/1.01=1.00 (N44) 1.02/1.01=1.01 RECORD ON STEP 6.3.6 ON ATTACHMENT 1	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
12. IF QPTR IS CALUCLATED TO BE >1.02 COMPLETE ATTACHMENT 2 AND REFER TO T/S 3.2.4.A STEP 6.3.8	CANDIDATE SHOULD DETERMINE QPTR IS < 1.02	**S U** Comments:
13.	**THE JPM IS COMPLETE** **<u>RECORD STOP TIME ON PAGE 1</u>**	**S U** Comments:
14.	COMPARE CANDIDATE'S ATTACHMENT 1 WITH THE ONE PROVIDED TO ENSURE THE QPTR DOES NOT EXCEED 1.02 FOR ANY CHANNEL	**S U** Comments:

* CRITICAL STEP

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

Initial Conditions: CALLAWAY IS AT 100% POWER WITH STABLE PLANT CONDITIONS. THE PLANT COMPUTER IS INOPERABLE AND THE PC PROGRAM OSPSE3 IS NOT AVAILABLE FOR USE.

.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO PERFORM A QPTR PER SECTION 6.3 OF OSP-SE-00003, QUADRANT POWER TILT RATIO CALCULATION USING THE FOLLOWING NI DETECTOR CURRENTS:

CHANNEL	I_{top}	I_{bottom}
N41	192.2	199.9
N42	163.5	181.8
N43	180.3	189.2
N44	174.3	181.2

INFORM THE CONTROL ROOM SUPERVISOR WHEN DONE.

CALLAWAY PLANT
ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO:	ILE-7/2000-ADM2JPM	KSA NO:	G2.1.25
COMPLETION TIME:	20 MINUTES	KSA RATING:	2.8/3.1
JOB TITLE:	URO	REVISION:	000601
DUTY:	CVCS		
TASK TITLE:	CALCULATE BORON ADDITION FOR PLANT SHUTDOWN		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: OTO-SF-00006, CURVE BOOK FIGURES 4-5b, 5-2, 6-1b, 7-3

TOOLS/EQUIPMENT: CALCULATOR, RULER (STRAIGHT EDGE)

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 6/1/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/1/00

ADMIN JPM NO: ILE-7/2000-ADM2JPM

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

Initial Conditions: CALLAWAY PLANT IS IN MODE 1, 100% POWER, MOL, STEADY STATE CONDITIONS. THE CRITICAL BORON CONCENTRATION IS 900 PPM BY LAST SAMPLE TAKEN THIS MORNING. OPERATORS ARE IN OTO-SF-00006, FAILURE OF CONTROL BANKS TO MOVE.

Initiating Cues: 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. INFORM THE CONTROL ROOM SUPERVISOR WHEN DONE.

TASK STANDARD: UPON COMPLETION OF THE TASK THE CANDIDATE WILL HAVE PERORMED A BORON ADDITION CALCULATION USING THE CURVE BOOK. IF THE CANDIDATE USES FIGURE 7-3 NOMOGRAPH, ANSWER SHOULD BE 4,500 GALLONS ± 450 GALLONS (4050-4950 GALLONS). IF THE CANDIDATE USES THE FORMULA METHOD, THE ANSWER SHOULD BE 5,254 GALLONS ± 525 GALLONS (4729-5779 GALLONS).

Notes: **USE OF ANY COMPUTER IS <u>NOT</u> ALLOWED.**

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
1. DETERMINE POWER DEFECT. USE FIGURE 6-1b 900 PPM BORON LINE AT 100% POWER DETERMINE POWER DEFECT. **STEPS MAY BE PERFORMED IN ANY ORDER**	CANDIDATE SHOULD USE THE 900 PPM BORON LINE FROM FIGURE 6-1b AT 100% POWER AND DETERMINE POWER DEFECT TO BE –1600 PCM.	**S U** Comments:
2. DETERMINE EQUILIBRIUM XENON REACTIVITY FOR 100% POWER.	CANDIDATE SHOULD USE FIGURE 4-5b 100% POWER AND DETERMINE EQUILIBRIUM XENON REACTIVITY IS –2750 PCM.	**S U** Comments:
3. DETERMINE TOTAL REACTIVITY CHANGE THAT WILL HAVE TO BE ACCOUNTED FOR	CANDIDATE SHOULD ADD POWER DEFECT AMOUNT TO XENON AMOUNT. PWR DEF -1600 PCM Xe +(-2750) PCM TOTAL - 4350 PCM	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
4. DETERMINE DIFFERENTIAL BORON WORTH FOR 900 PPM BOL FROM FIGURE 5-2	CANDIDATE SHOULD USE FIGURE 5-2 MOL LINE AND 900 PPM BORON CONCENTRATION TO DETERMINE DBW IS –8.67 PCM/PPM	**S** **U** Comments:
5. DETERMINE REQUIRED BORON PPM CHANGE BY DIVIDING TOTAL REQUIRED PCM CHANGE BY THE DBW	CANDIDATE SHOULD DIVIDE TOTAL REACTIVITY CHANGE (-4350 PCM) BY THE DBW (-8.67 PCM/PPM). -4350/-8.67 = 502 REQUIRED BORON CHANGE IS 502 PPM.	**S** **U** Comments:
6.* <u>METHOD 1</u> DETERMINE GALLONS ADDITION REQUIRED USING CURVE BOOK FIGURE 7-3	CANDIDATE SHOULD USE A RULER AND PLACE ONE POINT AT 900 PPM INITIAL BORON CONCENTRATION AND THE OTHER AT 502 PPM BORON ADDITION AND DETERMINE 4,500 ± 450 GALLONS ADDITION REQUIRED (4050-4950 GALLONS)	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
7.* <u>METHOD 2</u> $V_B = \frac{M}{8.33} \ln\left(\frac{7000 - Ci}{7000 - C_f}\right)$ Ci= INITIAL BORON CONC (900 PPM) Cf=FINAL BORON CONC (1402 PPM) M=AVERAGE RCS MASS (509650 LBM) CURVE BOOK FIGURE 7-3	IF THE OPERATOR USES THE $V_B = \frac{M}{8.33} \ln\left(\frac{7000 - Ci}{7000 - C_f}\right)$ DETERMINE 5,254 ± 525 GALLONS ADDITION REQUIRED (4729-5779 GALLONS)	**S U** Comments:
8.	**THE JPM IS COMPLETE** **<u>RECORD STOP TIME ON PAGE 1</u>**	**S U** Comments:
9.	COMPARE CANDIDATE'S ANSWER WITH THE FOLLOWING: <u>METHOD 1:</u> **4050-4950 GALLONS** <u>METHOD 2:</u> **4729-5779 GALLONS**	**S U** Comments:

* CRITICAL STEP

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

Initial Conditions: CALLAWAY PLANT IS IN MODE 1, 100% POWER, MOL, STEADY STATE CONDITIONS. THE CRITICAL BORON CONCENTRATION IS 900 PPM BY LAST SAMPLE TAKEN THIS MORNING. OPERATORS ARE IN OTO-SF-00006, FAILURE OF CONTROL BANKS TO MOVE.

Initiating Cues: 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. INFORM THE CONTROL ROOM SUPERVISOR WHEN DONE.

Notes: **USE OF ANY COMPUTER IS <u>NOT</u> ALLOWED.**

CALLAWAY PLANT
ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO:	ILE-7/2000-ADM3JPM	KSA NO:	G2.2.13
COMPLETION TIME:	20 MINUTES	KSA RATING:	3.6/3.8
JOB TITLE:	URO	REVISION:	000601
DUTY:	ADMINISTRATIVE		
TASK TITLE:	TAG OUT 'A' CLOSED COOLING WATER PUMP (PEB01A)		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: APA-ZZ-00310, ODP-ZZ-00310, M22EB01, E23EB01

TOOLS/EQUIPMENT: TAGOUT CONTINUATION SHEET

FACILITY REPRESENTATIVE: //EDWARD B. STEWART// DATE: 6/1/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/1/00

ADMIN JPM NO: ILE-7/2000-ADM3JPM

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

Initial Conditions: THE 'A' CLOSED COOLING WATER PUMP (PEB01A) MUST BE TAGGED OUT TO REPLACE THE OUTBOARD PUMP BEARING. USE OF THE MAINFRAME COMPUTER IS NOT ALLOWED.

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

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

INFORM THE CONTROL ROOM SUPERVISOR WHEN DONE.

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

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

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
1. PROVIDE CANDIDATE WITH MATERIAL AND ALLOW HIM TO REVIEW WORK TO BE PERFROMED **STEPS MAY BE PREFORMEND IN ANY ORDER**	CANDIDATE SHOULD REIVEW ADMIN JPM INITIAL CONDITIONS AND INITIATING CUES.	**S U** Comments:
2.* DETERMINE TYPE OF WPA REQUIRED FOR TAGGING OUT 'A' CLOSED COOLING WATER PUMP (PEB01A) IS A HOLD OFF APA-ZZ-00310, STEP 2.19.3 OR 4.1.1	CANDIDATE MAY REVIEW APA-ZZ-00310 TO ENSURE TAGGING IS FOR HUMAN PROTECTION, AND THE EQUIPMENT WILL NOT BE OPERATED CANDIDATE SHOULD DETERMINE A HOLD OFF IS REQUIRED	**S U** Comments:
3. DETERMINE HANDSWITCH EBHIS0001 FOR 'A' CLOSED COOLING WATER PUMP MAY BE TAGGED TO THE NORMAL AFTER STOP POSITON PRINT E23EB01 UNDER HIS NUMBER	CANDIDATE SHOULD DETERMINE A TAG SHOULD BE PLACED ON THE MCB HANDSWITCH, EBHIS0001 PER PRINT E23EB01 AND ODP-ZZ-00310, STEP 4.1.10 OR 4.9.4.13	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
4.* DETERMINE 'A' CLOSED COOLING WATER PUMP BREAKER, PG13RBR5 SHOULD BE TAGGED TO THE OFF/OPEN POSITON PRINT E23EB01 UNDER MCC LOCATION	CANDIDATE SHOULD DETERMINE THE POWER SUPPLY FOR PEB01A IS PG13RBR5 AND IS REQUIRED TO BE TAGGED TO THE OFF/OPEN POSITION	**S U** Comments:
5.* DETERMINE 'A' CLOSED COOLING WATER PUMP SUCTION VAVLE, EBV0038, SHOULD BE TAGGED CLOSED PRINT M22EB01, C7	CANDIDATE SHOULD DETERMINE EBV0038, PEB01A SUCTION VALVE IS REQUIRED TO BE TAGGED CLOSED	**S U** Comments:
6.* DETERMINE 'A' CLOSED COOLING WATER PUMP DISCHARGE VALVE, EBV0004, SHOULD BE TAGGED CLOSED PRINT M22EB01, C6	CANDIDATE SHOULD DETERMINE EBV0004, PEB01A DISCHARGE VALVE IS REQUIRED TO BE TAGGED CLOSED	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
7. DETERMINE 'A' CLOSED COOLING WATER PUMP SUCTION SIDE DRAIN VALVE, EBV0120, SHOULD BE TAGGED OPEN PRINT M22EB01, C6	CANDIDATE SHOULD DETERMINE EBV0120, PEB01A SUCTION SIDE DRAIN VALVE, SHOULD BE TAGGED OPEN OR OPEN/CAP REMOVED	**S U** Comments:
8. DETERMINE 'A' CLOSED COOLING WATER PUMP CASING DRAIN VALVE, EBV0090 SHOULD BE TAGGED OPEN PRINT M22EB01, C6	CANDIDATE SHOULD DETERMINE EBV0090, PEB01A, PUMP CASING DRAIN VALVE SHOULD BE TAGGED OPEN OR OPEN/CAP REMOVED	**S U** Comments:
9. DETERMINE 'A' CLOSED COOLING WATER PUMP CASING VENT VALVE, EBV0089, SHOULD BE TAGGED OPEN PRINT M22EB01, C6	CANDIDATE SHOULD DETERMINE EBV0089, PEB01A PUMP CASING VENT VALVE, SHOULD BE TAGGED OPEN OR OPEN/CAP REMOVED	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
10. DETERMINE 'A' CLOSED COOLING WATER PUMP SUCTION VENT VALVE, EBV0130, SHOULD BE TAGGED OPEN PRINT M22EB01, C6	CANDIDATE SHOULD DETERMINE EBV0130, PEB01A PUMP SUCTION VENT VALVE, SHOULD BE TAGGED OPEN OR OPEN/CAP REMOVED	**S U** Comments:
11.	**THIS ADMIN JPM IS COMPLETE** **<u>RECORD STOP TIME ON PAGE 1</u>**	**S U** Comments:
12.	COMPARE CANDIDATE'S TAGOUT CONTINUATION SHEET TO THE ATTACHED. ENSURE THE FOLLOWING: WPA TYPE: **HOLD OFF** **PG13RBR5: OFF OR OPEN** **EBV0038: CLOSED** **EBV0004: CLOSED** **TAG SEQUENCE IS <u>NOT</u> CRITICAL**	**S U** Comments:

* CRITICAL STEP

ILE-7/2000-ADM3JPM

TAGOUT CONTINUATION SHEET

WPA TYPE: HOLD OFF

TAG SEQUENCE NUMBER	TAGGED COMPONENT	TAGGING POSITION
1	EBHIS0001	NORMAL AFTER STOP
2	PG13RBR5	OFF
3	EBV0038	CLOSED
4	EBV0004	CLOSED
5	EBV0120	OPEN/CAP REMOVED
6	EBV0090	OPEN/CAP REMOVED
7	EBV0089	OPEN/CAP REMOVED
8	EBV0130	OPEN/CAP REMOVED

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

Initial Conditions: THE 'A' CLOSED COOLING WATER PUMP (PEB01A) MUST BE TAGGED OUT TO REPLACE THE OUTBOARD PUMP BEARING. USE OF THE MAINFRAME COMPUTER IS NOT ALLOWED.

.

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

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

INFORM THE CONTROL ROOM SUPERVISOR WHEN DONE.

Notes: **USE OF THE MAINFRAME COMPUTER IS <u>NOT</u> ALLOWED.**

ILE-7/2000-ADM3JPM

TAGOUT CONTINUATION SHEET

WPA TYPE: _____

TAG SEQUENCE NUMBER	TAGGED COMPONENT	TAGGING POSITION

CALLAWAY PLANT
ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO:	ILE-7/2000-ADM4JPM	KSA NO:	G2.3.10
COMPLETION TIME:	20 MINUTES	KSA RATING:	2.9/3.3
JOB TITLE:	URO/SRO	REVISION:	000515
DUTY:	ADMINISTRATIVE		
TASK TITLE:	DETERMINE RADIOLOGICAL REQUIREMENTS TO ENTER A HIGH RADIATION AREA		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: HDP-ZZ-01500, M22BGO2, M2G022

TOOLS/EQUIPMENT: MAIN FRAME COMPUTER

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 6/2/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/2/00

ADMIN JPM NO: ILE-7/2000-ADM4JPM

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

Initial Conditions: CALLAWAY PLANT IS 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.

Initiating Cues: THE SHIFT SUPERVISOR HAS DIRECTED YOU TO LOCATE BGV0534 TO ASSESS IT'S CONDITON. YOU ARE TO:

- DETERMINE THE VALVE'S LOCATION AND DEMONSTRATE ABILITY TO LOCATE VALVE IN PLANT (ESCORT EVALUATOR TO VALVE ROOM).
- DISCUSS RADIOLOGICAL REQUIREMENTS TO ENTER ROOM.

Notes: DO NOT ALLOW CANDIDATE TO ENTER ROOM. CANDIDATE MAY DISCUSS ENTRY REQUIREMENTS WITH HEALTH PHYSICS PERSONNEL. **THIS ADMIN JPM SHOULD BE DONE JUST PRIOR TO P3 (ILE-7/2000-JPM8) DURING RCA ENTRY.**

TASK STANDARD: UPON COMPLETION OF THE TASK THE CANDIDATE WILL HAVE DETERMINED BGV0534 IS IN 'A' CVCS MIXED BED DEMINERALIZER ROOM, PHYSICALLY SHOW THE EVALUATOR THE ROOM LOCATION, AUX BUILDING 2000 LEVEL, ROOM 1308C, AND THE FOLLOWING REQUIREMENTS EXIST:

- CONTACT HP FOR SURVEY PRIOR TO ENTRY
- CAUTION HIGH RAD AREA
- CONTAMINATION AREA

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
1. DETERMINE LOCATION OF BGV0534. CANDIDATE MAY USE ANY METHOD TO DETERMINE VALVE LOCATION: CEL, OTN CHECKLIST, MAIN FRAME COMPUTER, DRAWING, ETC…. **STEPS MAY BE PERFORMED IN ANY ORDER**	CANDIDATE SHOULD DETERMINE THE LOCATION OF BGV0534. PRINT M22BG02 AND M2G022 OR MAIN FRAME COMPUTER WILL SHOW LOCATION IN 'A' CVCS MIXED BED DEMIN ROOM (ROOM 1308C)	**S U** Comments:
2.* PHYSICALLY SHOW THE EVALUATOR 'A' CVCS MIXED BED DEMIN ROOM (ROOM 1308C)	CANDIDATE SHOULD TAKE EVALUATOR TO THE ENTRANCE OF ROOM 1308C LOCATED IN THE AUXILIARY BUILDING 2000 LEVEL IF CANDIDATE ATTEMPTS TO ENTER THE ROOM WITOUT HP PERSONNEL OR A SURVEY A FAILURE WILL RESULT.	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
3.* DISCUSS RADIOLOGICAL REQUIREMENTS TO ENTER ROOM 1308C AT ROOM DOOR OR USE OTHER METHODS: HP PERSONNEL SURVEY MAPS HISTORICAL RECORD DATA COMPUTER	CANDIDATE SHOULD DISCUSS REQUIREMENTS TO ENTER ROOM 1308C: CONTACT HP FOR SURVEY PRIOR TO ENTRY CAUTION HIGH RADIATION AREA COMTAMINATION AREA	**S U** Comments:
4.	**THE JPM IS COMPLETE** **<u>RECORD STOP TIME ON PAGE 1</u>**	**S U** Comments:
5.	COMPARE CANDIDATE'S RESULTS WITH THE FOLLOWING: **ESCORT EVALUATOR TO AUX BUILDING 2000 LEVEL ROOM 1308C** **CONTACT HP FOR SURVEY PRIOR TO ENTRY** **CAUTION HIGH RADIATION AREA** **COMTAMINATION AREA**	**S U** Comments:

* CRITICAL STEP

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

Initial Conditions: CALLAWAY PLANT IS 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.

Initiating Cues: THE SHIFT SUPERVISOR HAS DIRECTED YOU TO LOCATE BGV0534 TO ASSESS IT'S CONDITON. YOU ARE TO:

- DETERMINE THE VALVE'S LOCATION AND DEMONSTRATE ABILITY TO LOCATE VALVE IN PLANT (ESCORT EVALUATOR TO VALVE ROOM).
- DISCUSS RADIOLOGICAL REQUIREMENTS TO ENTER ROOM.

CALLAWAY PLANT
ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO:	ILE-7/2000-ADM5JPM	KSA NO:	G2.1.29
COMPLETION TIME:	15 MINUTES	KSA RATING:	3.4/3.3
JOB TITLE:	SRO	REVISION:	000601
DUTY:	NORMAL OPERATIONS		
TASK TITLE:	DEMONSTRATE ABLILITY TO CONDUCT VALVE LINEUPS		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: OTN-TS-00001

TOOLS/EQUIPMENT: STAR PUMPING SYSTEM TRAINIER

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 6/2/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/2/00

ADMIN JPM NO: ILE-7/2000-ADM5JPM

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

Initial Conditions: THE STAR PUMPING SYSTEM SINGLE PUMP RUN OPERATION IS REQUIRED TO BE PERFORMED. CHECKOFF LIST 0002 (TRAINING SYSTEM ELECTRICAL LINEUP) IS COMPLETE. CHECKOFF LIST 0001 (TRAINING SYSTEM VAVLE LINEUP) HAS NOT BEEN COMPLETED.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO COMPLETE THE IV CHECK OF CHECKOFF LIST 0001, TRAINING SYSTEM VALVE LINEUP TO SUPPORT PERFORMANCE OF OTN-TS-00001, STAR PUMPING SYSTEM-SINGLE PUMP OPERATION.

TASK STANDARD: UPON COMPLETION OF THIS TASK THE CANDIDATE WILL HAVE COMPLETED CHECKOFF LIST 0001, AND IDENTIFIED TSV0001 AND TSV0005 WERE IN THE INCORRECT POSITIONS.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
1. OBTAIN A COPY OF OTN-TS-00001, STAR PUMPING SYSTEM-SINGLE PUMP OPERATION, CHECKOFF LIST 0001	CANDIDATE SHOULD OBTAIN A COPY OF OTN-TS-00001, STAR PUMPING SYSTEM-SINGLE PUMP OPERATION CHECK LIST 0001 PROVIDE CANDIDATE A COPY OF THE PROCEDURE	**S U** Comments:
*2. VERIFY TSV0001, PUMP PTS01 SUCTION ISOLATION VALVE IS OPEN SEQ 1	CANDIDATE SHOULD IDENTIFY TSV0001 IS CLOSED **NOTE: TSV0001 IS CLOSED**	**S U** Comments:
3. OPEN TSV0001, PUMP PTS01 SUCTION ISOLATION VALVE	CANDIDATE SHOULD OPEN TSV0001, PUMP PTS01 SUCTION ISOLATION VALVE NOTE: **IF CANDIDATE ASK TO CALL THE SS/OS, HAVE HIM OPEN TSV0001**	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
4. VERIFY TSV0002, PUMP PTS02 SUCTION ISOLATION VALVE IS OPEN SEQ 2	CANDIDATE SHOULD VERIFY TSV0002, PUMP PTS02 SUCTION ISOLATION VALVE IS OPEN	**S** **U** Comments:
5. VERIFY TSV0003, PUMP PTS01 DISCHARGE ISOLATION VALVE IS CLOSED SEQ 3	CANDIDATE SHOULD VERIFY TSV0003, PUMP PTS01 DISCHARGE ISOLATION VALVE IS CLOSED	**S** **U** Comments:
6. VERIFY TSV0004, PUMP PTS02 DISCHARGE ISOLATION VALVE IS CLOSED SEQ 4	CANDIDATE SHOULD VERIFY TSV0004, PUMP PTS02 DISCHARGE ISOLATION VAVLE IS CLOSED	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
*7. VERIFY TSV0005, PUMP PTS01 STARTUP VENT IS OPEN SEQ 5	CANDIDATE SHOULD IDENTIFY TSV0005 IS CLOSED. NOTE: **TSV0005 IS CLOSED**	**S U** Comments:
8. OPEN TSV0005, PUMP PTS01 STARTUP VENT	CANDIDATE SHOULD OPEN TSV0005, PUMP PTS01 STARTUP VENT. NOTE: **IF CANDIDATE ASK TO CALL THE SS/OS, HAVE HIM OPEN TSV0005**	**S U** Comments:
9. VERIFY TSV0006, PUMP PTS02 STARTUP VENT IS OPEN SEQ 6	CANDIDATE SHOULD VERIFY TSV0006, PUMP PTS02 STARTUP VENT IS OPEN.	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
10. VERIFY TSV0022, RETURN LINE ISOLATION IS CLOSED SEQ 7	CANDIDATE SHOULD VERIFY TSV0022, RETURN LINE ISOLATION IS CLOSED	**S U** Comments:
11. INFORM THE CONTROL ROOM SUPERVISOR THE TASK HAS BEEN COMPLETED	THE CANDIDATE SHOULD INFORM THE CONTROL ROOM SUPERVISOR TSV0001 AND TSV0005 WERE MISPOSITIONED **THE CONTROL ROOM SUPERVISOR ACKNOWLEDGES**	**S U** Comments:
12.	**THIS ADMIN JPM IS COMPLETE** **<u>RECORD STOP TIME ON PAGE 1</u>**	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
13.	COMPARE CANDIDATE'S VALVE LINEUP WITH STAR TRAINER EQUIPMENT POSITIONS: **TSV0001 WAS IDENTIFIED CLOSED** **TSV0005 WAS IDENTIFIED CLOSED**	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT **STANDARD** **SCORE**

PERFORMER (PRINT)	INITIALS
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

DATE/TIME STARTED : _____

DATE/TIME COMPLETED : _____

CHECKOFF LIST COMPLETION

REVIEWED BY : _____

DATE/TIME : _____

SEQ	COMPONENT ID	DESCRIPTION	CHECKOFF LIST POSITION	INITIALS 1st CHK	INITIALS 2nd CHK
1	TSV0001	PUMP PTS01 SUCTION ISOLATION VALVE **(Valve is Closed)**	OPEN **(Valve Is Closed)**		
2	TSV0002	PUMP PTS02 SUCTION ISOLATION VALVE	OPEN		
3	TSV0003	PUMP PTS01 DISCHARGE ISOLATION VALVE	CLOSED		
4	TSV0004	PUMP PTS02 DISCHARGE ISOLATION VALVE	CLOSED		
5	TSV0005	PUMP PTS01 STARTUP VENT **(Valve Is Closed)**	OPEN **(Valve Is Closed)**		
6	TSV0006	PUMP PTS02 STARTUP VENT	OPEN		
7	TSV0022	RETURN LINE ISOLATION	CLOSED		

END OF CHECKOFF LIST

* CRITICAL STEP

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

Initial Conditions: THE STAR PUMPING SYSTEM SINGLE PUMP RUN OPERATION IS REQUIRED TO BE PERFORMED. CHECKOFF LIST 0002 (TRAINING SYSTEM ELECTRICAL LINEUP) IS COMPLETE. CHECKOFF LIST 0001 (TRAINING SYSTEM VAVLE LINEUP) HAS NOT BEEN COMPLETED.

.

Initiating Cues: THE CONTROL ROOM SUPERVISOR HAS DIRECTED YOU TO COMPLETE THE IV CHECK OF CHECKOFF LIST 0001, TRAINING SYSTEM VALVE LINEUP TO SUPPORT PERFORMANCE OF OTN-TS-00001, STAR PUMPING SYSTEM-SINGLE PUMP OPERATION.

PROCEDURE COMMENTS

Please place any helpful information pertaining to this procedure below:

Rev.	Originator / Typist	Date	Comments

PRINTED COPY OF THIS PAGE CAN BE THROWN AWAY

CALLAWAY PLANT

NORMAL OPERATIONS PROCEDURE

OTN-TS-00001

STAR PUMPING SYSTEM – SINGLE PUMP OPERATION

RESPONSIBLE DEPARTMENT TRAINING

PROCEDURE OWNER E. B. STEWART

WRITTEN BY E. B. STEWART

PREPARED BY E. B. STEWART

APPROVED BY R. J. NEIL

DATE ISSUED 5/17/00

This procedure contains the following:

Pages	1	through	2
Attachments		through	
Tables		through	
Figures		through	
Appendices		through	
Checkoff Lists		through	

This procedure has 2 checkoff list(s) maintained in the mainframe computer.

Conversion of commitments to TRS reference/hidden text completed by Revision Number:

ITS Commitments _____ Non-T/S Commitments _____

DEFICIENCY LIST

Section	Deficiency Description	Constraints

TABLE OF CONTENTS

STAR PUMPING SYSTEM - SINGLE PUMP OPERATION PROCEDURE

1 PURPOSE AND SCOPE

1.1 This procedure provides instructions for aligning the STAR Pumping System for single pump operation.

2 PRECAUTIONS AND LIMITATIONS

2.1 None

3 INITIAL CONDITIONS

3.1 Checkoff List #1, Valve Lineup, is completed.

3.2 Check off List #2, Electrical Lineup, is completed.

4 SINGLE PUMP OPERATION

4.1 OPEN TSV0005, Pump PTS01 Startup Vent.

4.2 OPEN TSV022, TTS01 Return Line Isolation Valve.

4.3 PLACE LCS-01, Pump PTS01 Local Control Switch, to the FAST speed position.

4.4 START Pump PTS01 by placing TSCB0001, PTS01 Power Supply, to the ON position.

4.5 CLOSE TSV0005, Pump PTS01 Startup Vent.

4.6 RECORD the running current from TSAM0001, PTS01 Ammeter.

_____amps

4.7 THROTTLE OPEN TSV0003, Pump PTS01 Discharge Isolation, until a flow rate of approximately 15 gpm is obtained per TSFI0001, Pump PTS01 Flow Indicator.

4.8 RECORD the running current from TSAM0001, PTS01 Ammeter.

_____amps

5 RESTORATION

5.1 STOP Pump PTS01 by placing TSCB0001, PTS01 Power Supply, to the OFF position.

5.2 CLOSE TSV0022, TTS01 Return Line Isolation Valve.

5.3 CLOSE TSV0003, Pump PTS01 Discharge Isolation.

5.4 PLACE LCS-01, Pump PTS01 Local Control Switch, to the OFF position.

CALLAWAY PLANT
PROCEDURE CHECKOFF LIST

FOR TRAINING USE ONLY

CHECKOFF LIST : 0002

FILE NUMBER : O000.00000

ISSUED DATE : MAR 31, 2000

TRAINING SYSTEM ELECTRICAL LINEUP

PERFORMER (PRINT)	INITIALS
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

DATE/TIME STARTED : _____

DATE/TIME COMPLETED : _____

CHECKOFF LIST COMPLETION

REVIEWED BY : _____

DATE/TIME : _____

SEQ	COMPONENT ID	DESCRIPTION	CHECKOFF LIST POSITION	INITIALS 1st CHK	2nd CHK
1	LCS-01	PUMP PTS01 LOCAL HANDSWITCH (ON PUMP MOTOR)	OFF		
2	LCS-02	PUMP PTS02 LOCAL HANDSWITCH (ON PUMP MOTOR)	OFF		
3	TSCB0001	PUMP PTS01 MOTOR POWER SUPPLY	OFF		
4	TSCB0002	PUMP PTS02 MOTOR POWER SUPPLY	OFF		
5	TSHS0003	WATER HAMMER SOLENOID VALVE (V013) OPEN/CLOSED HANDSWITCH	CLOSED		

END OF CHECKOFF LIST

CALLAWAY PLANT
PROCEDURE CHECKOFF LIST

FOR TRAINING USE ONLY

PAGE : 1

CHECKOFF LIST : 0001

FILE NUMBER : O000.00000

ISSUED DATE : MAR 31, 2000

TRAINING SYSTEM VALVE LINEUP

PERFORMER (PRINT)	INITIALS
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

DATE/TIME STARTED : _____

DATE/TIME COMPLETED : _____

CHECKOFF LIST COMPLETION

REVIEWED BY : _____

DATE/TIME : _____

SEQ	COMPONENT ID	DESCRIPTION	CHECKOFF LIST POSITION	INITIALS 1st CHK	INITIALS 2nd CHK
1	TSV0001	PUMP PTS01 SUCTION ISOLATION VALVE	OPEN		
2	TSV0002	PUMP PTS02 SUCTION ISOLATION VALVE	OPEN		
3	TSV0003	PUMP PTS01 DISCHARGE ISOLATION VALVE	CLOSED		
4	TSV0004	PUMP PTS02 DISCHARGE ISOLATION VALVE	CLOSED		
5	TSV0005	PUMP PTS01 STARTUP VENT	OPEN		
6	TSV0006	PUMP PTS02 STARTUP VENT	OPEN		
7	TSV0022	RETURN LINE ISOLATION	CLOSED		

END OF CHECKOFF LIST

CALLAWAY PLANT
ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO:	ILE-7/2000-ADM6JPM	KSA NO:	G2.1.33
COMPLETION TIME:	18 MINUTES	KSA RATING:	3.4/4.0
JOB TITLE:	SRO	REVISION:	000516
DUTY:	NUCLEAR INSTRUMENTATION		
TASK TITLE:	REVIEW QPTR SURVEILLANCE		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: OSP-SE-00003, T/S 3.2.4

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //EDWARD B. STEWART// DATE: 6/1/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/1/00

ADMIN JPM NO: ILE-7/2000-ADM6JPM

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

Initial Conditions: CALLAWAY PLANT IS AT 100% POWER STEADY STATE CONDITONS, NO TECH SPEC ACTION STATEMENTS ARE IN EFFECT. THE REACTOR OPERATOR HAS COMPLETED ATTACHMENT 1 OF OSP-SE-00003, QUADRANT POWER TILT RATIO CALCULATION WITH THE FOLLOWING RESULTS:

	N41	**N42**	**N43**	**N44**
UPPER	0.99	1.03	0.98	1.00
LOWER	0.99	1.00	1.00	1.01

Initiating Cues: YOU HAVE BEEN DIRECTED TO REVIEW THE QPTR RESULTS AND DETERMINE WHETHER THE RESULTS SATISFY THE ACCECPTANCE CRITERIA. IF ACCECPTANCE CRITERIA IS NOT SATISFIED, DETERMINE ANY REQUIRED TECHNICAL SPECIFICATION ACTIONS.

TASK STANDARD: UPON COMPLETION OF THIS TASK THE CANDIDATE WILL HAVE REVIEWED THE QPTR RESULTS AND DETERMINED THE N42 UPPER QPTR IS NOT WITHIN LIMITS OF TECHNICAL SPECIFICATION 3.2.4. CANDIDATE WILL DETERMINE THAT REQUIRED ACTIONS A.1, A.2, A.3, A.4, A.5 AND A.6 MUST BE PERFORMED.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
1. COMPARE QPTR RESULTS FROM INITIAL CONDITIONS WITH ACCEPTANCE CRITERIA OF OSP-SE-00003 **STEPS MAY BE PERFORMED IN ANY ORDER**	CANDIDATE SHOULD COMPARE SECTION 2 OF OSP-SE-00003 TO QPTR RESULTS AND DETERMINE CHANNEL N42 UPPER QPTR DOES NOT MEET ACCEPTANCE CRITERIA.	**S U** Comments:
2. COMPARE N42 UPPER QPTR (1.03) TO THE LIMIT OF TECHNICAL SPECIFICATION LCO 3.2.4 STEP 2.1	CANDIDATE SHOULD DETERMINE N42 UPPER QPTR EXCEEDS THE LIMIT OF 1.02 PER TECHNICAL SPECIFICATION LCO 3.2.4	**S U** Comments:
3. COMPARE CURRENT PLANT CONDITIONS WITH THE APPLICABILITY OF TECH SPEC 3.2.4	CANDIDATE SHOULD REVIEW TECH SPEC 3.2.4 AND DETERMINE THE PLANT CONDITIONS MEET THE MODE APPLICABLILITY AND THAT THE LCO IS NOT MET. CONDITION ‘A’ QPTR NOT WITHIN LIMIT SHOULD BE APPLIED.	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
4.* DETERMINE REQUIRED ACTION A.1 FOR TECH SPEC 3.2.4	CANDIDATE SHOULD DETERMINE THERMAL POWER MUST BE REDUCED TO ≤ 91% RTP. (QPTR IS 3% > 1.00, 3% x 3 = 9 % POWER REDUCTION OR 91% POWER) WITHIN 2 HOURS OF THE QPTR DETERMINATION	**S** **U** Comments:
5.* DETERMINE REQUIRED ACTION A.2 FOR TECH SPEC 3.2.4 THIS IS REQUIRED BECAUSE OF THE LOGICAL CONNECTOR "**AND**"	CANDIDATE SHOULD DETERMINE A QPTR IS REQUIRED ONCE PER 12 HOURS	**S** **U** Comments:
6.* DETERMINE REQUIRED ACTION A.3 FOR TECH SPEC 3.2.4 THIS IS REQUIRED BECAUSE OF THE LOGICAL CONNECTOR "**AND**"	CANDIDATE SHOULD DETERMINE THAT SR 3.2.1.1, SR 3.2.1.2, SR 3.2.2.1 MUST BE PERFORMED 24 HOURS AFTER ACHIEVING EQUILIBRIUM FROM THE POWER REDUCTION AND ONCE PER 7 DAYS THERE AFTER.	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
7.* DETERMINE REQUIRED ACTION A.4 FOR TECH SPEC 3.2.4 THIS IS REQUIRED BECAUSE OF THE LOGICAL CONNECTOR "**AND**"	CANDIDATE SHOULD DETERMINE THE NEED TO REEVAULATE SAFETY ANALYSES AND CONFIRM RESULTS REMAIN VALID PRIOR TO INCREASING THERMAL POWER ABOVE 91% RTP	**S** **U** Comments:
8.* DETERMINE REQUIRED ACTION A.5 FOR TECH SPEC 3.2.4 THIS IS REQUIRED BECAUSE OF THE LOGICAL CONNECTOR "**AND**"	CANDIDATE SHOULD DETERMINE THE NEED TO NORMALIZE EXCORE DETECTORS TO RESTORE QPTR PRIOR TO INCREASING POWER ABOVE 91% RTP (AFTER A.4 IS COMPLETED)	**S** **U** Comments:
9.* DETERMINE REQUIRED ACTION A.6 FOR TECH SPEC 3.2.4 THIS IS REQUIRED BECAUSE OF THE LOGICAL CONNECTOR "**AND**"	CANDIDATE SHOULD DETERMINE THAT SR 3.2.1.1, 3.2.1.2, AND 3.2.2.1, MUST BE PERFORMED 24 HOURS AFTER ACHIEVING EQUILIBRIUM CONDITIONS NOT TO EXCEED 48 HOURS AFTER INCREASING THERMAL POWER ABOVE 91% RTP (AFTER A.5 IS COMPLETED)	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
10.	**THE JPM IS COMPLETE** **<u>RECORD STOP TIME ON PAGE 1</u>**	**S U** Comments:
	COMPARE CANDIDATE'S RESULTS WITH THE BELOW: **N42 UPPER CHANNEL QPTR EXCEEDS 1.02 LIMIT** **T/S 3.2.4 REQUIRED ACTIONS A.1, A.2, A.3, A.4, A.5, AND A.6 APPLY**	**S U** Comments:

* CRITICAL STEP

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

Initial Conditions: CALLAWAY PLANT IS AT 100% POWER STEADY STATE CONDITONS, NO TECH SPEC ACTION STATEMENTS ARE IN EFFECT. THE REACTOR OPERATOR HAS COMPLETED ATTACHMENT 1 OF OSP-SE-00003, QUADRANT POWER TILT RATIO CALCULATION WITH THE FOLLOWING RESULTS:

	N41	**N42**	**N43**	**N44**
UPPER	0.99	1.03	0.98	1.00
LOWER	0.99	1.00	1.00	1.01

Initiating Cues: YOU HAVE BEEN DIRECTED TO REVIEW THE QPTR RESULTS AND DETERMINE WHETHER THE RESULTS SATISFY THE ACCECPTANCE CRITERIA. IF ACCECPTANCE CRITERIA IS NOT SATISFIED, DETERMINE ANY REQUIRED TECHICNAL SPECIFICATION ACTIONS.

CALLAWAY PLANT
ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO:	ILE-7/2000-ADM7JPM	KSA NO:	G2.2.13
COMPLETION TIME:	15 MINUTES	KSA RATING:	3.6/3.8
JOB TITLE:	SRO	REVISION:	000601
DUTY:	ADMINISTRATIVE		
TASK TITLE:	REVIEW WPA FOR 'A' CLOSED COOLING WATER PUMP (PEB01A)		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: APA-ZZ-00310, ODP-ZZ-00310, M22EB01, E23EB01

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //EDWARD B. STEWART// DATE: 6/1/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/1/00

ADMIN JPM NO: ILE-7/2000-ADM7JPM

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

Initial Conditions: THE REACTOR OPERATOR HAS PREPARED WPA TO REPLACE THE OUTBOARD PUMP BEARING FOR THE 'A' CLOSED COOLING WATER PUMP (PEB01A) AND HAS GIVEN THE WPA TO YOU FOR REVIEW.

Initiating Cues: YOU HAVE BEEN DIRECTED TO REVIEW THE WPA FOR 'A' CLOSED COOLING WATER PUMP (PEB01A) TO ENSURE IT IS ADEQUATE TO PERFORM THE REQUIRED MAINTENANCE. INFORM THE SHIFT SUPERVISOR WHEN THE WPA REVIEW IS COMPLETE.

Notes: **USE OF THE MAINFRAME COMPUTER IS <u>NOT</u> ALLOWED.**

TASK STANDARD: UPON COMPLETION OF THE TASK THE CANDIADATE WILL HAVE DETERMINED TAG #2 PG14QEF5 IS AN INCORRECT COMPONENT, PG13RBR5 IS THE CORRECT COMPONENT, TAG #3 EBV0037 IS AN INCORRECT COMPONENT, EBV0038 IS THE CORRECT COMPONENT, AND TAG #7 CLOSED/CAPPED IS AN INCORRECT TAGGING POSITION, OPEN/ CAP REMOVED IS THE CORRECT TAGGING POSITION.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
1. PROVIDE CANDIDATE WITH THE TAGOUT CONTINUATION SHEET AND ALLOW HIM TO REVIEW THE WORK TO BE PERFORMED **STEPS MAY BE PREFORMEND IN ANY ORDER**	CANDIDATE SHOULD REIVEW ADMIN JPM INITIAL CONDITIONS, INITIATING CUES, AND TAGOUT CONTINUATION SHEET	**S U** Comments:
2.* DETERMINE HOLD OFF IS THE CORRECT TYPE OF WPA APA-ZZ-00310, STEP 2.19.3 OR 4.1.1	CANDIDATE MAY REVIEW APA-ZZ-00310 TO ENSURE TAGGING IS FOR HUMAN PROTECTION, AND THE EQUIPMENT WILL NOT BE OPERATED CANDIDATE SHOULD DETERMINE A HOLD OFF IS REQUIRED	**S U** Comments:
3. DETERMINE CORRECT HANDSWITCH TO BE TAGGED FOR THE 'A' CLOSED COOLING WATER PUMP AND IT'S REQUIRED POSITION PRINT E23EB01 UNDER HIS NUMBER	CANDIDATE SHOULD DETERMINE THE MCB HANDSWITCH, EBHIS0001 SHOULD BE TAGGED TO NORMAL AFTER STOP PER PRINT E23EB01 AND ODP-ZZ-00310, STEP 4.1.10 OR 4.9.4.13	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
4.* DETERMINE CORRECT BREAKER TO BE TAGGED FOR THE 'A' CLOSED COOLING WATER PUMP MOTOR AND IT'S REQUIRED POSITION PRINT E23EB01 UNDER MCC LOCATION	CANDIDATE SHOULD DETERMINE PG14QEF5 IS <u>INCORRECT</u> BREAKER FOR THE 'A' CLOSED COOLING WATER PUMP MOTOR **NOTE**: MAY NEED TO ASK A FOLLOW UP QUESTION TO ENSURE CANDIDATE SUPPLIES EVALUATOR WITH CORRECT BREAKER	**S** **U** Comments:
5.* DETERMINE CORRECT BREAKER TO BE TAGGED FOR THE 'A' CLOSED COOLING WATER PUMP MOTOR AND IT'S REQUIRED POSITION PRINT E23EB01 UNDER MCC LOCATION	CANDIDATE SHOULD DETERMINE THE POWER SUPPLY FOR PEB01A IS PG13RBR5 AND IS REQUIRED TO BE TAGGED TO THE OFF/OPEN POSITION	**S** **U** Comments:
6.* DETERMINE CORRECT SUCTION VAVLE TO BE TAGGED FOR THE 'A' CLOSED COOLING WATER PUMP AND IT'S REQUIRED POSITION PRINT M22EB01, C7	CANDIDATE SHOULD DETERMINE EBV0037 IS <u>INCORRECT</u> VALVE FOR THE 'A' CLOSED COOLING WATER PUMP SUCTION VALVE **NOTE**: MAY NEED TO ASK A FOLLOW UP QUESTION TO ENSURE CANDIDATE SUPPLIES EVALUATOR WITH CORRECT VALVE	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
7.* DETERMINE CORRECT SUCTION VAVLE TO BE TAGGED FOR THE 'A' CLOSED COOLING WATER PUMP AND IT'S REQUIRED POSITION PRINT M22EB01, C7	CANDIDATE SHOULD DETERMINE EBV0038 IS THE CORRECT SUCTION VALVE AND IS REQUIRED TO BE TAGGED CLOSED	**S U** Comments:
8.* DETERMINE CORRECT DISCHARGE VAVLE TO BE TAGGED FOR THE 'A' CLOSED COOLING WATER PUMP AND IT'S REQUIRED POSITION PRINT M22EB01, C6	CANDIDATE SHOULD DETERMINE EBV0004 IS THE DISCHARGE VALVE AND IS REQUIRED TO BE TAGGED CLOSED	**S U** Comments:
9. DETERMINE CORRECT SUCTION SIDE DRAIN VALVE TO BE TAGGED FOR THE 'A' CLOSED COOLING WATER PUMP AND IT'S REQUIRED POSITION PRINT M22EB01, C6	CANDIDATE SHOULD DETERMINE EBV0120 IS THE SUCTION SIDE DRAIN VALVE AND IS REQUIRED TO BE TAGGED OPEN OR OPEN/CAP REMOVED	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
10. DETERMINE CORRECT PUMP CASING DRAIN VALVE TO BE TAGGED FOR THE 'A' CLOSED COOLING WATER PUMP AND IT'S REQUIRED POSITION PRINT M22EB01, C6	CANDIDATE SHOULD DETERMINE EBV0090 IS THE PUMP CASING DRAIN VALVE AND IS REQUIRED TO BE TAGGED OPEN OR OPEN/CAP REMOVED	**S U** Comments:
11. DETERMINE CORRECT PUMP CASING VENT TO BE TAGGED FOR THE 'A' CLOSED COOLING WATER PUMP AND IT'S REQUIRED POSITION PRINT M22EB01, C6	CANDIDATE SHOULD DETERMINE CLOSED/CAPPED IS <u>INCORRECT</u> POSITION FOR THE CASING VENT **NOTE**: MAY NEED TO ASK A FOLLOW UP QUESTION TO ENSURE CANDIDATE SUPPLIES EVALUATOR WITH CORRECT POSITION	
12. DETERMINE CORRECT PUMP CASING VENT VALVE TO BE TAGGED FOR THE 'A' CLOSED COOLING WATER PUMP AND IT'S REQUIRED POSITION PRINT M22EB01, C6	CANDIDATE SHOULD DETERMINE EBV0089 IS THE PUMP CASING VENT VALVE AND IS REQUIRED TO BE TAGGED OPEN OR OPEN/CAP REMOVED	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
13.	**THIS ADMIN JPM IS COMPLETE** **<u>RECORD STOP TIME ON PAGE 1</u>**	**S U** Comments:
14.	COMPARE CANDIDATE'S TAGOUT CONTINUATION SHEET TO THE ATTACHED. ENSURE THE FOLLOWING: **WPA WAS INCORRECT** **TAGS #2, #3, AND #7 HAVE BEEN CORRECTED.**	**S U** Comments:

* CRITICAL STEP

ILE-7/2000-ADM7JPM

TAGOUT CONTINUATION SHEET

WPA TYPE: HOLD OFF

TAG SEQUENCE NUMBER	TAGGED COMPONENT	TAGGING POSITION
1	EBHIS0001	NORMAL AFTER STOP
2	~~PG14QEF5~~ PG13RBR5	OFF
3	~~EBV0037~~ EBV0038	CLOSED
4	EBV0004	CLOSED
5	EBV0120	OPEN/CAP REMOVED
6	EBV0090	OPEN/CAP REMOVED
7	EBV0089	~~CLOSED/CAPPED~~ OPEN/CAP REMOVED

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

Initial Conditions: THE REACTOR OPERATOR HAS PREPARED WPA TO REPLACE THE OUTBOARD PUMP BEARING FOR THE 'A' CLOSED COOLING WATER PUMP (PEB01A) AND HAS GIVEN THE WPA TO YOU FOR REVIEW.

.

Initiating Cues: YOU HAVE BEEN DIRECTED TO REVIEW THE WPA FOR 'A' CLOSED COOLING WATER PUMP (PEB01A) TO ENSURE IT IS ADEQUATE TO PERFORM THE REQUIRED MAINTENANCE. INFORM THE SHIFT SUPERVISOR WHEN THE WPA REVIEW IS COMPLETE.

Notes: **USE OF THE MAINFRAME COMPUTER IS <u>NOT</u> ALLOWED.**

ILE-7/2000-ADM7JPM

TAGOUT CONTINUATION SHEET

WPA TYPE: HOLD OFF

TAG SEQUENCE NUMBER	TAGGED COMPONENT	TAGGING POSITION
1	EBHIS0001	NORMAL AFTER STOP
2	PG14QEF5	OFF
3	EBV0037	CLOSED
4	EBV0004	CLOSED
5	EBV0120	OPEN/CAP REMOVED
6	EBV0090	OPEN/CAP REMOVED
7	EBV0089	CLOSED/CAPPED

CALLAWAY PLANT
ADMINISTRATIVE JOB PERFORMANCE MEASURE

ADMIN JPM NO:	ILE-7/2000-ADM8JPM	KSA NO:	G2.4.41
COMPLETION TIME:	15 MINUTES	KSA RATING:	2.3/4.1
JOB TITLE:	SRO	REVISION:	000601
DUTY:	RADIOLOGICAL EMERGENCY RESPONSE		
TASK TITLE:	CLASSIFY EMERGENCY EVENT PER EIP-ZZ-00101		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

REFERENCES: EIP-ZZ-00101

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 6/1/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/1/00

ADMIN JPM NO: ILE-7/2000-ADM8JPM

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

Initial Conditions: THE FOLLOWING PLANT CONDITIONS EXIST:

- REACTOR VESSEL HEAD REMOVED FOR CORE OFF-LOAD
- BBLI53A, REFUELING POOL LEVEL, INDICATES 394 INCHES
- 144 FUEL ASSEMBLIES REMAINING IN THE CORE
- ALL WIDE RANGE HOT LEG TEMPERATURES ARE 206°F AND INCREASING
- 'A' RHR PUMP TRIPPED DUE TO OVERHEATING
- NB02 BUS DE-ENERGIZED FOR MAINTENANCE AND WILL NOT BE RETURNED TO SERVICE FOR 24 HOURS

Initiating Cues: CLASSIFY THE EVENT BASED ON CURRENT CONDITIONS.

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

TASK STANDARD: UPON COMPLETION OF THIS TASK THE CANDIDATE SHOULD DETERMINE AN ALERT EXIST DUE TO GROUP 4M EAL.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	STANDARD	SCORE
1. OBTAIN A COPY OF EIP-ZZ-00101, CLASSIFICATION OF EMERGENCIES	CANDIDATE SHOULD OBTAIN A COPY OF EIP-ZZ-00101 PROVIDE CANDIDATE A COPY OF EIP-ZZ-00101	**S U** Comments:
2.* APPLY GROUP 4M EAL AND DECLARE AN ALERT (APPLICABLE IN MODES 5 AND 6)	CANDIDATE SHOULD DETERMINE THE FOLLOWING APPLY FROM GROUP 4M 1.a. COMPLETE LOSS OF BOTH TRAINS OF RHR 2.a. GREATER THAN 200 °F ON WIDE RANGE HOT LEG TEMPERATURES. (IF ASKED, INCORE THERMOCOUPLES ARE NOT AVAILABLE.)	**S U** Comments:
3.	**THE JPM IS COMPLETE** **<u>RECORD STOP TIME ON PAGE 1</u>**	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	STANDARD	SCORE
4.	COMPARE CANDIDATE'S ANSWER WITH THE FOLLOWING: **ALERT DECLARED** **GROUP 4M EAL**	

* CRITICAL STEP

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

Initial Conditions: THE FOLLOWING PLANT CONDITIONS EXIST:

- REACTOR VESSEL HEAD REMOVED FOR CORE OFF-LOAD
- BBLI53A, REFUELING POOL LEVEL, INDICATES 394 INCHES
- 144 FUEL ASSEMBLIES REMAINING IN THE CORE
- ALL WIDE RANGE HOT LEG TEMPERATURES ARE 206°F AND INCREASING
- ‘A’ RHR PUMP TRIPPED DUE TO OVERHEATING
- NB02 BUS DE-ENERGIZED FOR MAINTENANCE AND WILL NOT BE RETURNED TO SERVICE FOR 24 HOURS

Initiating Cues: CLASSIFY THE EVENT BASED ON CURRENT CONDITIONS.

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

MEMORY

QUESTION: During a plant emergency, you are contacted at home to respond to the plant to fill an emergency position. What is your fitness for duty requirement to accept this position?

ILE-7/2000-ADM2QUE

MEMORY

You are a Reactor Operator on your Relief Week. You are performing a validation of procedure OTN-NE-0001A in the Diesel Generator Bldg when a plant announcement is made declaring a SITE EMERGENCY.

QUESTION: From memory, where should you report to?

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:	000531
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 __X__ PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED ___X___

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

TOOLS/EQUIPMENT: CALCULATOR

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 5/31/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 5/31/00

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

Initial Conditions: IT IS JULY 10th. 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 REFUEL 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 226 STEPS (CONTROL BANK ‘C’ TO 213 STEPS AND CONTROL BANK ‘D’ TO 98 STEPS).

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 **NOTE: IF ASKED, THE MONTHLY ROD POSITION TEST HAS NOT BEEN PERFORMED**	OPERATOR SHOULD REVIEW THE PRECAUTIONS AND LIMITATIONS	**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
4. REPOSITION EACH CONTROL AND SHUTDOWN BANK AS FOLLOWS TO MINIMIZE FRETTING. STEP 4.1.22 NOTE: **BANKS MAY BE REPOSITIONED IN ANY ORDER**		OPERATOR SHOULD REPOSITION EACH CONTROL AND SHUTDOWN BANK TO MINIMIZE FRETTING.	**S U** Comments:
5. SELECT THE DESIRED CONTROL BANK 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:
6. DETERMINE CONTROL RODS SHOULD BE AT 226 STEPS PER CURVE BOOK TABLE 2-14 (JULY) STEP 4.1.22.2		OPERATOR SHOULD USE THE CURVE BOOK TABLE 2-14 TO DETERMINE THE CONTROL RODS (FULL OUT ONLY) SHOULD BE AT 226 STEPS	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
*7. REPOSITION EACH FULLY WITHDRAWN CONTROL AND SHUTDOWN BANK TO 226 STEPS STEP 4.1.22.2	ALL FULLY WITHDRAWN BANKS HAVE BEEN REPOSITIONED TO 226 STEPS	OPERATOR SHOULD REPOSITION RODS AS FOLLOWS: CB "A" 226 STEPS CB "B" 226 STEPS SD "A" 226 STEPS SD "B" 226 STEPS SD "C" 226 STEPS SD "D" 226 STEPS SD "E" 226 STEPS	**S U** Comments:
*8. REPOSITION THE BANKS WHICH ARE NOT FULLY WITHDRAWN BY THE SAME NUMBER OF STEPS WHICH THE FULLY WITHDRAWN BANKS WERE REPOSITIONED STEP 4.1.22.3	CONTROL BANK "C" HAS BEEN REPOSITIONED TO 213 STEPS AND CONTROL BANK "D" HAS BEEN REPOSITIONED TO 98 STEPS	OPERATOR SHOULD REPOSITION RODS AS FOLLOWS: CB "C" 213 STEPS CB "D" 98 STEPS	**S U** Comments:
9. RETURN SEHS-9, ROD BANK AUTO/MAN SELECTOR SWITCH TO ‘MAN’ STEP 4.1.22.4	SEHS-9 IS IN THE ‘MAN’ POSITION	OPERATOR SHOULD RETURN SEHS-9 TO THE MAN POSITION	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
10. VERIFY THE BANK OVERLAP COUNTER IN ROD CONTROL CABINET SF110B AGREES WITH THE POSITION SPECIFIED IN CURVE BOOK TABLE 2-14 STEP 4.1.22.5.1	IF REQUESTED, INFORM THE OPERATOR THAT SF110B BANK OVERLAP COUNTER INDICATES 445 STEPS	OPERATOR SHOULD CONTACT THE PRIMARY EO AND REQUEST THE BANK OVERLAP COUNTER READING IN ROD CONTROL CABINET SF110B	**S U** Comments:
11. VERIFY THE BANK OVERLAP COUNTER IN ROD CONTROL CABINET SF110B AGREES WITH THE POSITION SPECIFIED IN CURVE BOOK TABLE 2-14 STEP 4.1.22.5.1		OPERATOR SHOULD DETERMINE THE CORRECT BANK OVERLAP INDICATION IS 445 STEPS. (98 + 347 = 445)	**S U** Comments:
12. VERIFY THE PULSE TO ANALOG DISPLAY IN ROD CONTROL CABINET SF110A AGREES WITH THE STEPS COUNTERS FOR EACH CONTROL BANK STEP 4.1.22.5.2	IF REQUESTED, INFORM THE OPERATOR THAT CONTROL BANK ‘A’ IS 226 STEPS, CONTROL BANK ‘B’ IS 226 STEPS, CONTROL BANK ‘C’ IS 213 STEPS, AND CONTROL BANK ‘D’ IS 98 STEPS	OPERATOR SHOULD CONTACT THE PRIMARY EO AND REQUEST THE PULSE TO ANALOG READINGS IN ROD CONTROL CABINET SF110A	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. VERIFY THE PULSE TO ANALOG DISPLAY IN ROD CONTROL CABINET SF110A AGREES WITH THE STEPS COUNTERS FOR EACH CONTROL BANK STEP 4.1.22.5.2		OPERATOR SHOULD VERIFY THE PULSE TO ANALOG READINGS FROM SF110A AGREE WITH THE STEP COUNTERS	**S U** Comments:
14. VERIFY COMPUTER POINTS ON ATTACHMENT 1 AGREE WITH THE STEP COUNTERS FOR EACH CONTROL BANK STEPS 14 & 15 MAY BE PERFORMED IN ANY ORDER STEP 4.1.22.5.3	REU0049 AND REU0050 INDICATE 226 STEPS REU0051 INDICATES 213 STEPS REU0052 INDICATES 98 STEPS	OPERATOR SHOULD VERIFY COMPUTER POINTS REU0049, REU0050, REU0051, AND REU0052 AGREE WITH THE CONTROL BANK STEP COUNTERS	**S U** Comments:
15. VERIFY COMPUTER POINTS ON ATTACHMENT 1 AGREE WITH THE STEP COUNTERS FOR EACH SHUTDOWN BANK STEPS 14 & 15 MAY BE PERFORMED IN ANY ORDER STEP 4.1.22.5.3	REU0053, REU0054, REU0055, REU0056 AND REU0060 INDICATE 226 STEPS	OPERATOR SHOULD VERIFY COMPUTER POINTS REU0053, REU0054, REU0055, REU0056, AND REU0060 AGREE WITH THE SHUTDOWON BANK STEP COUNTERS	**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: IT IS JULY 10th. 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 REFUEL 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	KSA NO:	013A2.05
COMPLETION TIME:	20 MINUTES	KSA RATING:	3.7/4.2
JOB TITLE:	URO/SRO	REVISION:	000601
DUTY:	ESFAS		
TASK TITLE:	DE-ENERGIZE AND ENERGIZE A BOP ESFAS TRAIN		

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 __X___ SIMULATOR/LAB _____ PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED ____X_____ PERFORMED _____

REFERENCES: OTS-SA-00001, DEENERGIZING AND ENERGIZING ENGINEERED SAFETY FEATURE ACTUATION SYSTEM, REV 6

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

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: _____//DAVID LANTZ//_____ DATE: _____6/1/00_____

CHIEF EXAMINER: _____//HOWARD F. BUNDY//_____ DATE: _____6/2/00_____

JPM NO: ILE-7/2000-JPM2

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. INFORM THE CONTROL ROOM SUPERVISOR WHEN SECTION 4.4 HAS BEEN COMPLETED.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes: ALL OPERATOR ACTIONS ARE TO BE SIMULATED.
KEY TO CABINET IS NOT REQUIRED BECAUSE IT HAS A GLASS FRONT DOOR.

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 **KEY TO CABINET IS NOT REQUIRED BECAUSE IT HAS A GLASS FRONT DOOR.**	OPERATOR SHOULD REVIEW THE INITIAL CONDITIONS	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. AT SA036D, PLACE THE BLOCK CROSS TRIP SWITCH IN THE BLOCK CROSS TRIP FROM CHANNEL IV POSITION AND INITIAL ON ATTACHMENT 2 STEP 4.3.1	THE BLOCK CROSS TRIP SWITCH IS IN THE TRIP FROM CHANNEL IV POSITION AT SA036D	OPERATOR SHOULD PLACE THE BLOCK CROSS TRIP SWITCH ON SA036D (RED TRAIN) IN THE BLOCK CROSS TRIP FROM CHANNEL IV POSITION	**S U** Comments:
5. AT SA036C, PLACE THE BLOCK CROSS TRIP SWITCH IN THE BLOCK CROSS TRIP FROM CHANNEL IV POSITION AND INITIAL ON ATTACHMENT 2 STEP 4.3.2	THE BLOCK CROSS TRIP SWITCH IS IN THE BLOCK CROSS TRIP FROM CHANNEL IV POSITION	OPERATOR SHOULD PLACE THE BLOCK CROSS TRIP SWITCH ON SA036C (WHITE TRAIN) IN THE BLOCK CROSS TRIP FROM CHANNEL IV POSITION	**S U** Comments:
*6. AT SA036E, 48VDC POWER SUPPLY DRAWER, PLACE SWITCH 8N28-1 IN THE "OFF" POSITION AND INITIAL ON ATTACHMENT 2 STEP 4.3.3	SWITCH 8N28-1 IS IN THE "OFF" POSITION	OPERATOR SHOULD PLACE SWITCH 8N28-1 IN THE "OFF" POSITION AT SA036E	**S U** Comments:

* CRITICAL STEP

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

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
*10. AT SA036E, DUAL VOLTAGE POWER SUPPLY DRAWER PLACE SWITCH 8N26-1 IN THE "ON" POSITION AND INITIAL ON ATTACHMENT 2 STEP 4.4.1	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	**S U** Comments:
11. ENSURE ALL BISTABLES AT SA036E ARE RESET STEP 4.4.2		OPERATOR SHOULD ENSURE ALL BISTABLES AT SA036E HAVE BEEN RESET PER STEPS 12 - 14	**S U** Comments:
12. PERFORM LAMP TEST ON PANEL 7N171-2, BY PRESSING THE LAMP TEST PUSHBUTTONS STEP 4.4.2.1	ALL LIGHTS ILLUMINATE AT PANEL 7N171-2 WHEN LAMP TEST PUSHBUTTONS ARE DEPRESSED	OPERATOR SHOULD PERFORM A LAMP TEST ON PANEL 7N171-2, MANUAL TEST / IND PANEL NOTE: LOCATED ON SA036E	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. ENSURE ALL RED INDICATING LIGHTS ON MANUAL TEST/IND PANEL, 7N171-2 ARE NOT LIT STEP 4.4.2.2	ALL RED INDICATING LIGHTS ON MANUAL TEST / IND PANEL 7N171-2 ARE OUT	OPERATOR SHOULD ENSURE ALL RED INDICATING LIGHTS ON MANUAL TEST / IND PANEL 7N171-2 ARE OUT NOTE: LOCATED ON SA036E	**S U** Comments:
14. 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:
*15. AT SA036E, 48VDC POWER SUPPLY DRAWER PLACE SWITCH 8N28-1 IN THE "ON" POSITION AND INITIAL ON ATTACHMENT 2 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:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
*16. AT SA036D, PLACE THE BLOCK CROSS TRIP SWITCH IN THE "OPERATE" POSITION AND INITIAL ON ATTACHMENT 2 STEP 4.4.4	THE BLOCK CROSS TRIP SWITCH AT SA036D HAS BEEN PLACED IN THE "OPERATE" POSITION **NOTE: MAY NEED TO BEND DOWN TO SEE THE SWITCH**	OPERATOR SHOULD ROTATE THE BLOCK CROSS TRIP SWITCH AT SA036D TO THE "OPERATE" POSITION	**S U** Comments:
*17. AT SA036C, PLACE THE BLOCK CROSS TRIP SWITCH IN THE "OPERATE" POSITION AND INITIAL ON ATTACHMENT 2 STEP 4.4.5	THE BLOCK CROSS TRIP SWITCH AT SA036C HAS BEEN PLACED IN THE "OPERATE" POSITION	OPERATOR SHOULD ROTATE THE BLOCK CROSS TRIP SWITCH AT SA036C TO THE "OPERATE" POSITION	**S U** Comments:
18. 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:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
19. WHEN PROPER ATI STEPPING HAS BEEN VERIFIED, INITIAL ON ATTACHMENT 2 STEP 4.4.8	ATI INDICIATNG LIGHT IS STEPPING THROUGH WITHOUT HESITATION INDEPENDENT VERIFICATION HAS BEEN PERFORMED	OPERATOR SHOULD VERIFY ATI WORKING PROPERLY AND INITIAL ON ATTACHMENT 2	**S U** Comments:
20. 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 ESOL 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:
21. INFORM THE CONTROL ROOM SUPERVISOR SECTIONS 4.3. AND 4.4 OF OTS-SA-00001 HAVE BEEN COMPLETED	THE CONTROL ROOM SUPERVISOR ACKNOWLEDGES	OPERATOR SHOULD INFORM THE CONTROL ROOM SUPERVISOR SECTIONS 4.3 AND 4.4 OF OTS-SA-00001 HAVE BEEN COMPLETED	**S U** Comments:

* CRITICAL STEP

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

* CRITICAL STEP

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

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. 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. INFORM THE CONTROL ROOM SUPERVISOR WHEN SECTION 4.4 HAS BEEN COMPLETED.

NOTE: ALL OPERATOR ACTIONS ARE TO BE SIMULATED.

CALLAWAY PLANT
JOB PERFORMANCE MEASURE

JPM NO:	ILE-7/2000-JPM3	KSA NO:	006A1.13
COMPLETION TIME:	15 MINUTES	KSA RATING:	3.5/3.7
JOB TITLE:	URO/SRO	REVISION:	000531
DUTY:	ACCUMULATOR SAFETY INJECTION		
TASK TITLE:	RAISING ACCUMULATOR LEVEL		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM _____ SIMULATOR/LAB __X__ PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED ___X___

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

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 5/31/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 5/31/00

JPM NO: ILE-7/2000-JPM3

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 45% 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.
6) ENSURE “A” SI ACCUMULATOR PRESSURE IS SET TO ≈ 635 PSIG.

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 45% (BUT LESS THAN 85%) 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	**S** **U** Comments:
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	**S** **U** Comments:
3. REVIEW THE INITIAL CONDITIONS OF OTN-EP-00001, ACCUMULATOR SAFETY INJECTION SYSTEM STEP 3.0	NO INITIAL CONDITOINS ARE REQUIRED	OPERATOR SHOULD REVIEW AND UNDERSTAND INITIAL CONDITIONS ARE COVERED IN SECTION 4.2	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. ENSURE SAFETY INJECTION SYSTEM AND RWST ARE ALIGNED PER OTN-EM-00001 STEP 4.2.1	SAFETY INJECTION SYSTEM AND THE RWST ARE ALIGNED PER OTN-EM-00001	OPERATOR MAY VERIFY SAFETY INJECTION AND RWST ARE ALIGNED PER OTN-EM-00001 NOTE: GIVEN IN INITIAL CONDITIONS	**S U** Comments:
5. ISOLATE THE SI TEST LINE TO THE RWST AS FOLLOWS STEP 4.2.2		OPERATOR SHOULD ISOLATE THE SI TEST LINE FROM THE RWST PER STEPS 6 THRU 8	**S U** Comments:
6. CLOSE EMHV8823, SI/ACC INJ TEST LINE VLV, USING EM HIS-8823 ON RL017 STEP 4.2.2.1	EM HIS-8823 GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY EMHV8823, SI/ACC INJ TEST LINE VLV IS CLOSED USING EM HIS-8823	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
7. CLOSE EMHV8871, SI SYS TEST LINE INNNER CTMT ISO VLV, USING EM HIS-8871 ON RL017 STEP 4.2.2.2	THE GREEN LIGHT IS LIT AND RED LIGHT IS OUT FOR EM HIS-8871	OPERATOR SHOULD VERIFY EMHV8871, SI SYS TEST LINE INNNER CTMT ISO VLV IS CLOSED 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 IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY EMHV8964, SI SYS TEST LINE OUTER ISO VLV IS CLOSED 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
10. ENSURE EMHV8802A, SI PMP A DISCH TO HOT LEG INJ ISO (3.0.3) IS CLOSED, USING EM HIS-8802A STEP 4.2.5	EM HIS-8802A GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY EMHV8802A, SI PMP A DISCH TO HOT LEG INJ ISO VALVE, IS CLOSED	**S U** Comments:
11. 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:
12. 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:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
*13. 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:
14. INFORM THE SS ABOUT THE PROBLEM WITH THE 'B' SI PUMP AND STOP THE 'B' SI PUMP	**THE SHIFT SUPERVISOR HAS DIRECTED YOU TO SECURE THE 'B' SI PUMP AND USE THE 'A' SI PUMP TO FILL THE ACCUMULATOR**	OPERATOR SHOULD SECURE THE 'B' SI PUMP **NOTE: GIVE APPLICANT NEW PAGE 5 OF OTN-EP-00001 (PINK COPY)**	**S U** Comments:
*15. START 'A' SAFETY INJECTION PUMP WITH SWITCH EM HIS-0004 STEP 4.2.7.1	EM HIS-0004 RED LIGHT ILLUMINATED AND GREEN LIGHT GOES OUT	OPERATOR SHOULD START 'A' SI PUMP WITH SWITCH EM HIS-0004	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
16. VERIFY 'A' SAFETY INJECTION PUMP DISCHARGE PRESSURE INCREASES TO APPROXIMATELY 1500 PSIG ON EM PI0919 STEP 4.2.7.1	DISCHARGE PRESSURE IS 1520 PSIG AS INDICATED ON EM PI0919	OPERATOR SHOULD VERIFY 'A' SAFETY INJECTION PUMPS DISCHARGE PRESSURE INCREASES TO APPROXIMATELY 1500 PSIG	**S U** Comments:
*17. OPEN EPHV8878A, ACC TANK 'A' FILL LINE VLV, WITH EP HIS-8878A STEP 4.2.8	EP HIS-8878A RED LIGHT IS ILLUMINATED AND GREEN LIGHT GOES OUT LEVEL IS INCREASING IN 'A' ACC. LEVEL HAS REACHED 45%	OPERATOR SHOULD OPEN EPHV8878A, WITH EP HIS-8878A **NOTE OPERATOR MAY VENT PER SECTION 5.3 ANY TIME DURING/AFTER FILL JPM STEPS 26 THRU 28**	**S U** Comments:
18. CLOSE EPHV8878A, ACC TANK 'A' FILL LINE VLV, WITH EP HIS-8878A STEP 4.2.8.1	EP HIS-8878A GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD CLOSE EPHV8878A, FILL LINE VLV, WITH EP HIS-8878A PRIOR TO LEVEL REACHING 85%	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
*19. STOP 'A' SAFETY INJECTION PUMP WITH SWITCH EM HIS-4 STEP 4.2.9	EM HIS-4 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD STOP 'A' SI PUMP WITH SWITCH EM HIS-4 ON PANEL RL017	**S U** Comments:
20. VERIFY POSITION OF EMHV8821A NOTE PRIOR TO STEP 4.2.10	EM HIS-8821A RED LIGHT IS LIT AND GREEN LIGHT IS OUT	OPERATOR SHOULD VERIFY POSITION OF EM HIS-8821A AND PROCEED TO STEP 4.2.10	**S U** Comments:
21. VERIFY PRESSURE ON 'A' SI PUMP DISCHARGE IS < 600 PSIG AND PROCEED TO STEP 4.2.11 CAUTION PRIOR TO STEP 4.2.10	EMPI0919 INDICATES 310 PSIG	OPERATOR SHOULD VERIRY '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	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
22. CLOSE EMHV8888, ACCUMULATOR FILL LINE ISO VALVE WITH EM HIS-8888 STEP 4.2.11	EM HIS-8888 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD CLOSE EMHV8888 ACCUMULATOR TANK FILL LINE ISO VALVE, WITH EM HIS-8888	**S** **U** Comments:
23. 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:
24. 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:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
25. ADJUST ACCUMULATOR NITROGEN PRESSURE AS REQUIRED STEP 4.2.13		OPERATOR SHOULD ADJUST NITROGEN PRESSURE PER SECTION 5.3, ALTERNATE VENT METHOD, IF REQUIRED	**S** **U** Comments:
26. VERIFY CONTAINMENT NITROGEN SUPPLY ISOLATION VALVE EPHV8880 IS CLOSED, USING EP HIS-8880 FROM RL018 STEP 5.3.1	EP HIS-8880 GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY POSITION OF EPHV8880 **VENT STEP**	**S** **U** Comments:
27. OPEN THE APPROPRIATE ACCUMULATOR TANK VENT VALVE STEP 5.3.2	EP HIS-8950A RED LIGHT IS LIT AND GREEN LIGHT IS OUT	OPERATOR SHOULD OPEN EPHV8950A USING EP HIS-8950A FROM RL018 **VENT STEP**	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
28. MONITOR ACCUMULATOR PRESSURE. WHEN PRESSURE REACHES DESIRED VALUE, CLOSE APPROPRIATE ACCUMULATOR VENT VALVE STEP 5.3.3	EP HIS-8950A GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD CLOSE EPHV8950A USING EP HIS-8950A FROM RL018 WHEN ACCUMULATOR PRESSURE HAS DECREASED TO BETWEEN 602-648 PSIG **VENT STEP**	**S U** Comments:
29. 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:
30. 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:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
31. CONTACT HEALTH PHYSICS 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:
	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 45% 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	KSA NO:	022A4.01
COMPLETION TIME:	8 MINUTES	KSA RATING:	3.6/3.6
JOB TITLE:	URO/SRO	REVISION:	000531
DUTY:	CONTAINMENT COOLING		
TASK TITLE:	START 'A' CTMT COOLER FAN		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM _____ SIMULATOR/LAB __X__ PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED ___X_____

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

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 5/31/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 5/31/00

JPM NO: ILE-7/2000-JPM4

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 SECURED FOR ROUTINE MAINTENANCE. ONE (1) CAVITY COOLING FAN IS RUNNING, THREE (3) CRDM COOLING FANS ARE RUNNING, AND THE PZR COOLING FAN IS SECURED.

Initiating Cues: THE MAINTENANCE ON 'A' CTMT COOLER FAN HAS 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	**S** **U** Comments:
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	**S** **U** Comments:
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	**S** **U** Comments:

* CRITICAL STEP

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

* 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** **NOTE: HAND APPLICANT SECTION 4.3 OF OTN-GN-00001 (PINK COPY)**	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 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 SECURED FOR ROUTINE MAINTENANCE. ONE (1) CAVITY COOLING FAN IS RUNNING, THREE (3) CRDM COOLING FANS ARE RUNNING, AND THE PZR COOLING FAN IS SECURED.

Initiating Cues: THE MAINTENANCE ON 'A' CTMT COOLER FAN HAS 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	KSA NO:	064A4.06
COMPLETION TIME:	15 MINUTES	KSA RATING:	3.9/3.9
JOB TITLE:	URO/SRO	REVISION:	000531
DUTY:	EMERGENCY DIESEL GENERATOR		
TASK TITLE:	SECURE D/G AFTER EMERGENCY START		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM _____ SIMULATOR/LAB __X__ PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED ___X___

REFERENCES: OTN-NE-0001A, STANDBY DIESEL GENERATION SYSTEM-TRAIN ‘A’, REV 5

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 5/31/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 5/31/00

JPM NO: ILE-7/2000-JPM5

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 4.6 AND 4.7 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.

MONITOR KW, KVAR AND POWER FACTOR FOR NE01 DIESEL GENERATOR.

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	**IF ASKED: SURVEILLANCE TASK SHEET ST-13069 HAS BEEN GENERATED FOR THIS UNPLANNED START OF NE01** ALL INITIAL CONDITIONS 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
4. VERIFY THAT THE D/G OUTPUT BREAKER, NB0111 IS OPEN. IF NOT, PRIOR TO STOPPING THE DIESEL GENERATOR PERFORM SECTION 4.6 STEP 5.5.3	NE HIS-25, NB0111 HANDSWITCH , RED LIGHT IS LIT AND GREEN LIGHT IS OUT	OPERATOR SHOULD VERIFY NE01 OUTPUT BREAKER IS CLOSE AND PROCEED TO SECTION 4.6	**S U** Comments:
5. ENSURE OFFSITE POWER IS AVAILABLE AND ALIGNED TO NB01 STEP 4.6.1	NB0112, NB01 NORMAL FEEDER BREAKER RED LIGHT IS LIT AND GREEN LIGHT IS OUT	OPERATOR SHOULD VERIFY POWR IS AVAILABLE TO NB01 FROM OFFSITE	**S U** Comments:
*6. REDUCE NE01 LOAD USING THE GOVERNOR CONTROL SWITCH KJ HS-7A TO APPROXIMATELY 200KW STEP 4.6.2	D/G LOAD IS DECREASING	OPERATOR SHOULD DECREASE LOAD ON NE01 WITH CONTROL SWITCH KJ HS-7A TO APPROXIMALTELY 200KW	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
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 STEP 4.6.3	THE EQUIMPENT OPERATOR REPORTS THE POWER FACTOR IS .9 AS LOAD IS BEING LOWERED. NOTE: A .9 PF CAN BE MAINTAINED BY KEEPING KVAR=1/2 OF LOAD (KW)	OPERATOR SHOULD ADJUST POWER FACTOR WITH NE HS-13A TO MAINTAIN A POWER FACTOR OF .9	**S U** Comments:
8. VERIFY AS D/G LOAD DECREASES THAT A CORRESPONDING LOAD INCREASE IS INDICATED ON NB-II-1 STEP 4.6.4	NB-II-1 DECREASES TO 0, THEN BEGINS TO INCREASE AS D/G LOAD IS LOWERED	OPERATOR SHOULD VERIFY LOAD IS CHANGING ON NB-II-1 AS LOAD IS BEING TRANSFERRED FROM NE01 TO OFFSITE POWER	**S U** Comments:
9. WAIT 3- 5 MINUTES AFTER NE01 LOAD IS LESS ≤ 200 KW STEP 4.6.5	**4 MINUTES HAS ELASPED**	OPERATOR SHOULD WAIT A MINUMIM OF 3 MINUTES	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
*10. OPEN THE D/G OUTPUT BREAKER NB0111 WITH HANDSWITCH NE HIS-25 STEP 4.6.5	NE HIS-25 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD OPEN NE01 OUTPUT BREAKER WITH NE HIS-25	**S U** Comments:
11. VERIFY THAT THE D/G OUTPUT BREAKER NB0111 IS OPEN STEP 4.6.6	NE HIS-25 GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY NE01 OUTPUT BREAKER, NB0111, IS OPEN	**S U** Comments:
12. RESET THE ATI FOR BREAKER NB0111 AT NF039A STEP 4.6.7	THE ATI HAS BEEN RESET AND IS SEQUENCING	OPERATOR SHOULD INFORM ANOTHER PERSON TO RESET THE ATI AT NF039A **RESET ATI WITH REMOTE MODE NFS003=PUSH TO RESET**	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. PERFORM SECTION 4.7 DIESEL GENERATOR 'A' SHUTDOWN STEP 4.6.8		OPERATOR SHOULD PROCEED TO SECTION 4.7	**S U** Comments:
14. ENSURE THAT THE D/G OUTPUT BREAKER NB0111 IS OPEN STEP 4.7.1	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 4.7.2	NE HS-5 HAS BEEN PLACED TO THE RESET POSITION THEN TO THE OFF POSITION	OPERATOR SHOULD TAKE THE UNIT PARALLED 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
16. WHEN STOPPING THE D/G MEASURE THE TIME THE AMBER EXCITER SHUTDOWN LIGHT IS LIT ON NE 107 STEP 4.7.3	THE EO ACKNOWLEDGES AND WILL MEASURE WHEN THE EXCITER SHUTDOWN LIGHT EXTINGUISHS	OPERATOR SHOULD INFORM THE EO AND HAVE HIM MEASURE THE TIME FROM SECURING NE01 TO WHEN THE AMBER SHUTDOWN LIGHT EXTINGUISHS ON NE 107	**S U** Comments:
17. PRESS THE DIESEL GENERATOR STOP PUSH-BUTTON, KJ HS-8A STEP 4.7.4	THE EO REPORTS NE01 HAS STOPPED AND HE IS MEASURING THE EXCITER SHUTDOWN LIGHT TIME THE EO REPORTS THE TIME FOR THE SHUTDOWN LIGHT IS 133 SECONDS	OPERATOR SHOULD SECURE NE01 WITH KJ HS-8A	**S U** Comments:
18. VERIFY THE WHITE PARALLEL OPERATION LIGHT ON PANEL NE 107 IS EXTINGUISHED STEP 4.7.5	THE EO REPORTS THE WHITE PARALLEL LIGHT ON NE 107 IS OUT	OPERATOR SHOULD CONTACT THE EO AT NE01 TO VERIFY THE WHITE PARALLEL LIGHT IS EXTINGUISHED ON PANEL NE 107	**S U** Comments:

* 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	**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: 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 4.6 AND 4.7 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:	073A4.02
COMPLETION TIME:	11 MINUTES	KSA RATING:	3.7/3.7
JOB TITLE:	URO/SRO	REVISION:	000531
DUTY:	PROCESS RAD MONITORING		
TASK TITLE:	RESPOND TO PROCESS RAD MONITOR ALARM		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM _____ SIMULATOR/LAB __X__ PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED ___X_____

REFERENCES: OTA-SP-RM011, RADIATION MONITOR CONTROL PANEL RM-11, REV 18

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 5/31/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 5/31/00

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

Initial Conditions: CALLAWAY PLANT IS MODE 1. CONDENSER AIR DISCHARGE MONITOR CHANNEL GE-RE-92 (925) HAS ALARMED RED.

Initiating Cues: THE CONTROL ROOM SUPERVISOR DIRECTS YOU TO RESPOND TO THE RADIATION MONITOR ALARM USING OTA-SP-RM011, TAKE ALL IMMEDIATE AND SUBSEQUENT ACTIONS, AND INFORM HIM WHEN DONE.

ASK IF THE OPERATOR UNDERSTANDS THE INITIATING CUES.

Notes:

- USE IC 105.
  Run batch file "JPM6.TXT" fo perform the following:
- PREVENT BM-HV-3 FROM INDICATING CLOSED BY:
  EXPERT MODE
  IOR BMHIS3A_OG OFF
  IOR BMHIS3A_OR ON
- THEN FAIL GE-RE-92 HIGH BY:
  MALF
  RMS3_18
  SEVERITY VALUE 1E+8
  1 SEC RAMP
  INSERT
- ONCE BM-HV-1, 2 & 4 ARE CLOSED IN RESPONSE TO MONITOR FAILURE:
  EXPERT MODE
  MOR BMHIS3A_OG (4) ON
  MOR BMHIS3A_OR (4,2) OFF
- SET TRIGGER #4:
  EVENT ACTION: X24I121C

Task Standard: UPON COMPLETION OF THIS JPM, THE OPERATOR WILL HAVE CLOSED OR VERIFIED CLOSED ALL BLOWDOWN VALVES AND DETERMINED THE CAUSE OF THE RAD MONITOR ALARM TO BE A MONITOR FAILURE.

START TIME: _____

STOP TIME: _____

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
1. OBTAIN A CONTROLLED COPY OF OTA-SP-RM011, RADIATION MONITOR CONTROL PANEL RM-11	PROVIDE OPERATOR WITH PROCEDURE	OPERATOR SHOULD OBTAIN COPY OF OTA-SP-RM011, RADIATION MONITOR CONTROL PANEL RM-11	**S** **U** Comments:
2. LOCATE CORRECT SECTION OF OTA-SP-RM011		OPERATOR SHOULD DETERMINE PROPER SECTION TO BE PAGE 18 OF 43, OF ATTACHMENT 1	**S** **U** Comments:
3. VERIFY CLOSED BM-HV-1, SG A B/D CTMT ISO VLV NOTE: STEPS 3 THRU 7 MAY BE PERFORMED IN ANY ORDER STEP 1.1	BM-HIS-1A GREEN LIGHT IS ILLUMINATED AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY BM-HV-1, SG A B/D CTMT ISO VLV, IS CLOSED	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. VERIFY CLOSED BM-HV-2, SG B B/D CTMT ISO VLV STEP 1.1	BM-HIS-2A GREEN LIGHT IS ILLUMINATED AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY BM-HV-2, SG B B/D CTMT ISO VLV IS CLOSED	**S U** Comments:
5. VERIFY CLOSED BM-HV-3, SG C B/D CTMT ISO VLV STEP 1.1	BM-HIS-3A RED LIGHT IS ILLUMINATED, GREEN LIGHT IS OFF	OPERATOR SHOULD VERIFY BM-HV-3, SG C B/D CTMT ISO VLV IS CLOSED NOTE: VALVE IS STILL OPEN	**S U** Comments:
*6. CLOSE BM-HV-3, SG C B/D CTMT ISO VLV, WITH HANDSWITCH BM-HIS-3A STEP 1.1	BM-HIS-3A RED LIGHT GOES OUT AND GREEN LIGHT ILLUMINATES	OPERATOR SHOULD CLOSE BM-HV-3, SG C B/D CTMT ISO VLV USING BM-HIS-3A	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
7. VERIFY CLOSED BM-HV-4 SG D B/D CTMT ISO VLV STEP 1.1	BM-HIS-4A GREEN LIGHT IS ILLUMINATED AND THE RED LIGHT IS OUT	OPERATOR SHOULD VERIFY BM-HV-4, SG D B/D CTMT ISO VLV IS CLOSED	**S** **U** Comments:
8. VERIFY CLOSED BM-HV-5, SG A OUTER CTMT SAMPLE ISO VLV NOTE: STEPS 8 THRU 11 MAY BE PERFORMED IN ANY ORDER STEP 1.1	HOT LAB VERIFIES BM-HV-5 IS CLOSED	OPERATOR SHOULD VERIFY BM-HV-5, SG A OUTER CTMT SAMPLE ISO VLV IS CLOSED NOTE : OPERATOR MAY USE SEVERAL DIFFERENT METHODS TO VERIFY CLOSED	**S** **U** Comments:
9. VERIFY CLOSED BM-HV-6, SG B OUTER CTMT SAMPLE ISO VLV STEP 1.1	HOT LAB VERIFIES BM-HV-6 IS CLOSED	OPERATOR SHOULD VERIFY BM-HV-6, SG B OUTER CTMT SAMPLE ISO VLV IS CLOSED NOTE : OPERATOR MAY USE SEVERAL DIFFERENT METHODS TO VERIFY CLOSED	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
10. VERIFY CLOSED BM-HV-7, SG C OUTER CTMT SAMPLE ISO VLV STEP 1.1	HOT LAB VERIFIES BM-HV-7 IS CLOSED	OPERATOR SHOULD VERIFY BM-HV-7, SG C OUTER CTMT SAMPLE ISO VLV IS CLOSED NOTE : OPERATOR MAY USE SEVERAL DIFFERENT METHODS TO VERIFY CLOSED	**S U** Comments:
11. VERIFY CLOSED BM-HV-8, SG D OUTER CTMT SAMPLE ISO VLV STEP 1.1	HOT LAB VERIFIES BM-HV-8 IS CLOSED	OPERATOR SHOULD VERIFY BM-HV-8, SG D OUTER CTMT SAMPLE ISO VLV IS CLOSED NOTE : OPERATOR MAY USE SEVERAL DIFFERENT METHODS TO VERIFY CLOSED	**S U** Comments:
12. COMFIRM THE ALARM USING N-16 MONITORS STEP 2.1 NOTE: STEPS 12, 13 AND 14 MAY BE PERFORMED IN ANY ORDER	CHANNELS 161, 162, 163, AND 164 HAVE REMAINED CONSTANT AND STABLE	OPERATOR SHOULD MONITOR N-16 MONITORS FOR RADIATION LEVEL CHANGES	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. CONFIRM THE ALARM USING BM-RE-25 (STEAM GENERATOR BLOWDOWN PROCESSING SYSTEM MONITOR-CHANNEL 256) STEP 2.1	CHANNEL 256 TREND HAS REMAINED CONSTANT AND STABLE	OPERATOR SHOULD VERIFY MONITOR BM-RE-25 (STEAM GENERATOR BLOWDOWN PROCESSING SYSTEM MONITOR CHANNEL) FOR RADIATION LEVEL CHANGES	**S** **U** Comments:
14. COMFIRM THE ALARM USING BM-RE-52 (SG B/D DISCHARGE PMPS DISCHARGE RAD MON) TO CHECK FOR INCREASES ALSO STEP 2.1	CHANNEL 526 TREND HAS REMAINED CONSTANT AND STABLE	OPERATOR SHOULD VERIFY MONITOR BM-RE-52 (SG B/D DISCHARGE PMPS DISCHARGE RAD MON) FOR RADIATION LEVEL CHANGES	**S** **U** Comments:
15. REFER TO OTO-BB-00001, SG TUBE LEAK STEP 2.2		OPERATOR MAY CONFIRM THE CAUSE OF GE-RE-92 INDICATION NOT DUE TO A STEAM GENERATOR TUBE LEAK USING OTO-BB-00001 NOTE: STEP IS NOT REQUIRED	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
16. REQUEST CHEMISTRY SAMPLE STEAM GENERATORS TO DETERMINE THE AFFECTED SG(s) AND THE TOTAL LEAK RATE STEP 2.3	CHEMISTRY ACKNOWLEDGES	OPERATOR SHOULD CALL CHEMISTRY TO SAMPLE STEAM GENERATORS	**S** **U** Comments:
17. NOTIFY COUNT ROOM TECHNICIAN OF THE ALARM STEP 2.4	COUNT ROOM TECHNICIAN ACKNOWLEDGES THE ALARM	OPERATOR SHOULD CONTACT COUNT ROOM TECHNICIAN	**S** **U** Comments:
18. SET UP A TIME TREND ON PLANT COMPUTER FOR THE ALARMING N16 MONITORS STEP 2.5		OPERATOR SHOULD DETERMINE THIS STEP IS NOT REQUIRED DUE TO NO ALARMING N16 MONITORS	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
19. MONITOR LEAKAGE RATES AND ACTIVITIES USING THE PLANT COMPUTER AND/OR THE RM-11 FOR THE N16 MONITORS, GER0092, AND SJR0002 STEP 2.6		OPERATOR SHOULD SET UP A TIME TREND ON THE PLANT COMPUTER FOR POINTS GER0092, SJR002, AND THE N16 MONITORS NOTE: OPERATOR MAY USE RM-11 FOR TRENDING	**S U** Comments:
*20. DETERMINE NO STEAM GENERATOR TUBE LEAK EXIST	**IF CANDIDATE DOES NOT EXPLICITLY STATE THAT NO SG TUBE LEAK EXIST, THE EVALUATOR SHOULD ASK THE CANDIDATE IF THE GE-RE-92 READING IS DUE TO A SG TUBE LEAK**	OPERATOR SHOULD DETERMINE THAT NO STEAM GENERATOR TUBE LEAK EXIST	**S U** Comments:
21. IF MONITOR HAS FAILED CONTACT I&C STEP 2.7	I&C ACKNOWLEDGES AND WILL TROUBLESHOOT GE-RE-92	OPERATOR SHOULD CONTACT I&C TO INVESTIGATE MONITOR GE-RE-92 NOTE: DETERMINE REASON FOR CONTACTING I&C IS FOR GE-RE-92 FAILURE	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
22. DISPATCH AN EQUIPMENT OPERATOR TO THE MISC CONDENSATE DRAIN TANK TO CHECK FOR OVERFLOW STEP 2.8	EQUIPMENT OPERATOR REPORTS NO OVERFLOW EXIST FROM THE MISC CONDENSATE DRAIN TANK	OPERATOR SHOULD CONTACT AN EQUIPMENT OPERATOR TO CHECK THE MISC CONDENSATE DRAIN TANK FOR OVERFLOW	**S** **U** Comments:
23. IF THE MISC. CONDENSATE DRAIN TANK IS OVERFLOWING, INFORM THE COUNT ROOM TECH STEP 2.9		OPERATOR SHOULD DETERMINE IT IS NOT NECESSARY TO CONTACT THE COUNT ROOM TECH	**S** **U** Comments:
24. INVESTIGATE AND RESOLVE THE PROBLEM WITH THE MISC CONDENSATE DRAIN TANK STEP 2.10		OPERATOR SHOULD REALIZE NO PROBLEM EXIST WITH THE MISC CONDENSATE DRAIN TANK	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
25. INFORM THE CONTROL ROOM SUPERVISOR IMMEDIATE AND SUBSEQUENT ACTIONS OF OTA-SP-RM011 HAVE BEEN COMPLETED	THE CONTROL ROOM SUPERVISOR ACKNOWLEDGES	OPERATOR SHOULD INFORM THE CONTROL ROOM SUPERVISOR OTA-SP-RM011 HAS BEEN COMPLETED	**S** **U** Comments:
	THE JPM IS COMPLETE **<u>RECORD STOP TIME ON PAGE 1</u>**		**S** **U** Comments:

* CRITICAL STEP

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

Initial Conditions: CALLAWAY PLANT IS MODE 1. CONDENSER AIR DISCHARGE MONITOR CHANNEL GE-RE-92 (CHANNEL 925) HAS ALARMED RED.

Initiating Cues: THE CONTROL ROOM SUPERVISOR DIRECTS YOU TO RESPOND TO THE RADIATION MONITOR ALARM USING OTA-SP-RM011, TAKE ALL IMMEDIATE AND SUBSEQUENT ACTIONS, AND INFORM HIM WHEN DONE.

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:	000531
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 __X__ PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED ___X___

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

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 5/31/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 5/31/00

JPM NO: ILE-7/2000-JPM7

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. ANOTHER REACTOR OPERATOR IS MONITORING CCW FLOWS TO SAFETY RELATED LOADS PER ATTACHMENT 1. INFORM THE CONTROL ROOM SUPERVISOR WHEN SECTION 4.5 HAS BEEN COMPLETED.

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
4. OBTAIN A COPY OF CHECKOFF LIST 7 AND PROVIDE IT TO THE EQUIPMENT OPERATOR PERFORMING THE SWAP STEP 4.5.1	PRIMARY EQUIPMENT OPERATOR HAS A COPY OF CHECKOFF LIST 7 GIVEN IN INITIAL CONDITIONS	OPERATOR SHOULD UNDERSTAND AN EQUIPMENT OPERATOR WILL PERFORM CHECKOFF LIST 7 WHEN DIRECTED	**S U** Comments:
5. ENSURE SW/ESW IS IN SERVICE TO THE ‘A’’ CCW HEAT EXCHANGER STEP 4.5.2	**IF ASKED: APPLICANT SHOULD EVALUATE ESW LINEUP TO 'A' CCW HEAT EXCHANGER** **NOTE : APPLICANT MAY USE PRINTS M22EG02 & M22EF02 OR OTN-EA-00001**	OPERATOR SHOULD VERIFY COOLING WATER IS ALIGNED TO 'A' CCW HEAT EXCHANGER	**S U** Comments:
6. ENSURE ‘A’ OR ‘C’ CCW PUMP IS RUNNING STEP 4.5.3	‘A’ CCW PUMP HANDSWITCH, EG HIS-21, GREEN LIGHT IS ILLUMINATED AND RED LIGHT IS OUT ‘C’ CCW PUMP HANDSWITCH, EG HIS-23, GREEN LIGHT IS ILLUMINATED AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY ‘A’ AND ‘C’ CCW PUMPS ARE SECURED AND CONTINUE WITH STEP 4.5.3.1	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
7. ENSURE THE 'A' CCW SURGE TANK LEVEL IS ≥ 50% STEP 4.5.3.1	'A' CCW SURGE TANK LEVEL IS GREATER THAN 50%	OPERATOR SHOULD VERIFY THE 'A' CCW SURGE TANK LEVEL IS ≥ 50%	**S U** Comments:
*8. START 'A' CCW PUMP WITH HANDSWITCH EG HIS-21 STEP 4.5.3.2	IF ASKED: **'A' CCW PUMP HAS THE LEAST RUN-TIME AND HAS NOT BEEN STARTED IN THE LAST 8 HOURS** EG HIS-21 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT	OPERATOR SHOULD START 'A' CCW PUMP WITH HANDSWITCH EG HIS-21	**S U** Comments:
9. CLOSE BOTH CCW SURGE TANK VENT VALVES STEP 4.5.4	EG HIS-9 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT EG HIS-10 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD CLOSE 'A' AND 'B' CCW TRAIN VENT VALVES WITH EG HIS-9 AND EG HIS-10	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
*10. OPEN EGHV0015 AND EGHV0053, 'A' CCW TRAIN SUPPLY AND RETURN ISOLATION VALVES, WITH PUSHBUTTON EG HS-15 STEP 4.5.5	EG ZL-15 AND EG ZL-53, CCW TRN 'A' SUPPLY AND RETURN VALVES, RED LIGHTS ILLUMINATE AND GREEN LIGHTS GO OUT	OPERATOR SHOULD OPEN EGHV0015 AND EGHV0053, 'A' CCW TRAIN SUPPLY AND RETURN ISOLATION VALVES, WITH PUSHBUTTON EG HS-15 NOTE: BGHV0062 CCW FROM INNER CTMT ISO VLV OR BB HV-13, 14, 15, 16 CCW FROM RCP, MAY CLOSE DUE TO HIGH CCW FLOW	**S U** Comments:
*11. CLOSE EGHV0016 AND EGHV0054, 'B' CCW TRAIN SUPPLY AND RETURN ISOLATION VALVES, WITH PUSHBUTTON EG HS-16 STEP 4.5.6	EG ZL-16 AND EG ZL-54, CCW TRN ‘B’ SUPPLY AND RETURN VALVES, GREEN LIGHTS ILLUMINATE AND RED LIGHTS GO OUT	OPERATOR SHOULD CLOSE EGHV0016 AND EGHV0054, 'B' CCW TRAIN SUPPLY AND RETURN ISOLATION VALVES, WITH PUSHBUTTON EG HS-16	**S U** Comments:
12. OPEN BOTH CCW SURGE TANK VENT VALVES STEP 4.5.7	EG HIS-9 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT EG HIS-10 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT	OPERATOR SHOULD OPEN 'A' AND 'B' CCW TRAIN VENT VALVES WITH EG HIS-9 AND EG HIS-10	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. UNLOCK, OPEN, AND LOCK OPEN THE PASS COOLER 'A' TRAIN SUPPLY/RETURN VALVES EGV0414 AND EGV0416 STEP 4.5.8	PRIMARY EO REPORTS EGV0414 AND EGV0416 HAVE BEEN OPENED AND LOCKED OPEN	OPERATOR SHOULD CONTACT AN EO TO OPEN AND LOCK OPEN EGV0414 AND EGV0416	**S U** Comments:
14. 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:
15. 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:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
16. 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:
17. STOP THE 'B' AND OR 'D' CCW PUMP IF NOT REQUIRED FOR THE SAFETY LOOP LOADS STEP 4.5.10	IF ASKED: **LEAVE THE 'B' CCW PUMP RUNNING AT THIS TIME**	OPERATOR SHOULD DETERMINE 'B' CCW PUMP SHOULD STAY RUNNING DUE TO LINED UP FOR COOLING ON SPENT FUEL POOL	**S U** Comments:
18. OPEN 'B' RHR HX CCW ISO VLV EGHV0102 WITH SWITCH EG HIS-102 STEP 4.5.11	EG HIS-102 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT	OPERATOR SHOULD OPEN EGHV0102, 'B' RHR HX CCW ISO VLV, WITH SWITCH EG HIS-102	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
19. INFORM THE HOT LAB CHEM TECH THAT 'A' CCW TRAIN IS IN SERVICE STEP 4.5.12	HOT LAB CHEM TECH ACKNOWLEDGES	OPERATOR SHOULD INFORM HOT LAB CHEM TECH 'A' CCW TRAIN IS IN SERVICE	**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 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. ANOTHER REACTOR OPERATOR IS MONITORING CCW FLOWS TO SAFETY RELATED LOADS PER ATTACHMENT 1. INFORM THE CONTROL ROOM SUPERVISOR WHEN SECTION 4.5 HAS BEEN COMPLETED.

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:	000601
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 _X_ PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED _X_

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

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 6/1/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/2/00

JPM NO: ILE-7/2000-JPM8

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.
THIS JPM SHOULD BE DONE JUST AFTER A4 (ILE-7/2000-ADM4JPM) DURING RCA ENTRY.

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
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	**S U** Comments:
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	**S U** Comments:
3. GO TO AREA 5 AND LOCATE THE LOCAL CONTROL STATION FOR ABPV0002		OPERATOR SHOULD LOCATE ABPV0002 IN AREA 5	**S U** Comments:

* CRITICAL STEP

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

* CRITICAL STEP

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

* 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	**S** **U** Comments:
*11. TURN THE THREE-WAY VAVLE FROM 'AUTOMATIC' TO THE 'MANUAL' POSITION STEP 1.1.7	THE THREE-WAY VALVE HAS BEEN PLACED IN THE MANUAL POSITION	OPERATOR SHOULD TURN THE THREE-WAY VALVE TO THE 'MANUAL' POSITION	**S** **U** Comments:
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	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. OPEN ABPV0002 FULLY **TURN THE KNOB CLOCKWISE**	ABPV0002 IS FULL OPEN STEAM IS HEARD FLOWING THROUGH THE VALVE	OPERATOR SHOULD INCRESE AIR PRESSURE UNTIL ABPV0002 INDICATES FULL OPEN	**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	KSA NO:	062A4.04
COMPLETION TIME:	9 MINUTES	KSA RATING:	2.6/2.7
JOB TITLE:	URO/SRO	REVISION:	000601
DUTY:	AC ELECTRIACL DISTRIBUTION SYSTEM		
TASK TITLE:	MANUALLY CLOSE A 4160V BREAKER		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM _____ SIMULATOR/LAB _X_ PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED _X_

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

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

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 6/1/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/2/00

JPM NO: ILE-7/2000-JPM9

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</u>: INFORM OPERATOR THAT THIS JPM WILL BE COMPLETED IN THE ELECTRICAL LAB ON THE NB TRAINING BREAKER**	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
4. VERIFY THAT DC CONTROL POWER IS REMOVED FROM BREAKER STEP 9.1	DC CONTROL POWER HAS BEEN REMOVED **NOTE:** **LABELED "UC"**	OPERATOR SHOULD VERIFY CONTROL POWER HAS BEEN REMOVED NOTE: GIVEN IN INITIAL CONDITIONS	**S U** Comments:
5. VERIFY THE CLOSING SPRINGS INDICATING WINDOW IS SHOWING A "DIS CHGD" INDICATION STEP 9.2	NB0206 CLOSING SPRINGS INDICATING WINDOW IS SHOWING A WHITE "DIS CHGD"	OPERATOR SHOULD VERIFY NB0206 CLOSING SPRINGS INDICATING WINDOW IS SHOWING A WHITE "DIS CHGD"	**S U** Comments:
6. INSTALL A 5/8" RATCHET WRENCH ON THE END OF THE DRIVING ECCENTRIC STEP 9.3	5/8" RATCHET WRENCH IS ON THE END OF THE DRIVING ECCENTRIC	OPERATOR SHOULD INSTALL A 5/8" RATCHET WRENCH ON THE END OF THE DRIVING ECCENTRIC NOTE: LOCATED TO RIGHT OF BKR JUST BELOW FRONT PANEL	**S U** Comments:

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

* 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 **<u>NOTE</u>: 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	KSA NO:	086A4.01
COMPLETION TIME:	12 MINUTES	KSA RATING:	3.3/3.3
JOB TITLE:	URO/SRO	REVISION:	000601
DUTY:	FIRE SYSTEMS		
TASK TITLE:	MAINTAIN FIRE SYSTEM PRESSURE		

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: _____//DAVID LANTZ//_____ DATE: _____6/1/00_____

CHIEF EXAMINER: _____//HOWARD F. BUNDY//_____ DATE: _____6/2/00_____

JPM NO: ILE-7/2000-JPM10

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	**S** **U** Comments:
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	**S** **U** Comments:
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	**S** **U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
4. ROTATE FIRE PROT WTR MAKE-UP SWITCHES, HSKC1001A AND HSKC1001B, TO THE "OFF" POSITION STEP 4.2.1	FIRE PROT WTR MAKE-UP SWITCH HSKC1001A IS IN THE "OFF" POSITION FIRE PROT WTR MAKE-UP SWITCH HSKC1001B IS IN THE "OFF" POSITION	OPERATOR SHOULD ROTATE FIRE PROT WTR MAKE-UP SWITCHES HSKC1001A AND HSKC1001B TO THE "OFF" POSITION	**S U** Comments:
*5. OPEN VKC1038C, ELECTRIC FIRE PUMP TO FIRE WATER STORAGE TANK ISOLATION STEP 4.2.2	VKC1038C IS OPEN THE ELECTRIC FIRE PUMP HAS STARTED	OPERATOR SHOULD OPEN VKC1038C	**S U** Comments:
6. IF PKC1001A HAS NOT STARTED, SLIGHTLY OPEN VKC1038D, DIESEL/ELECTRIC FIRE PUMPS TO WATER STORAGE TANK HDR ISO STEP 4.2.3	PKC1001A IS RUNNING	OPERATOR SHOULD REALIZE PKC1001A IS RUNNING AND CONTINUE WITH THE PROCEDURE	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
*7. THROTTLE OPEN VKC1038D UNTIL FLOW RATE ON FIKC1001 INDICATES BETWEEN 1100 GPM AND 1300 GPM STEP 4.2.4.1	FIKC1001 INDICATES 1200 GPM **NOTE: IF VKC1038D IS <u>NOT</u> OPENED, FLOW WILL INDICATE ZERO**	OPERATOR SHOULD THROTTLE OPEN VKC1038D	**S U** Comments:
8. VERIFY PKC1001A PROPER OPERATION WITH NO SIGN OF OVERHEATING STEP 4.2.5	THERE IS A SMALL AMOUNT OF WATER LEAKING FROM THE PACKING GLAND AND ALL TEMPERATURES ARE NORMAL	OPERATOR SHOULD CHECK PKC1001A FOR SIGNS OF OVERHEATING	**S U** Comments:
9. CHECK HOLES IN THE LOWER PUMP CASING ALLOWING PACKING LEAKOFF TO DRAIN TO THE FLOOR STEP 4.2.5	THE HOLES IN THE LOWER PUMP CASING ARE ALLOWING PACKING LEAKOFF TO DRAIN TO THE FLOOR	OPERATOR SHOULD CHECK THE HOLES IN THE LOWER PUMP CASING TO ENSURE PACKING LEAKOFF DRAINS TO THE FLOOR	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
10. NO WATER IS DISCHARGING FROM THE AIR RELIEF VALVE ON TOP OF THE PUMP CASING STEP 4.2.5	THERE IS NO WATER DISCHARGING FROM THE AIR RELIEF VALVE	OPERATOR SHOULD CHECK PKC1001A AIR RELIEF VALVE TO ENSURE NO WATER IS DISCHARGING	**S U** Comments:
11. PKC1001A RUNS SMOOTHLY WITHOUT EXCESSIVE VIBRATION STEP 4.2.5	PKC1001A IS RUNNING SMOOTHLY	OPERATOR SHOULD CHECK THAT PKC1001A IS RUNNING SMOOTHLY	**S U** Comments:
12.	**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	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
13. 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	**S U** Comments:
*14. 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 14 OR 15 WILL ISOLATE FIRE HEADER RECIRC LINE AND SATISFY CRITICAL STEP CRITERIA**	**S U** Comments:
*15. CLOSE VKC1038C, ELECTRIC FIRE PUMP TO FIRE WATER STORAGE TANK ISOLATION STEP 4.2.7.2	VKC1038C IS CLOSED	OPERATOR SHOULD CLOSE VKC1038C **PERFORMING EITHER STEP 14 OR 15 WILL ISOLATE FIRE HEADER RECIRC LINE AND SATIFITY CRITICAL STEP CRITERIA**	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
16. ON CPKC1001, ENSURE THE CIRCUIT BREAKER FOR PKC1001A IS IN THE “ON” POSITION STEP 4.2.7.4	CIRCUIT BREAKER FOR PKC1001A IS IN THE “ON” POSITION	OPERATOR SHOULD ENSURE THE CIRCUIT BREAKER FOR PKC1001A IS IN THE “ON” POSITION NOTE: LOCATED ON CONTROLLER FOR ELECTRIC FIRE PUMP	**S** **U** Comments:
17. CHECK IF A DEMINERALIZED REGENERATION IS IN PROGRESS STEP 4.2.8	THERE ARE NO REGENS IN PROGRESS IN THE DEMIN BUILDING	OPERATOR SHOULD CHECK IF A REGEN IS IN PROGRESS PRIOR TO PLACING THE FIRE PROTECTION WATER M/U PUMPS IN “AUTO”	**S** **U** Comments:
18. ROTATE FIRE PROT WTR MAKE-UP SWITCHES HSKC1001A AND HSKC1001B TO THE "AUTO" POSITION STEP 4.2.8	HSKC100A IS IN THE “AUTO” POSITION HSKC100B IS IN THE “AUTO” POSITION	OPERATOR SHOULD ROTATE FIRE PROT WTR MAKE-UP SWITCHES HSKC1001A AND HSKC1001B TO THE "AUTO" POSITION	**S** **U** Comments:

* CRITICAL STEP

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

* CRITICAL STEP

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

Initial Conditions: CALLAWAY PLANT IS IN MODE 1 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-JPMB/U	KSA NO:	076A4.04
COMPLETION TIME:	14 MINUTES	KSA RATING:	3.5/3.5
JOB TITLE:	URO/SRO	REVISION:	000531
TASK TITLE:	MANUALLY OPERATE AN ESW TRAIN		
DUTY:	ESSENTIAL SERVICE WATER		

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

[ ] SATISFACTORY [ ] UNSATISFACTORY

Reason, if UNSATISFACTORY:

EVALUATORS SIGNATURE: _____ DATE: _____

TASK PERFORMER: _____

LOCATION OF PERFORMANCE:

CONTROL ROOM _____ SIMULATOR/LAB __X__ PLANT _____ CLASSROOM _____

METHOD OF PERFORMANCE: SIMULATED _____ PERFORMED __X_____

REFERENCES: OTN-EF-00001, ESSENTIAL SERVICE WATER SYSTEM, REVISION 21

TOOLS/EQUIPMENT: NONE

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 5/31/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 5/31/00

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

Initial Conditions: CALLAWAY PLANT IS IN MODE 1. TWO 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 AND ARE IN THE NORMAL STANDBY LINE UP. '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 ANY IC. 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 COPY OF OTN-EF-00001, ESSENTIAL SERVICE WATER SYSTEM		OPERATOR SHOULD OBTAIN PROCEDURE COPY	**S** **U** Comments:
2. REVIEW PRECAUTIONS AND LIMITATIONS OF OTN-EF-00001 STEP 2.0	ALL PRECAUTIONS AND LIMITATIONS ARE SATISFIED	OPERATOR SHOULD REVIEW PRECAUTIONS AND LIMITATIONS	**S** **U** Comments:
3. REVIEW INITIAL CONDITIONS OF OTN-EF-00001 STEP 3.0	IF ASKED: **UHS LEVEL IS 80%** ALL INITIAL CONDITIONS ARE SATISFIED	OPERATOR SHOULD REVIEW THE INITIAL CONDITIONS	**S** **U** Comments:

* 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 LIT AND GREEN LIGHT IS OUT	OPERATOR SHOULD VERIFY EFHV0051, ESW TRN 'A' TO CCW HX 'A' IS OPEN	**S U** Comments:
5. ENSURE EFHV0059, ESW TRN 'A' RETURN FROM CCW HX 'A', IS CLOSED USING EF HIS-59 STEP 5.6.1.2	EF HIS-59 GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD VERIFY EFHV0059 ESW TRN 'A' RETURN FROM CCW HX 'A' IS CLOSED	**S U** Comments:
*6. START 'A' ESW PUMP USING EF HIS-55A STEP 5.6.1.3	EF HIS-55A RED LIGHT IS LIT AND GREEN LIGHT IS OUT	OPERATOR SHOULD SELECT RUN ON EF HIS-55A, ESW PUMP 'A', ON RL019	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
*7. CLOSE THE SERVICE WATER SUPPLY CROSS CONNECT VALVES FOR THE "A" ESW TRAIN BY CLOSING EFHV0023 AND EFHV0025 WITH EF HIS-23 AND EF HIS-25 STEP 5.6.1.4	EF HIS-23 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT EF HIS-25 GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD CLOSE EFHV0023 AND EFHV0025 NOTE: THE OPERATOR ONLY NEEDS TO CLOSE V23 OR V25 TO ISOLATE ESW TO SERVICE WATER	**S U** Comments:
8. 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:
9. 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:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
10. STEP 5.6.1.6	INSIDE OPERATOR CALLS AND REPORTS THE UHS LEVEL IS 77% AS READ ON THE LOCAL INDICATOR EFLI0027A	NOTE: **CLEAR D055 ANNUNCIATOR PRIOR TO CALL AS INSIDE OPERATOR**	**S U** Comments:
11. MONITOR UHS LEVEL AT EFLI0027A, WHEN THE UHS IS NEAR ITS NORMAL OPERATING LEVEL OF 76.6% PERFORM THE FOLLOWING TO STOP THE ESW PUMP STEP 5.6.1.6	LOCAL LEVEL INDICATION IS AT 76.8%	OPERATOR SHOULD REALIZE UHS LEVEL IS LOW ENOUGH TO STOP 'A' ESW PUMP	**S U** Comments:
*12. OPEN EFHV23, SERVICE WATER TO ESW CROSS CONNECT BY PRESSING THE OPEN PUSHBUTTON ON EF HIS-23 AND VERIFY EFHV23 FULLY OPENS STEP 5.6.1.6.1	EF HIS-23 RED LIGHT ILLUMINATES AND GREEN LIGHT GOES OUT	OPERATOR SHOULD OPEN EF HIS-23, SERVICE WATER/ESW CROSS CONNECT OPERATOR MAY VERIFY EFHV23 IS FULLY OPEN	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
*13. PLACE EF HIS-25 TO THE OPEN POSITION AND VERIFY THAT EFHV0025 IS OPENING BY OBSERVING DECREASING PUMP DISCHARGE PRESSURE AND IMMEDIATELY STOP ESW PUMP 'A' STEP 5.6.1.6.2	EF HIS-25 RED AND GREEN LIGHTS ARE ILLUMINATED **PRESSURE INDICATION ON EF PI-1 IS DECREASING** EF HIS-55A GREEN LIGHT ILLUMINATES AND RED LIGHT GOES OUT	OPERATOR SHOULD DEPRESS 'OPEN' ON EF HIS-25 FOR SERVICE WATER/ESW TRAIN 'A' CROSS CONNECT, VERIFY ESW PUMP DISCHARGE PRESSURE IS DECREASING AND STOP 'A' ESW PUMP	**S U** Comments:
14. ENSURE THAT VALVE EFHV0025 IS IN THE FULLY OPEN POSITION AND 'A' ESW PUMP HAS STOPPED STEP 5.6.1.6.3	EF HIS-25 RED LIGHT IS LIT AND GREEN LIGHT IS OUT EF HIS-55A GREEN LIGHT IS LIT AND RED LIGHT IS OUT	OPERATOR SHOULD OBSERVE THE GREEN LIGHT OUT AND RED LIGHT LIT FOR EF HIS-25 AND 'A' ESW PUMP HAS STOPPED	**S U** Comments:
15. IF NECESSARY, REALIGN ESW TO AND FROM CCW HX 'A' TO SUPPORT SERVICE WATER PUMP OPERATION STEP 5.6.1.6.4	IT IS <u>NOT</u> NECESSARY TO REALIGN ESW	OPERATOR SHOULD REALIZE IT IS NOT NECESSARY TO REALIGN ESW	**S U** Comments:

* CRITICAL STEP

TASK NUMBER - ELEMENT	CUE	STANDARD	SCORE
16. 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 GD HIS-51A. NOTE: LOCATED ON RP068	**S** **U** Comments:
17. 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 USING GD HIS-1A NOTE: LOCATED ON RP068	**S** **U** Comments:
18. CLOSE OR VERIFY CLOSED MOTOR SPACE HTR BKR QB5012, ESW PUMP ROOM 'A', SW CORNER STEP 5.6.1.6.7	INSIDE EQUIPMENT OPERATOR REPORTS 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
19. INFORM THE CONTROL ROOM SUPERVISOR SECTION 5.6.1 OF OTN-EF-00001 HAS BEEN COMPLETED	THE CONTROL ROOM SUPERVISOR ACKNOWLEDGES	OPERATOR SHOULD INFORM THE CONTROL ROOM SUPERVISOR SECTION 5.6.1 OF OTN-EF-00001 HAS BEEN COMPLETED	**S** **U** Comments:
	THE JPM IS COMPLETE **STOP TIME**: _____		**S** **U** Comments:

* CRITICAL STEP

CALLAWAY PLANT TRAINING DEPARTMENT

DYNAMIC SIMULATOR SCENARIO

SIMULATOR SCENARIO: ILE-7/2000-DS1

REVISION DATE: 000601

SCENARIO TITLE: FAULTED/RUPTURED STEAM GENERATOR	**EXAM #:** ILE-7/2000-DS1

INITIAL CONDITIONS:

The plant is stable at 30% reactor power ready to increase 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 85 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" or FR-P.1, "Response to Imminent Pressurized Thermal Shock Condition".

SCENARIO OVERVIEW	EXAM #: ILE-7/2000-DS1

The plant is stable at 30% power ready to increase 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. The crew will start the ‘B’ CCP and secure the NCP.

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" or FR-P.1, "Response to Imminent Pressurized Thermal Shock Condition".

1) Initialize at IC-101, 30% power ready to increase power 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

SCENARIO SEQUENCE OF EVENTS GUIDE	EXAM #: ILE-7/2000-DS1

INSERT TIME	EVENT	MALF	DESCRIPTION
N/A	A	n/a	Swap Charging From NCP To CCP
10	B	prs01a (1) 2500 5	PZR Press Channel Failure (455)
20	C	mss02d (2) 4.8 20	Steam Flow Channel Failure (542)
25	D	rcs02d (3) 15 60	'D' S/G Tube Leak
40	E	rcs02d (4) 150 30 15	'D' S/G Tube Rupture
42	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

INSTRUCTOR TURNOVER INFORMATION	EXAM #: ILE-7/2000-DS1

PRESENT CONDITIONS:

Mode 1
30% power BOL stable, ready to increase 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.
Place the 'B' CCP in service.

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 BMHV5-8. 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:	B	POSITION:	EXAM #	ILE-7/2000-DS1

BRIEF DESCRIPTION: **Pressurizer Pressure Channel 455 Failure High**

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
ANNUNCIATORS:			
PZR HI PRESS DEV 33B			
PORV OPEN 35B			
PZR PORV DISCH TEMP HI 35D			
RX PARTIAL TRIP 83C			
1) Implement OTO-BB-00006, "Pressurizer Pressure Channel Failure".			_____
• Identify the failed channel (BBPT455)	_____		_____
• Select away from the failed channel (Select BBPT457/456)	_____		_____
• Terminate any pressure transient and ensure the plant is in a stable condition	_____		
2) Ensure PORVs, spray valves, and heaters return to normal.	_____	_____	_____
3) Select a valid input to the Pressurizer Pressure (Channel 456, 457 or 458) and OPΔT / OTΔT (Loop 2, 3 or 4) recorders.		_____	_____
4) Select a valid input to the Plant Computer for the digital display. (Channel 456, 457 or 458)	_____		_____

COMMENTS: * Denotes Critical Task

_____

_____

_____

_____

_____

_____

_____

EVENT:	B	POSITION:	EXAM #	ILE-7/2000-DS1

BRIEF DESCRIPTION: **Pressurizer Pressure Channel 455 Failure High**

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
5) Refer to Technical Specifications 3.3.1, 3.3.2, and 3.3.4.			_____
6) Contact I&C to troubleshoot/repair.			_____
7) Contact I&C to trip bistables per Attachment 1.			_____
8) Notify EDO of OTO procedure entry.			_____

COMMENTS: * Denotes Critical Task

EVENT:	C	POSITION:	EXAM #	ILE-7/2000-DS1

BRIEF DESCRIPTION: **'D' S/G Steam Flow Channel Failure**

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS

ANNUNCIATORS:

SG D FLOW MISMATCH 111D
SG D LEV DEV 111C

1) Implement OTO-AB-00002, "Steam Flow Channel Failure". _____

- Identify the failed channel (Channel F542) _____ _____
- Select the alternate steam flow channel (Channel F543) _____ _____
- Stabilize S/G level at 50% _____ _____

2) Contact I&C to troubleshoot/repair channel. _____

3) Notify EDO of OTO procedure entry. _____

COMMENTS: * Denotes Critical Task

EVENT:	D	POSITION:	EXAM #	ILE-7/2000-DS1

BRIEF DESCRIPTION: **'D' S/G Tube Leak**

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
ANNUNCIATORS:			
PROCESS RAD HI 61B			
PROCESS RAD HIHI 61A			
1) Implement OTO-BB-00001, "Steam Generator Tube Leak".			_____
• Determine size and location of leak.	_____		_____
• Use Plant Computer tabular trend GT-SG17.	_____	_____	_____
• Utilize N16 monitors on RM11.	_____	_____	_____
• Trends on GERE0092, SJRE0002, or BMRE0025.	_____	_____	_____
2) Contact Chemistry to sample S/G per CTP-ZZ-02590, "S/G Tube Determination".			_____
3) Use VCT Level and/or Pressurizer Level.	_____		_____
4) Compare Charging and Letdown flow rates.	_____		_____
5) Contact HP to survey the Main Steam Lines.			_____

COMMENTS: * Denotes Critical Task

_____

_____

_____

_____

_____

_____

_____

EVENT:	D	POSITION:	EXAM #	ILE-7/2000-DS1

BRIEF DESCRIPTION: **'D' S/G Tube Leak**

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
6) If rate of change exceeds 60 gpd per hour, go to Attachment 1.			_____
• Shutdown plant to be in Mode 3 in 3 hours.			_____
• Notify Power Supervisor of plant S/D.			_____
• Discuss shutdown with EDO.			_____
• Perform OTG-ZZ-00004, "Power Operations", may use Attachment 1 for rapid shutdown.			_____
7) Refer to APA-ZZ-01023, "S/G Tube Leak Contingency Guidelines".			_____
8) Refer to Technical Specification LCO 3.4.13.			_____
9) If a BPSIS exists, verify valves isolate.	_____	_____	_____

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

_____

_____

_____

_____

_____

_____

_____

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 * AFW should be isolated to the "D" S/G and not re-initiated.		_____	_____
• 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	_____	_____	_____

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 S/Gs are not faulted		_____	_____
• 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" or FR-P.1, "Response to Imminent Pressurized Thermal Shock Condition" if required per the CSF Status Trees.	_____	_____	_____

COMMENTS: * Denotes Critical Task

_____

_____

_____

_____

_____

_____

_____

CALLAWAY PLANT TRAINING DEPARTMENT

DYNAMIC SIMULATOR SCENARIO

SIMULATOR SCENARIO: ILE-7/2000-DS2

REVISION DATE: 000601

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 Logic 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 87 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.

SCENARIO OVERVIEW	EXAM #: ILE-7/2000-DS2

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 Logic Power Supply failure will occur. The crew should respond per OTO-RK-00001, “Loss of Control Room Alarms”, and determine that only one Logic Power Supply has failed and that only Control Room alarms 1A through 13F are affected.

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 Logic 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 TIME	EVENT	MALF	DESCRIPTION
N/A	A	n/a	Increase Letdown Flow
10	B	tur07a (1) 100	Stator Cooling Water Runback
20	C	rcs01a (2) 650 5	Loop 1 T_H Fails High
32	D	mss13b (3) 1500	ABPT0507 Fails High
37	E	aux06a (4)	Annunciator Logic Power Supply Fails
47	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 Logic 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

INSTRUCTOR TURNOVER INFORMATION	EXAM #: ILE-7/2000-DS2

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, 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 Board -6.3 VDC, -11 VDC, and -12 VDC LEDs for E1-P.S.1 in RK045E1 are NOT lit. • All other Logic Power Supply's Power Monitor Board LEDs 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. If requested to secure NE02 use REMOTES KJS002 Local/Manual KJS008 Stop

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

BRIEF DESCRIPTION: **Increase Letdown Flow**

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS

ANNUNCIATORS:

NONE

1) Increase CVCS Letdown Flow to 120 gpm IAW OTN-BG-00001 step 5.9.

- Inform Chemistry _____ _____
- Place BG PK-131 in MANUAL and set to control pressure at 190 psig _____
- Open BG HV-8149AA _____
- Manually control BG PK-131 at approximately 350 psig, then place in AUTO _____
- Monitor BG TI-130 to control Letdown Hx Disch Temp at 95 - 115°F _____
- Close BG HV-8109 when NCP flow is > 100 gpm _____
- Ensure charging flow is maintaining PZR level _____

COMMENTS: * Denotes Critical Task

_____

_____

_____

_____

_____

_____

_____

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

BRIEF DESCRIPTION: **Stator Cooling Water Turbine Runback**

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
ANNUNCIATORS:			
GEN PROT RUNBACK CIRCUIT 132C			
1) Implement OTO-MA-00001, "Turbine Runback".			_____
• Verify generator load decreasing		_____	_____
• Drive control rods IN using manual control	_____		_____
• Switch rod control to AUTO with SE HS-9 when Annunciator 65E is received	_____		_____
• Ensure control rods stepping IN at 72 steps/min.	_____		_____
• Initiate immediate boration as required	_____		_____
• Ensure a stator cooling water pump is running		_____	_____
• Check for normal stator cooling water pressure		_____	_____
• Dispatch an operator to the stator cooling water skid to check HX alignment	_____	_____	_____
• Verify S/G levels are returning to 50%		_____	_____

COMMENTS: * Denotes Critical Task

_____

_____

_____

_____

_____

_____

_____

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 Tavg 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

	RO	BOP	CRS
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) Contact I&C to trip bistables per Attachment 1 of OTO-BB-00004.	_____	_____	_____
4) Notify EDO of entry into an off-normal procedure.			_____

COMMENTS: * Denotes Critical Task

_____

_____

_____

_____

_____

_____

_____

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

BRIEF DESCRIPTION: **Steam Header Pressure Channel Failure**

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS

ANNUNCIATORS:

SG A LEV DEV	108C
SG B LEV DEV	109C
SG C LEV DEV	110C
SG D LEV DEV	111C

1) Implement OTO-AB-00004, "Steam Header Pressure Channel Failure". _____

   - Take manual control of main feedwater pumps _____ _____
   - Maintain feed/steam ΔP in accordance with programmed value, 45-149 psig. _____ _____

2) Contact I&C to troubleshoot failed channel. _____

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

COMMENTS: * Denotes Critical Task

_____

_____

_____

_____

_____

_____

_____

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

BRIEF DESCRIPTION: **Annunciator Logic Power Supply Failure**

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
ANNUNCIATORS:			
SA066X, ESF Status Panel 21Q Annunciators 1A through 13F fail dark			
1) Implement OTO-RK-00001, "Loss of Control Room Alarms".			_____
• Verify the plant is in a stable condition	_____	_____	_____
• Stop all surveillance testing in progress			_____
• Contact I&C to begin diagnostic and troubleshooting			_____
2) Check Annunciator System status.			
• Four field power supplies in RK045D1 for voltage and amp indication. Voltage must be > 105V.	_____	_____	_____
• Seven power supply fuses to the multiplexer chassis adapter racks	_____	_____	_____
• Fifty-six logic power supply's power monitor board LED indicators for normal lit indication	_____	_____	_____
3) If any Logic Power Supply's Power Monitor Board LED indicator is <u>not</u> lit then go to step 6.4			_____

COMMENTS: * Denotes Critical Task

_____

_____

_____

_____

_____

_____

_____

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

BRIEF DESCRIPTION: **Annunciator Logic Power Supply Failure**

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
4) Determine Logic Power Supply E1-P.S.1 for RK045E1 has failed.	_____	_____	_____
5) Perform actions of Attachment 2			_____
• Review Annunicators affected			_____
• Identify affected equipment -Intake -Cooling Tower Level & Disch/Blowdown Flow -Turbine Load for Circ Pump Setback -Service Water Pump Status -Switchyard / Circ and Service			_____
• Notify Chemistry the Sewage Misc. Trouble alarm will not alarm in the Control Room			_____
• Inform Outside Equipment Operator to monitor affected equipment/parameters as often as possible, but as a minimum once per hour.			_____
• Inform Reactor Operators to monitor affected equipment/parameters continuously.			_____
6) Initiate action to repair the inoperable logic power supply by contacting I&C or Planning & Scheduling.			_____

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 and NB02	_____	_____	_____
• Check if SI is actuated	_____	_____	_____
3) Determine that SI is required and initiate manual SI or ensure automatic SI initiation.	_____		_____
4) Identify NB02 bus lockout	_____	_____	_____

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
5) 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
5) (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

_____

_____

_____

_____

_____

_____

_____

EXPECTED OPERATOR / PLANT RESPONSE	**RO**	**BOP**	**CRS**
5) (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	_____	_____	_____
6) Identify that the RCS is not intact and transition to E-1, "Loss of Reactor or Secondary Coolant".	_____	_____	_____
7) 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
8) 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: 000601

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”.

SCENARIO OVERVIEW	EXAM #: ILE-7/2000-DSBU

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 through step 4.

At step 4 of E-0 the crew will continue through step 27 and transition to ES-1.1, "SI Termination", if Safety Injection has occurred. If a Safety Injection has not occurred the crew will transition to ES-0.1, "Reactor Trip Response". The end point of the scenario will be either ES-0.1 or ES-1.1.

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”.

SCENARIO SEQUENCE OF EVENTS GUIDE	EXAM #: ILE-7/2000-DSBU

INSERT TIME	EVENT	MALF	DESCRIPTION
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
35	E	mss07a (3) 100 10	S/G PORV Failure
40	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:	A	POSITION:	EXAM #	ILE-7/2000-DSBU

BRIEF DESCRIPTION: **Pressurizer Level Channel Failure**

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
ANNUNCIATORS:			
PZR 17% HTRS OFF LTDN ISO 32B			
PZR LO LVL DEV 32C			
1) Implement OTO-BB-00007, "Pressurizer Level Channel Failure".			_____
• Identify pressurizer level channel BB LT-459 failure	_____		_____
• Select alternate channel (Channel 461/460)	_____		_____
• Restore PZR level to program level (See Events B & C)	_____		_____
• Select a valid level channel (Channel 460 or 461) for the Pressurizer Program Level Recorder using switch BB LS-459E	_____		_____
2) Refer to Technical Specifications and ensure compliance with minimum channel requirements and action statements.			_____
• T/S 3.3.1			_____
3) Contact I&C to have instrument failure investigated, including tripping of bistable.			_____
4) Notify EDO upon entering off-normal procedure.			_____

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
ANNUNCIATORS:			
NONE			
1) When attempts to restore normal letdown are unsuccessful, place excess letdown in service per OTN-BG-00001.			
• Inform H.P. that excess letdown is to be placed in service.	_____		_____
• Inform Chemistry that excess letdown is to be placed in service.	_____		_____
• Notify Radwaste that excess letdown is being directed to the RCDT.	_____		_____
• Verify that the Excess Letdown Heat Exchanger is supplied with CCW.	_____		_____
• Ensure BG HC-123, the Excess Letdown HX Outlet Flow Hand Switch, is in the closed position.	_____		_____
• Place BG HIS-8143, in the RCDT position.	_____		_____
• Open either set of Reactor Coolant To Excess Letdown HX valves with the applicable control switches:	_____		_____
Train A BG HIS-8153A & BG HIS-8154A			
Train B BG HIS-8153B & BG HIS-8154B			

COMMENTS: * Denotes Critical Task

_____

_____

_____

_____

_____

_____

_____

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: D	POSITION:	EXAM # ILE-7/2000-DSBU

BRIEF DESCRIPTION: **RCP Vibration Requiring Power Reduction**

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
ANNUNCIATORS:			
RCP VIB / SYS ALERT 70B			
1) Implement OTO-BB-00002, "Reactor Coolant Pump Off-Normal", Attachment 1.			_____
• Check RCP Vibrations.	_____	_____	_____
• Contact the RCP and Vibration System Engineers to determine if securing the RCP is required.			_____
• Reduce reactor power to less than 48% (P-8 extinguished on SB069) per OTG-ZZ-00004, "Power Operations".	_____	_____	_____
• Begin the load decrease at a rate directed by the Shift Supervisor using the EHC LOAD DECREASE pushbutton.		_____	_____
• Maintain Tavg with Tref with control rods and/or boron concentration adjustments.	_____		_____
2) Notify EDO of OTO procedure entry.			_____

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

_____

_____

_____

_____

_____

_____

_____

EVENT:	F/G/H	POSITION:	EXAM #	ILE-7/2000-DSBU

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

_____

_____

_____

_____

_____

_____

_____

EXPECTED OPERATOR / PLANT RESPONSE	**RO**	**BOP**	**CRS**
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) **If SI does not occur, go to step 7.**			
6) 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	_____		_____

COMMENTS: * Denotes Critical Task

_____

_____

_____

_____

_____

_____

_____

EXPECTED OPERATOR / PLANT RESPONSE	**RO**	**BOP**	**CRS**
6) (continued)			
• Ensure ESW pump running	_____	_____	_____
• 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

_____

_____

_____

_____

_____

_____

_____

EVENT:	F/G/H	POSITION:	EXAM #	ILE-7/2000-DSBU

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

EXPECTED OPERATOR / PLANT RESPONSE	RO	BOP	CRS
7) Perform actions of E-0.			
• Verify reactor trip	_____		_____
• Verify turbine trip		_____	_____
• Verify NB01/NB02 energized	_____	_____	_____
• Check if SI is actuated	_____	_____	_____
• Transition to ES-01, Reactor Trip Response			_____
8) Perform actions of ES-0.1			
• Check RCS temperature	_____		_____
• Check feedwater status		_____	_____
• Ensure all RCCAs fully inserted	_____	_____	_____
• Check PZR level control	_____		_____
• Check PZR pressure control	_____		_____
• Check S/G levels		_____	_____
• Verify all AC buses energized by off-site power	_____	_____	_____
• Transfer steam dumps to steam pressure mode		_____	_____
• Check RCP status	_____	_____	_____
• Check source ranges energized	_____		_____

COMMENTS: * Denotes Critical Task

_____

_____

_____

_____

_____

_____

_____

EXPECTED OPERATOR / PLANT RESPONSE	**RO**	**BOP**	**CRS**
8) (continued)			
• Shutdown unnecessary plant equipment	_____	_____	_____
• Maintain stable plant conditions	_____	_____	_____
• Determine if Natural Circ Cooldown is required			_____
• Transition to OTG-ZZ-00005, Plant S/D 20% Power to Hot Standby or OTG-ZZ-00008, Normal Unit Recovery Guideline Following Reactor Trip			_____

COMMENTS: * Denotes Critical Task

_____

_____

_____

_____

_____

_____

_____

SORT BY

RO QUESTION NUMBER

RO Exam Question Number	R Number
001	R004
002	R009
003	R014
004	R019
005	R024
006	R029
007	R034
008	R039
009	R044
010	R049
011	R054
012	R059
013	R064
014	R069
015	R074
016	R079
017	R084
018	R089
019	R094
020	R099
021	R002
022	R007
023	R012
024	R017
025	R022
026	R027
027	R032
028	R037
029	R042
030	R047
031	R052
032	R057
033	R062
034	R067
035	R072
036	R077
037	R082
038	R087
039	R092
040	R097
041	R003
042	R008
043	R013
044	R018
045	R023
046	R028
047	R033
048	R038
049	R043
050	R048

RO Exam Question Number	R Number
051	R053
052	R058
053	R078
054	R083
055	R088
056	R093
057	R098
058	R063
059	R001
060	R006
061	R011
062	R016
063	R021
064	R026
065	R031
066	R036
067	R041
068	R046
069	R051
070	R056
071	R061
072	R066
073	R071
074	R076
075	R081
076	R086
077	R068
078	R091
079	R096
080	R005
081	R010
082	R015
083	R020
084	R025
085	R030
086	R035
087	R040
088	R045
089	R050
090	R055
091	R060
092	R073
093	R065
094	R070
095	R075
096	R080
097	R085
098	R090
099	R095
100	R100

SORT BY

SRO QUESTION NUMBER

SRO Exam Question Number	R/S Number
001	R053
002	R019
003	R026
004	R030
005	R036
006	R039
007	R065
008	R067
009	S008
010	R062
011	R084
012	R071
013	S014
014	S015
015	S019
016	S022
017	S025
018	R001
019	R003
020	R007
021	R011
022	R015
023	R024
024	S005
025	S006
026	R035
027	R043
028	R049
029	R054
030	R060
031	R066
032	S010
033	R078
034	R086
035	S018
036	S021
037	R100
038	R020
039	R027
040	R031
041	R034
042	R041
043	R045
044	R051
045	R058
046	R063
047	R068
048	R072
049	R081
050	S016

SRO Exam Question Number	R/S Number
051	S020
052	R099
053	R023
054	R005
055	R009
056	R012
057	R061
058	R083
059	S011
060	S013
061	R088
062	R094
063	R097
064	S024
065	R017
066	S001
067	R028
068	R010
069	R013
070	S009
071	R069
072	S012
073	R082
074	S017
075	R096
076	S023
077	R022
078	R004
079	R008
080	S004
081	R016
082	R025
083	R029
084	R033
085	R038
086	R044
087	R050
088	R055
089	R018
090	R002
091	S002
092	S003
093	R014
094	R021
095	R006
096	R032
097	S007
098	R042
099	R047
100	R059

SORT BY

SRO QUESTION NUMBER

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	005G2.1.12	
Importance Rating	2.9	4.0

Proposed Question:

The plant is operating at 100% power. OSP-SF-00002, Control Rod Partial Movement, test is being performed. The test performer noted that the two rods in Control Bank 'A' Group 1 did not move. Subsequent investigation reveals that the two rods are untrippable.

Which ONE of the following is required by Technical Specifications?

A. Restore rods to within alignment limits within 1 hour and reduce thermal power to ≤75% RTP within 2 hours.

B. Verify SDM to be within the limits provided in the COLR within 1 hour and be in Mode 3 within 6 hours.

C. Verify position of inoperable rods using movable incore detectors once per 8 hours or reduce thermal power to ≤50% RTP within 8 hours.

D. Immediately trip the reactor and emergency borate 150 ppm for each control rod not fully inserted.

Proposed Answer: B

Distracter Explanation:

A. Action for one rod not within alignment limits.
C. Similar to action for DRPI inoperability.
D. Action for two dropped rods that don't fully insert.

Technical Reference(s): T/S 3.1.4 Rod Group Alignment Limits
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective(s): U T61.0110.6, LP 26, Rod Control
E.2.a T61.003A.6, LP A-3, 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 X
Comprehension or Analysis ____

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

Comments:

Outline #: R001 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	015AA1.07	
Importance Rating	3.5	3.4

Proposed Question:

The following plant conditions exist:

- Mode 1, 100% Reactor Power
- 'B' CCP is out of service for maintenance

RCP Seal Injection should be provided by the _____ which will maintain seal cooling in the event of a _____.

A. 'A' train safety related CCP, loss of a single electrical bus.

B. 'A' train safety related CCP, CCW thermal barrier leak.

C. Non-safety related charging pump, loss of a single electrical bus.

D. Non-safety related charging pump, CCW thermal barrier leak.

Proposed Answer: C

Distracter Explanation:

A. Normal Charging Pump provides seal cooling.
B. Normal Charging Pump provides seal cooling.
D. Loss of electrical bus is the accident of concern.

Technical Reference(s): OTN-BG-00001, Chemical and Volume Control System
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A.1.n T61.003A.6, LP A-4, 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 X
Comprehension or Analysis _____

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

Comments: (IPE/PRA)

Outline #: R002 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	E09EK2.2	
Importance Rating	3.6	3.9

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?

A. 'C' Loop T_C will equal T_{SAT} for 'C' S/G pressure.

B. Core Exit Thermocouples slowly decreasing.

C. RCS Subcooling is more subcooled than instrument error.

D. '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 _____ (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 #: R003 Page 2 of 2 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	024AK3.02	
Importance Rating	4.2	4.4

Proposed Question:

A loss of shutdown margin has occurred and Emergency Boration is being initiated per OTO-ZZ-00003, Loss of Shutdown Margin. The preferred Emergency Boration flowpath alignment results in 0 gpm flow due to a clogged boric acid filter. To successfully initiate Emergency Boration, which ONE of the following methods should be used?

A. Swap charging pump suctions to the RWST.

B. Open BGHV8104, Emergency Borate Valve.

C. Locally open BGV0177, Alternate Immediate Borate Valve.

D. Locally open BGV0172 and BGV0173, Boric Acid Filter Bypass Valves.

Proposed Answer: A

Distracter Explanation:

B. This was the preferred path and it has a plugged filter.
C. This is downstream of the plugged boric acid filter.
D. No procedure guidance for bypassing the plugged filter.

Technical Reference(s): OTO-ZZ-00003, Loss of Shutdown Margin
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B T61.003B.6, LP B-61, Loss of Shutdown Margin

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:

Outline #: R004 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	026AK3.03	
Importance Rating	4.0	4.2

Proposed Question:

The following plant conditions exist:

- ECA-0.0, Loss of All AC Power, is in progress.
- Local operations are in progress to isolate the RCP seals.

Which ONE of the following is the primary reason for closing EGHV0061, CCW From RCP Thermal Barrier Outer CTMT Isolation Valve.

A. Prevents subsequent steam binding in the CCW System and prepares the plant for recovery.

B. Prevents inadvertent operation of the valve when power is restored to the bus.

C. Prevents seal leakage from filling the VCT and subsequently relieving to the Recycle Holdup Tank.

D. Prevents damage to the RCP Seal Package when a charging pump is started for recovery.

Proposed Answer: A

Distracter Explanation:

B. This is the reason for opening the supply breaker to EGHV0061.
C. This is the reason for isolating the seal return line.
D. This is the reason for isolating the seal injection lines.

Technical Reference(s): ECA-0.0, Loss of All AC Power, Step 8 Basis
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: D T61.003D.6, LP SD-12, Actions for Loss of All AC

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 #: R005 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	2
K/A #	027AA1.01	
Importance Rating	4.0	3.9

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): J T61.0110.6, LP 30, Reactor Instrumentation
K T61.0110.6, LP 30, Reactor Instrumentation

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

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

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

10 CFR Part 55 Content: **55.43** 5 **55.41** 7

Comments: _____

Outline #: R006 **Author:** DGL

Examination Outline Cross-reference:	**Level**	**RO**	**SRO**
	Tier #	1	1
	Group #	1	1
	K/A #	040AK1.05	
	Importance Rating	4.1	4.4

Proposed Question:

The following plant conditions exist:

- The plant has been at 100% power for the past 250 days.
- A Stream Line Break has just occurred.

Which ONE of the following describes the effect on Shutdown Margin (SDM)?

A. SDM decreases due to the negative Isothermal Temperature Coefficient.

B. SDM decreases due to the positive Moderator Void Coefficient.

C. SDM increases due to the negative Moderator Temperature Coefficient.

D. SDM increases due to the negative Differential Boron Worth.

Proposed Answer: A

Distracter Explanation:

B. Moderator Void Coefficient is always negative.
C. SDM decreases.
D. SDM decreases. Boron concentration is steady.

Technical Reference(s): Curve Book Figure 3-5c, Rev. 9
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: D T61.0070.6, LP 4, Reactivity Variations

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 #: R007 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	E08EK1.2	
Importance Rating	3.4	4.0

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. Increase AFW flow from 300,000 lbm/hr to 450,000 lbm/hr.

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 increase in AFW flow causing cooldown.

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

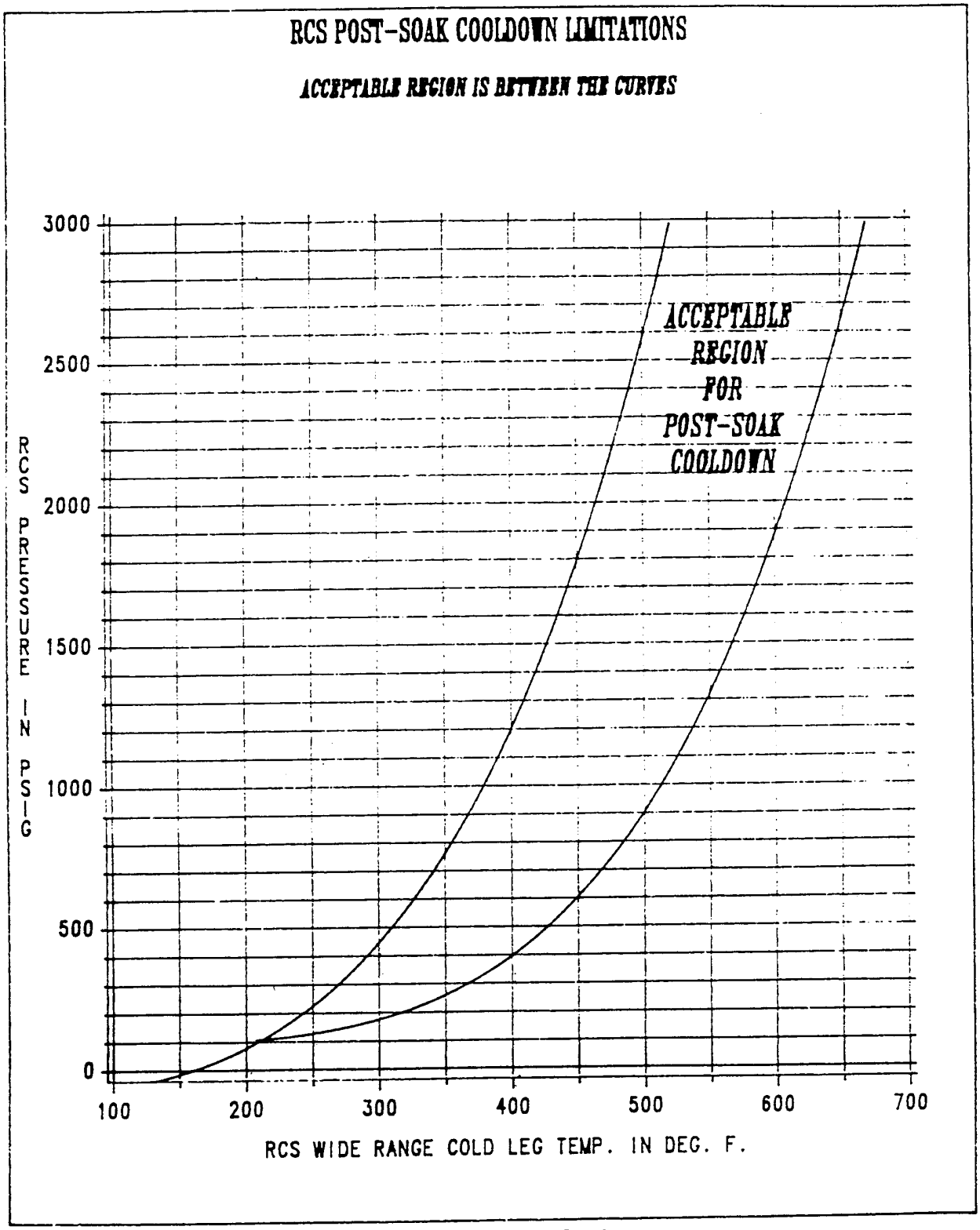
10 CFR Part 55 Content: **55.43** 5 **55.41** 10

Comments:

Outline #: R008 Page 1 of 2 **Author:** DGL

Proced. No. FR-P.1	RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION	Attachment 7	Rev. 1B1

RCS POST-SOAK COOLDOWN LIMITATIONS CURVE



Page 1 of 1

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	051AA2.02	
Importance Rating	3.9	4.1

Proposed Question:

Which ONE of the following conditions requires an immediate manual turbine trip?

A. Turbine Exhaust Hood Temperature is 210°F.

B. Condenser Pressure is 9 inches Hga.

C. Turbine Shaft Pump Discharge Pressure is 125 psig.

D. Turbine Bearing Oil Pressure is 25 psig.

Proposed Answer: B

Distracter Explanation:

A. Trip setpoint is > 225°F.
C. Trip setpoint is < 100 psig.
D. Trip setpoint is < 12 psig.

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

Proposed references provided to applicants during examination: None

Learning Objective: G T61.0110.6, LP 38, Main Turbine Controls

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** 7

Comments:

Outline #: R009 **Author:** DGL

Examination Outline Cross-reference:	**Level**	**RO**	**SRO**
	Tier #	1	1
	Group #	1	1
	K/A #	055EA2.03	
	Importance Rating	3.9	4.7

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 _____
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: (IPE/PRA)

Outline #: R010 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	057AK3.01	
Importance Rating	4.1	4.4

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?

A. To maintain Pzr level at 50%.

B. To minimize boron increase in the RCS.

C. To accommodate the RCS being on excess letdown.

D. To prevent excessive flow through RCP seals.

Proposed Answer: B

Distracter Explanation:

A. Program Pzr Level is 57% at 100% power.
C. RCS does not go on excess letdown.
D. 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 ____
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 #: R011 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	067AA2.16	
Importance Rating	3.3	4.0

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 _____
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 #: R012 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	068AK2.01	
Importance Rating	3.9	4.0

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 #	1	1
Group #	1	1
K/A #	069AK3.01	
Importance Rating	3.8	4.2

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. Remain operating to provide adequate mixing and core cooling.

B. Secured to faulted loop to aid in RCS pressure control.

C. Secured due to loss of CCW flow.

D. Secured due to loss of seal water injection flow.

Proposed Answer: C

Distracter Explanation:

A. RCPs are secured.
B. RCPs are secured because CIS B isolates CCW cooling.
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 ____
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** 7

Comments:

Outline #: R014 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	074G2.4.22	
Importance Rating	3.0	4.0

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, then monitor the remaining CSF status trees.

B. Concurrently perform E-1 and the appropriate FR-C procedure, then monitor the remaining CSF status trees.

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 _____ (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: _____

Outline #: R015 Page 2 of 2 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	076AK2.01	
Importance Rating	2.6	3.0

Proposed Question:

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

A. SDRE24, RCS Sample Room Monitor

B. SJRE01, CVCS Letdown Monitor

C. SDRE26, RHR HX Room Monitor

D. GTRE31, CTMT Atmosphere Monitor

Proposed Answer: B

Distracter Explanation:

A. Only SDRE20, 21, or 22 requires entry into OTO-BB-00005.
C. Only SDRE20, 21, or 22 requires entry into OTO-BB-00005.
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 ____
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 #: R016 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	1
K/A #	001AK1.03	
Importance Rating	3.9	4.0

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. Pressurizer PORV failed partially open.

B. Continuous rod withdrawal.

C. Steam leak outside containment.

D. Closure of one MSIV.

Proposed Answer: B

Distracter Explanation:

A. Pressurizer PORV failure would cause pressurizer level to increase and reactor power to remain stable.
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

Technical Reference(s): OTO-SF-00002, Continuous Control Rod Withdrawal
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A T61.003B.6, LP B-53, OTO-SF-00002

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 #: R017 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	003AK1.04	
Importance Rating	3.1	3.7

Proposed Question:

During a reactor startup, the connection between the drive mechanism for a high worth control rod and it's RCCA becomes uncoupled. As a result, the drive mechanism withdraws normally but the RCCA associated with it remains inserted in the core.

Which ONE of the following describes a symptom that the operators will see as a result of this event?

A. The affected rod bottom light will remain on.

B. The plant computer will show no rod motion for that rod.

C. Criticality will occur below the rod insertion limit.

D. The ECP will predict criticality at a lower than actual rod position.

Proposed Answer: D

Distracter Explanation:

A. Rod bottom lights come from the lead screw and DRPI program which are unaffected.
B. The plant computer indication comes from the lead screw and DRPI.
C. Criticality will occur at a higher rod position due to the reactivity.

Technical Reference(s): OSP-SF-00005, ECP Calculation
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B, C T61.003A.6, LP SA-23, Mode 3 To Mode 2 Rx Startup
C T61.003B.6, SB-12, Plant S/U With Off Normal Conditions

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** 6

Comments:

Outline #: R018 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	007EA2.02	
Importance Rating	4.3	4.6

Proposed Question:

During a small break LOCA, E-0 Reactor Trip or Safety Injection, was entered due to a reactor trip. The main turbine failed to automatically trip and the operator attempted a manual turbine trip that was also unsuccessful.

Which ONE of the following immediate actions should the operator perform FIRST?

A. Fast close the MSIVs and bypass valves.

B. Manually run back the turbine.

C. Dispatch an operator to locally trip the turbine.

D. Place both EHC pumps in Pull-To-Lock.

Proposed Answer: B

Distracter Explanation:

A. Second choice, after manually running back turbine.
C. Not an E-0 immediate action.
D. Not an E-0 immediate action.

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: C T61.003D.6, LP 4, E-0 Reactor Trip or Safety Injection

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:

Outline #: R019 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	008AA1.08	
Importance Rating	3.8	3.8

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	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	009G2.4.48	
Importance Rating	3.5	3.8

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 1250 psig.
- All ECCS equipment is functioning as expected.
- All RCPs are secured.

Which ONE of the following describes the condition of the Reactor Coolant System?

A. CETC temperatures are being maintained by the steam dumps.

B. CETC temperatures are being maintained by the S/G PORVs.

C. RCS pressure is being maintained by the Cold Overpressure Protection System.

D. RCS pressure is being maintained by the ECCS Injection flow.

Proposed Answer: D

Distracter Explanation:

Applicant must determine that the RCS is subcooled. RCS is subcooled due to ECCS injection flow greater than break flow. RCS temperature is being controlled by cold ECCS injection.

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	RO	SRO
Tier #	1	1
Group #	2	1
K/A #	011EK3.14	
Importance Rating	4.1	4.2

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 CS 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 ____
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 #: R022 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
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 ____
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:

Outline #: R023 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	E03EK3.3	
Importance Rating	3.9	3.9

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 decay heat is being removed via Secondary Depressurization.

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 #	1	1
Group #	2	2
K/A #	E11EK2.2	
Importance Rating	3.9	4.3

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 ____
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:

Outline #: R025 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	022AA1.08	
Importance Rating	3.4	3.3

Proposed Question:

Concerning the charging pump suction valves, BGLCV112B and BGLCV112C (VCT Suctions), BNLCV112D and BNLCV112E (RWST Suctions), which ONE of the following valve alignments would you expect if VCT level channel BGLT112 failed low while at 100% power with all systems in normal alignment?

A. BGLCV112B closed, BNLCV112D open.

B. BGLCV112B closed, BNLCV112E open.

C. BGLCV112C closed, BNLCV112D open.

D. BGLCV112C closed, BNLCV112E open.

Proposed Answer: A

Distracter Explanation:

B. BGLT112 does not control BNLCV112E.
C. BGLT112 does not control BGLCV112C.
D. BGLT112 does not control BGLCV112C or BNLCV112E.

Technical Reference(s): OTO-BG-00004, VCT Level Channel Failure
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective(s):
A T61.003B.6, LP B-63, OTO-BG-00004, VCT Level Channel Failure
B T61.003B.6, LP B-63, OTO-BG-00004, VCT Level Channel Failure

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 ____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43** 6 **55.41** 6

Comments:

Outline #: R026 **Author:** EBS

Examination Outline Cross-reference:

Level	**RO**	**SRO**
Tier #	1	1
Group #	2	2
K/A #	025AA2.04	
Importance Rating	3.3	3.6

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 _____ (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 #: R027 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	1
K/A #	029EA2.01	
Importance Rating	4.4	4.7

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 ____
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:

Outline #: R028 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	033AK3.02	
Importance Rating	3.6	3.9

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 when required.

B. Trip on high IR flux, and source range NIs will have to be manually re-energized.

C. NOT trip, IR Rod Stop will occur and SR NIs are unaffected.

D. Trip on high IR flux, and source range NIs will be unaffected.

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 #	1	1
Group #	2	2
K/A #	037G2.4.4	
Importance Rating	4.0	4.3

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. A controlled shutdown must be completed within 6 hours.

C. A rapid shutdown must be completed within 1 hour.

D. The reactor should be tripped immediately.

Proposed Answer: B

Distracter Explanation:

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

Outline #: R030 Page 1 of 2

Technical Reference(s): APA-ZZ-01023, Primary to Secondary Leakage Program
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C, D T61.003B.6, LP B-14, S/G Tube Leak

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:

Outline #: R030 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	038EA2.02	
Importance Rating	4.5	4.8

Proposed Question:

Which ONE of the following indications is consistent with a Steam Generator Tube Rupture?

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	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	E05EK3.2	
Importance Rating	3.7	4.1

Proposed Question:

Which ONE of the following is the basis for stopping RCPs during FR-H.1, Response to Loss of Secondary Heat Sink?

A. Allows the operator time to establish a higher flow rate for high pressure SI thus increasing the RCS cooldown rate.

B. Allows for a more controlled cooldown via natural circulation when feedwater is established.

C. Allows operators time to depressurize the intact steam generators in order to reduce RCS pressure and inject accumulators.

D. Allows operators to reduce heat addition to the RCS and extend the inventory in the steam generators.

Proposed Answer: D

Distracter Explanation:

A. A cooldown is not established in FR-H.1.
B. Natural circulation is not confirmed or required.
C. Intact S/Gs are not depressurized for the purpose of injecting the accumulators.

Technical Reference(s): FR-H.1, Response to Loss of Secondary Heat Sink
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: Q T61.003D.6, LP 26, FRG Heat Sink Series

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

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

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

10 CFR Part 55 Content: **55.43** ____ **55.41** 14

Comments:

Outline #: R032 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	060AK2.01	
Importance Rating	2.6	2.9

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-23, Gas Decay Tank Radiation Monitor, fails low.

C. GH-PDZ-6, RW Filter Adsorber Unit Exh Damper, fails open.

D. HA-FIT-23, Waste Gas Decay System Flow Indicator, fails to 0%.

Proposed Answer: A

Distracter Explanation:

B. GH-RE-23 has alarm function only.
C. Gas Decay Tanks discharge downstream of GH-PDZ-6.
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 _____
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** 13

Comments: _____

Outline #: R033 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	3	3
K/A #	028AA2.02	
Importance Rating	3.4	3.8

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

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

Proposed references provided to applicants during examination: None

Learning Objective: L T61.0110.6, LP 30, Reactor Instrumentation

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

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

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

10 CFR Part 55 Content: **55.43** _____ **55.41** 7

Comments: _____

Outline #: R034 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	3	3
K/A #	056AA1.07	
Importance Rating	3.2	3.2

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 ____
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:

Outline #: R035 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	3	2
K/A #	065AK3.03	
Importance Rating	2.9	3.4

Proposed Question:

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

Which ONE of the following is a correct statement?

A. The 'D' main feed reg valve will fail closed.

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. Main feed reg valves have a N_2 backup.
B. Main feed pump recirc valve has N_2 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 _____
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 #: R036 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	001K5.04	
Importance Rating	4.3	4.7

Proposed Question:

As reactor power is increased, the rod insertion limits (RILs) are required to be progressively higher.

From which ONE of the following parameters is the Rod Bank LoLo Limit Alarm (81C) determined?

A. auctioneered high Tave

B. auctioneered high Tref

C. auctioneered high NI power

D. auctioneered high delta T

Proposed Answer: D

Distracter Explanation:

RIL is continuously calculated for each control bank based on the current power level as determined by auctioneered high delta T.

Technical Reference(s): None
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: C T61.0110.6, LP 30, Reactor Instrumentation

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

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

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

10 CFR Part 55 Content: **55.43** 6 **55.41** 2

Comments:

Outline #: R037 **Author:** EBS

Examination Outline Cross-reference:	**Level**	**RO**	**SRO**
	Tier #	2	2
	Group #	1	1
	K/A #	001K2.01	
	Importance Rating	3.5	3.6

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.

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 _____
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** 6

Comments: _____

Outline #: R038 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	003K3.02	
Importance Rating	3.5	3.8

Proposed Question:

The following plant conditions exist:

- Callaway Plant is at 30% power.
- 'B' RCP trips due to a locked rotor.
- NO operator action is taken.

Which ONE of the following describes the INITIAL plant response to the 'B' RCP trip?

A. A reactor trip will not occur and 'B' S/G water level will increase.

B. A reactor trip will not occur and 'B' S/G water level will decrease.

C. A reactor trip will occur and 'B' S/G water level will increase.

D. A reactor trip will occur and 'B' S/G water level will decrease.

Proposed Answer: B

Distracter Explanation:

A. 'B' S/G water level will decrease.
C. A reactor trip will not occur.
D. A reactor trip will not occur.

Technical Reference(s): OTN-BB-00003, Reactor Coolant Pumps
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A T61.003B.6, LP SB-6, Power Operations With Off-Normal Conditions

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 #: R039 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	003K6.04	
Importance Rating	2.8	3.1

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 _____
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 #: R040 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	004A2.06	
Importance Rating	4.2	4.3

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 after 300 gallons of total flow addition.

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

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

Proposed references provided to applicants during examination: None

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

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** 6

Comments: _____

Outline #: R041 Page 2 of 2 **Author:** EBS

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

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. Small increase in letdown flow.

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. Letdown flow is not affected.

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 ____
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** 1

Comments:

Outline #: R042 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	013A4.03	
Importance Rating	4.5	4.7

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 _____
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** 8

Comments: _____

Outline #: R043 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	013A1.05	
Importance Rating	3.4	3.6

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

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

Proposed references provided to applicants during examination: None

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

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 #: R044 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	015K4.01	
Importance Rating	3.1	3.3

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 ____
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** 6

Comments:

Outline #: R045 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	015K5.05	
Importance Rating	4.1	4.4

Proposed Question:

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

Which ONE of the following sets of parameters indicates the reactor is critical?

A. SR NIs $5x10^3$ cps and increasing, SUR + 0.2 dpm, rods being withdrawn.

B. IR NIs $2x10^{-10}$ amps and decreasing, SUR - 0.1 dpm, rods being inserted.

C. SR NIs $5x10^4$ cps and increasing, SUR + 0.2 dpm, rod motion stopped.

D. IR NIs $2x10^{-9}$ amps and 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 ____
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** 6 **55.41** 1

Comments:

Outline #: R046 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	017A1.01	
Importance Rating	3.7	3.9

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	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	017A2.01	
Importance Rating	3.1	3.5

Proposed Question:

The following plant conditions exist:

- Core Exit Thermocouple (CETC) J14 indicates 590°F.
- Highest ‘A’ Train CETC indicates 598°F.
- Highest ‘B’ Train CETC indicates 597°F.

Which ONE of the following correctly describes the response to an OPEN in CETC J14?

A. CETC J14 will indicate less than 590°F on the plant computer and both trains of the Core Subcooling Monitor will indicate NO change in subcooling.

B. CETC J14 will indicate greater than 590°F on the plant computer and both trains of the Core Subcooling Monitor will indicate NO change in subcooling.

C. CETC J14 will indicate less than 590°F on the plant computer and ONE train of the Core Subcooling Monitor will indicate an INCREASE in subcooling.

D. CETC J14 will indicate greater than 590°F on the plant computer and one train of the Core Subcooling Monitor will indicate a DECREASE in subcooling.

Proposed Answer: A

Distracter Explanation:

B. CETC J14 will indicate less than 590°F.
C. Neither Core Subcooling Monitor train will be affected.
D. CETC J14 will indicate less than 590°F and neither Core Subcooling Monitor train will be affected.

Outline #: R048 Page 1 of 2

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

Proposed references provided to applicants during examination: None

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

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 #: R048 Page 2 of 2 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	022K4.02	
Importance Rating	3.1	3.4

Proposed Question:

Callaway Plant was in Mode 1, 100% steady-state conditions with CTMT coolers selected to FAST speed, 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.
- NE01 and NE02 supplying NB01 and NB02 buses.

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

A. 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.

B. Containment coolers running in SLOW, to prevent a fan motor overload due to dense moist air.

C. Containment coolers running in FAST, to maintain containment pressure and temperature below design limits.

D. 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	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	022A3.01	
Importance Rating	4.1	4.3

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	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	056A2.04	
Importance Rating	2.6	2.8

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

B. TD AFAS

C. FWIS

D. MD AFAS

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	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	059A3.06	
Importance Rating	3.2	3.3

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 _____
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 #: R052 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	059K3.03	
Importance Rating	3.5	3.7

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. Immediately initiates auxiliary feedwater to all S/Gs. Trips the main turbine after a 25-second delay.

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 _____ (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 #: R053 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	061K1.07	
Importance Rating	3.6	3.8

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?

A. There will be no change in water source alignment.

B. The suctions of all three AFW pumps will realign to the ESW System.

C. Only ‘A’ MDAFP will realign to ESW. The other pumps will be unaffected.

D. ‘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	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	061K4.02	
Importance Rating	4.5	4.6

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 ____
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 #: R055 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	068K1.07	
Importance Rating	2.7	2.9

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 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** 4 **55.41** 13

Comments:

Outline #: R056 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	068G2.3.11	
Importance Rating	2.7	3.2

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, AND HBFV0866, LRW Discharge FCV closes.

B. PHB11B, LRW Discharge Pump 'B' stops, AND HBFV0887, LRW DMT Inlet Iso closes.

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 ____
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** 11

Comments:

Outline #: R057 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	071G2.1.27	
Importance Rating	2.8	2.9

Proposed Question:

Which ONE of the following discharges 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 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** 13

Comments:

Outline #: R058 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	072A4.03	
Importance Rating	3.1	3.1

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 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** 11

Comments:

Outline #: R059 **Author:** EBS

Examination Outline Cross-reference:	**Level**	**RO**	**SRO**
	Tier #	2	2
	Group #	2	2
	K/A #	002A4.02	
	Importance Rating	4.3	4.5

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

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

Proposed references provided to applicants during examination: Steam Tables

Learning Objective(s): M T61.003D.6, LP 7, ES-0.2, ES-0.3, ES-0.4
N T61.003D.6, LP 7, ES-0.2, ES-0.3, ES-0.4

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

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

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

10 CFR Part 55 Content: **55.43** 5 **55.41** 2

Comments: _____

Outline #: R060 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	006K5.06	
Importance Rating	3.5	3.9

Proposed Question:

Assume that RCS Pressure is stable at 1700 psig following a reactor trip with a Safety Injection.

Which ONE of the following describes the effect on subcooling when the first Safety Injection Pump is secured?

A. Subcooling will remain constant because RCS pressure is above the shutoff head for the SI Pump.

B. Subcooling will decrease because RCS pressure will drop below the shutoff head for the SI Pump.

C. Subcooling will decrease because SI flow will be reduced to the output of the remaining SI Pump.

D. Subcooling will remain constant because charging pump flow will increase to maintain RCS pressure.

Proposed Answer: A

Distracter Explanation:

Shutoff head for the SI Pump is below 1700 psig, thus shutting down a single pump will have no effect on subcooling.

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

Proposed references provided to applicants during examination: None

Learning Objective:
I T61.003D.6, LP 10, ES-1.2, Post LOCA C/D & Depress
E T61.0110.6, LP 17, Safety Injection System

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

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

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

10 CFR Part 55 Content: **55.43** 5 **55.41** 7

Comments:

Outline #: R061 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	010K2.01	
Importance Rating	3.0	3.4

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. Heater groups A and C.

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 #	2	2
Group #	2	2
K/A #	011A2.02	
Importance Rating	3.2	3.2

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 _____ (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 #: R063 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	012K6.10	
Importance Rating	3.3	3.5

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 (pzr 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 _____ (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 #: R064 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	1
K/A #	014A1.02	
Importance Rating	3.2	3.6

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	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	016K3.03	
Importance Rating	3.0	3.1

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 ____
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 #: R066 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	1
K/A #	026A3.01	
Importance Rating	4.3	4.5

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 _____ (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** 9

Comments: _____

Outline #: R067 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	029K4.03	
Importance Rating	3.2	3.5

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	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	033A3.01	
Importance Rating	2.5	2.7

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 _____
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** 8

Comments: _____

Outline #: R069 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	035K1.11	
Importance Rating	3.1	3.1

Proposed Question:

The following plant conditions exist:

- Mode 1, 60% reactor power.
- S/G Blowdown in service from all S/Gs.
- 'B' S/G N-16 Rad Monitor alarms HIHI.
- 'C' S/G N-16 Rad Monitor alarms HI.
- GERE92 alarms HIHI.

Which ONE of the following describes the plant response to the above conditions?

A. 'B' S/G blowdown will divert to Radwaste. 'A', 'C', and 'D' blowdown will not change.

B. 'B' S/G blowdown will isolate. 'A', 'C', and 'D' S/G blowdown will not change.

C. All S/G blowdown will divert to Radwaste.

D. Blowdown from all four S/Gs will be isolated.

Proposed Answer: D

Distracter Explanation:

A. Blowdown does not AUTO divert to Radwaste.
B. Blowdown will isolate from all 4 S/Gs.
C. Blowdown does not AUTO divert to Radwaste.

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

Proposed references provided to applicants during examination: None

Learning Objective: D T61.0110.6, LP 12, S/G Blowdown

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** 9

Comments: _____

Outline #: R070 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	039K5.08	
Importance Rating	3.6	3.6

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. The reactor will trip on high IR NI power.

B. Reactor power will stabilize at the point of adding heat.

C. Reactor power will stabilize below the point of adding heat.

D. 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. Power will be above the POAH.
C. Power will be above the POAH.

Outline #: R071 Page 1 of 2

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

Proposed references provided to applicants during examination: Steam Tables

Learning Objective: G T61.0070.6, LP 4, Reactivity Variation
F, K 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** 6 **55.41** 1

Comments: _____

Outline #: R071 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	062G2.1.11	
Importance Rating	3.0	3.8

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. Suspend any positive reactivity additions until the S/U transformer is re-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

Technical Reference(s): T/S 3.8.1 Condition A
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: G T61.0110.6, LP 1, Switchyard

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 #: R072 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	1
K/A #	063K1.03	
Importance Rating	2.9	3.5

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	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	064A4.01	
Importance Rating	4.0	4.3

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 D/G Fuel Oil Transfer pump will start on low level and run continuously. With the D/G in standby, the D/G Fuel Oil Transfer pump cycles to maintain level between its high and low setpoints.

B. The D/G Fuel Oil Transfer pump always cycles to maintain level between the high and low setpoints.

C. With the D/G running, the D/G Fuel Oil Transfer pump is stopped and level is maintained by the Shaft Driven Pump. With the D/G in standby, the D/G Fuel Oil Transfer pump cycles to maintain Day Tank level between its high and low setpoints.

D. The D/G Fuel Oil Transfer 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 #	2	2
Group #	2	2
K/A #	064G.2.2.12	
Importance Rating	3.0	3.4

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 ____
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** 2 **55.41** 10

Comments:

Outline #: R075 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	073A4.02	
Importance Rating	3.7	3.7

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	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	075K4.01	
Importance Rating	2.5	2.8

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

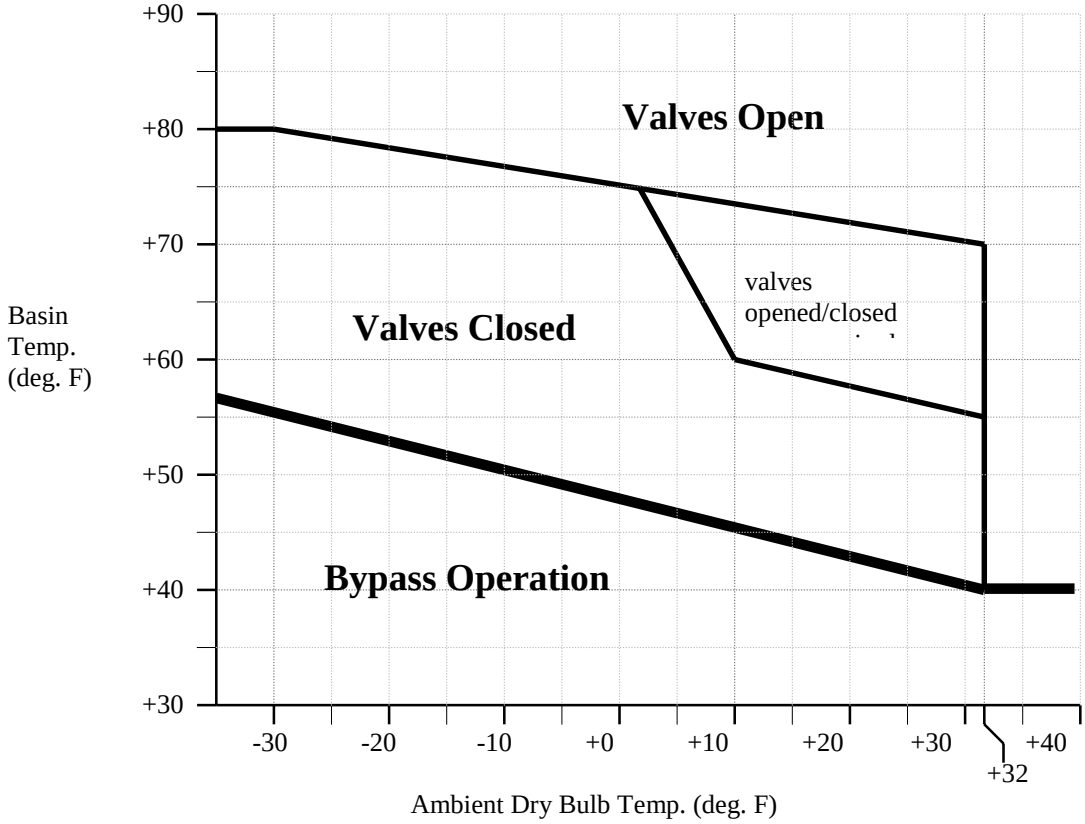
10 CFR Part 55 Content: **55.43** ____ **55.41** 5

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

Page 1 of 1 Attachment 1

Outline #: R077 Page 2 of 2

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	079K1.01	
Importance Rating	3.0	3.1

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 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** 7

Comments: _____

Outline #: R078 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	086K4.05	
Importance Rating	3.0	3.4

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 ____
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** 7

Comments:

Outline #: R079 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	3
K/A #	005K4.10	
Importance Rating	3.1	3.1

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?

A. The RHR Heat Exchanger flow control valve (HCV607) will automatically CLOSE to prevent exceeding RCS cooldown rates.

B. The RHR pump discharge to HX Bypass flow control valve (FCV619) will automatically CLOSE to maintain RHR discharge pressure and flow constant.

C. The RHR Heat Exchanger flow control valve (HCV607) will automatically OPEN to compensate for the apparent low-flow condition.

D. 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:

A. There will be NO automatic response from HCV607.
B. FCV619 will OPEN in response to this failure.
C. 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	RO	SRO
Tier #	2	2
Group #	3	3
K/A #	007A2.02	
Importance Rating	2.6	3.2

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?

A. BB8010A Pzr Safety Relief, EM8858A SI Pump Suction Relief, and EJ8708A RHR Pump Suction Relief.

B. BG8121 Seal Water Return Relief, BG8120 VCT Relief, and BBPCV0455A Pzr PORV.

C. BG8117 CVCS Letdown Relief, BB8010C Pzr Safety Relief, and BBPCV0456A Pzr PORV.

D. BB8010B Pzr Safety Relief, BG8124 CCP Suction Relief, and BG8117 CVCS Letdown Relief.

Proposed Answer: C

Distracter Explanation:

A. EM8858A relieves to the RHUT, not the PRT.
B. BG8120 relieves to the RHUT, not the PRT. BG8121 temperature to low.
D. 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	RO	SRO
Tier #	2	2
Group #	3	3
K/A #	008A3.04	
Importance Rating	2.9	3.2

Proposed Question:

Which ONE of the following describes how CCW flow to the RHR heat exchangers is initiated following a large LOCA?

A. The SIS will cause the valves to automatically open.

B. Manually as soon as possible following the SIS.

C. Automatically as part of the auto swapover to the recirc sumps.

D. Manually after auto swapover to the recirc sumps.

Proposed Answer: D

Distracter Explanation:

A. CCW valves are manually aligned.
B. The CCW valves are aligned when ECCS is placed in cold leg recirc.
C. CCW valves are manually aligned.

Technical Reference(s): ES-1.3, Transfer to Cold Leg Recirc
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: I T61.003D.6, LP SD-8, LOCA Walkthrough
H T61.0110.6, LP 56, ECCS

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 #: R082 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	2
K/A #	027K1.01	
Importance Rating	3.4	3.7

Proposed Question:

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

A. To minimize the evolution of helium from containment sump water.

B. To minimize the evolution of oxygen from containment sump water.

C. To assure xenon retention in the containment sumps.

D. To assure iodine retention in the containment sumps.

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 _____
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** 9

Comments: _____

Outline #: R083 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	2
K/A #	028A4.03	
Importance Rating	3.1	3.3

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. Place the Hydrogen Analyzer in service and the sample isolation valves will open automatically.

D. Manually open the sample isolation valves. Reset of CISA/CISB is not required.

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 ____
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** 9

Comments:

Outline #: R084 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	2
K/A #	034K4.01	
Importance Rating	2.6	3.4

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 ____
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** 7 **55.41** 13

Comments:

Outline #: R085 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	3
K/A #	041A1.02	
Importance Rating	3.1	3.2

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 #	2	2
Group #	3	3
K/A #	076A4.02	
Importance Rating	2.6	2.6

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 X
Modified Bank _____ (Note changes or attach parent)
New _____

Question History:
Previous NRC Exam No
Previous Quiz / Test Yes (Systems Final, June 1999)

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

10 CFR Part 55 Content: **55.43** _____ **55.41** 8

Comments:

Outline #: R087 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	1	1
K/A #	G2.1.1	
Importance Rating	3.7	3.8

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 ____
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** 1 **55.41** 10

Comments:

Outline #: R088 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	1	1
K/A #	G2.1.12	
Importance Rating	2.9	4.0

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 ____
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** 2 **55.41** 10

Comments:

Outline #: R089 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	1	1
K/A #	G2.1.3	
Importance Rating	3.0	3.4

Proposed Question:

Which ONE of the following is required to be reviewed prior to relieving the Reactor Operator watch?

A. SOS's applicable to operations

B. Workman's Protection Assurance

C. Standing/Night Orders

D. Temp Mod Log

Proposed Answer: C

Distracter Explanation:

A. Reviewed after the RO has taken the watch.
B. Not required to be reviewed.
D. Not required to be reviewed.

Technical Reference(s): ODP-ZZ-00003, Shift Relief and Turnover
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A.2.b T61.003A.6, LP A-2, A Mod

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 #: R090 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	1	1
K/A #	G2.1.18	
Importance Rating	2.9	3.0

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 reference 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. Late entry is marked in the information column.
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 _____
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 #: R091 **Author:** EBS

Examination Outline Cross-reference:

Level	RO		SRO
Tier #	3		3
Group #	2		2
K/A #		G2.2.1	
Importance Rating	3.7		3.6

Proposed Question:

The following plant conditions exist:

- Reactor tripped from 100% power equilibrium conditions at 0100 on 6/28/00.
- Boron concentration remains constant.
- Tave is at the no-load value.
- Shutdown Margin (SDM) is –5600 pcm at 0200 on 6/28/00.
- Critical Rod Height for 0200 on 6/28/00 is 115 steps on Control Bank ‘D’.

Which ONE of the following correctly describes the change in SDM and Critical Rod Height if the reactor startup is delayed until 0400 on 6/28/00?

A. SDM decreases, Critical Rod Height decreases.

B. SDM increases, Critical Rod Height increases.

C. SDM decreases, Critical Rod Height increases.

D. SDM increases, Critical Rod Height decreases.

Proposed Answer: B

Distracter Explanation:

A. SDM increases, Critical Rod Height increases.
C. SDM increases.
D. Critical Rod Height increases.

Outline #: R092 Page 1 of 2

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 Page 2 of 2 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	2	2
K/A #	G2.2.11	
Importance Rating	2.5	3.4

Proposed Question:

Which ONE of the following procedure changes can be accomplished using a TCN per APA-ZZ-00114, Temporary Changes to Procedures?

A. Adding an initial condition 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 ____
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** 3 **55.41** 10

Comments:

Outline #: R093 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	2	2
K/A #	G2.2.13	
Importance Rating	3.6	3.8

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 in the Turbine Building 3 weeks ago.

B. Local Control tag hung in 'A' ESW pump house 5 weeks ago.

C. Equipment Maintenance/Removal tag hung in the Demin Building 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 _____
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 #: R094 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	2	2
K/A #	G2.2.28	
Importance Rating	2.6	3.5

Proposed Question:

You have been directed to perform an AUTO TRANSFER of a fuel assembly from the Fuel Building to Containment.

Which ONE of the following conditions listed below is required to initiate an auto transfer sequence?

A. Both upender frames must be full DOWN and the refuel machine is clear of the upender in Containment.

B. Both upender frames must be full UP and the SFP Bridge Crane is clear of the upender in the Fuel Building.

C. Fuel Building upender frame must be full UP and Rx Building upender frame must be full DOWN. Refuel machine and SFP Bridge Crane must be clear of the upenders.

D. Rx Building upender frame must be full UP and Fuel Building upender frame must be full DOWN. Refuel machine and SFP Bridge Crane must be clear of the upenders.

Proposed Answer: C

Distracter Explanation:

A. Fuel Building upender frame must be full UP.
B. Rx Building upender frame must be full DOWN.
D. Rx Building upender frame must be full DOWN and Fuel Building full UP.

Technical Reference(s): OTS-KE-00015, Fuel Transfer System
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: H.3 T61.003E.6, LP E-5, Control Board Cert. – Mod E

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** 7 **55.41** 13

Comments:

Outline #: R095 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	3	3
K/A #	G2.3.1	
Importance Rating	2.6	3.0

Proposed Question:

The maximum dose rate in a room is 1500 mrem/hour one foot from a valve. Removable surface contamination is 1200 dpm/100 cm^2 beta-gamma. There are NO hot particles present. According to HDP-ZZ-01500, Radiological Posting, this room should be classified as which ONE of the following?

A. Radiation Area, High Contamination Area

B. Caution High Radiation Area, Contamination Area

C. Danger High Radiation Area, Contamination Area

D. Very High Radiation Area, High Contamination Area

Proposed Answer: C

Distracter Explanation:

A. 5-100 mrem/hr, > 50,000 cpm hot particles.
B. 100-1000 mrem/hr, > 1000 dpm/100 cm^2 beta-gamma.
D. > 500 rads/hr, > 50,000 cmp hot particles.

Technical Reference(s): HDP-ZZ-01500, Radiological Posting
(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	RO	SRO
Tier #	3	3
Group #	3	3
K/A #	G2.3.4	
Importance Rating	2.5	3.1

Proposed Question:

A plant operator is required to perform an extensive valve lineup in an area where the radiation level is 200 mRem/hour. The plant operator's current Total Effective Dose Equivalent (TEDE) is 1600 mRem.

Which ONE of the following is the maximum time the plant operator can work in this area and not exceed Callaway's Administrative Limits for annual TEDE?

A. 2 hours

B. 5 hours

C. 7 hours

D. 12 hours

Proposed Answer: A

Distracter Explanation:

Admin Limit for TEDE is 2000 mRem.
Margin is 2000 mRem – 1600 mRem = 400 mRem.
Stay Time is 400 mRem ÷ 200 mRem/hr = 2 hrs.

Technical Reference(s): APA-ZZ-01000, Callaway Plant H.P. Program
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: B.8.a 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 ____
Comprehension or Analysis X

10 CFR Part 55 Content: **55.43** 4 **55.41** 12

Comments:

Outline #: R097 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	4	4
K/A #	G2.4.17	
Importance Rating	3.1	3.8

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 ____
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 #: R098 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	4	4
K/A #	G2.4.20	
Importance Rating	3.3	4.0

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 10^5 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 ____
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 #: R099 **Author:** EBS

Examination Outline Cross-reference:	**Level**	**RO**	**SRO**
	Tier #	3	3
	Group #	4	4
	K/A #	G2.4.23	
	Importance Rating	2.8	3.8

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 #	1	1
Group #	2	1
K/A #	E01/E02EA2.1	
Importance Rating	3.3	4.2

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.
- RCS subcooling is 40°F.
- 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?

A. Manually actuate SI and transition to E-0, Reactor Trip or Safety Injection.

B. Transition to FR-H.1, Response to Loss of Secondary Heat Sink.

C. Transition to FR-P.1, Response to Anticipated Pressurized Thermal Shock.

D. Remain in E-1, Loss of Reactor or Secondary Coolant.

Proposed Answer: D

Distracter Explanation:

A. SI equipment has not been secured so there is no need to actuate SI.
B. FR-H.1, Transition criteria has not been met.
C. 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): B T61.003D.6, LP 8, E-1, Loss of Rx or Secondary Coolant
C T61.003D.6, LP 8, E-1, Loss of Rx or Secondary Coolant

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

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

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

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

Comments:

Outline #: S001 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	1
K/A #	029G2.4.16	
Importance Rating	3.0	4.0

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 ____
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:

Outline #: S002 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	055G2.4.20	
Importance Rating	3.3	4.0

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 primary 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**	**RO**	**SRO**
	Tier #	1	1
	Group #	1	1
	K/A #	062A1.02	
	Importance Rating	3.2	3.3

Proposed Question:

A loss of ESW/CCW has occurred while operators are implementing ES-1.2, Post LOCA Cooldown and Depressurization.

Which ONE of the following actions should the operators take?

A. Place all ECCS equipment in pull-to-lock and immediately enter ECA-0.0, Loss of All AC Power.

B. Run both CCPs only and inject at the maximum flowrate to maximize water inventory.

C. Run one CCP/SI pump on alternate buses to ensure ECCS injection if an NB bus is lost.

D. Run a CCP and SI pump; when oil coolers or rooms get too hot alternate trains.

Proposed Answer: D

Distracter Explanation:

A. ECA-0.0 should not be transitioned to unless a loss of all AC is about to occur.
B. The injection flowrate of ECCS equipment would be governed by ES-1.2.
C. The goal is to not over heat the ECCS pumps with no cooling.

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

Proposed references provided to applicants during examination: None

Learning Objective: A.1.o T61.003A.6, LP A-4, 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** 5 **55.41** 10

Comments: _____

Outline #: S004 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	032G2.1.12	
Importance Rating	2.9	4.0

Proposed Question:

The following plant conditions exist:

- The plant is in Mode 2.
- Reactor startup in progress.
- Control Banks are being withdrawn.

Which ONE of the following would require suspension of rod withdrawal per Technical Specifications if Source Range Channel N-31 were to fail low?

A. Reactor power is $5x10^{-11}$ amps.

B. Reactor power is 10^{-8} amps.

C. Reactor power is at the point of adding heat.

D. Reactor power is at the P-10 permissive setpoint.

Proposed Answer: A

Distracter Explanation:

B. Hold point for obtaining critical data.
C. Point of adding heat is 1% power.
D. 10% power (Mode 1).

Technical Reference(s): Technical Specification 3.3.1
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

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

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

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

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

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

Comments: ____

Outline #: S005 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	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 ____
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** 2 **55.41** 10

Comments:

Outline #: S006 **Author:** EBS

Examination Outline Cross-reference:	**Level**	**RO**	**SRO**
	Tier #	1	1
	Group #	3	3
	K/A #	036G2.2.25	
	Importance Rating	2.5	3.7

Proposed Question:

Callaway Plant is currently in Mode 6 with refueling operations in progress.

Which ONE of the following is the bases for the required 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 ____
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** 2 **55.41** 10

Comments:

Outline #: S007 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	068G2.3.11	
Importance Rating	2.7	3.2

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 #	2	2
Group #	2	2
K/A #	012K4.06	
Importance Rating	3.2	3.5

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 ____
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** 2 **55.41** 10

Comments:

Outline #: S009 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	2
K/A #	034G2.1.12	
Importance Rating	2.9	4.0

Proposed Question:

Which ONE of the following Spent Fuel Pool cell locations is an acceptable storage location for a fuel assembly with an initial enrichment of 4.5 w/o U-235 and a cumulative exposure of 35,000 MWD/MTU? (Refer to Figure 3.7.17-1 and Figure 8-8 on the following 2 pages.)

A. Cell location C14

B. Cell location Q41

C. Cell location AD1

D. Cell location AL29

Proposed Answer: D

Distracter Explanation:

Candidate needs to determine that a fuel assembly can only be stored in Region 1 locations that are not highlighted grey.

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

Proposed references provided to applicants during examination: Tech. Spec. Figure 3.7.17-1
Curve Book Figure 8-8

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 3 **Author:** EBS

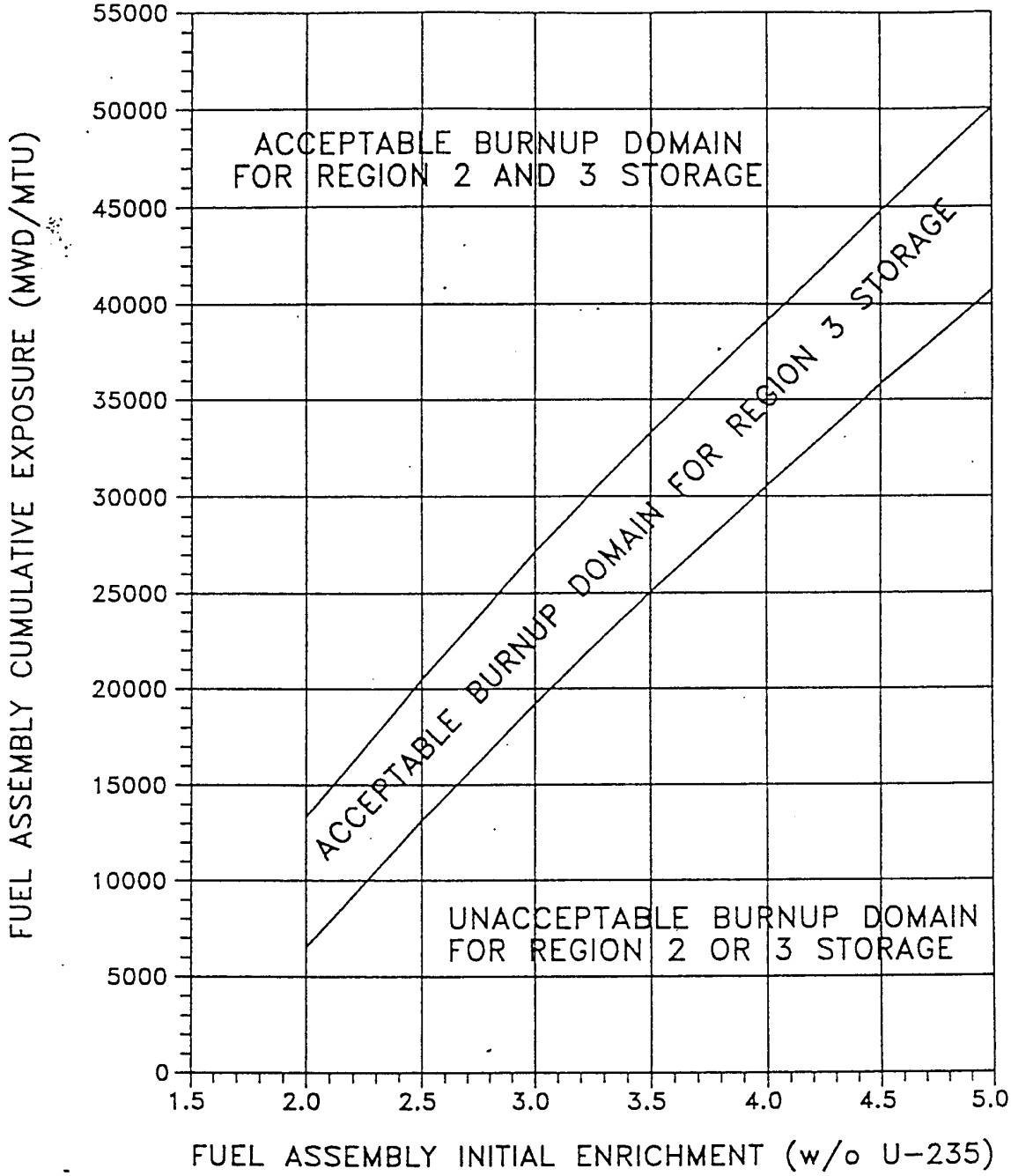
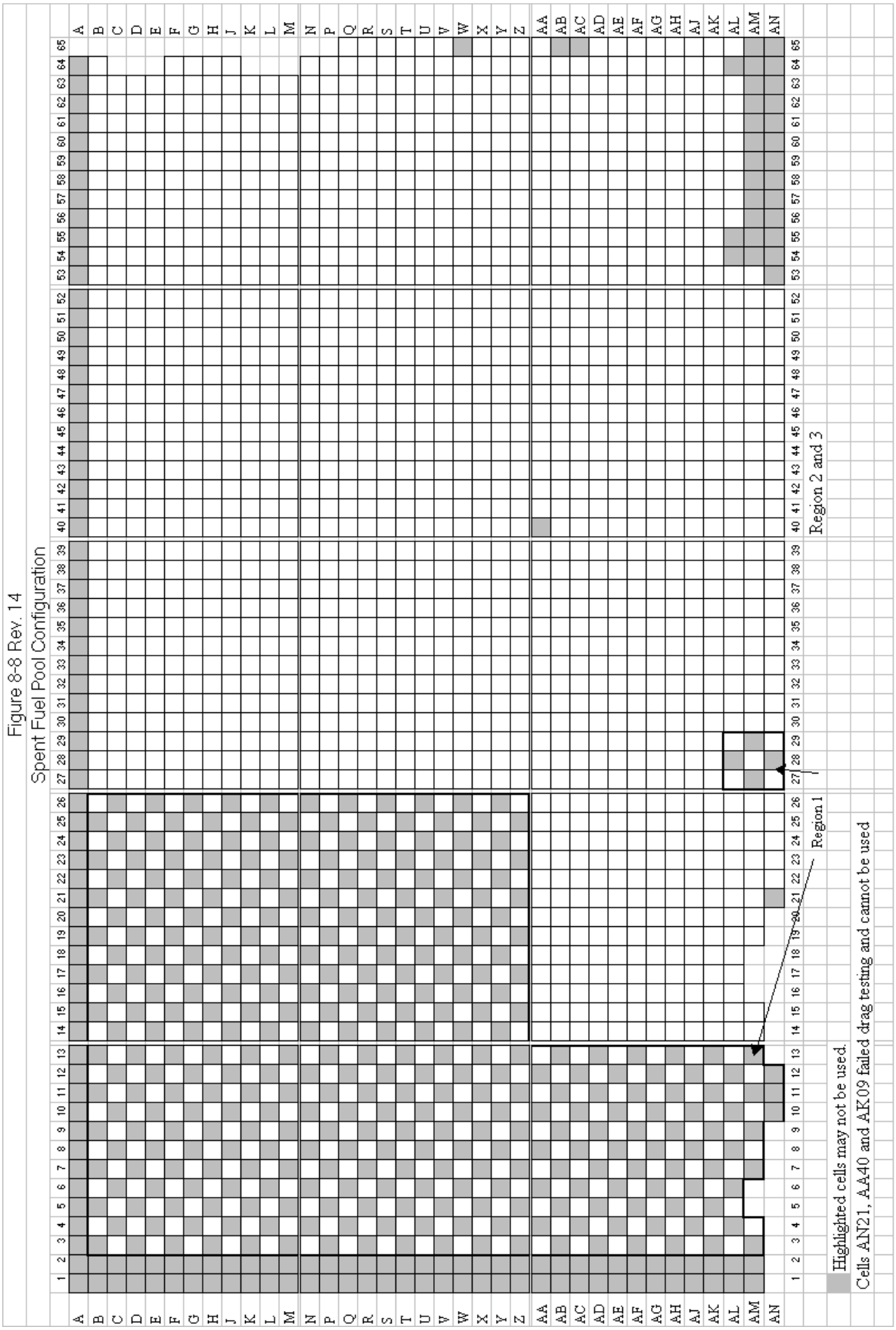


Figure 3.7.17-1 (page 1 of 1)
MINIMUM REQUIRED FUEL ASSEMBLY BURNUP AS A FUNCTION
OF INITIAL ENRICHMENT TO PERMIT STORAGE IN REGIONS 2 AND 3



Outline #: S010 Page 3 of 3

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	035A1.01	
Importance Rating	3.6	3.8

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?

A. It may be done as long as the RCS loops remain filled.

B. It may be done as long as RCS temperature remains < 200°F.

C. It may not be done because the S/Gs are not an adequate heat sink.

D. It may not be done because a Loss of Safety Function would result.

Proposed Answer: C

Distracter Explanation:

A. The S/Gs are not an adequate heat removal source.
B. The plant would have to remain below 200°F and additionally S/G wide range levels are required to be > 66%.
D. 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 _____ (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 #: S011 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	064K6.07	
Importance Rating	2.7	2.9

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 the differential pressure between the two air receivers is > 300 psid.

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 _____
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** 2 **55.41** 10

Comments: _____

Outline #: S012 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	2
K/A #	103K3.03	
Importance Rating	3.7	4.1

Proposed Question:

The following plant conditions exist:

- Core off load is in progress.
- 'A' S/G is being sludge lanced.
- The Primary EO reports that 'A' Steam Generator Safety Valve, ABV059, has just been removed for maintenance.

Which ONE of the following actions is required?

A. Restore containment integrity within one hour.

B. Suspend core alterations immediately.

C. Manually initiate containment purge isolation signal.

D. Verify containment leakage is within specifications.

Proposed Answer: B

Distracter Explanation:

A. Only required during Modes 1-4.
C. This would not isolate the CTMT breach.
D. Only required during Modes 1-4.

Technical Reference(s): Technical Specification 3.9.4
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: A T61.003E.6, LP E-4, Refueling Tech Spec/FSAR

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** 2 **55.41** 10

Comments: ____

Outline #: S013 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	3
K/A #	005G2.1.12	
Importance Rating	2.9	4.0

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 ____
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 #: S014 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	1	1
K/A #	G2.1.4	
Importance Rating	2.3	3.4

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 ____
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** 1 **55.41** 10

Comments:

Outline #: S015 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	1	1
K/A #	G2.1.10	
Importance Rating	2.7	3.9

Proposed Question:

To approve the implementation of 10CFR50.54(x) you must ensure, at a minimum, which ONE of the following?

A. The action is approved by two licensed senior operators prior to taking the action (CRS and Field Supervisor).

B. The action is approved by the licensed senior operator (SS) prior to taking the action.

C. The action is approved by a Region IV NRC representative prior to taking the action.

D. The action is approved by any management person prior to taking action.

Proposed Answer: B

Distracter Explanation:

A. Does not require two SROs, but the highest-level management person on site.
C. Callaway management personnel approve 10CFR50.54, not NRC.
D. Requires the highest-level management person on site, not any.

Technical Reference(s): 10CFR50.54(x)
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: SACRG 1.3 T61.0300.6, SACRG Initial Response

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

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

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

10 CFR Part 55 Content: **55.43** 1 **55.41** 10

Comments:

Outline #: S016 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	1	1
K/A #	G2.1.11	
Importance Rating	3.0	3.8

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. Decrease RCS temperature to < 200°F within 30 minutes.

B. Decrease RCS temperature to < 200°F 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 ____
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** 2 **55.41** 14

Comments:

Outline #: S017 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	2	2
K/A #	G2.2.12	
Importance Rating	3.0	3.4

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 _____ (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** 1 **55.41** 10

Comments: _____

Outline #: S018 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	2	2
K/A #	G2.2.17	
Importance Rating	2.3	3.5

Proposed Question:

Which ONE of the following combinations of equipment may be tagged out of service for preventive maintenance without resulting in an increased Undesirable Plant Configuration Risk? Refer to ODP-ZZ-00002, Attachment 4 on the following 2 pages.

A. NE01, 'A' Emergency Diesel Generator and 'B' CCW Train.

B. 'A' Centrifugal Charging Pump and 'B' Containment Spray Pump.

C. 'A' Motor Driven Aux Feedwater Pump and 'B' ESW Pump.

D. Turbine Driven Aux Feedwater Pump and 'A' RHR Pump.

Proposed Answer: B

Distracter Explanation:

A. Not allowed by Technical Specifications.
C. Not allowed by Technical Specifications.
D. Increased risk undesirable.

Technical Reference(s): ODP-ZZ-00002
(Attach if not previously provided)

Proposed references provided to applicants during examination: ODP-ZZ-00002, Attachment 4

Learning Objective: B.3 T61.003A.6, LP A-1, ODP-ZZ-00002

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 #: S019 Page 1 of 3 **Author:** DGL

ODP-ZZ-00002
Rev. 016

Train being taken OOS

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																
EG-PA										NA	X															
EG-PC										NA		X														
EG-B													X													
EG-PB													NA	X												
EG-PD													NA		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.	X Same train.
Not allowed by Tech. Spec.	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.

Page 1 of 2 ATTACHMENT 4

Outline #: S019 Page 2 of 3

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 #	3	3
Group #	2	2
K/A #	G2.2.25	
Importance Rating	2.5	3.7

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

Technical Reference(s): T/S 3.7.5 Background Bases
(Attach if not previously provided)

Proposed references provided to applicants during examination: None

Learning Objective: E T61.0110.6, LP 25, Auxiliary Feed Water

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

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

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

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

Comments:

Outline #: S020 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	3	3
K/A #	G2.3.2	
Importance Rating	2.5	2.9

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 ____
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 #: S021 **Author:** DGL

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	3	3
K/A #	G2.3.10	
Importance Rating	2.9	3.3

Proposed Question:

A job must be performed under the following conditions:

- Dose rate at job location is 90 mrem/hr.
- Airborne Radioactivity Area from particulates due to weld grinding.
- 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 #	3	3
Group #	4	4
K/A #	G2.4.21	
Importance Rating	3.7	4.3

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

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

Proposed references provided to applicants during examination: None

Learning Objective: 6 T61.003D.6, LP 1, ERG Introduction

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

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

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

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

Comments: _____

Outline #: S023 Page 2 of 2 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	4	4
K/A #	G2.4.29	
Importance Rating	2.6	4.0

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 ____
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** 1 **55.41** 10

Comments:

Outline #: S024 **Author:** EBS

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	4	4
K/A #	G2.4.44	
Importance Rating	2.1	4.0

Proposed Question:

Which ONE of the following events would require a Protective Action Recommendation?

A. 'B' S/G Tube Rupture with TDAFP supplied from 'B' S/G.

B. Control Room Evacuation due to toxic gas.

C. Failure of an Automatic Reactor Trip and Manual Trip is not successful.

D. Loss of All AC Power for 8 hours and CETCs 1280°F.

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 ____
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** 1 **55.41** 10

Comments: _____

Outline #: S025 **Author:** EBS