UNIT: 1 REVISION # 3 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-AOP07

SYSTEM: Abnormal Operating Procedures

TASK: Perform WCO follow-up actions for Remote Shutdown with AFW available.

JTA: ANO1-WCO-AOP-OFFNORM-270

KA VALUE RO 3.8 SRO 4.0 KA REFERENCE: 068 AA1.28

APPROVED FOR ADMINISTRATION TO: RO X SRO X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: X BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: SIMULATE SIMULATOR: _____ LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: X SIMULATOR: _____ LAB: _____

ACTUAL TESTING METHOD: SIMULATE: X PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 15 MINUTES

REFERENCES: 1203.029 (006-01-0)

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: A Control Room Evacuation due to a bomb threat has occurred. Auxiliary Feedwater is available.

TASK STANDARD: 1203.029, Section 1D actions completed.

TASK PERFORMANCE AIDS: Copy of 1203.029, Section 1D.

INITIATING CUE:

The CRS/SM directs you to perform WCO follow-up actions for a Remote Shutdown with AFW available in accordance with 1203.029, Remote Shutdown.

CRITICAL ELEMENTS (C): 2, 3, 4, 5 and 6

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
NOTE: A copy of 1203.029, Section 1D is available at B61 switchgear. Once candidate locates procedure, Examiner should provide candidate with copy of procedure.					
	1. Obtain a copy of procedure 1203.029, Section 1D.	Obtained a copy of 1203.029, Section 1D.			
(C)	2. Close Letdown Coolers Outlet Valve CV-1221. Positive Cue: Green light ON.	At breaker B6154, closed CV-1221 using local handswitch.			
(C)	3. Close RCS Makeup Block valve CV-1234. Positive Cue: Green light ON.	At breaker B6232, closed CV-1234 using local handswitch.			
(C)	4. Establish communications with TSC. Positive Cue: TSC contacted.	TSC contacted via radio or telephone (x6601, 6602, 6603).			
(C)	5. Open BWST Outlet valve CV-1408. Positive Cue: Red light ON.	At breaker B6164, opened CV-1408 via handswitch.			
NOTE: Inform examinee that CRS/SM has directed examinee to modulate open HPI Block Valve CV-1285 due to lowering Pressurizer level. Examinee should anticipate dual position indication when throttling open CV-1285 using local handswitch at breaker B6214. Inform examinee to stop opening CV-1285.					
(C)	6. Modulate open HPI Block valve CV-1285. Positive Cue: Both red and green lights ON.	At breaker B6214, CV-1285 throttled open via handswitch.			

END

JPM INITIAL TASK CONDITIONS:

A Control Room Evacuation due to a bomb threat has occurred. Auxiliary Feedwater is available.

INITIATING CUE:

The CRS/SM directs you to perform WCO follow-up actions for a Remote Shutdown with AFW available in accordance with 1203.029, Remote Shutdown.

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TITLE: REMOTE SHUTDOWN	DOCUMENT NO. 1203.029	CHANGE NO. 006-01-0
	WORK PLAN EXP. DATE	TC EXP. DATE
SET #	SAFETY-RELATED ☒YES ☐NO	IPTE ☐YES ☒NO
	TEMP ALT ☐YES ☒NO	

When you see these ***TRAPS***	Get these ***TOOLS***
Time Pressure	**Effective Communication**
Distraction/Interruption	**Questioning Attitude**
Multiple Tasks	**Placekeeping**
Overconfidence	**Self Check**
Vague or Interpretive Guidance	**Peer Check**
First Shift/Last Shift	**Knowledge**
Peer Pressure	**Procedures**
Change/Off Normal	**Job Briefing**
Physical Environment	**Coaching**
Mental Stress (Home or Work)	**Turnover**

VERIFIED BY	DATE	TIME

FORM TITLE:	FORM NO.	CHANGE NO.
VERIFICATION COVER SHEET	**1000.006A**	**050-00-0**

NOTE

This procedure contains Improved Technical Specifications (ITS) content in the following format:

[ITS Example Content **ITS]**

This content is not valid until after the implementation of Improved Technical Specification.

TABLE OF CONTENTS

SECTION 1D
REMOTE SHUTDOWN WITH AFW PUMP OPERABLE

WASTE CONTROL OPERATOR FOLLOW-UP ACTIONS

NOTE

Although this is a serious situation, this procedure should be performed in compliance with proper security and radiological controls. Prompt completion of this procedure, however, is extremely important.

3.0 FOLLOW-UP ACTIONS -- Waste Control Operator

3.1 At breaker for Letdown Coolers Outlet (RCS) CV-1221 (B-6154), close CV-1221.

3.2 At breaker for RCS Makeup Block CV-1234 (B-6232), close CV-1234.

3.3 Establish communications with TSC by radio or telephone Ext. 6601, 6602, or 6603.

3.4 At breaker for BWST Outlet CV-1408 (B-6164), open CV-1408.

3.5 If necessary to maintain PZR level, use handswitch at breaker for HPI to P32D Discharge CV-1285 (B-6214) to modulate CV-1285 as directed by the Shift Manager or CRS.

UNIT: 1 REVISION # 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-AOP29

SYSTEM: Emergency and Abnormal Operations

TASK: Perform Gravity Feed to the RCS from BWST

JTA: ANO1-RO-AOP-OFFNORM-253

KA VALUE RO 3.8 SRO 3.9 KA REFERENCE: 025 AA1.02

APPROVED FOR ADMINISTRATION TO: RO X SRO X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCES: 1203.028 (016-02-0)

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Plant is in Mode 6 for refueling. RCS is open to the atmosphere. RCS level ~375 feet and lowering due to an RCS leak inside the reactor building. P-34B Decay Heat Pump has been secured and CV-1050, Decay Heat Suction Valve has been closed in accordance with 1203.028, Loss of Decay Heat Removal, Section 1. P-34A Decay Heat Pump is aligned for LPI.

TASK STANDARD: Perform 1203.028 Attachment A "Gravity Feed from BWST" using "A" Decay Heat Train and establish makeup flow between 400 to 600 gpm to maintain RCS level >375 feet.

TASK PERFORMANCE AIDS: Copy of 1203.028 Attachment A, Gravity Feed from BWST

Simulator Setup:

- ***A Decay Pump is aligned for LPI***
- ***BWST level is normal level***
- ***B Decay Heat Pump off, lined up for Decay Heat and CV-1404 closed***

INITIATING CUE:

The CRS/SM directs you to perform Attachment A of 1203.028 (“Gravity Feed from BWST”) and to establish a makeup flow of ~500 gpm.

CRITICAL ELEMENTS (C): 1, 2, 3, 4

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
(C)	1. Open BWST Outlet CV-1407 Positive Cue: BWST Outlet CV-1407, open	Opens BWST Outlet valve CV-1407			
(C)	2. Verify Open Decay Heat Cooler Outlet CV-1428 Positive Cue: Decay Heat Cooler Outlet CV-1428, open.	Verifies Decay Heat Cooler Outlet valveCV-1428 is open.			
(C)	3. Throttles Open LPI Block valve CV-1401 Positive Cue: LPI Block valve CV-1401 is throttled open	Throttles Open LPI Block valve CV-1401.			
(C)	4. Achieve flow rate of 400 to 600 gpm through CV-1401 Positive Cue: Flow rate of 400 to 600 gpm through CV-1401	Achieve flow rate of 400 to 600 gpm through CV-1401.			

END

JPM INITIAL TASK CONDITIONS:

- Plant is in Mode 6 for refueling.
- RCS is open to the atmosphere.
- RCS level ~375 feet and lowering due to an RCS leak inside the reactor building.
- P-34B Decay Heat Pump has been secured and CV-1050, Decay Heat Suction Valve has been closed in accordance with 1203.028, Loss of Decay Heat Removal, Section 1.
- P-34A Decay Heat Pump is aligned for LPI.

INITIATING CUE:

The CRS/SM directs you to perform Attachment A of 1203.028 (“Gravity Feed from BWST”) and to establish a makeup flow of ~500 gpm.

UNIT: 1 REVISION # 4 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-CRD03

SYSTEM: Control Rod Drive System (ALTERNATE SUCCESS PATH JPM)

TASK: Transfer A Group of Rods to the Auxiliary Power Supply

JTA: ANO1-RO-CRD-NORM-12; ANO-1-RO-CRD-OFFNORM-15; ANO-1-RO-EOPAOP-EMERG-4

KA VALUE RO 3.8 SRO 4.1 KA REFERENCE: 003 AK3.04

APPROVED FOR ADMINISTRATION TO: RO X SRO X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCES: 1105.009 (016-02-0); 1203.003 (019-02-0); 1202.001 (027-01-0)

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Steady state power operations with the Reactor Demand, Diamond, and Feedwater Loop Demands in manual.

TASK STANDARD: Reactor is tripped and immediate action performed from memory.

ALTERNATE SUCCESS PATH JPM.

TASK PERFORMANCE AIDS: Copy of 1105.009 (017-01-0), Section 8.0

Simulator Setup:

The following sequence should be used to set up the simulator for this JPM:

1. ***Insert malfunctions to drop group 4 rods #3, #5 and #7. For each set the delay to 1 second to activate (RD280, RD302 and RD306).***
2. ***The malfunctions are triggered when the examinee reaches step 8.9 (step 10 of This JPM) ® Manual transfer switch depressed, group 4 "control on" white lights "on" on the PI panel.***

INITIATING CUE:

You have been directed by the CRS/SM to transfer Group 4 rods to the Auxiliary Power Supply.

CRITICAL ELEMENTS (C): 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
	1. Verify transfer reset lamp is ON and TR CF is OFF. Positive Cue: Transfer reset lamp ON and TR CF lamp OFF	On CRD Diamond Panel, condition of both lights was checked. Transfer reset lamp was ON and TR CF lamp was OFF.			
(C)	2. Place Group select switch to Group 4. Positive Cue: Group Select Switch in Group 4 position.	On CRD Diamond Panel, Group Select Switch was placed in Group 4 position.			
(C)	3. Set Single Select Switch to ALL. Positive Cue: Single Select Switch in ALL position.	On CRD Diamond Panel, Single Select Switch was selected to ALL.			
(C)	4. Set Auto/Manual Switch to Manual. Positive Cue: Manual Lamp is ON.	On CRD Diamond Panel, depressed Auto/Manual pushbutton to select MANUAL.			
(C)	5. Set SEQ.-SEQ OR switch to SEQ OR position. Positive Cue: SEQ OR backlight lamp is ON.	On CRD Diamond Panel, SEQ-SEQ OR switch selected to SEQ OR.			
(C)	6. Set Group/Auxiliary Switch to Auxiliary. Positive Cue: Aux PB backlight is ON.	On CRD Diamond Panel, Group/Aux. PB selected to Aux.			
(C)	7. Set Speed Select Switch to “JOG”, Positive Cue: SY lamp ON.	On CRD Diamond Panel, Speed Select Switch selected to JOG.			

(CONTINUED)

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
(C)	8. Set Clamp/Clamp Release Switch to CLAMP Positive Cue: CLAMP CONFIRM (amber) lamp on.	On CRD Diamond Panel, selected Clamp/Clamp Release Switch to CLAMP.			
Note to Simulator Operator: Trigger malfunctions when CRD indicating panel lights come on.					
(C)	9. Press Manual Transfer Switch. Positive Cue: TR CF lamp on, and Group 4 Control on White lights on the CRD Position Indicating Panel on.	On CRD Diamond Panel, manual transfer PB was depressed.			
(C)	10. Identify dropped rods. Positive Cue: Rod bottom lights on for group 4 rods 3, 5, and 7.	Identified dropped rods by observing the rod bottom lights on C-13, PI panel.			
(C)	11. Perform Rx Trip immediate actions. Depress Rx Trip Pushbutton • Verify rods inserted • Verify power decreasing Positive Cue: Reactor is tripped and power is decreasing. Negative Cue: Power stabilizes at 82% if no manual runback or power decreasing as operator manually runs plant back.	Tripped the reactor by depressing the reactor trip pushbutton. Verified power decreasing and rods inserted.			
NOTE: When immediate action above is completed, inform examinee that the task is complete.					

END

JPM INITIAL TASK CONDITIONS:

Steady state power operations with the Reactor Demand, Diamond, and Feedwater Loop Demands in manual.

INITIATING CUE:

You have been directed by the CRS/SM to transfer Group 4 rods to the Auxiliary Power Supply.

UNIT: 1 REVISION # 4 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-CRD04

SYSTEM: Control Rod Drive

TASK: Respond to High Temperature on one or more CRD Stators

JTA: ANO1-RO-CRD-OFFNORM-543

KA VALUE RO 3.1 SRO 3.7 KA REFERENCE: 001 A2.01

APPROVED FOR ADMINISTRATION TO: RO X SRO X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: X BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: SIMULATE SIMULATOR: _____ LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: X SIMULATOR: _____ LAB: _____

ACTUAL TESTING METHOD: SIMULATE: X PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCES: 1203.003 (020-00-0)

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Group 7 Rod 2 stator temperature is in alarm on the plant computer reading 185 degrees and trending up. All other CRD temperatures are normal. The crew is performing actions in accordance with 1203.003, Section 2 – CRD Stator Temperature High. Reactor power is at 35%. The Reactor Demand ICS H/A station and Diamond Panel are in MANUAL. Group 7 Rod 2 has been transferred to the AUX Supply.

TASK STANDARD: Group 7 Rod 2 is deenergized and the Aux Programmer is energized.

TASK PERFORMANCE AIDS: Copy of 1203.003, Section 2 - CRD Stator Temperature High; and Electrical Safety Personnel Protective Equipment

Provide examiner with copy of Exhibit A of 1203.003.

INITIATING CUE:

The CRS/SM directs you to de-energize CRD Group 7 Rod 2 and re-energize the Auxiliary Power Supply in accordance with 1203.003, Section 2, Step 3.7.

CRITICAL ELEMENTS (C): 2, 3, 6, 7, 8

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
Note: Steps 3.7.1 through 3.7.3 of 1203.003, Section 2 have been completed by initial conditions.					
	1. Open door on Auxiliary Power Supply A (C72) cabinet. Positive Cue: Cabinet door is open.	Opened C72 door.			
(C)	2. Remove fuse 120V ABT from the programmer control assembly. Positive Cue: Fuse 120V ABT removed.	Removed fuse 120V ABT from the programmer control assembly in cabinet C72.			
(C)	3. Remove fuse 120V Bus 2 from the programmer control assembly. Positive Cue: Fuse 120V Bus 2 removed.	Removed fuse 120V Bus 2 from the programmer control assembly in C72.			
	4. Verify IN LIMIT lamp is ON for Group 7 Rod 2 at PI Panel (C-13). Positive Cue: Group 7 Rod 2 IN LIMIT lamp is ON. Negative Cue: Group 7 Rod 2 100% light is LIT.	Called the control room and verified Group 7 Rod 2 IN LIMIT lamp is ON at PI Panel (C13).			
Note: Examiner will simulate communications with the Control Room and inform examinee that the control room staff is referring to Technical Specifications.					
	5. Using Control Rod Stator Fuse Location Reference (Exhibit A), identify the fuse blocks and CRD transfer cabinet associated with Group 7 Rod 2.	Used Exhibit A to determine fuse location and located FB17 and FB18 in C55.			
NOTE: In the following step, once the examinee has identified the cabinet from which fuses will be removed and their relative location using Exhibit A, the examinee may discuss appropriate electrical safety precautions (face shield, rubber mat, rubber gloves, and fuse pullers) and then simulate fuse removal. Donning of electrical safety gear is not required for successful completion of JPM.					
(C)	6. Remove the six stator fuses associated with Group 7 Rod 2. Positive Cue: FB17 and FB18 removed.	Discussed proper electrical safety precautions and simulated removal of the six fuses from fuse blocks FB17 and FB18 in C55.			

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
(C)	7. Re-install the Auxiliary Power Supply programmer assembly 120 V ABT fuse in C72. Positive Cue: 120V ABT fuse re-installed.	Auxiliary Power Supply programmer assembly 120 V ABT fuse re-installed in C72.			
(C)	8. Re-install the Auxiliary Power Supply programmer assembly 120 V Bus 2 fuse in C72. Positive Cue: 120V Bus 2 fuse re-installed.	Auxiliary Power Supply programmer assembly 120 V Bus 2 fuse re-installed in C72.			
Note: Examiner may inform the examinee that the control room staff is performing the remaining steps of 1203.003, Section 2, Step 3.7.					

END

INITIAL CONDITIONS:

- Group 7 Rod 2 stator temperature is in alarm on the plant computer reading 185 degrees and trending up.
- All other CRD temperatures are normal.
- The crew is performing actions in accordance with 1203.003, Section 2 – CRD Stator Temperature High.
- Reactor power is at 35%.
- The Reactor Demand ICS H/A station and Diamond Panel are in MANUAL.
- Group 7 Rod 2 has been transferred to the AUX Supply.

INITIATING CUE:

The CRS/SM directs you to de-energize CRD Group 7 Rod 2 and re-energize the Auxiliary Power Supply in accordance with 1203.003, Section 2, Step 3.7.

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ARKANSAS NUCLEAR ONE

TITLE: **CONTROL ROD DRIVE MALFUNCTION ACTION** SET #	DOCUMENT NO. **1203.003**	CHANGE NO. **020-00-0**
	WORK PLAN EXP. DATE **N/A**	TC EXP. DATE **N/A**
	SAFETY-RELATED ☒YES ☐NO	IPTE ☐YES ☒NO
	TEMP ALT ☐YES ☒NO	

When you see these *TRAPS*	**Get these *TOOLS***
Time Pressure	**Effective Communication**
Distraction/Interruption	**Questioning Attitude**
Multiple Tasks	**Placekeeping**
Over Confidence	**Self Check**
Vague or Interpretive Guidance	**Peer Check**
First Shift/Last Shift	**Knowledge**
Peer Pressure	**Procedures**
Change/Off Normal	**Job Briefing**
Physical Environment	**Coaching**
Mental Stress (Home or Work)	**Turnover**

VERIFIED BY	DATE	TIME

FORM TITLE:	FORM NO.	CHANGE NO.
VERIFICATION COVER SHEET	**1000.006A**	**050-00-0**

NOTE

Tech Spec defines CONTROL RODS as full length safety and regulating rods, and APSRs as the un-trippable, partial length rods. This procedure applies to both CONTROL RODS and APSRs.

TABLE OF CONTENTS

SECTION 2 -- CRD STATOR TEMPERATURE HIGH

1.0 SYMPTOMS

1.1 Stator temp. HI alarm on plant computer alarm screen.

1.2 CRD COOLING RETURN TEMP HI (K08-B1) annunciated.

2.0 IMMEDIATE ACTION

NONE

3.0 FOLLOW-UP ACTIONS

3.1 Verify standby CRD Cooling Pump (P-79A or P-79B) running.

3.2 From plant computer, commence taking CRD Motor Temperature Reports (computer function: NASP, N4, F4, 2, Enter, Enter) at ~5 minute intervals or more often as necessary. Continue until temperatures stabilize.

NOTE

Since Group 8 rods will not drop when deenergized, manual Rx trip is only required if more than one rod in Groups 1-7 is >180°F.

3.3 If more than one CRD stator in Groups 1-7 exceeds 180°F, trip reactor and follow Emergency Operating Procedure series (1202.XXX).

3.4 Check local CRD cooling water supply filter and pre-filter ΔP's in ammonia pump pit.

3.5 Vent CRD cooling water pumps, filters and high points on lines.

3.6 Verify non-nuclear ICW temperature and flow are normal (C09).

3.7 If only one CRD stator temperature in Groups 1-7 exceeds 180°F due to an event which is confined to that stator alone, then proceed as follows:

3.7.1 Reduce neutron power to <40% of 902 MWe (<360 MWe).

3.7.2 Take manual control of reactor demand H/A station and Diamond panel.

3.7.3 Transfer affected rod to AUX supply per CRD System Operating Procedure (1105.009), "Transfer to Auxiliary Power" section.

3.7.4 In computer room, in Auxiliary Power Supply A cabinet (C72), remove the following fuses from the programmer control assembly to de-energize auxiliary power supply and drop affected rod.

A. 120 V ABT
B. 120 V Bus 2

SECTION 2 -- CRD STATOR TEMPERATURE HIGH (continued)

3.7.5 Verify IN LIMIT lamp on for selected rod on PI Panel (C13).

NOTE

Power Peaking Check (1103.019) satisfies SR 3.2.5.1 which is required by several related Tech Spec required actions.

A. The rod is inoperable. Refer to applicable TS 3.1.4, and TS 3.1.5.

NOTE

The CRD stator fuses are mounted in groups of three on fuse blocks, two fuse blocks per stator.

3.7.6 Using Control Rod Stator Fuse Location Reference (Exhibit A) of this procedure, identify the fuse blocks and CRD transfer cabinet associated with affected rod.

WARNING

CRD transfer cabinet will be live. Personnel should use proper electrical safety gear (face shield, rubber mat, rubber gloves, and fuse pullers as a minimum) when removing fuses.

3.7.7 Remove the six stator fuses associated with the affected rod.

3.7.8 Re-install the Auxiliary Power Supply programmer assembly fuses removed from C72.

A. 120V ABT
B. 120V Bus 2

3.7.9 Transfer affected rod circuitry back to its group power supply.

3.7.10 If desired, return ICS to automatic.

3.7.11 Within 1 hour of declaring rod inoperable and once every 12 hours thereafter, verify 1.5% available shutdown margin per Reactivity Balance Calculation (1103.015), or initiate boration to restore SDM to be within COLR limit within 1 hour (TS 3.4.1 Condition A).

3.7.12 Collect the following plant computer printouts from NASP menu, "1203.003 Programs" selection:

- Imbalance, Tilt and Rod Index
- Uncorrected SPND Report
- Corrected SPND Report

SECTION 2 -- CRD STATOR TEMPERATURE HIGH (continued)

3.7.13 Consult Ops Manager and Reactor Engineering personnel.

3.7.14 Monitor core quadrant tilt for limits specified in Power Operations (1102.004), COLR, and TS 3.2.4.

3.8 If only Group 8 rod(s) are affected, perform the following:

3.8.1 Take manual control of reactor demand H/A station and Diamond panel.

3.8.2 Transfer affected rod to AUX supply per CRD System Operating Procedure (1105.009), "Transfer to Auxiliary Power" section.

3.8.3 In computer room, in Auxiliary Power Supply A cabinet (C72), remove the following fuses from the programmer control assembly to de-energize auxiliary power supply.

A. 120 V ABT
B. 120 V Bus 2

3.8.4 The rod is inoperable. Refer to TS 3.1.6.

NOTE

The CRD stator fuses are mounted in groups of three on fuse blocks, two fuse blocks per stator.

3.8.5 Using Control Rod Stator Fuse Location Reference (Exhibit A) of this procedure, identify the fuse blocks in CRD transfer cabinet C61 associated with affected rod(s).

WARNING

CRD transfer cabinet will be live. Personnel should use proper electrical safety gear (face shield, rubber mat, rubber gloves, and fuse pullers as a minimum) when removing fuses.

3.8.6 Remove the six stator fuses associated with the affected rod(s).

3.8.7 Re-install the Auxiliary Power Supply programmer assembly fuses removed from C72.

A. 120V ABT
B. 120V Bus 2

3.8.8 Transfer affected rod circuitry back to Group 8 power supply.

3.8.9 If desired, return ICS to automatic.

SECTION 2 -- CRD STATOR TEMPERATURE HIGH (continued)

3.8.10 Collect the following plant computer printouts from NASP menu, "1203.003 Programs" selection:

- Imbalance, Tilt and Rod Index
- Uncorrected SPND Report
- Corrected SPND Report

3.8.11 Consult Ops Manager and Reactor Engineering personnel.

3.8.12 Monitor core quadrant tilt for limits specified in Power Operations (1102.004), COLR, and TS 3.2.4.

EXHIBIT A
1203.003

CONTROL ROD STATOR FUSE LOCATION REFERENCE

Revised 4/11/95

GROUP	ROD	STATOR FUSE BLOCKS	FUSE BLOCK LOCATION
1	1	FB5 & FB6	C55
1	2	FB3 & FB4	C55
1	3	FB5 & FB6	C54
1	4	FB3 & FB4	C56
1	5	FB5 & FB6	C59
1	6	FB5 & FB6	C60
1	7	FB7 & FB8	C59
1	8	FB3 & FB4	C58
2	1	FB7 & FB8	C57
2	2	FB13 & FB14	C56
2	3	FB5 & FB6	C56
2	4	FB15 & FB16	C57
2	5	FB5 & FB6	C58
2	6	FB13 & FB14	C60
2	7	FB7 & FB8	C60
2	8	FB13 & FB14	C58
3	1	FB13 & FB14	C55
3	2	FB9 & FB10	C54
3	3	FB11 & FB12	C57
3	4	FB13 & FB14	C57
3	5	FB13 & FB14	C59
3	6	FB11 & FB12	C54
3	7	FB11 & FB12	C58
3	8	FB11 & FB12	C56
4	1	FB3 & FB4	C54
4	2	FB1 & FB2	C55
4	3	FB1 & FB2	C54
4	4	FB3 & FB4	C57
4	5	FB3 & FB4	C59
4	6	FB1 & FB2	C60
4	7	FB1 & FB2	C59
4	8	FB1 & FB2	C57

GROUP	ROD	STATOR FUSE BLOCKS	FUSE BLOCK LOCATION
5	1	FB9 & FB10	C55
5	2	FB11 & FB12	C55
5	3	FB7 & FB8	C55
5	4	FB7 & FB8	C54
5	5	FB9 & FB10	C56
5	6	FB7 & FB8	C56
5	7	FB9 & FB10	C59
5	8	FB11 & FB12	C60
5	9	FB9 & FB10	C60
5	10	FB11 & FB12	C59
5	11	FB9 & FB10	C58
5	12	FB7 & FB8	C58
6	1	FB15 & FB16	C55
6	2	FB15 & FB16	C56
6	3	FB13 & FB14	C54
6	4	FB17 & FB18	C57
6	5	FB15 & FB16	C59
6	6	FB15 & FB16	C60
6	7	FB17 & FB18	C59
6	8	FB15 & FB16	C58
7	1	FB1 & FB2	C56
7	2	FB17 & FB18	C55
7	3	FB5 & FB6	C57
7	4	FB17 & FB18	C56
7	5	FB1 & FB2	C58
7	6	FB17 & FB18	C60
7	7	FB3 & FB4	C60
7	8	FB17 & FB18	C58
8	1	FB13 & FB14	C61
8	2	FB11 & FB12	C61
8	3	FB9 & FB10	C61
8	4	FB7 & FB8	C61
8	5	FB5 & FB6	C61
8	6	FB3 & FB4	C61
8	7	FB1 & FB2	C61
8	8	FB15 & FB16	C61

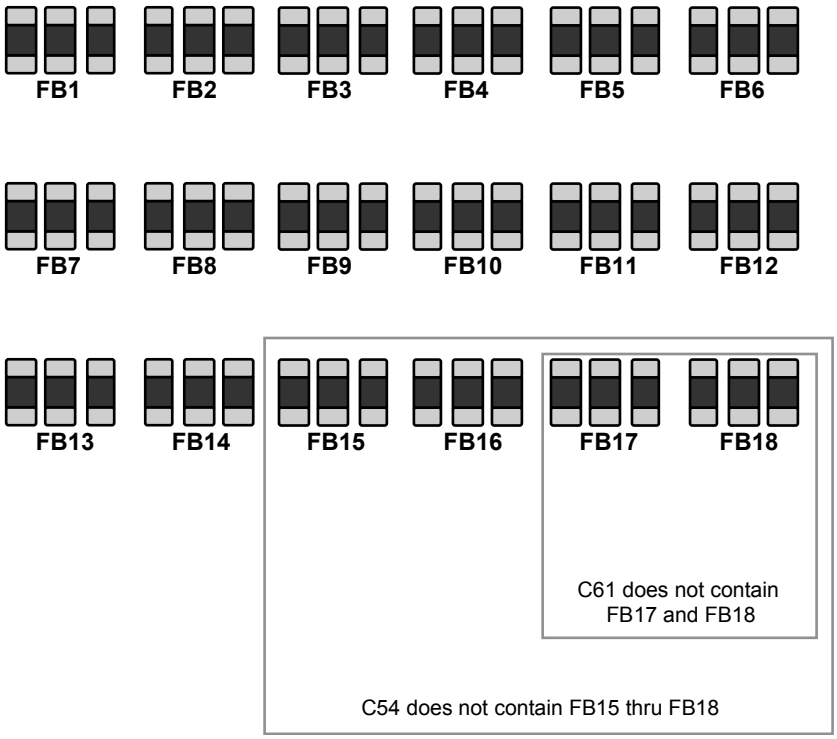
C57, FB9 & FB10 are spare CRDM fuse blocks.

EXHIBIT A
1203.003

CONTROL ROD STATOR FUSE LOCATION REFERENCE

Revised 4/11/95

Arrangement of Fuses in
Cabinets C54 through C61



UNIT: 1 REVISION # 6 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-ED019

SYSTEM: Electrical System Operations (ALTERNATE SUCCESS PATH JPM)

TASK: Synchronize and power Y02 from Y01.

JTA: ANO1-RO-120VAC-NORM-24

KA VALUE RO 3.1 SRO 3.1 KA REFERENCE: 062 A4.07

APPROVED FOR ADMINISTRATION TO: RO X SRO X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: X BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: SIMULATE SIMULATOR: _____ LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: X SIMULATOR: _____ LAB: _____

ACTUAL TESTING METHOD: SIMULATE: X PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCES: 1107.003 (012-00-0)

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The RCS is in Cold Shutdown. Operational considerations require that the Y01/Y02 buses be powered from Y01. Electrical Maintenance Personnel are ready to perform Synch Checks. Neither EDG is operating. Keys 47 and 48 are in hand.

TASK STANDARD: Power Y02 from Y01.

THIS IS AN ALTERNATE SUCCESS PATH JPM.

TASK PERFORMANCE AIDS: Copy of procedure 1107.003, Section 16

INITIATING CUE:

The CRS/SM directs you to power Y02 from Y01 by paralleling the power sources in accordance with 1107.003, Inverter and 120V Vital AC Distribution, step 16.7.

CRITICAL ELEMENTS (C): 2,3, 6, 7, 8 (step 8 is critical only if step 5 is performed)

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
(C)	1. At Y02, verify the Tie Breaker to Y01 at the bottom of Y02 open. Positive Cue: Tie breaker is in the down position.	Verified the Tie Breaker at the bottom of Y02 in the down position.			
NOTE: The examinee should proceed the south electrical equipment room.					
(C)	2. At Y01, unlock and close, then relock the Tie Breaker to Y02. (Re-locking breaker is not part of the critical step.) Positive Cue: Breaker is closed and locked.	Tie Breaker unlocked, closed and re-locked.			
(C)	3. Request electricians check synchronism of the power sources across the tie breaker at the bottom of Y02. **Negative Cue:** Electricians report power sources for Y01 and Y02 are **NOT** in sync.	Operator contacted electrical maintenance technicians to check for synchronization between Y01 and Y02.			
NOTE: In the following step, the examinee must determine if the consequences of removing power from Y02 is acceptable. This would normally be accomplished via discussion with shift management (CRS/SM). Examiner should provide positive cue shown below.					
(C)	4. Refer Sect. 16.3, "Powering Y02 from Y01 without Paralleling Power Sources". Positive Cue: CRS informs operator alternate success path is acceptable.	Operator determined an alternate success path is available because RCS is at Cold Shutdown. Consulted CRS/SM for acceptability of path.			
NOTE: Examinee may choose to back out of 1107.003, Section 16.7 by restoring Y01 and Y02 power sources to their normal alignment (cross tie breakers open, normal feeder breakers closed). This is an acceptable alternate path.					
NOTE: The examinee should proceed to the north electrical equipment room.					
(C)	5. At Y02, unlock and open, then relock the Normal Feed to Y02 at bottom of Y02. Positive Cue: Normal Feed Breaker to Y02 at bottom of Y02 is open and locked.	Normal Feed Breaker to Y02 at bottom of Y02 opened and re-locked.			

(CONTINUED)

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
(C)	6. Unlock, close, then relock the Tie Breaker to Y01 at bottom of Y02. Positive Cue: Tie Breaker to Y01at bottom of Y02 is closed and locked.	Unlocked, closed and relocked the Tie Breaker to Y01 at bottom of Y02.			
NOTE: The examinee should proceed to the south electrical equipment room.					
NOTE: If candidate backed out of 1107.003, then the candidate is required to perform Step 7 of this JPM. If candidate did not back out of 1107.003, then Step 7 is N/A.					
(C)	7. Unlock, close, then re-lock the Tie Breaker to Y02 at the bottom of Y01. Positive Cue: Tie Breaker to Y02 at the bottom of Y01is closed and locked.	Unlocked, closed and locked the Tie Breaker to Y02 at the bottom of Y01.			

END

JPM INITIAL TASK CONDITIONS:

Operational considerations require that the Y01/Y02 buses be powered from Y01.

- The RCS is in Cold Shutdown.
- Neither EDG is operating.
- Electrical Maintenance Personnel are ready to perform Synch Checks.
- Keys 47 and 48 are in hand.

INITIATING CUE:

The CRS/SM directs you to power Y02 from Y01 by paralleling the power sources in accordance with 1107.003, Inverter and 120V Vital AC Distribution, step 16.7.

ENTERGY OPERATIONS INCORPORATED
ARKANSAS NUCLEAR ONE

TITLE: **INVERTER AND 120V VITAL AC DISTRIBUTION**	DOCUMENT NO. **1107.003**	CHANGE NO. **012-00-0**
	WORK PLAN EXP. DATE **N/A**	TC EXP. DATE **N/A**
SET #	SAFETY-RELATED ☒YES ☐NO	IPTE ☐YES ☒NO
	TEMP ALT ☐YES ☒NO	

When you see these ***TRAPS***	Get these ***TOOLS***
Time Pressure	Effective Communication
Distraction/Interruption	Questioning Attitude
Multiple Tasks	Placekeeping
Over Confidence	Self Check
Vague or Interpretive Guidance	Peer Check
First Shift/Last Shift	Knowledge
Peer Pressure	Procedures
Change/Off Normal	Job Briefing
Physical Environment	Coaching
Mental Stress (Home or Work)	Turnover

VERIFIED BY	DATE	TIME

FORM TITLE: VERIFICATION COVER SHEET	FORM NO. 1000.006A	CHANGE NO. 050-00-0

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

16.0 Instrument AC Transfer Operations

WARNING

There are no interlocks to prevent paralleling Instrument AC Panel Y01 and Y02 power sources. If power sources are paralleled out of synchronism, personnel injury and equipment damage can result.

CAUTION

De-energizing Y01 or Y02 can trip the plant.

NOTE

- Even with bus B5 and B6 in synchronism, electrical connections at Y01, Y02, the Y01 transformer or the Y02 transformer may be such that Y01 and Y02 are not in synchronism.
- Transfer operation when Y01 and Y02 power sources are not parallel results in loss of power to Y01 or Y02. Plant should be in shutdown condition and the consequences of loss of instrument AC panel should be known.
- Transfer operation by paralleling Y01 and Y02 power sources requires Electrical Department check of synchronism at Y01 and Y02 prior to the transfer.
- Steps in this section are expected to bring in alarm Y01 LOSS OF VOLTAGE K01-E5.

16.1 Powering Y01 from Y02 Without Paralleling Power Sources

16.1.1 Verify unit is off line and reactor is shut down.

16.1.2 Verify consequence of loss of panel Y01 is acceptable.

16.1.3 Unlock, open, then re-lock Normal Feed to Y01 breaker at bottom of Y01 (key number 47).

16.1.4 Unlock, close, then re-lock Tie Breaker to Y02 at bottom of Y01 (key number 47).

16.1.5 Unlock, close, then re-lock Tie Breaker to Y01 at bottom of Y02 (key number 48).

NOTE

Steps in this section are expected to bring in alarm Y01 LOSS OF VOLTAGE K01-E5.

16.2 Returning Y01 to Normal After Being Powered from Y02 Without Paralleling Power Sources

16.2.1 Verify reactor is shut down.

16.2.2 Verify consequence of loss of panel Y01 is acceptable.

16.2.3 Verify closed or close Normal Supply to Y01 Instrument AC Transformer X-51 Breaker (B-5143B).

16.2.4 Unlock, open, then re-lock Tie Breaker to Y02 at bottom of Y01 (key number 47).

16.2.5 Unlock, close, then re-lock Normal Feed to Y01 breaker at bottom of Y01 (key number 47).

16.2.6 Unlock, open, then re-lock Tie Breaker to Y01 at bottom of Y02 (key number 48).

NOTE

Steps in this section are expected to bring in alarm Y02 LOSS OF VOLTAGE K01-E6.

16.3 Powering Y02 from Y01 Without Paralleling Power Sources

16.3.1 Verify reactor is shut down.

16.3.2 Verify consequence of loss of panel Y02 is acceptable.

16.3.3 Unlock, open, then re-lock Normal Feed to Y02 breaker at bottom of Y02 (key number 48).

16.3.4 Unlock, close, then re-lock Tie Breaker to Y01 at bottom of Y02 (key number 48).

16.3.5 Unlock, close, then re-lock Tie Breaker to Y02 at bottom of Y01 (key number 47).

NOTE

Steps in this section are expected to bring in alarm Y02 LOSS OF VOLTAGE K01-E6.

16.4 Returning Y02 to Normal After Being Powered from Y01 Without Paralleling Power Sources

16.4.1 Verify reactor is shut down.

16.4.2 Verify consequence of loss of panel Y02 is acceptable.

16.4.3 Verify closed or close Normal Supply to Y02 Instrument AC Transformer X-61 Breaker (B-6143B).

16.4.4 Unlock, open, then re-lock Tie Breaker to Y01 at bottom of Y02 (key number 48).

16.4.5 Unlock, close, then re-lock Normal Feed to Y02 breaker at bottom of Y02 (key number 48).

16.4.6 Unlock, open, then re-lock Tie Breaker to Y02 at bottom of Y01 (key number 47).

16.5 Powering Y01 from Y02 by Paralleling Power Sources

WARNING

If the power sources are paralleled out of synchronism, personnel injury and equipment damage can result.

CAUTION

If a diesel generator is supplying power to bus A3 or A4, no attempt is made to parallel power sources at Y01 and Y02; the DG is out of sync with other buses that the DG is not supplying.

NOTE

- Paralleling Y01 and Y02 power sources allows transfer operation without loss of power to Y01 or Y02.
- The following operation requires Electrical Department assistance to verify power sources are in synchronism.

16.5.1 Verify reactor is shutdown.

16.5.2 Verify neither bus A3 nor bus A4 is being powered from a DG.

16.5.3 Verify open the tie breaker to Y02 at the bottom of Y01.

16.5.4 Unlock, close, then re-lock Tie Breaker to Y01 at bottom of Y02 (key number 48).

NOTE

Panel Y01 front cover must be removed to gain access to terminals for sync check.

16.5.5 Have Electrical Department check synchronism of power sources on each side of Tie Breaker to Y02 at bottom of Y01.

A. If power sources are not in synchronism, refer to "Powering Y01 from Y02 Without Paralleling Power Sources" section of this procedure.

16.5.6 If power sources are in synchronism, unlock, close, then re-lock Tie Breaker to Y02 at bottom of Y01 (key number 47).

16.5.7 Unlock, open, then re-lock Normal Feed to Y01 at bottom of Y01 (key number 47).

16.6 Returning Y01 to Normal After Being Powered from Y02 by Paralleling Power Sources

16.6.1 Verify neither bus A3 nor bus A4 is being powered from a DG.

16.6.2 Verify normal feed to Y01 breaker at bottom of Y01 is open.

16.6.3 Verify closed or close Normal Supply to Y01 Instrument AC Transformer X-51 Breaker (B-5143B).

16.6.4 Have Electrical Department check synchronism of power sources on each side of Normal Feed to Y01 breaker at bottom of Y01.

A. If power sources are not in synchronism, refer to "Returning Y01 to Normal after Being Powered from Y02 Without Paralleling Power Sources" section of this procedure.

16.6.5 If power sources are in synchronism, unlock, close, then re-lock Normal Feed to Y01 breaker at bottom of Y01 (key number 47).

16.6.6 Unlock, open, then re-lock Tie Breaker to Y02 breaker at bottom of Y01 (key number 47).

16.6.7 Unlock, open, then re-lock Tie Breaker to Y01 breaker at bottom of Y02 (key number 48).

16.7 Powering Y02 from Y01 by Paralleling Power Sources

WARNING

If the power sources are paralleled out of synchronism, personnel injury and equipment damage can result.

CAUTION

If a diesel generator is supplying power to bus A3 or A4, no attempt is made to parallel power sources at Y01 and Y02; the DG is out of sync with other buses that the DG is not supplying.

NOTE

- Paralleling Y01 and Y02 power sources allows transfer operation without loss of power to Y01 or Y02.
- The following operation requires Electrical Department assistance to verify power sources are in synchronism.

16.7.1 Verify reactor is shutdown.

16.7.2 Verify neither bus A3 nor bus A4 is being powered from a DG.

16.7.3 Verify open Tie Breaker to Y01 at bottom of Y02.

16.7.4 Unlock, close, then re-lock Tie Breaker to Y02 at bottom of Y01 (key number 47).

NOTE

Panel Y02 front cover must be removed to gain access to terminals for sync check.

16.7.5 Have Electrical Department check synchronism of power sources on each side of Tie Breaker to Y01 at bottom of Y02.

A. If power sources are not in synchronism, refer to "Powering Y02 from Y01 Without Paralleling Power Sources" section of this procedure.

16.7.6 If power sources are in synchronism, unlock, close, then re-lock Tie Breaker to Y01 at bottom of Y02 (key number 48).

16.7.7 Unlock, open, then re-lock Normal Feed to Y02 at bottom of Y02 (key number 48).

16.8 Returning Y02 to Normal After Being Powered from Y01 by Paralleling Power Sources

16.8.1 Verify neither bus A3 nor bus A4 is being powered from a DG.

16.8.2 Verify normal feed to Y02 breaker at bottom of Y02 is open.

16.8.3 Verify closed or close Normal Supply to Y02 Instrument AC Transformer X-61 Breaker (B-6143B).

16.8.4 Have Electrical Department check synchronism of power sources on each side of Normal Feed to Y02 breaker at bottom of Y02.

A. If power sources are not in synchronism, refer to "Returning Y02 to Normal After Being Powered from Y01 Without Paralleling Power Sources" section of this procedure.

16.8.5 If power sources are in synchronism, unlock, close, then re-lock Normal Feed to Y02 breaker at bottom of Y02 (key number 48).

16.8.6 Unlock, open, then re-lock Tie Breaker to Y01 breaker at bottom of Y02 (key number 48).

16.8.7 Unlock, open, then re-lock Tie Breaker to Y02 breaker at bottom of Y01 (key number 47).

UNIT: 1 REVISION # 3 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-EOP09

SYSTEM: Emergency and Abnormal Operation (ALTERNATE SUCCESS PATH JPM)

TASK: Energize Bus A2 from Bus A4 in a Degraded Power Condition

JTA: ANO1-RO-EOPAOP-EMERG-35

KA VALUE RO 3.7 SRO 3.7 KA REFERENCE: 056 AA2.37

APPROVED FOR ADMINISTRATION TO: RO X SRO X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCES: 1202.007 (05-01-0)

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Off-site power is NOT available. Both EDGs are operating properly, supplying their respective buses. The A2 LO RELAY TRIP (K02-A7) alarm is clear. The AAC Generator is UNAVAILABLE. 1020.007 Attachment 1, "Degraded Power Breaker Alignment and UV Relay Defeat" is complete.

TASK STANDARD: Trip breaker A-409 after determining excessive loading on EDG2.

This is an Alternate Success Path JPM.

TASK PERFORMANCE AIDS: Copy of 1202.007 (05-01-0), Step 98.

Simulator Setup:

- ***Degraded power condition with both EDGs in operation, the crew would have completed steps 1-20, 71, 94, 95, 96 ® open B-112 and close B-142, place Bank 4 PZR heaters in OFF, then go to step 98 where this JPM is to start.***
- ***To perform this JPM and expect the correct results, it must be assumed that Attachment 1 has been completed; however, DO NOT perform any of the actions of Attachment 1 in order for an overload condition to occur when breaker A-409 is closed.***

INITIATING CUE:

The CRS/SM directs you to energize Bus A2 from Bus A4 by performing 1202.007, Degraded Power, Step 98.

CRITICAL ELEMENTS (C): 1, 2, 4

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
(C)	1. Turn SYNC switch ON for breaker A-409 on panel C10. Positive Cue: SYNC switch for A-409 is ON.	On panel C10, A-409 breaker SYNC switch placed in the ON position.			
(C)	2. On panel C10, close breaker A-409. Positive Cue: Red status light above breaker handswitch is ON. Negative Cue: Green status light above breaker handswitch is ON.	Closed breaker A-409.			
	3. Check loading on DG2 ≤2750 KW on panel C10. FAULTED CUE: DG2 load is ~3100 KW.	On panel C10, overload (any load >2750 KW) identified on DG2 KW meter.			
(C)	4. Trip breaker A-409. Positive Cue: A-409 is tripped.	Tripped breaker A-409 on panel C10.			
NOTE: The procedure now instructs the operator to investigate cause of excessive load and correct the problem, When candidate starts investigation for cause of overload, examiner will inform examinee that the task is complete.					

END

JPM INITIAL TASK CONDITIONS:

- Off-site power is NOT available.
- Both EDGs are operating properly, supplying their respective buses.
- A2 LO RELAY TRIP (K02-A7) alarm is clear.
- The AAC Diesel Generator is UNAVAILABLE.
- 1202.007 Attachment 1, “Degraded Power Breaker Alignment and UV Relay Defeat”, is complete.

INITIATING CUE:

The CRS/SM directs you to energize Bus A2 from Bus A4 by performing 1202.007, Degraded Power, Step 98.

UNIT: 1 REVISION # 4 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-EOP10

SYSTEM: Emergency and Abnormal Operations

TASK: Perform Actions Required to Correct Inadequate Core Cooling

JTA: ANO1-RO-EOP-EMERG-21

KA VALUE RO 4.2 SRO 4.2 KA REFERENCE: 000 074 EA1.08

APPROVED FOR ADMINISTRATION TO: RO X SRO X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCES: 1202.005 (004-00-0)

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: An ICC event is in progress. The RCS is superheated. HPI core cooling with P-36A and P-36B is established with all HPI injection valves open. LPI pumps are running but RCS pressure is above the head of the LPI pumps. RT-3, Initiate Full HPI, has just been re-verified.

TASK STANDARD: Third HPI pump started, both LPI pumps running aligned for piggy-back operation.

TASK PERFORMANCE AIDS: Copy of 1202.005 (004-00-0)

INITIATING CUE:

The CRS/SM directs you to maximize HPI flow and align LPI for piggy-back operation in accordance with 1202.005, Inadequate Core Cooling, Steps 1 and 2.

CRITICAL ELEMENTS (C): 1, 2, 6

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
NOTE: 1202.005 Step 1.A is complete, as given in initial conditions.					
(C)	1. Start aux lube oil pump for third HPI pump. Positive Cue: Aux lube oil pump running.	On C16 or C18, placed handswitch for aux lube oil pump to START for the third HPI pump.			
(C)	2. Start the third HPI pump. Positive Cue: Third HPI pump is running.	On C16 or C18, placed handswitch for third HPI pump to START.			
	3. Stop aux lube oil pump for third HPI pump. Positive Cue: Aux lube oil pump stopped.	On C16 or C18, placed handswitch for aux lube oil pump to STOP for third HPI pump.			
	4. Place RC Pump Seals Total INJ Flow valve (CV-1207) in HAND and open fully. Positive Cue: CV-1207 indicates 100% open.	On panel C04, placed CV-1207 in HAND and fully opened the valve.			
	5. Verify both LPI pumps running. Positive Cue: Both LPI pumps are running.	On panels C16 and C18, verified both LPI pumps running.			
(C)	6. Open both DH Supply to Makeup Pump Suctions (CV-1276 and CV-1277). Positive Cue: Red light ON, green light OFF for CV-1276 and CV-1277.	On panels C16 and C18, opened CV-1276 and CV-1277.			
	7. Verify both LPI Blocks open (CV-1400 and CV-1401). Positive Cue: Red light ON, green light OFF for CV-1400 and CV-1401.	On panels C16 and C18, verified CV-1400 and CV-1401 open.			
NOTE: Inform examinee that Makeup Tank Level is < 86 inches.					

END

JPM INITIAL TASK CONDITIONS

An ICC event is in progress. The RCS is superheated. HPI core cooling with P-36A and P-36B is established with all HPI injection valves open. LPI pumps are running but RCS pressure is above the head of the LPI pumps. RT-3, Initiate Full HPI, has just been re-verified.

INITIATING CUE:

The CRS/SM directs you to maximize HPI flow and align LPI for piggy-back operation in accordance with 1202.005, Inadequate Core Cooling, Steps 1 and 2.

UNIT: 1 REVISION # 1 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-ICW01

SYSTEM: Intermediate Cooling Water System

TASK: Contingency Action for Loss of Two ICW Pumps

JTA: ANO1-RO-ICW-NORM-4

KA VALUE RO 3.3 SRO 3.6 KA REFERENCE: 008 000 A2.01

APPROVED FOR ADMINISTRATION TO: RO X SRO X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCES: 1104.028 (022-01-0)

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Plant is operating at 100% power with all ICS stations in automatic. ICW pumps P-33A and B have been operating. P-33C is removed from service for bearing replacement maintenance. The plug is installed in the common drain line for the ICW Surge Tanks, and the tanks are cross-connected. P-33A has just tripped.

TASK STANDARD: P-33B operating with all cross-connects open and flow <3100 GPM.

TASK PERFORMANCE AIDS: Copy of 1104.028 (022-01-0), Section 20.0

Simulator Setup:

- ***IC 2 Place P-33B in service and P-33C in PTL***
- ***Remote Function- EDB2264;out***
- ***Component Override- P33A;0***

INITIATING CUE:

The CRS/SM directs you to perform the "Contingency Actions for Loss of Two ICW Pumps" in accordance with 1104.028, Section 20.0

CRITICAL ELEMENTS (C): 1,2, 3, 4, 5, 6, 7

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
(C)	1. Place the handwitch for the tripped pump (P-33A) in P-T-L. Positive Cue: Handswitch is in P-T-L.	On C09, the handswitch for P-33A is placed in the P-T-L position.			
(C)	2. Open both ICW Pump suction crossconnects (CV-2240 & CV-2241) **and** both ICW Pump discharge crossconnects (CV-2238 & CV-2239). Positive Cue: Both suction and discharge crossconnects are open.	On C09, the handswitches for CV-2240 and CV-2238 are verified or placed in the "**OPEN**" position and the RED lights are "**ON**" and the GREEN lights are "**OFF**". (CV-2241 and CV-2239 should already be open.)			
(C)	3. Verify combined flow from Nuclear and Non-nuclear loop is <3100 GPM. Positive Cue: Flow is <3100 gpm.	Using the indicators on C09, calculated the total flow of both nuclear and non-nuclear loops <3100 gpm.			
NOTE: In the following step, Letdown Cooler Outlet CV-1221 may close automatically due to high temperature interlock. IF examinee seeks CRS/SM direction for which letdown cooler to isolate, examiner should provide cue: "CRS/SM directs you to isolate E29A".					
(C)	4. Reduce letdown to minimum **and** isolate one letdown cooler (E-29A or E-29B). Positive Cue: Letdown flow isolated or reduced to ~40-50 gpm and E-29A or B is isolated.	On C04 reduced letdown flow by rotating the setpoint knob on CV-1223 to "Zero". Monitored FI-1236 and verified flow drops to ~40-50 gpm – or verified CV-1221 closed. Isolated one letdown cooler by closing applicable valve (E-29A CV-1213/ E-29B CV-1215). NOTE: also acceptable if closed CV-1222 and adjusts flow to ~40-50 gpm with CV-1223.			

(CONTINUED)

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
NOTE: In the following step, monitoring SFP temperature is a continuous action step. Examinee may or may not call up SFP temperature on the plant computer at this time. Monitoring of temperature is not required for critical task completion.					
(C)	5. Trip the running Spent Fuel Cooling Pump (P-40A or P-40B) and monitor SFP temperature. Positive Cue: P-40 A and B are **OFF**. SFP temperature is <150 degrees.	On C19, placed the handswitch for running pump (P-40A or P-40B) in the "**OFF**" position and verified the GREEN light **ON** and the RED light **OFF**. Verified SFP temperature <150 degrees on plant computer point T2003.			
NOTE: If examinee seeks CRS/SM direction for which Isophase Bus Cooler should be isolated, examiner should provide cue: "CRS/SM directs you to isolate E17A".					
(C)	6. Contact AO to isolate the idle Isophase Bus Cooler (E17A or E17B) by closing ICW-215 or ICW-217. Positive Cue: AO reports that ICW-215 or ICW-217 closed.	AO dispatched to isolate the Idle Isophase Bus Cooler (E-17A or E17B) isolated by closing ICW-215 or ICW-217.			
(C)	7. Contact WCO to isolate both SFP Coolers (E27A&B) by closing, SFP Clr E-27A & E-27B ICW Outlet valves ICW-121A & ICW 121B Positive Cue: WCO reports that ICW-121A&B are closed.	WCO dispatched to Isolate both SFP Coolers (E27A&B) by closing, ICW-121A & ICW 121B.			
NOTE: After ~ 1 minute, notify examinee that idle Isophase Bus Cooler and both SF coolers are isolated					
	8. Verify all four ICW pump crossconnects are open (CV-2240, CV-2241, CV-2238, CV-2239) and verify combined flow is <3100 GPM. Positive Cue: Cross-connects open, flow <3100 gpm.	Verified all four ICW pump crossconnects open (CV-2240, CV-2241, CV-2238, CV-2239) and verify combined flow is <3100 gpm.			
	9. Monitor ICW temperatures. Positive Cue: ICW temperatures are within limits.	Checked temperatures on C09 for nuclear and non-nuclear ICW loops.			
NOTE: Examiner will inform examinee that ICW temperatures are within the desired band and that the crew will continue to closely monitor ICW temperatures and system operation.					

END

JPM INITIAL TAKS CONDITIONS:

Plant is operating at 100% power with all ICS stations in automatic. ICW pumps P-33 A and B have been operating. P-33C is removed from service for bearing replacement maintenance. The plug is installed in the common drain line for the ICW Surge Tanks, and the tanks are cross-connected. **P-33A has just tripped**.

INITIATING CUE:

The CRS/SM directs you to perform the “Contingency Actions for Loss of Two ICW Pumps” in accordance with 1104.028, Section 20.0.

UNIT: 1 REVISION # 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-MFW04

SYSTEM: Condensate and Feedwater (ALTERNATE SUCCESS PATH JPM)

TASK: Place a Main Feedwater Pump in Service (Second Pump)

JTA: ANO1-RO-MFW-NORM-13

KA VALUE RO 3.9 SRO 3.8 KA REFERENCE: 059 A4.10

APPROVED FOR ADMINISTRATION TO: RO X SRO X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 15 MINUTES

REFERENCES: 1106.016 (039-05-0); 1203.012E (034-02-0); 1203.027 (010-00-0)

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Plant is on line at ~ 350 MWe. "B" MFWP is in service. "A" MFWP is being placed in service. "A" MFWP ICS H/A Station is in manual. Feedwater Pumps Discharge Crosstie, CV-2827 is open. RPS "Anticipatory Reactor Trip System (ARTS) Reset has just been completed for "A" MFWP.

TASK STANDARD: "A" MFWP tripped, Feedwater Pumps Discharge Crosstie, CV-2827 manually opened from HS-2827 on CO3, verified proper plant response to "A" MFWP trip.

This is an ALTERNATE SUCCESS path JPM.

TASK PERFORMANCE AIDS: Copies of 1106.016 (039-05-0), Step 15.10; 1203.012E (034-02-0), pages for K06-B2 and K06-C2; 1203.027 (010-00-0).

Simulator Setup:

- ***Establish plant conditions of approximately 350 MWe with "B" MFWP in service and "A" MFWP speed slightly below "B" MFWP speed.***
- ***Ready to insert and remove malfunction for CV-2827 (ICM CV2827_a 0)***
- ***Ready to insert malfunction for P-27A (ICM P27A_a 0)***
- ***Ready to insert malfunction for P-26A (ICM P26A_a 0)***

INITIATING CUE:

The CRS/SM directs you to place "A" Main Feedwater Pump in service in accordance with 1106.016, Condensate, Feedwater and Steam System Operation, Section 15, starting at Step 15.10.4.

CRITICAL ELEMENTS (C): 2, 3, 4, 6, 7

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
	1. Ensure both Feed Pump Recircs (CV-2874 & CV-2876) are closed with controllers in AUTO. Positive Cue: CV-2874 and CV-2876 closed in AUTO.	Verified controllers in Auto. Observed that CV-2874 and CV-2876 indicate closed on controllers on C03.			
(C)	2. Accelerate MFW pump P1A until speeds, discharge pressure, and suction flows (on Recirc Valve H/A stations) of both pumps are approximately equal. Positive Cue: MFW pump speeds, discharge pressure and suction flows are approximately equal.	Accelerated P1A until MFW Pump speeds, discharge pressures, and suction flows were approximately equal.			
NOTE: After CV-2827 is closed, insert override malfunction for CV-2827.					
(C)	3. Close Feedwater Pumps Discharge Crosstie, CV-2827. Positive Cue: CV-2827 is closed.	Closed Feedwater Pumps Discharge Crosstie, CV-2827.			
NOTE: Following completion of the next step, insert malfunction for P-27A.					
(C)	4. Verify each MFWP maintaining respective valve train DP at ~70 psid. Positive Cue: Both MFWP's maintaining >70 psid.	Verified each MFWP maintaining respective valve train DP at ~70 psid.			
	5. Respond to annunciators "A MFP TURB OIL PUMP TRIP" (K06-B2) and "A MFP TURB OIL PUMP AUTO START" (K06-C2). Positive Cue: P-26A is running.	Referred to 1203.012E, K06 Annunciator Corrective Actions.			

(CONTINUED)

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
NOTE: Examinee may contact outside operator to inspect and determine cause for trip of P-27A. After a short time delay, inform operator that "the breaker for P-27A (B-2233) tripped on overload and P-26A lube oil pump is making a grinding noise". **Insert malfunction for P-26A. This will cause "A" MFWP to automatically trip. MFWP Discharge Crosstie, CV-2827 will fail to open automatically.** **Remove CV-2827 malfunction when examinee attempts to manually open CV-2827 from HS-2827 on C03.**					
(C)	6. Verify Feedwater Pumps Discharge Crosstie, CV-2827 open. Positive Cue: CV-2827 is open.	Recognized failure of CV-2827 and manually opened CV-2827 from HS-2827 on C03. (Examinee may refer to 1203.027, Loss of Steam Generator Feed)			
(C)	7. Verify Pressurizer Spray controls RCS pressure. Positive Cue: Pressurizer Spray is maintaining RCS pressure.	Verified proper response of Pressurizer Spray controls. If necessary, opened Pressuizer Spray Valve, CV-1008 in MANUAL and restored Pressurizer Spray Control to AUTO.			
	8. Stablize plant by verifying feedwater flow to both SGs is restored and is sufficient for present power level.	Verified stable plant conditions.			

END

JPM INITIAL TASK CONDITIONS:

- Plant is on line at ~ 350 MWe.
- “B” Main Feedwater Pump is in service
- “A” MFWP is being placed in service
- “A” MFWP ICS H/A Station is in manual
- Feedwater Pumps Discharge Crosstie, CV-2827 is open
- RPS “Anticipatory Reactor Trip System (ARTS) Reset has just been completed for “A” MFWP

INITIATING CUE:

The CRS/SM directs you to place “A” Main Feedwater Pump in service in accordance with 1106.016, Condensate, Feedwater and Steam System Operation, Section 15, starting at Step 15.10.4.

UNIT: 1 REVISION # 7 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-QT001

SYSTEM: Quench Tank

TASK: Transfer Quench Tank Contents to a CWRT

JTA: ANO1-RO-PZR-NORM-6

KA VALUE RO 2.9 SRO 3.1 KA REFERENCE: 007 A1.01

APPROVED FOR ADMINISTRATION TO: RO X SRO X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCES: 1103.005 (030-01-0)

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is at steady state operation, QUENCH TANK LEVEL HI/LO (K09-B4) annunciator is in alarm due to high level caused by RCP seal leakage. The clean liquid radwaste system is aligned to receive Quench Tank contents in T-12A Clean Waste Receiving Tank with the vacuum degasifier bypassed.

TASK STANDARD: Quench tank level lowered and high level alarm cleared (K09-B-4).

TASK PERFORMANCE AIDS: Copies of 1103.005 (030-01-0), Section 10; Quench Tank Fillrate Log (OPS-A11)

Simulator Setup

- ***Ensure Vacuum Degasifier (T-14) bypassed with P-43A&B Discharge to MU T-4 Hand Switch (HS-4614) in "CWRTs" position on C04.***

INITIATING CUE:

The CRS/SM directs you transfer from the Quench Tank to the clean liquid radwaste system to clear QUENCH TANK LEVEL HI/LO (K09-B4) alarm in accordance with 1103.005, Pressurizer Operation.

CRITICAL ELEMENTS (C): 2, 3, 4

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
NOTE: Examinee should reference 1103.005, Section 10.3. Step 10.3.1.A should not be required during performance of JPM. Step 10.3.1.B and 10.3.1.C are given in initial conditions. Step 10.3.1.D is accomplished by Vacuum Degasifer Bypass per 1104.016. Examinee may verify that vacuum degasifier drain pump discharge is aligned to CWRTs by verifying P-43A & B Discharge to MU T-4 Hand Switch (HS-4614) in "CWRTs" position on C04.					
	1. Record Stop Data on Quench Tank Fillrate Log (OPS-A11).	Recorded Stop Data on Quench Tank Fillrate Log (OPS-A11).			
(C)	2. Open both Quench Tank Outlet Isolation Valves CV-1053 and CV-1052. Positive Cue: Red lights on, green lights off for both valves.	Opened CV-1053 and CV-1052.			
(C)	3. Start Quench Tank Transfer pump (P-44) Positive Cue: Red light on, green light off above handswitch HS-1051.	Started Quench Tank Transfer Pump (P-44) from HS-1051 on C-14.			
NOTE: Inform examinee that sampling per Steps 10.3.1.H and 10.3.1.I is not desired.					
(C)	4. After QUENCH TANK LEVEL HI (K09-B4) annunciator clears (but before low level alarm comes in or QT pressure drops to 1 psig) stop P-44. Positive Cue: K09-B4 in slow flash, green light on and red light off above P-44 handswitch HS-1051.	Stopped P-44 after QUENCH TANK LEVEL HI (K09-B4) cleared.			
	5. Close CV-1053 and CV-1052 Positive Cue: Green lights on and red lights off.	Closed CV-1053 and CV-1052			
	6. Record Start Data on Quench Tank Fillrate Log (OPS-A11).	Recorded Start Data on Quench Tank Fillrate Log (OPS-A11).			
Note: Examinee may start to perform calculation of Quench Tank Fill Rate. This calculation is not required for satisfactory completion of the task. Examiner may inform examinee that the calculation has been performed by other members of the crew to cue completion of JPM.					

END

JPM INITIAL TASK CONDITIONS:

- The plant is at steady state operation
- QUENCH TANK LEVEL HI/LO (K09-B4) annunciator is in alarm due to high level caused by RCP seal leakage.
- The Clean Liquid Radwaste system is aligned to receive Quench Tank contents in accordance with 1104.020, Clean Waste System Operation.
- Vacuum Degasifier, T-14, is bypassed in accordance with 1104.016, Vacuum Degasifier Operations.
- T-12A Clean Waste Receiving Tank is in service.

INITIATING CUE:

The CRS/SM directs you transfer from the Quench Tank to the clean liquid radwaste system to clear QUENCH TANK LEVEL HI/LO (K09-B4) alarm in accordance with 1103.005, Pressurizer Operation.

Facility: ANO-1 Scenario No.: 1 Op-Test No.: 2002-1

Examiners:		Operators:

Initial Conditions:

- 70% Power from 40% power after repair to "A" Main Feedwater Pump
- # 1 EDG is out of service for online maintenance. Day 1 of an expected 2 day outage.
- 2 control rods are stuck and will not insert when/if the reactor trips.
- ICS runbacks are disabled due to a design discrepancy in the STAR module.
- Channels A, B, and D EFIC Initiate Module output failure.

Turnover:

- Power escalation to 100%. ~70% Power from 40% power after repair to "A" Main Feedwater Pump.
- P8A has been placed in service; P8B is to be placed in service as power escalation continues.
- # 1 EDG is out of service for online maintenance. Day 1 of an expected 2 day outage.
- Severe thunderstorm warnings for Pope, Johnson, and Yell counties for next 2 hours.

Event No.	Malf. No.	Event Type*	Event Description
1 T=0	N/A	N (BOT)	Place the Heater Drain Pump (P8B) in service
2 T=15	IMF MS131 .06 R1:00	C (ALL)	Main Steam leak inside the containment building. (OTSG Operating Range Level tap)
3 T=~15	N/A	R (BOR)	Power escalation to 100% at ~30%/Hr.
4 T=20	IMF TR568 100 R3:00	I (BOT)	"A" OTSG Operating Range Level Transmitter fails High.
5 T=25	IMF FW074	C (BOR) R (BOR)	"A" Main Feedwater Pump trips
6 T=25.5	ICM CV1008_a .10 IOR –DO HS1008_R FALSE	C (BOR)	Pressurizer Spray valve fails to seat and leaks by.
7 T=35	MMF MS131 .2 IMF FW621	M (ALL)	Main Steam Line rupture inside containment. Channels A, B, and D EFIC Initiate Module output failure.
8 T=Rx. Trip	IMF RD369 IMF RD377	C (BOR)	2 control rods stick in the fully withdrawn position and will not drop into the core.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Event No.	Time	Malf. No.	Value/Ramp Time	Event Description
7&8	T=0	IMF FW621 IMF RD369 IMF RD377	N/A N/A N/A	Channels A, B, and D EFIC Initiate Module output failure. 2 control rods stick in the fully withdrawn position and will not drop into the core.
1	T=0	N/A	N/A	Place the Heater Drain Pumps (P8A & P8B) in service
2	T=15	IMF MS131	.06 R3:00	Main Steam leak inside the containment building. (OTSG Operating Range Level tap)
3	T=~15	N/A	N/A	Power escalation to 100% at ~30%/Hr.
4	T=20	IMF TR568	100 R3:00	“A” OTSG Operating Range Level Transmitter fails High.
5	T=25	IMF FW074	N/A	“A” Main Feedwater Pump trips
6	T=25.5	ICM CV1008_a IOR –DO HS1008_R	.10 FALSE	Pressurizer Spray valve fails to seat and leaks by
7	T=35	MMF MS131	.2	Main Steam Line rupture inside containment

Op-Test No: 2002-1	Scenario No: 1	Event No: 1	Page 3 of 10
Event Description:	Place the heater drain pump (P8B) in service.		

Time	Position	Applicants Actions or Behavior
	CRS	Direct the crew to place the heater drain pump in service per O.P. 1106.016
	CBOT	Perform pump readiness verifications per O.P. 1106.016
	CBOT	Verify the idle P-2 handswitch in Pull-to-Lock.
	CBOT	Make plant announcement of starting of P8 and then “START” P8B.
	CBOT	Monitor heater drain pump discharge flow on the plant computer.
	CBOR	Monitor main feed water flow on C03
	CBOT	Direct the AO to gradually open the appropriate discharge valve to approx. 5 turns open.
	CBOT	Manually close the recirc valve and establish ~111” in T40. Then place recirc valve in “AUTO”.
	CBOT	Verify recirc valve maintains T40 level at ~111”.

EVENT TERMINATION CRITERIA

Both Heater Drain Pumps in service **OR** as directed by the lead examiner.

Op-Test No: 2002-1 Scenario No: 1 Event No: 2, 3, & 4		Page 4 of 10
Event Description:	Main steam leak inside the reactor containment building. Power escalation to 100%.	
Time	Position	Applicants Actions or Behavior
	CRS	Direct the crew to continue power escalation to 100% at ~30/Hr.
	CBOR	Begin power escalation by verifying the rate of change set at ~.5%/min. and raising the demand with the ULD station.
	CBOT	Verify turbine load is rising and the turbine is maintaining header pressure at the desired setpoint.
	CBOR	Verify Reactor power rising and feedwater flow rising to maintain proper Tave.
NOTE: The steam leak into the reactor building will initially be small and the crew may not immediately observe the changes in RB parameters.		
	CBOR	Acknowledge and report annunciator K07 A2, “A” OTSG Hi Level Limit.
	CRS	Obtain ACA for guidance.
	CBOT	Observe/verify “A” Operating range level on C13 level recorder.
	CRS	Direct the CBOR to place the “A” feed pump H/A station in “HAND” and stabilize plant.
	CBOR	Place the “A” main feed pump H/A station in “HAND” and balanced feed flows.
	CRS	Direct board operators to validate level transmitters by comparing to other (redundant) instruments.
	CBOT/R	Determine the “A” OTSG operating level transmitter is failing high.
	CRS	Verify plant stable and ICS in condition for instrument swap and direct the CBOR to select the other instrument.

continued

Op-Test No: 2002-1 Scenario No: 1 Event No: 2, 3, & 4 Page 5 of 10

Event Description: Main steam leak inside the reactor containment building. Power escalation to 100%.

Time	Position	Applicants Actions or Behavior
	CBOT	Verify the Operating Range Level for "A" is indicating properly on C13.
	CRS	Direct placing ICS ("A" feed pump H/A station) back to "AUTO"

EVENT TERMINATION CRITERIA

ICS in "AUTO" or next event

Op-Test No: 2002-1	Scenario No: 1	Event No: 5	Page 6 of 10

Event Description: "A" Main Feedwater Pump trip.

Time	Position	Applicants Actions or Behavior
	CBOR/T	Identify and report the "A" MFP has tripped.
	CRS	Direct operations per 1203.027
	CBOR	Verify ICS runback to <40%. The CBOR will need to reduce the plant in manual using the Steam Generator/Reactor Master H/A station due to the failure of the ICS to automatically runback to 40%. (This is a design discrepancy in the reference plant)
	CBOT	Verify Main Generator voltage maintained at ~22,000 volts, or adjust as necessary.
	CBOR	Verify FW cross-tie valve, CV2827, opens.
	CBOR	Verify proper feedwater flow to both OTSGs.
	CBOR	Stabilize the plant

EVENT TERMINATION CRITERIA

Plant is stable at ~40% power and the ICS is returned to "AUTO" or the next event.

Op-Test No: 2002-1	Scenario No: 1	Event No: 6	Page 7 of 10
Event Description:	Pressurizer Spray Valve fails to seat and leaks by.		

Time	Position	Applicants Actions or Behavior
	CBOR	Recognize continued lowering of RCS pressure
	CRS	Reference Pressurizer Systems Failures (1203.015), Pressurizer Spray Valve (CV-1008) Failure section.
	CBOR	Place PZR Spray valve in HAND and attempt to torque closed.
CT	CBOR	When directed, close PZR Spray Isolation valve (CV-1009).
	CBOR	Recognize and report that RCS pressure is recovering.

EVENT TERMINATION CRITERIA

Pressurizer spray valve is isolated and RCS pressure is rising **OR** next event.

Op-Test No: 2002-1	Scenario No: 1	Event No: 7 & 8	Page 8 of 10
Event Description:	Main Steam Line rupture inside containment. Two control rods stick in the fully withdrawn position and will not drop. Channels A, B, and D EFIC Initiate Module output failure.		

Time	Position	Applicants Actions or Behavior
	CBOR	Recognize “A” OTSG pressure dropping or noticeably lower than “B” OTSG pressure.
	CBOR	Monitor RB pressure and temperature.
NOTE: Due to rise in reactor building pressure and temperature, ESAS may actuate prior to the direction to trip the Reactor. Annunciator K12A1 will alarm due to the environmental conditions inside the Reactor Building. If panel 463 is checked for location of the alarm, instruct that module A2-5 lower, RB UNEP ZONE 32-K, in alarm.		
	CRS	Direct operations per Reactor Trip Emergency Operating procedure (1202.001)
	CRS	Direct Rx Trip
	CBOR	Depress the Reactor Trip push-button on C03.
	CRS	Direct reporting of Immediate and Followup Actions.
	CBOR	Report the reactor is tripped. Two Control rods failed to insert into the core.
	CRS	Direct the performance of RT 12.
CT	CBOR	Perform RT 12 as directed by the CRS.
	CBOT	Depress the Turbine Trip pushbutton on C01. Verify Turbine throttle and governor valves closed.
	CBOT	Report the turbine is tripped.
	CBOR	Reduce letdown by closing Letdown Bypass Orifice control valve, CV-1223 on C04.

continued

Op-Test No: 2002-1 Scenario No: 1 Event No: 7 & 8 Page 9 of 10

Event Description: Main Steam Line rupture inside containment. Two control rods stick in the fully withdrawn position and will not drop.

Time	Position	Applicants Actions or Behavior
	CBOR	Report letdown flow is reduced.
	CBOR	Check RCS Subcooling Margin is adequate at >30°F.
	CBOR	Report current RCS Subcooling Margin and adequacy. (RCS SCM is expected to be adequate at this time.)
	CBOR/T	Identify and announce ESAS has actuated on high RB Pressure.
	CRS	Transition to ESAS Procedure and direct crew actions
	CRS	Direct the verification of ESAS per RT10.
	CBOT	Verify actuation of ESAS per RT 10.
	CREW	Recognize SG pressure ≤ 900#
	CRS	Transition to Overcooling Emergency Operating procedure (1202.003).
	CBOT	Manually override and secure HPI as directed by the CRS and the Emergency Operating Procedure.
CT	CBOR	Actuate MSLI using the remote trip switch matrix for "A" MSLI pushbuttons on C09. (4 push-buttons) (3 of the 4 channels fail to auto actuate at setpoint so manual actuation is necessary)
	CBOR	Report "A" MSLI actuated. **EAL NUE 3.1 Uncontrolled OTSG Depressurization Resulting in MSLI Actuation**
	CRS	Provide RT6 to CBOR to verify proper MSLI and EFW actuation and control.

	CBOR	Verify proper MSLI and EFW actuation and control per RT6.

continued

Op-Test No: 2002-1 Scenario No: 1 Event No: 7 & 8 Page 10 of 10

Event Description: Main Steam Line rupture inside containment. Two control rods stick in the fully withdrawn position and will not drop.

Time	Position	Applicants Actions or Behavior
	CBOR	Control RCS pressure within the limits of Figure 3 per RT14 using PZR heaters

EVENT AND SCENARIO TERMINATION CRITERIA

RCS pressure and temperature stable with the “A” OTSG isolated, channels 1 and 2 of ESAS manually actuated

OR

As determined by the lead examiner.

SHIFT RELIEF SHEET - 200°F AND ABOVE (UNIT 1)			
DATE (ON-COMING) **Today**	SHIFT (ON-COMING) **DAYS**	CREW (ON-COMING) **This One**	
Scheduled Maintenance Risk	**ACCEPTABLE**	Scheduled Maintenance Train	**Red**
Action Statements/AOTs in effect (TS/TRM/ODCM etc.) **T.S.3.8.1.B.4 7 day time clock on #1 EDG**			
Next predicted dilution in 18 hrs.			
Reactivity Evolutions Planned During the Next Shift: **None**			

♦ OFF-GOING SHIFT SIGNATURE CRS/SM _____**Simulator use only**_____

On-coming crew review the following items during shift turnover.									
	SM	SE	CRS	(1) CRSA	CBOT	CBOR	WCO	OAO	IAO
Keys (CRS/WCO or applicable AO)							/	/	/
Operator/Narrative Logs (for respective position)									
Protective Tag Log									
Caution Tag Log									
Craft Maintenance Log									
Temporary Alteration Log									
Plant/Safety System Status Boards		For Simulator use only!							
Category “E” Valve Log									
Component Out of Position Log									
Radio									
Fire Brigade Beeper									
Control Room Annunciators (All Alarms)									
Board Walkdown									
Inop Equip/Tech Spec LCO Log									
Annunciator Out of Service Log									
Weekly Surveillance Schedule									
Key Log and Key Cabinet Key									
Station Log									

Note 1 If CRS Admin watchstation is not manned, N/A.

♦ Off-going shift fill out the following items. Additional pages may be attached. If no items exist for a section, enter "None".

EVOLUTIONS IN PROGRESS (If applicable, identify last step completed)

- 70% power. Power was escalated from 40% after maintenance to repair the "A" main feedwater pump.
- P8A is in service. (Just placed in service)
- #1 EDG is Out of Service for online maintenance. Day 1 of an expected 2 day outage.
- Severe thunderstorm warnings for Pope, Johnson, and Yell counties for the next 2 hours.
- ICS runbacks disabled as a result of the design discrepancy in the STAR module.

EVOLUTIONS SCHEDULED

- Place P8B in service.
- Conitnue power escalation to 100% at ~30%/hr.

ON DEMAND AND DELAYED SURVEILLANCES DUE

- None

NEW INSTRUCTIONS, PROCEDURES, NIGHT ORDERS, MEMOS, UPDATE OF DUTY ASSIGNMENTS

- None

Facility: ANO-1 Scenario No.: 2 Op-Test No.: 2002-1

Examiners:		Operators:

Initial Conditions:
- 100% power, equilibrium xenon.
- #1 EDG is out of service for online maintenance. Day 1 of an expected 2 day outage.
- P7B fails to autostart when available and initiation signal present.

Turnover:
- 100% power, equilibrium xenon.
- #1 EDG is out of service for online maintenance. Day 1 of an expected 2 day outage.
- Severe thunderstorm warnings for Pope, Johnson, and Yell counties for next 2 hours.

Event No.	Malf. No.	Event Type*	Event Description
1 T=2	IMF NI240	I (BOR)	Nuclear Instrumentation (NI5) drifts high
2 T=17	N/A	N (BOR)	Chemistry reports that routine RCS sampling backup sample reveals 55 ppmb difference between RCS and pressurizer boron concentrations. Equalize boron.
3 T=25	IOR –AI TIC4026_S 1	C (BOT)	ACW control valve for turbine lube oil coolers fails closed due to input failure
4 T=35	CAE file caemable	R (BOR)	The Mablevale substation experiences storm damage causing the breakers in the switchyard supplying that line to open. The dispatcher requests an emergency power reduction to ~600 MWe to maintain system integrity.
5 T=35	IOR –DI ICC0009_L FALSE	C (BOR)	The ULD toggle switch will not lower demand.
6 T=40	IMF ED183 IMF DG176 IOR –DI CSI-DG2_S	M (ALL) C (BOT)	Loss of offsite power occurs. Reactor trip. #2 EDG fails to autostart and the pushbutton on C10 fails to start the EDG. STATION BLACKOUT
7 T=43	IMF FW076	C (BOR)	P7A (Steam Driven EFW pump) trips.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Event No.	Time	Malf. No.	Value/Ramp Time	Event Description
6	T=0	IMF FW617	N/A	P7B fails to auto actuate when signal present but will manually start.
1	T=2	IMF NI240	N/A	Nuclear Instrumentation (NI5) drifts high
2	T=17	N/A	N/A	Chemistry reports that routine RCS sampling backup sample reveals 55 ppmb difference between RCS and pressurizer boron concentrations. Equalize boron.
3	T=25	IOR –AI TIC4026_S	1	ACW control valve for turbine lube oil coolers fails closed due to input failure
4	T=35	CAE file caemable	N/A	The Mablevale substation experiences storm damage causing the breakers in the switchyard supplying that line to open. The dispatcher requests an emergency power reduction to ~600 MWe to maintain system integrity.
5	T=35	IOR –DI ICC0009_L	FALSE	The ULD toggle switch will not lower demand.
6	T=40	IMF ED183 IMF DG176 IOR –DI CSI-DG2_S	N/A N/A FALSE	Loss of offsite power occurs. Reactor trip. #2 EDG fails to autostart and the pushbutton on C10 fails to start the EDG.
7	T=43	IMF FW076	N/A	P7A trips

Op-Test No: 2002-1 Scenario No: 2 Event No: 1		Page 3 of 8
Event Description: Nuclear Instrumentation (NI5) drifts high		
Time	Position	Applicants Actions or Behavior
T=2	CREW	Recognize plant transient in progress
	CBOR	Place ICS in manual to stabilize the transient
	CREW	Diagnose NI failure
	CRS	Direct operation per 1203.021 Loss of Neutron Flux Indication Section 1
	CREW	Recognize RPS channel “A” trip
	CBOT	Check for normal voltage on the power range detector
ROLE PLAY When the CBOT checks NI detector power inform him that “normal voltage is indicated”		
To Reset the RPS channel **after** being bypassed do the following IOR –AO NI0509L_A 1.2e2 DMF NI240		
	CBOR	Hard select the good NI signals for ICS control
	CBOT	Bypass RPS channel “A”
	CBOT	(If Directed) Place the Power range test module in test operate position and reset the tripped channel
	CBOR	Return ICS to automatic
EVENT TERMINATION CRITERIA Plant stable with ICS in “AUTO”		

Op-Test No: 2002-1	Scenario No: 2	Event No: 2	Page 4 of 8
Event Description:	Chemistry reports that routine RCS sampling backup sample reveals 55 ppmb difference between RCS and pressurizer boron concentrations. Equalize boron.		

Time	Position	Applicants Actions or Behavior
T=17	CRS	Determine the need to equilize boron between the Pressurizer and RCS based on the report from Nuclear Chemistry that the Pressurizer is >50 ppm higher than the RCS.
	CRS	Using normal operations procedure 1103.005, direct the equilization of boron by either method 1 or 2.
	CBOR	IF using method 1: • Place Pressurizer spray valve in manual and open slightly • Place some Pzr heaters in manual and throttle spray flow to hold pressure steady • Monitor RCS pressure closely.
	CBOR	IF using method 2: • Place desired Pzr heaters in manual and monitor RCS pressure closely. • Verify Pzr spray valve cycles automatically to control RCS pressure between 2205 and 2155 psig
	CRS	Announce if any upset occurs while equalizing boron, immediately return Pressurizer heaters to automatic
	CRS	Request chemistry sample Pressurizer boron.

NOTE
This evolution should continue until another events occurs

EVENT TERMINATION CRITERIA

Pressurizer heaters and/or spray valve are returned to automatic when next event occurs

Op-Test No: 2002-1	Scenario No: 2	Event No: 3	Page 5 of 8
Event Description:	ACW control valve for turbine lube oil coolers fails closed due to input failure		
Time	Position	Applicants Actions or Behavior	
T=25	CBOR	Acknowledge and report annunciator K04 A1 in alarm (TURB. BRG TEMP HI)	
	CRS	Provide direction per 1203.012C, Annunciator Corrective Action.	
	CBOT	Monitor TSIS (Turbine Supervisory Instrumentation System) to determine rising bearing temperatures for the main turbine.	
	CBOT	Check/Verify CV4026, Main lube oil cooler outlet control valve, operating properly.	
	CBOT	Report the oil cooler outlet control valve is closed.	
	CRS	Direct the CBOT to attempt to manually operate the valve from the controller on C19.	
	CBOT	Place the controller for CV4026 on C19 in “MANUAL” and open valve.	
	CBOT	Monitor lube oil temperatures and bearing temperatures for stabilization or downward trending.	
	CBOT	Adjust CV4026, manually, to control lube oil temperatures and bearing temperatures at or near desired temperature.	

EVENT TERMINATION CRITERIA

Turbine bearings and lube oil temperatures under control **OR** next event.

Op-Test No: 2002-1	Scenario No: 2	Event No: 4 & 5	Page 6 of 8
Event Description:	The Mablevale substation experiences storm damage causing the breakers in the switchyard supplying that line to open. The dispatcher requests an emergency power reduction to ~600 MWe to maintain system integrity. The ULD toggle switch will not lower demand.		

Time	Position	Applicants Actions or Behavior
		ROLE PLAY Call control room as EOC Dispatcher and direct unit to reduce power to 600 Mwe as soon as possible due to transformer damage at the Mablevale substation. If asked by control room personnel inform them that there is serious concern over grid stability due to the severe weather and substation damage.
T=32	CRS	Direct CBOR to reduce unit load to 600 Mwe.
	CRS	Direct operations per 1203.045, Rapid Plant Shutdown.
	CBOR	Commence reduction in unit load to 600 Mwe using the ULD.
	CBOR	Report to the CRS that the ULD will not change demand as requested.
	CRS	Direct the CBOR to place the SG/RX Master H/A station in “HAND” and lower load to 600 MWe.
NOTE: In the manual mode on the SG/RX master, the operator has control of the rate the plant will change. It is expected the operator will maintain the rate of change near the directed rate by the CRS.		
	CBOR	Place the SG/RX master in “HAND” and slowly toggled down.
NOTE: The crew may elect to place both the SG/RX master and the Turbine in the “MANUAL” mode. In this configuration, the CBOR controls the change in load demand and the CBOT will maintain turbine header pressure.		
	CBOT	Verify Turbine EHC responds to lowering load and maintains header pressure at or neat setpoint. (Auto or manual)
	CBOR	Stabilize load at ~600MWe. Power should be near 65-67%.
EVENT TERMINATION CRITERIA Power reduction is complete **OR** the next event occurs		

Op-Test No: 2002-1	Scenario No: 2	Event No: 6 & 7	Page 7 of 8
Event Description:	Loss of offsite power occurs. Reactor trip. #2 EDG fails to autostart and the pushbutton on C10 fails to start the EDG. STATION BLACKOUT. P7A trips.		

Time	Position	Applicants Actions or Behavior
T=40	CREW	Recognize loss of offsite power
	CRS	Transition to the Degraded Power Emergency Operating Procedure (1202.007). Direct operations per 1202.007.
	CBOT	Recognize the failure of #2 EDG to autostart
	CBOT	Attempt to manually start #2 EDG using push-button on C10.
	CRS	Transition to the Blackout Emergency Operating Procedure (1202.008) and direct operations.
	CBOR	Verify EFW actuated and perform RT5
	CRS	Dispatch AO to #2 EDG
	CRS	Communicate with Unit 2 about the availability of the AAC generator
	CRS	Direct manual isolation of letdown and RCP seal return.
	CBOR	Close CV1223 on C04.
	CBOT	Place RCP seal Bleedoff alternate path to quench tank valves in CLOSED position on C13.
	CRS	Dispatch the WCO to isolate letdown by manually closing CV1221 and isolating RCP seal return by manually closing CV1274.
	CBOR	Close both MSIVs (CV2691 and CV2692) on C09.

Continued

Op-Test No: 2002-1 Scenario No: 2 Event No: 6 & 7

Event Description: Loss of offsite power occurs. Reactor trip. #2 EDG fails to autostart and the pushbutton on C10 fails to start the EDG. STATION BLACKOUT. P7A trips.

Time	Position	Applicants Actions or Behavior
	CBOR	Report that P7A has tripped and no EFW is available.
INSTRUCTOR NOTE: Make the AAC generator available to the crew by performing the following; **RMF EDA901 TRUE** Call as the Unit 2 CRS and report the AAC generator is available for loading the vital bus.		
	CRS	Direct the CBOT to place the AAC generator on the A3 bus utilizing O.P. 1107.002.
CT	CBOT	Place the AAC generator on the A3 bus.
	CRS	Transition back to the Degraded Power procedure (1202.007).
	CRS	Direct the CBOR to establish EFW to both OTSGs using P7B.
CT	CBOR	Start P7B by releasing handswitch from Pull-to-lock and placing handswitch in the start position.
	CBOR	Verify EFW flow to the OTSGs.

EVENT AND SCENARIO TERMINATION CRITERIA

Power restored to the A3 bus from the AAC generator and EFW re-established to both OTSGs from P7B
OR
as directed by the lead examiner.

SHIFT RELIEF SHEET - 200°F AND ABOVE (UNIT 1)			
DATE (ON-COMING) **Today**	SHIFT (ON-COMING) **DAYS**	CREW (ON-COMING) **This One**	
Scheduled Maintenance Risk	**ACCEPTABLE**	Scheduled Maintenance Train	**Red**
Action Statements/AOTs in effect (TS/TRM/ODCM etc.) **T.S.3.8.1.B.4 7 day time clock on #1 EDG**			
Next predicted dilution in 18 hrs.			
Reactivity Evolutions Planned During the Next Shift: **None**			

♦ OFF-GOING SHIFT SIGNATURE CRS/SM _____**Simulator use only**_____

On-coming crew review the following items during shift turnover.									
	SM	SE	CRS	(1) CRSA	CBOT	CBOR	WCO	OAO	IAO
Keys (CRS/WCO or applicable AO)							/	/	/
Operator/Narrative Logs (for respective position)									
Protective Tag Log									
Caution Tag Log									
Craft Maintenance Log									
Temporary Alteration Log									
Plant/Safety System Status Boards		For Simulator use only!							
Category “E” Valve Log									
Component Out of Position Log									
Radio									
Fire Brigade Beeper									
Control Room Annunciators (All Alarms)									
Board Walkdown									
Inop Equip/Tech Spec LCO Log									
Annunciator Out of Service Log									
Weekly Surveillance Schedule									
Key Log and Key Cabinet Key									
Station Log									

Note 1 If CRS Admin watchstation is not manned, N/A.

♦ Off-going shift fill out the following items. Additional pages may be attached. If no items exist for a section, enter "None".

EVOLUTIONS IN PROGRESS (If applicable, identify last step completed)

- 100% power, steady state operation, equilibrium xenon.
- #1 EDG is Out of Service for online maintenance. Day 1 of an expected 2 day outage.
- Severe thunderstorm warnings for Pope, Johnson, and Yell counties for the next 2 hours.
- ICS runbacks disabled as a result of the design discrepancy in the STAR module.
- Nuclear Chemistry is performing a backup sample of the pressurizer boron due to difference from RCS concentration.

EVOLUTIONS SCHEDULED

- None

ON DEMAND AND DELAYED SURVEILLANCES DUE

- None

NEW INSTRUCTIONS, PROCEDURES, NIGHT ORDERS, MEMOS, UPDATE OF DUTY ASSIGNMENTS

- None

Facility: ANO-1	Scenario No.: 3	Op-Test No.: 2002-1

Examiners:		Operators:

- Initial Conditions:
- 100% power, equilibrium xenon.
- #1 EDG is out of service for online maintenance. Day 1 of an expected 2 day outage.
- RPS is failed and will not automatically actuate when setpoint is reached.
- The Reactor Trip pushbutton on C03 will not work when depressed
- ESAS channels 1 and 2 will not auto actuate when setpoint is reached.

Turnover:

- ~97% power from power escalation. Holding for performance of NI calibration adjustment to align NIs with Heat Balance power. Then continue to ~100% power operations.
- #1 EDG is out of service for online maintenance. Day 1 of an expected 2 day outage.

Event No.	Malf. No.	Event Type*	Event Description
1 T=0	N/A	N (BOR)	Place ICS in "MANUAL" for performance of NI calibration. Then return ICS to "AUTO" when calibration completed.
2 T=ICS manual + 2 min.	IMF TR051 0 R3:00 D0	I (BOR)	Selected Pressurizer Level transmitter fails low.
3 T=20	IMF CV018	C (BOT)	"D" RCP first stage seal failure
4	N/A	R (BOR)	Power reduction to secure "D" RCP
5 T=Pwr. Red.	IMF RX599	C (BOT)	"B" main feed pump fails to respond to ICS demand signal
6 T=35	IMF CV022 IMF CV026 IMF RC005 IMF 246, 247, 248, 249 IMF ES259, 260	M (ALL) C (BOR) C (BOR)	"D" RCP 2nd stage seal failure "D" RCP 3rd stage seal failure LOCA into the Containment Building RPS fails to trip automatically ESAS channels 1 and 2 fail to auto actuate
7 ES HPI pump start	IMF CV095	C (BOT)	ES HPI pump trips on high bearing temperature requiring HPI to be supplied from the operating Makeup Pump. (P36B or C)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Event No.	Time	Malf. No.	Value/Ramp Time	Event Description
6	T=0	IMF RP246, 247, 248, 249 IOR –DI ICC0020 IMF ES259, 260	N/A FALSE N/A	RPS is failed and will not automatically actuate when setpoint is reached. The Reactor Trip pushbutton on C03 will not work when depressed ESAS channels 1 and 2 will not auto actuate when setpoint is reached.
1	T=0	N/A	N/A	Place ICS in “MANUAL” for performance of NI calibration. Then return ICS to “AUTO” when calibration completed.
2	T=ICS in manual + 2 min.	IMF TR051	0 R3:00	Selected Pressurizer Level transmitter fails low.
3	T=20	IMF CV018	N/A	“D” RCP first stage seal failure
4	T~ 22	N/A	N/A	Power reduction to secure “D” RCP
5	T=Pwr Red.	IMF RX599	CURRENT VALUE	“B” main feed pump fails to respond to ICS demand signal
6	T=35	IMF CV022 IMF CV026 IMF RC005	N/A N/A .004	“D” RCP 2nd stage seal failure “D” RCP 3rd stage seal failure LOCA into the Containment Building RPS fails to trip automatically ESAS channels 1 and 2 fail to auto actuate
7	T=ES HPI pump start	IMF CV095	N/A	ES HPI pump trips on high bearing temperature requiring HPI to be supplied from the operating Makeup Pump. (P36B or C)

Op-Test No: 2002-1	Scenario No: 3	Event No: 1 & 2	Page 3 of 8
Event Description:	Place ICS in "MANUAL" for performance of NI calibration. Then return ICS to "AUTO" when calibration completed. Selected Pressurizer Level transmitter fails low.		

Time	Position	Applicants Actions or Behavior
T=0	CRS	Direct the crew on placing the ICS in manual mode, per O.P. 1105.004, in preparation for NI calibration.
	CBOR	Verify stable plant operations by observing trends on the plant computer and control board indicators.
	CBOR	Place SG/RX Demand, A and B loop FW Demands, Diamond Panel, Rx Demand stations in "HAND" and verify the Load Ratio Control transfers to "HAND" as directed.
	CBOR	Verify the plant conditions are stable.
T= ICS to "MAN" + 2 min.	CBOR	Acknowledge and report "Pressurizer Level Lo" alarm.
	CRS	Refer to Annunciator Corrective Action for K09-C3.
	CBOR	Determine and report cause of Low level alarm is due to instrument failure.
	CRS	Refer to Pressurizer Systems Failure Abnormal Operating Procedure, 1203.015.
	CBOT	Check redundant level transmitter on PMS for validity.
	CRS	If desired direct the CBOR to place the Pressurizer Level control valve, CV1235, in "HAND" and adjust as necessary to stabilize Pressurizer level.
	CBOR	Place CV1235 in "HAND" and close valve and allow the level do drop to desired level.
	CRS	Direct the redundant level transmitter selection on C04.
	CBOR	On C04, place HS-1002 to LT1002 ("good" redundant transmitter). Verify the level indication responds to selected transmitter.

continued

Op-Test No: 2002-1 Scenario No: 3 Event No: 1 & 2 Page 4 of 8

Event Description: Place ICS in "MANUAL" for performance of NI calibration. Then return ICS to "AUTO" when calibration completed. Selected Pressurizer Level transmitter fails low.

Time	Position	Applicants Actions or Behavior
	CRS	Direct the CBOR to place CV1235 in "AUTO" if placed in "MANUAL" earlier.
	CBOR	Place CV1235 in "AUTO" and verify proper control.
	CRS	Direct placing the ICS in "AUTO" at the completion of the NI calibration.
	CBOT	Verify the turbine in Integrated Control and controlling header pressure at setpoint.
	CBOR	Check "MEAS VAR" for both FW loop demands on the carat or adjust SG/RX demand and Load Ratio ΔT-cold to place them on the carat.
	CBOR	Verify T-ave at setpoint or adjust to place T-ave at setpoint.
	CBOR	Check Reactor demand "MEAS VAR" at carat. Check SG/RX H/A station "POS" and "MEAS VAR" are approximately equal.
	CBOR	When the stations are aligned, place them in "AUTO".

EVENT TERMINATION CRITERIA

Pressurizer level selected to the good transmitter and ICS is returned to "AUTOMATIC" **OR** next event.

Op-Test No: 2002-1 Scenario No: 3 Event No: 3, 4, & 5 Page 5 of 8		
Event Description:		"D" RCP first stage seal failure. Power reduction to secure "D" RCP. "B" main feed pump fails to respond to ICS demand signal
Time	Position	Applicants Actions or Behavior
T=20	CBOR	Recognize and report RCP BLEEDOFF FLOW HI annunciator (K08-B7).
	CBOT	Diagnose and report cause of alarm to be "D" RCP 1st stage seal.
	CRS	Direct operations per Reactor Coolant Pump and Motor Emergency Abnormal Operating procedure (1203.031) Section 1, Seal Degradation.
	CBOR	Verify the following valves; • Seal bleed-off flow (CV-1270 through CV-1274) open • RCP Seal Injection Block valve (CV-1206) open • RCP Total Seal Injection Flow (CV-1207) open and flow at 32-40 gpm.
	CBOR	Verify individual RCP Seal flows at 8-10 gpm.
	CBOT	Verify the following; • Peak to peak seal pressure oscillations are <800 psi. • DP across any stage <2/3 system pressure. • RCP seal temp <180°F. • RCP seal bleed off temp <40°F above 1st stage temp.
		NOTE Seal bleed-off temperature will rise to >40°F above 1st stage temp.
	CRS	Diagnose to need to stop the "D" RCP
T~22	CRS	Direct power reduction using Rapid Plant Shutdown Procedure, 1203.045
	CBOR	Reduce power to <75%
	CBOR/CBOT	Identify and report the "B" Main Feed Pump not responding to downpower demand.
	CRS	Direct the CBOT to take manual control at the "B" MFW pump Operating Control Station (OCS) on panel C02 and reduce "B" feedwater flow to match "A" MFW flow and maintain near 0 ΔTc.

continued

Op-Test No: 2002-1	Scenario No: 3	Event No: 3, 4, & 5	Page 6 of 8
Event Description:	"D" RCP first stage seal failure. Power reduction to secure "D" RCP. "B" main feed pump fails to respond to ICS demand signal		

Time	Position	Applicants Actions or Behavior
	CBOT	Placed "B" MFW pump OCS in manual, reduced "B" MFW pump speed, using the down arrows, to match FW flows as power is reduced.
	CRS	Direct the stopping of "D" RCP
	CBOT	Stop the "D" RCP
	CBOR	Adjust the "B" MFW pump speed as necessary to establish proper feedwater re-ratio for 3 RCP operation. Slowly adjust ?Tc to near zero (0).

EVENT TERMINATION CRITERIA

Power reduction complete and "D" RCP stopped **OR** next event

Op-Test No: 2002-1 Scenario No: 3 Event No: 6 & 7 Page 7 of 8		
Event Description:	"D" RCP 2nd stage seal failure. "D" RCP 3rd stage seal failure. LOCA into the Containment Building. ES channels 1 and 2 fail to auto actuate.	
Time	Position	Applicants Actions or Behavior
T=35	CBOR	Report reflash of K08-D7, "RCP SEAL CAVITY PRESS HI/LO".
	CBOT	Report "D" RCP 2nd and 3rd stage seal failures.
	CBOR	Identify pressurizer level and RCS pressure dropping.
	CBOT	Recognize and report RCS leakage into the Reactor Building. **EAL 2.2, ALERT(RCS leakage >Normal Makeup capacity)**
NOTE: The crew may manually trip the reactor prior to reaching the low RCS pressure setpoint and therefore not see the RPS failure to perform an automatic trip.		
	CRS	Direct the CBOR to trip the Reactor.
CT	CBOR	Trip the reactor. Identify the manual trip pushbutton will not function and the reactor would not trip. Depress the two backup pushbuttons and verify the control rods drop into the core.
	CRS	Direct operations per the Reactor Trip Emergency Operating procedure, 1202.001.
	CRS	Direct initiation of HPI per RT 2.
CT	CBOT	Initiate HPI per RT 2.
	CBOR	Acknowledge and report K10-E6, "HPI PUMP/MTR BRG TEMP HI".
	CRS	Direct the CBOT to shift HPI to the operating makeup pump.
	CBOT	Open the HPI block valves for the operating makeup pump as necessary to stabilize/raise pressurizer level per RT 2.

continued		

Op-Test No: 2002-1	Scenario No: 3	Event No: 6 & 7	Page 8 of 8
Event Description:	"D" RCP 2nd stage seal failure. "D" RCP 3rd stage seal failure. LOCA into the Containment Building. ES channels 1 and 2 fail to auto actuate.		

Time	Position	Applicants Actions or Behavior
		NOTE: The ES HPI pump may trip before it is manually stopped.
	CRS	Direct the CBOT to secure the ES HPI pump.
	CBOT	Stop the ES HPI pump.
		NOTE: The crew may manually initiate ESAS due to the imminent automatic actuation prior to reaching the setpoint and therefore not recognize the failure to automatically actuate.
	CREW	Recognize the failure of channels 1 and 2 of ESAS on low RCS pressure to auto actuate and manually actuate channels 1 and 2 from the pushbuttons on C04.
	CRS	Transition to ESAS procedure, 1202.010, and direct crew operations
	CBOR	Check for adequate subcooling margin.
	CBOT	Verify proper ESAS actuation per RT 10.
		EVENT AND SCENARIO TERMINATION CRITERIA RCS pressure stabilizes >150 psig **OR** as directed by lead examiner.

SHIFT RELIEF SHEET - 200°F AND ABOVE (UNIT 1)			
DATE (ON-COMING) **Today**	SHIFT (ON-COMING) **DAYS**	CREW (ON-COMING) **This One**	
Scheduled Maintenance Risk	**ACCEPTABLE**	Scheduled Maintenance Train	**Red**
Action Statements/AOTs in effect (TS/TRM/ODCM etc.) **T.S.3.8.1.B.4 7 day time clock on #1 EDG**			
Next predicted dilution in 18 hrs.			
Reactivity Evolutions Planned During the Next Shift: **None**			

♦ OFF-GOING SHIFT SIGNATURE CRS/SM _____**Simulator use only**_____

On-coming crew review the following items during shift turnover.									
	SM	SE	CRS	(1) CRSA	CBOT	CBOR	WCO	OAO	IAO
Keys (CRS/WCO or applicable AO)							/	/	/
Operator/Narrative Logs (for respective position)									
Protective Tag Log									
Caution Tag Log									
Craft Maintenance Log									
Temporary Alteration Log									
Plant/Safety System Status Boards		For Simulator use only!							
Category “E” Valve Log									
Component Out of Position Log									
Radio									
Fire Brigade Beeper									
Control Room Annunciators (All Alarms)									
Board Walkdown									
Inop Equip/Tech Spec LCO Log									
Annunciator Out of Service Log									
Weekly Surveillance Schedule									
Key Log and Key Cabinet Key									
Station Log									

Note 1 If CRS Admin watchstation is not manned, N/A.

♦ Off-going shift fill out the following items. Additional pages may be attached. If no items exist for a section, enter "None".

EVOLUTIONS IN PROGRESS (If applicable, identify last step completed)

- 97% power, holding for NI calibration prior to continuing to 100%
- #1 EDG is Out of Service for online maintenance. Day 1 of an expected 2 day outage.
- Severe thunderstorm warnings for Pope, Johnson, and Yell counties for the next 2 hours.
- ICS runbacks disabled as a result of the design discrepancy in the STAR module.

EVOLUTIONS SCHEDULED

- Perform NI calibration and continue power escalation to 100%

ON DEMAND AND DELAYED SURVEILLANCES DUE

- None

NEW INSTRUCTIONS, PROCEDURES, NIGHT ORDERS, MEMOS, UPDATE OF DUTY ASSIGNMENTS

- None

Facility: ANO-1 Scenario No.: 4 Op-Test No.: 2002-1

Examiners:		Operators:

Initial Conditions:

- 100% power, equilibrium xenon.
- #1 EDG is out of service for online maintenance. Day 2 of an expected 2 day outage.
- RPS is failed and will not actuate automatically when setpoint is reached.

Turnover:

- 100% power, equilibrium xenon.
- #1 EDG is out of service for online maintenance. Day 2 of an expected 2 day outage.
- #1 EDG is running at ~2750 Kw for operability test following maintenance on the governor.

Event No.	Malf. No.	Event Type*	Event Description
1 T=2	IMF TR558 0 R2:00	I (BOR)	"B" main feed flow transmitter drifts low slowly
2 T=10	IOR –DI CS3-DG1_W02 TRUE	N (BOT) C (BOT)	Secure the #1 EDG as per the surveillance test for completion of the operability test. As load is reduced by the operator, the governor fails and continues to reduce load without a command.
3 T=18	IMF MC088 2000 R4:00	C (BOT) R (BOR)	Main Condenser vacuum leak
4 T=30	IMF RC002 .5 R20:00	M (ALL) R (BOR)	Tube rupture in the "B" OTSG
5 T=32	RMF EDB0125 FALSE	C (BOT)	Switchyard breaker B0125 (feed for SU #1 transformer) opens rendering SU#1 transformer unavailable.
6 T=50% power	IOR –DI PB9201_T IMF RP246, 247, 248, 249	C (BOR)	Main Turbine trips >43% power. Requires manual Reactor trip. RPS fails to perform an automatic trip.
7 T=Rx. Trip + 3 min.	IOR -DI 152-111/CS_T TRUE	C (BOT)	SU#2 feeder breaker to A1 bus trips on Rx. Trip. Loss of A1 and A3 buses

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Event No.	Time	Malf. No.	Value/Ramp Time	Event Description
6	T=0	IMF RP246, 247, 248, 249	N/A	RPS fails to perform an automatic trip
1	T=2	IMF TR558	0 R2:00	"B" main feed flow transmitter drifts low slowly
2	T=10	IOR –DI CS3-DG1_W02	TRUE	Secure the #1 EDG as per the surveillance test for completion of the operability test. As load is reduced by the operator, the governor fails and continues to reduce load without a command.
3	T=18	IMF MC088	2000 R4:00	Main Condenser vacuum leak
4	T=30	IMF RC002	.5 R20:00	Tube rupture in the "B" OTSG
5	T=32	RMF EDB0125	FALSE	Switchyard breaker B0125 (feed for SU #1 transformer) opens rendering SU#1 transformer unavailable
6	T=50% power	IOR –DI PB9201_T	TRUE	Main Turbine trips >43% power. Requires manual Reactor trip. RPS fails to perform an automatic trip
7	T=Rx Trip + 3 min.	IOR -DI 152-111/CS_T	TRUE	SU#2 feeder breaker to A1 bus trips on Rx. Trip. Loss of A1 and A3 buses

Op-Test No: 2002-1 Scenario No: 4 Event No: 1 Page 3 of 9 Event Description: "B" main feed flow transmitter drifts low slowly		
Time	Position	Applicants Actions or Behavior
T=2	CREW	Identify and report "B" MFW pump speed rising, while "A" MFW pump speed remains constant.
	CBOR	Report "B" MFW flow lowering.
	CBOR	Acknowledge and report annunciator K09-E2, "Loop ΔTc >5°F", in alarm.
	CRS	Direct the CBOR to place the "B" MFW pump ICS H/A station in "MANUAL".
	CBOR	Place the "B" MFW pump H/A station in "MANUAL". Stabilize FW flow.
	CBOT	Check FW flow transmitter status on PMS. Determine the "B" loop flow failing low. Report to the CRS.
	CRS	Direct the CBOR to select the opposite flow transmitter for loop "B".
	CBOR	On C03, selected the redundant transmitter. Verify the "B" MFW flow indicators indicate the proper flow in the loop.
	CRS	Direct the CBOR to balance FW flows, ΔTc, and T-ave and place ICS in "AUTO".
	CBOR	Balance plant parameters and place ICS in "AUTO".

EVENT TERMINATION CRITERIA

Redundant FW flow transmitter selected and ICS in "AUTO"
OR
next event

Op-Test No: 2002-1	Scenario No: 4	Event No: 2	Page 4 of 9
Event Description:	Secure the #1 EDG as per the surveillance test for completion of the operability test. As load is reduced by the operator, the governor fails and continues to reduce load without a command		

Time	Position	Applicants Actions or Behavior
T=10	CRS	Direct the CBOT to secure the #1 EDG at the completion of its surveillance run time.
	CBOT	Unload and shutdown the #1 EDG per the surveillance procedure. Notice the governor fails, causing the EDG to continuously reduce load. Trip the EDG output breaker. Report to the CRS.
	CRS	Determine the #1 EDG remains inoperable.

EVENT TERMINATION CRITERIA

#1 EDG separated from the grid and determined inoperable
OR
next event

Op-Test No: 2002-1 Scenario No: 4 Event No: 3		Page 5 of 9
Event Description: Main Condenser vacuum leak		
Time	Position	Applicants Actions or Behavior
T=18	CREW	Notice and report lowering trend on condenser vacuum as observed by the trends on SPDS or PMS.
	CBOR	Acknowledge and report annunciator K05-B2, “CONDENSER VACUUM LOW”.
	CRS	Provide direction to the crew using 1203.016, “Loss of Condenser Vacuum”.
	CBOR	Maintain reactor power <100% by adjusting the ULD or SG/RX master in “HAND”.
	CBOT	On PMS, set the Transient Low Vacuum Alarm.
	CBOR	Reduce plant load to stabilize vacuum.
	CRS	Dispatch outside operators to check equipment and for sources of air in-leakage.
NOTE: Report as Auxiliary Operator that the running Condenser Vacuum Pump seal tank had run out of water and you are restoring at this time. Delete the Low Vacuum malfunction: **DLM MC088**		
	CRS	Direct the CBOR to stabilize plant load when vacuum begins to recover.
	CBOR	Stabilize the plant.
	CBOT	When vacuum has been restored, reset the alarm setpoints to original values.
EVENT TERMINATION CRITERIA Vacuum restored to near original value **OR** next event		

Op-Test No: 2002-1	Scenario No: 4	Event No: 4 & 5	Page 6 of 9
Event Description:	Tube rupture in the "B" OTSG. Switchyard breaker B0125 (feed for SU #1 transformer) opens rendering SU#1 transformer unavailable.		

Time	Position	Applicants Actions or Behavior
T=30	CBOR/T	Identify and report "B" OTSG N16 TROUBLE annunciator (K07-A6).
	CBOR	Begin leak rate determination. **EAL 3.2 NUE OTSG Tube Leakage ≥Tech. Spec. Limits**
	CRS	Reference Small Generator Tube Leaks Abnormal Operating procedure (1203.023).
ROLE PLAY If notified as Chemistry to determine leak rate; • using condenser off gas wait ~5 minutes (Time Compressed) • using steam generator sample wait ~8 minutes (Time Compressed) then report approximate leak rate displayed on PS1 display.		
	CRS	Reference Rapid Plant Shutdown Abnormal Operating procedure (1203.045). Direct CBOT/CBOR to commence a plant shutdown at ~5% per minute.
	CBOR	Begin plant shutdown with the ULD at the desired rate.
	CRS	Direct Auxiliary Operators to implement Control of Secondary Contamination Abnormal Operating procedure (1203.014).
	CBOT	Select ANALYZER position for "B" OTSG N_{16} detector.
	CBOR	Place SG EFW Pump Turbine (K3) Steam Supply valve (CV-2617) in MANUAL and close.
	CRS	Notify Health Physics to commence monitoring of secondary system for rising radiation levels.
	CBOR	Determine and report OTSG tube leak rate has increased to >10 GPM.
	CRS	Transition to OTSG Tube Rupture Emergency Operating procedure (1202.006).

continued		

Op-Test No: 2002-1	Scenario No: 4	Event No: 4 & 5	Page 7 of 9
Event Description:	Tube rupture in the "B" OTSG. Switchyard breaker B0125 (feed for SU #1 transformer) opens rendering SU#1 transformer unavailable.		

Time	Position	Applicants Actions or Behavior
	CBOT	Open BWST Outlet to OP HPI pump (CV-1407 or CV1408).
	CBOR/ CBOT	Reduce or isolate letdown flow
CT	CBOT	Initiate HPI per RT2 as required.
	CBOT	When unit is ≤55% stop Heater Drain Pumps (P8A, B).
	CBOR	Acknowledge and report annunciator K02-A1, "SU#1 Lock out Relay Trip". Also report B0125 switchyard breaker is open.
	CRS	Contact system dispatcher for B0125 availability or resolution to loss of SU#1.
NOTE: When the dispatcher is called, inform the caller the B0125 breaker only show a fault and must be investigated locally by switchyard personnel. It will be approximately 45-60 minutes for resolution.		
	CRS	When power is ~50%, direct the CBOT to shift auxiliaries in accordance with the contingency actions of the EOP for SU #1 transformer not available.
	CBOT	Make SU#2 transformer available for auto transfer by removing the feeder breakers from P-T-L position.

EVENT TERMINATION CRITERIA

This event continues for the remainder of the scenario

Op-Test No: 2002-1	Scenario No: 4	Event No: 6 & 7	Page 8 of 9
Event Description:	Main Turbine trips >43% power. Requires manual Reactor trip. SU#2 feeder breaker to A1 bus trips on Rx. Trip. Loss of A1 and A3 buses		

Time	Position	Applicants Actions or Behavior
T=50% power	CREW	Report the Main Turbine has tripped.
	CRS	Direct CBOR to trip the reactor.
CT	CBOR	Report reactor power >43% and the reactor did not trip automatically. Depress the reactor trip pushbutton. **EAL 6.2 ALERT Reactor Protection System Failure to Complete an Automatic Trip**
	CRS	Transition to step 25 of the Tube Rupture Emergency Operating Procedure and direct operations.
	CBOT	Report the loss of buses A1 and A3.
	CRS	Contact Unit 2 to start and align the AAC Generator for use on a vital bus.
	CBOR	Verified adequate subcooling margin.
	CBOR	Adjust turbine header pressure setpoint to 45. Check TURB BYP valves controlling SG pressure 950-990 psig.
	CBOR	Control RCS pressure low within limits of Fig. 3 by using pressurizer heaters and spray.
	CBOR	Adjust pressurizer level control setpoint to current PZR level or 55", whichever is greater.
	CBOT	Adjust HPI flow as necessary to maintain PZR level $\geq$55" **AND** RCS pressure low within limits of Figure 3.
	CRS	Transition to step 35 of the Tube Rupture Emergency Operating Procedure.

continued

Op-Test No: 2002-1	Scenario No: 4	Event No: 6 & 7	Page 9 of 9
Event Description:	Main Turbine trips >43% power. Requires manual Reactor trip. SU#2 feeder breaker to A1 bus trips on Rx. Trip. Loss of A1 and A3 buses		

Time	Position	Applicants Actions or Behavior
	CBOR	When directed, place the TURB BYP valves for the "A" OTSG in "HAND" and adjust to maintain cooldown rate ≤ 100°F/hr.

EVENT AND SCENARIO TERMINATION CRITERIA

RCS cooldown started and controlled
OR
As directed by the lead examiner

SHIFT RELIEF SHEET - 200°F AND ABOVE (UNIT 1)			
DATE (ON-COMING) **Today**	SHIFT (ON-COMING) **DAYS**	CREW (ON-COMING) **This One**	
Scheduled Maintenance Risk	**ACCEPTABLE**	Scheduled Maintenance Train	**Red**
Action Statements/AOTs in effect (TS/TRM/ODCM etc.) **T.S.3.8.1.B.4 7 day time clock on #1 EDG**			
Next predicted dilution in 18 hrs.			
Reactivity Evolutions Planned During the Next Shift: **None**			

♦ OFF-GOING SHIFT SIGNATURE CRS/SM _____**Simulator use only**_____

On-coming crew review the following items during shift turnover.									
	SM	SE	CRS	(1) CRSA	CBOT	CBOR	WCO	OAO	IAO
Keys (CRS/WCO or applicable AO)							/	/	/
Operator/Narrative Logs (for respective position)									
Protective Tag Log									
Caution Tag Log									
Craft Maintenance Log									
Temporary Alteration Log									
Plant/Safety System Status Boards		For Simulator use only!							
Category “E” Valve Log									
Component Out of Position Log									
Radio									
Fire Brigade Beeper									
Control Room Annunciators (All Alarms)									
Board Walkdown									
Inop Equip/Tech Spec LCO Log									
Annunciator Out of Service Log									
Weekly Surveillance Schedule									
Key Log and Key Cabinet Key									
Station Log									

Note 1 If CRS Admin watchstation is not manned, N/A.

♦ Off-going shift fill out the following items. Additional pages may be attached. If no items exist for a section, enter "None".

EVOLUTIONS IN PROGRESS (If applicable, identify last step completed)

- 100% power, equilibrium xenon.
- #1 EDG is Out of Service for online maintenance. Day 2 of an expected 2 day outage. Surveillance procedure 1104.036, Supplement 1 is in progress and nearing the end of the required run time (10 more minutes remain)
- ICS runbacks disabled as a result of the design discrepancy in the STAR module.

EVOLUTIONS SCHEDULED

- Complete 1104.036, Supplement 1

ON DEMAND AND DELAYED SURVEILLANCES DUE

- None

NEW INSTRUCTIONS, PROCEDURES, NIGHT ORDERS, MEMOS, UPDATE OF DUTY ASSIGNMENTS

- None

Arkansas Nuclear One - Unit One
2002 RO License Examination Administrative Topics

Candidate: _____ Examination Level (Circle One): RO / SRO

Examiner: _____

Topic Area (Circle One)	Question **A1-JPM-1**	Expected Response and Reference source
(A.1) A.2 A.3 A.4	A1JPM-RO-RCS2 SEE ATTACHED JPM	

Candidate Response:

UNIT: 1 REVISION # 0 DATE: _____

TUOI NUMBER: A1JPM-RO-RCS2

SYSTEM: A.1 – Conduct of Operations

TASK: Perform RCS Leak Rate Determination when RCS Leakage is being returned to RCS

JTA: ANO1-RO-RCS-SURV-37

KA VALUE RO 3.9 SRO 4.0 KA REFERENCE: 2.1.23

APPROVED FOR ADMINISTRATION TO: RO X SRO X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCES: 1103.013 (019-01-0), RCS Leak Detection, Supplement 2.

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is at 100% power operations. RCS leak rate Determination per 1103.013, Supplement 2, RCS Leak Rate Determination When RCS Losses Are Being Returned To RCS is in progress. Plant computer program "LKRT1" is inoperable. Plant computer tabular log "RCS Leak Rate Data" is active. The leak rate determination was commenced on the previous shift at 1530. All initial data has been obtained and recorded.

TASK STANDARD: The examinee has correctly calculated non-returnable leak rate.

TASK PERFORMANCE AIDS: Copy of 1103.013 (019-01-0) Supplement 2 and plant computer "RCS Leak Rate Data" tabular log sheet.

INITIATING CUE:

The CRS/SM has directed you to record the final data on Table 2.1.1 and calculate the non-returnable leak rate in accordance with 1103.013, Supplement 2, Steps 2.1.4 through 2.1.10 using a leak rate determination stop time of 0115.

CRITICAL ELEMENTS (C): 5, 6, 7

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
NOTE: Provide examinee with a copy of 1103.013, Supplement 2, with initial data recorded and plant computer tabular log sheet "RCS Leak Rate Data".					
	1. Select and enter final data from plant computer tabular log sheet in Table 2.1.1.	Data for L1001B, XTAVE, L1248 and XPP at time 0115 selected from computer tabular log sheet and entered in Table 2.1.1.			
	2. Compute INITIAL and FINAL "Reactor Power Squared" values and enter in Table 2.1.1.	Calculated reactor power squared values: INITIAL VALUE = 9977.8 Task Standard: 9900 to 10000 FINAL VALUE: 9998.8 Task Standard: 9950 to 10100 Data entered in Table 2.1.1.			
NOTE: During performance of the following step, examiner shall provide examinee with the following data: • **T-111 running timer value is 015573.** • **Last valid T-111 fill rate is 0.075 gpm.**					
	3. Calculate CHANGE in each variable and enter in Table 2.1.1.	Calculated change in: Pressurizer level: 1.363 Tave: -.01 MU Tank Level: 2.412 Rx Power: -0.105 Rx Power Squared: -21 T-111 timer 333 Data entered in Table 2.1.1.			

(CONTINUED)

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
	4. Multiply CHANGE values by CONVERSION FACTOR and enter under EQUIVALENT LOSS in Table 2.1.1.	Calculated Equivalent Loss: Pressurizer level: 16.907 Tave: 10.244 MU Tank Level: 74.434 Rx Power: 0.96075 Rx Power Squared: -1.743 T-111 timer 24.975 Data entered in Table 2.1.1.			
(C)	5. Add EQUIVALENT LOSS values algebraically to determine TOTAL LOSSES and enter in Table 2.1.1.	Total Losses: 125.775 Task Standard: 123.775 to 127.775			
(C)	6. Determine test Delta T in minutes and enter in table.	Calculated total test time of 585 minutes and entered in Delta T blank on Table 2.1.1.			
(C)	7. Find non-returnable leak rate.	Used formula to calculate non-returnable leak rate. Leak rate = 0.215 gpm Task standard 0.210 to 0.220 gpm			
	8. Enter total RCS losses in Section 3.0.	Data entered in Section 3.0.			
NOTE: Inform examinee that Plant Computer Tabular Log "RCS Leak Rate Data" is deactivated.					

END

JPM INITIAL TASK CONDITIONS:

- The plant is at 100% power operations.
- RCS leak rate determination per 1103.013, Supplement 2, RCS Leak Rate Determination When RCS Losses Are Being Returned To RCS, is in progress.
- Plant computer program “LKRT1” is inoperable.
- Plant computer tabular log “RCS Leak Rate Data” is active.
- The leak rate determination was commenced on the previous shift at 1530. All initial data has been obtained and recorded.

INITIATING CUE:

The CRS/SM has directed you to record the final data on Table 2.1.1 and calculate the non-returnable leak rate in accordance with 1103.013, Supplement 2, Steps 2.1.4 through 2.1.10 using a leak rate determination stop time of 0115.

ARKANSAS NUCLEAR ONE (ANO) - UNIT 1
UNIT NO. 1 TABULAR LOG LEAK

DATE: XXXXX TIME:01:45 PAGE 1 OF 1

TIME	L1001B	XTAVE	L1248	XPP	L1002B	TAVE	PP	L1051
01:05:35	215.840	578.66	68.168	100.021	220.267	578.89	100.052	5876.89
01:06:36	214.046	578.66	68.920	100.021	220.503	578.63	100.008	5874.91
01:07:36	214.257	578.66	68.357	100.021	220.982	578.66	100.178	5874.46
01:08:36	214.028	578.66	69.807	100.021	221.191	578.53	100.177	5875.89
01:09:36	214.027	578.66	69.143	100.021	221.745	578.54	100.125	5874.69
01:10:36	215.160	578.65	69.010	100.021	221.883	578.59	100.121	5876.83
01:11:36	215.903	578.65	69.896	99.994	221.641	578.70	99.949	5876.53
01:12:37	216.298	578.65	69.795	99.994	220.857	578.74	99.911	5875.56
01:13:37	216.816	578.65	69.183	99.994	220.872	578.73	99.782	5876.72
01:14:37	215.104	578.65	69.276	99.994	220.826	578.78	99.839	5874.82
01:15:37	215.422	578.71	69.152	99.994	221.223	578.81	99.803	5876.90
01:16:37	215.968	578.71	68.021	99.994	221.426	578.72	99.914	5877.11
01:17:37	216.400	578.71	68.895	99.929	220.183	578.64	99.824	5875.28
01:18:38	216.775	578.71	68.788	99.929	219.625	578.58	99.797	5877.13
01:19:38	216.017	578.71	68.663	99.929	219.323	578.57	100.083	5875.31
01:20:38	216.419	578.71	68.558	99.929	219.482	578.51	99.797	5874.66
01:21:38	215.856	578.71	68.446	99.929	220.221	578.53	99.887	5875.99
01:22:38	215.721	578.77	68.340	99.929	220.687	578.62	99.947	5874.77
01:23:38	214.464	578.77	68.307	100.033	221.087	578.57	99.923	5876.31
01:24:39	214.985	578.77	68.714	100.033	221.387	578.66	99.886	5876.79
01:25:39	214.186	578.77	68.871	100.033	221.864	578.63	99.820	5876.51
01:26:39	214.583	578.77	67.634	100.033	221.286	578.75	99.846	5876.09
01:27:39	215.781	578.77	67.796	100.033	220.677	578.80	99.897	5874.51
01:28:39	215.367	578.77	67.659	100.033	221.167	578.81	100.025	5874.82
01:29:39	215.450	578.61	68.527	99.888	221.387	578.83	100.071	5875.25
01:30:40	216.185	578.61	68.402	99.888	220.607	578.86	100.028	5874.63
01:31:40	216.463	578.61	68.277	99.888	220.270	578.85	100.147	5874.88
01:32:40	216.461	578.61	69.151	99.888	220.085	578.82	100.037	5874.99
01:33:40	215.484	578.61	69.013	99.888	219.926	578.83	100.128	5875.59
01:34:40	215.062	578.61	69.903	99.888	220.267	578.80	100.012	5875.12
01:35:40	215.060	578.64	69.177	99.997	220.503	578.81	100.014	5875.08

KEY

SUPPLEMENT 2

RCS LEAK RATE DETERMINATION WHEN
RCS LOSSES ARE BEING RETURNED TO RCS

This procedure assures the RCS leak rate is within Tech Spec limits by satisfying the criteria of section 3.0. Leakage exceeding the limits of section 3.0, evaluated as unsafe or non-isolable shall immediately be reported to the Shift Manager and a Condition Report written. Reference Tech Spec 3.1.6 for limiting conditions for operation. This supplement (or Supplement 1) is performed once per calendar day to satisfy Tech Spec 4.1-2.6a. The provision of Tech Spec 4.0.2 (25% extension) does not apply.

1.0 INITIAL CONDITIONS

INITIALS

1.1 Verify water is not being added to or removed from RCS or MU System by the following:

1.1.1 Makeup or Chemical Addition from sources outside of the MU System or Reactor Coolant System. JAP

1.1.2 Sampling of the RCS or MU System. JAP

1.1.3 Venting or draining from the RCS or MU System. JAP

1.1.4 Changing RCS or MU System components in-service (i.e. pumps, filters, coolers, etc.). JAP

1.1.5 Boration or deboration. JAP

1.2 Verify at least one of the following, listed in order of preference, available to provide leak rate data: JAP

1.2.1 Plant Computer Tabular Log "RCS Leak Rate Data" active.

1.2.2 SPDS Group/Trend set up for "RCS Leak Rate Data".

1.2.3 The following indications operable:

- Power Range Indicators (NI-5, NI-6, NI-7, NI-8)
- Controlling T-Ave Indicator (TI-1032)
- PZR Level Indicator (LIS-1002)
- MU Tank Level Recorder (LR-1248)

KEY

NOTE

1. To prevent masking a rise in RB Sump fill rate, RB Sump Initial and Final level should be the current values taken from SPDS L1405 at the start and stop times.
2. Draining the RB Sump during fill rate determination period invalidates the fill rate determination.

1.3 Record start time and current RB sump level in "Table 2.2.1 RB Sump Level Data Table". SAP

1.4 Verify Plant Computer printer operational. SAP

1.5 Review the following limits and precautions. SAP

1.5.1 RCS and MU System components in-service shall not be changed during leak rate determination, and these systems shall be maintained in steady state condition.

1.5.2 To insure the most accurate determination of the RCS leak rate, the following requirements should be met:

A. The initial and final values of reactor power, RCS T-ave and pressurizer level, should be as close to identical as possible.

B. Digital values using the same signal source for initial and final values should be used if available.

C. Routine daily leak rate determinations shall be performed over the maximum time practical, 6-7 hours where possible, but for at least one hour.

D. Changes to Reactor Building Ventilation should not be performed.

KEY

SUPPLEMENT 2

2.0 TEST METHOD

2.1 RCS Leak Rate Determination

NOTE
Plant computer is the preferred source for following data recordings.

2.1.1 Enter initial data required in Table 2.1.1, "Total Leakage Data Table." Check (✓) data source used:

Pressurizer Level	(✓)	T-ave	(✓)
Preferred: L1001B	✓	Preferred: XTAVE	✓
Backup: L1002B		Backup: SPDS TAVRC1	
SPDS LPZR1G		Controlling T-ave Indicator (TI-1032)	
SPDS LPZR1R			
PZR Level (LIS-1002)			

Makeup Tank Level	(✓)	Reactor Power	(✓)
Preferred: L1248	✓	Preferred: XPP	✓
Backup: SPDS L1248		Backup: SPDS NI1LP	
Level Recorder for MU Tank (LR-1248)		SPDS NI2LP	
		Power Range Indicators (NI-5, NI-6, NI-7, NI-8)	

Quench Tank Level	
Preferred: L1051	✓
Backup: SPDS L1051	
Quench Tank Level Indicator (LIS-1051)	

NOTE
During leak rate check, Quench Tank (T-42) may be pumped back to Makeup Tank as required.

2.1.2 When following conditions have been met, pump Quench Tank to Makeup Tank to achieve a FINAL Quench Tank volume which is equal to INITIAL volume: SAP

A. Leak rate determination has run for >1 hour.

B. Pressurizer level, T-ave, and Rx power values are approximately equal to initial values.

KEY

SUPPLEMENT 2

SRP

2.1.3 Allow Vacuum Degasifier Drain Pumps (P-43A, P-43B) to pump down to automatic cutoff point, then enter data under FINAL column in Table 2.1.1.

Table 2.1.1: Total Losses Data Table

Start Date/Time: 1530	Stop Date/Time: 0115	ΔT = 585 Min.

VARIABLE	INITIAL	FINAL	CHANGE	CONVERSION FACTOR	EQUIVALENT LOSS (GAL)
Pressurizer Level ("H_2O)	(216.765)	215,422	1,363	(+12.40)	16.901
TAV (°F)	(578.61)	578.71	-.1	(-102.44)	10.244
MU Tank Level ("H_2O)	(71.564)	69,152	2.412	(+30.86)	74.434
Reactor Power (%)	(99.899)	99.994	-.105	(-9.15)	.96075
Reactor Power Squared (P^2)	(9977.8)	9998.8	-21	(+0.083)	-1.743
T-111 running timer	(015906)	(015573)	333	last valid T-111 fill rate	24.975
Quench Tank	(587690)	(587690)	Should be zero		
			TOTAL LOSSES		125.77

2.1.4 Compute INITIAL and FINAL "Reactor Power Squared" values and enter in table. SRP

2.1.5 Calculate CHANGE in each variable and enter in table. SRP

2.1.6 Multiply CHANGE values by CONVERSION FACTOR and enter under EQUIVALENT LOSS. SRP

2.1.7 Add EQUIVALENT LOSS values algebraically to determine TOTAL LOSSES. SRP

2.1.8 Determine test ΔT in minutes and enter in table. SRP

2.1.9 Find non-returnable leak rate as follows:

$$\frac{\text{TOTAL LOSSES } (125.775 \text{ gallons})}{\Delta T \ (585 \text{ minutes})} = \text{non-returnable leak rate } (.215 \text{ gpm})$$

SRP

KEY

SUPPLEMENT 2

2.1.10 Enter non-returnable leak rate value in section 3.0. SAT

2.1.11 Obtain known leakage from the following source(s) and enter in Table 2.1.2 as applicable: _____

NOTE

RCP seal leakage is not considered because it is being returned to RCS via Quench Tank.

A. Identified leakage sources from "RCS Leak Test", Supplement 5 to Plant Preheatup and Precritical Checklist (1102.001), performed during most recent plant startup. Do not use leakages <0.01 gpm.

B. Leakage sources >0.01 gpm which have been identified since the last plant startup and evaluated per Supplement 3 to this procedure.

Table 2.1.2: Known Leakage Data Table

LOCATION	MEASURED RATE
Other sources (explain)	(gpm)
	(gpm)
	(gpm)
TOTAL KNOWN LEAK RATE:	(gpm)

2.1.12 Add MEASURED RATE values to determine TOTAL KNOWN LEAK RATE and enter in Table 2.1.2. _____

2.1.13 Find unidentified leak rate as follows: _____

Non-returnable leak rate (section 3.0) (gpm)

Total known leak rate (Table 2.1.2) - (gpm)

Unidentified leak rate (gpm)

KEY

SUPPLEMENT 2

2.11 Review and verify correct all calculations entered in this supplement, and if applicable, on the RCS Leakrate Trend Log.

Reviewed and verified by (SRO) _____ Date _____

2.12 Record and review required trend data.

Recorded and reviewed by (SE/SRO) _____ Date _____

2.12.1 If requested, provide trend data to the Shift Manager. Otherwise N/A. _____

2.13 Deactivate Plant Computer Tabular Log "RCS Leak Rate" data. _____

3.0 ACCEPTANCE CRITERIA

3.1 Record values observed during leak rate determination and compare with "Limiting Range For Operability".

TEST QUANTITY	INSTRUMENT	MEASURED VALUES	LIMITING RANGE FOR OPERABILITY	IS DATA WITHIN LIMITING RANGE? (YES, NO, OR N/A)
Nonreturnable Leak Rate	N/A	.215 GPM	<10 gpm	(YES) NO
Unidentified Leak Rate	N/A	GPM	<1 gpm	YES NO
RB Sump Fill Rate	N/A	GPM	N/A	N/A
Total RCS Losses	N/A	GPM	<30 gpm	N/A
RI-7460 Daily High	RI-7460	CPM	N/A	N/A
RI-7461 Daily High	RI-7461	CPM	N/A	N/A

3.2 If "NO" is circled in above table or there is any leakage evaluated as unsafe, or non-isolable leakage from a Reactor Coolant System strength boundary, immediately notify the Shift Manager and write a Condition Report.

Performed by Initial Operator Date/Time XXXX

_____ Operator Date/Time _____

_____ SRO Date/Time _____

_____
Step 2.12.1 performed by

SUPPLEMENT 2

4.0 SHIFT MANAGER REVIEW AND ANALYSIS

(circle one)

4.1 Has this RCS leak rate been shown to comply with Tech Spec requirements per the Acceptance Criteria section? YES NO

4.2 If answer to 4.1 is "NO", describe action taken below.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

4.3 Have all of the administrative requirements of this test been satisfied (i.e., all initial blocks initialed or N/A'd, all data entered, cal due dates listed, applicable signature spaces signed, etc.)? YES NO

SHIFT MANAGER _____ DATE _____

Arkansas Nuclear One - Unit One
2002 RO License Examination Administrative Topics

Candidate: _____ Examination Level (Circle One): RO / SRO

Examiner: _____

Topic Area (Circle One)	Question **A1-Q1**	Expected Response and Reference source
(**A.1**) A.2 A.3 A.4	**CLOSED REFERENCE** You are the on-duty CBOT, from memory state five (5) items of information per Conduct of Operations procedure, 1015.001, you are required to inform your relief of when performing shift turnover.	**ANSWER:** • Overall plant status • Operations in progress and steps completed • Existing or potential problems with areas, equipment or processes • Pertinent activities conducted during the past shift • Schedule requirements or plans • Abnormal system lineups • Key lock functions or interlocks defeated thru jumpers or bypasses • Pertinent procedure changes impacting plant operations or activities in progress • New or revised Night Orders and applicable special instructions issued since their last shift. • Any existing LCOs that are in effect. (Candidate should list any 5 acceptable responses for full credit, verbatim response not necessary) **Reference:** 1015.001 (054-02-0), Conduct of Operations, page 34 step 10.6. **K/A:** 2.1.3 RO: 3.0 / SRO: 3.4

Arkansas Nuclear One - Unit One
2002 RO License Examination Administrative Topics

Candidate: _____ Examination Level (Circle One): RO / SRO

Examiner: _____

Candidate Response:

Arkansas Nuclear One - Unit One
2002 RO License Examination Administrative Topics

CLOSED REFERENCE

You are the on-duty CBOT, from memory state five (5) items of information per Conduct of Operations procedure, 1015.001, you are required to inform your relief of when performing shift turnover.

Arkansas Nuclear One - Unit One
2002 RO License Examination Administrative Topics

Candidate: _____ Examination Level (Circle One): RO / SRO

Examiner: _____

Topic Area (Circle One)	Question **A1-Q2**	Expected Response and Reference source
A.1 A.2 A.3 A.4	**OPEN REFERENCE** Given the following Plant conditions: • Mode 6. • Preparations for fuel handling are in progress. • Reactor Vessel Head is removed. • Nozzle Dams are installed. • Fuel Transfer Canal level is 391 feet. • "A" Decay Heat pump, P-34A, is in service. • The Decay Heat Test & Recirc Header is isolated and tagged out for maintenance on SF-38, the Isolation between the Spent Fuel System and the Decay Heat Test & Recirc Header. For the given plant conditions state how many RCS Inventory Makeup Systems are required and identify which RCS Inventory Makeup Systems are available.	**ANSWER:** **Reference:** 1015.002 (024-01-0), Decay Heat Removal and LTOP Control, Page 22, Step 9.0 **K/A:** 2.1.20 RO: 4.3 / SRO: 4.2

Candidate Response:

Arkansas Nuclear One - Unit One
2002 RO License Examination Administrative Topics

OPEN REFERENCE

Given the following Plant conditions:

- Mode 6.
- Preparations for fuel handling are in progress.
- Reactor Vessel Head is removed.
- Nozzle Dams are installed.
- Fuel Transfer Canal level is 391 feet.
- “A” Decay Heat pump, P-34A, is in service.
- The Decay Heat Test & Recirc Header is isolated and tagged out for maintenance on SF-38, the Isolation between the Spent Fuel System and the Decay Heat Test & Recirc Header.

For the given plant conditions state how many RCS Inventory Makeup Systems are required and identify which RCS Inventory Makeup Systems are available.

Arkansas Nuclear One - Unit One
2002 RO License Examination Administrative Topics

Candidate: _____ Examination Level (Circle One): RO / SRO

Examiner: _____

Topic Area (Circle One)	Question **A2-JPM-1**	Expected Response and Reference source
A.1 **(A.2)** A.3 A.4	A1JPM-RO-SURV2 SEE ATTACHED JPM	

Candidate Response:

UNIT: 1 REVISION # 0 DATE: _____

TUOI NUMBER: A1JPM-RO-SURV2

SYSTEM: A.2 – Equipment Control

TASK: Perform Surveillance Tests

JTA: ANO-RO-ADMIN-NORM-23

KA VALUE RO 3.0 SRO 3.4 KA REFERENCE: 2.2.12

APPROVED FOR ADMINISTRATION TO: RO X SRO _____

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCES: 1104.029 (055-01-0), Service Water and Auxiliary Cooling System

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: You are relieving the CBOT with P-4C Service Water Pump quarterly surveillance test in progress. The CBOT was nearing completion of data gathering per Step 2.8 of 1104.029, Supplement 3. The recorded data has been verified correct. The SPDS calculated suction pressure point for Service Water Bay "C" is inoperable.

TASK STANDARD: The examinee records data correctly on Supplement 3 of 1104.029 and determines the data is outside of the band given in the acceptance criteria.

TASK PERFORMANCE AIDS: Copy of 1104.029, Supplement 3, completed to step 2.8.

INITIATING CUE:

The CRS directs you to calculate P-4C suction pressure and pump differential pressure to complete steps 2.8 and 2.9 of 1104.029, Supplement 3, Service Water Pump P-4C Test.

CRITICAL ELEMENTS (C):

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
	Review 1104.029, Supplement	Examinee reviewed 1104.029, Supplement 3.			
NOTE: SPDS calculated suction pressure point is inoperable as given in JPM initial conditions.					
(C)	1. Calculate pump suction pressure in order to obtain pump differential pressure. (Instructions identified by *** at bottom of Section 3.0)	Examinee correctly calculated pump suction pressure in accordance with instructions (***) at bottom of page 11 of Supplement 3. (356.5 – 337.9) x 0.433 = 8.05 psig			
(C)	2. Calculate Actual Pump DP (DPA)	Examinee correctly calculated DPA by adding Discharge plus Suction Pressure using the local discharge pressure reading from PI-3610 (85 + 8.05 = 93.05 psig)			
NOTE: Step 3 below is not required for successful completion of JPM.					
	3. Determine Baseline Pump DP (DPB)	Using P-4C Pump Curve, Examinee determines the Baseline Pump DP to be ~101.2			
(C)	4. Using pump DP and flow values from Section 3.0, plot test value on P-4C pump curve in Section 3.0.	Examinee correctly plotted pump data on pump curve. Plotted point should intersect at 93 psid and 4050 gpm.			
(C)	5. Evaluate data point, compare to “ACCEPTABLE NORMAL RANGE” and “LIMITING RANGE FOR OPERABILITY” curves. 6. (Steps 3.1 thru 3.3 of Section 3.0)	Examinee circled “NO” in column titled “IS DATA WITHIN LIMITING RANGE” and row for Loop II Flow and Actual Pump DP. Examinee discussed declaring pump inoperable, notifying S/S, writing Condition Report, and initiating corrective action.			
NOTE: Inform examinee that completion of remainder of surveillance is unnecessary.					

END

JPM INITIAL TASK CONDITIONS:

- You are relieving the CBOT with P-4C Service Water Pump quarterly surveillance test in progress. The CBOT was nearing completion of data gathering per Step 2.8 of 1104.029, Supplement 3.
- The recorded data has been verified correct.
- The SPDS calculated suction pressure point for Service Water Bay “C” is inoperable.

INITIATING CUE:

The CRS directs you to calculate P-4C suction pressure and pump differential pressure to complete steps 2.8 and 2.9 of 1104.029, Supplement 3, Service Water Pump P-4C Test.

ENTERGY OPERATIONS INCORPORATED
ARKANSAS NUCLEAR ONE

TITLE: SERVICE WATER AND AUXILIARY COOLING SYSTEM SET #	DOCUMENT NO. 1104.029	CHANGE NO. 055-01-0
	WORK PLAN EXP. DATE N/A	TC EXP. DATE N/A
	SAFETY-RELATED ☒YES ☐NO	IPTE ☐YES ☒NO
	TEMP ALT ☒YES ☐NO	

When you see these ***TRAPS***	Get these ***TOOLS***
Time Pressure	Effective Communication
Distraction/Interruption	Questioning Attitude
Multiple Tasks	Placekeeping
Over Confidence	Self Check
Vague or Interpretive Guidance	Peer Check
First Shift/Last Shift	Knowledge
Peer Pressure	Procedures
Change/Off Normal	Job Briefing
Physical Environment	Coaching
Mental Stress (Home or Work)	Turnover

VERIFIED BY	DATE	TIME
Harrison Ford		

FORM TITLE: VERIFICATION COVER SHEET	FORM NO. 1000.006A	CHANGE NO. 050-00-0

SUPPLEMENT 3

SERVICE WATER PUMP P-4C TEST

ITS

This test demonstrates operability of P-4C and its discharge check valve by running the pump at rated flow and exercising the check valve. This test also demonstrates operability of SW system flow path motor operated valves by exercising the valves a complete cycle and measuring stroke times to required safety function positions. This test satisfies ANO IST program requirements (TS-4.0.5) and is related to LCOs 3.3.1.c and 3.3.1.I. **[ITS** This test satisfies ANO IST program requirements (TS 5.5.8) and is related to TS 3.7.7. **ITS]**

1.0 INITIAL CONDITIONS

INITIALS

1.1 Check the purpose of this test.

✓ A) Regularly scheduled quarterly test.

__ B) Does this test also satisfy 18 Month requirements? YES or (NO) (circle one)

__ C) Operability test following significant maintenance (describe maintenance performed in section 4.0).

__ D) Other (describe in section 4.0).

1.2 If test is to prove operability following significant maintenance, notify System Engineer to determine necessity to perform Attachment C Service Water Pump Reference Values Determination. Otherwise N/A. NA

NOTE

- If test data taken under proper test conditions fall out side the Limiting Range for Operability, the component being tested is declared inoperable, even if instrument mis-calibration is suspected.
- If SPDS is specified in instrument column for recording test data and SPDS instrumentation is unavailable, the surveillance is either postponed or alternate instruments are used per the following conditions.
  - Acceptance criteria instrument column is annotated to show the instrument number used and the cal due date.
  - Test instrument accuracy is ±2% of full scale or better.
  - Range of test instrument is < 3 times normal process value.
  - Test instrument installed at SPDS Transmitter local instrument connection.
  - "Shift Manager Review and Analysis" section states the alternate instruments used and the reason for their use.

1.3 If alternate test instruments are used, verify instruments meet requirements for alternate test instruments, verify instrument column is annotated and explain in section 4.0. Otherwise N/A. NA

1.4 Verify proper system alignment by performing one of the following: KJ

1.4.1 Perform alignment per Attachment A and B.
or
1.4.2 Verify alignment completed during or since last applicable outage and review system status board(s) to ensure that applicable portion of system undergoing this test is operable.

1.5 Verify SG-4 open. KJ

1.6 Portable vibrometer available to take vibration readings. KJ

1.7 Currently calibrated stopwatch available. Record stopwatch M&TE number and cal due date in section 3.0. KJ

1.8 P-4C either in service or in standby. KJ

1.9 Check motor oil level normal. KJ

1.10 If this is a 18 Month test: as each valve is stroked, observe valve locally to verify valve operation (stem position, mechanical indication, etc.) is accurately reflected by valve position indication. Record results in section 3.0. Otherwise N/A here and local verification column in section 3.0. NA

1.11 Verify SG-1 and SG-2 open or alternate suction source aligned to P-4A and P-4B. KJ

2.0 TEST METHOD

2.1 Verify service water loops are crossconnected via ICW coolers with the following open:

2.1.1 Service Water Loop I to ICW Coolers Supply (CV-3820). KJ

2.1.2 Service Water Loop II to ICW Coolers Supply (CV-3811). KJ

2.1.3 SW Loops I & II Crossconnects (SW-5). KJ

2.1.4 SW Loops I & II Crossconnects (SW-6). KJ

2.2 If P-4C is not in service, perform the following. Otherwise N/A. NA

2.2.1 Verify P-4A to P-4B Crossties open:

- CV-3644 NA
- CV-3646 NA

2.2.2 Verify sluice gates aligned to supply water to "C" SW Bay. NA

2.2.3 Start P-4C. NA

2.2.4 If all three service water pumps are running, stop P-4B and notify Chemistry to stop chemical injection to "B" SW Bay. Otherwise N/A. NA

2.2.5 If P-4C will remain in service at the completion of this test, notify Chemistry to realign Chemical injection (Drip system). Otherwise N/A. NA

2.3 While measuring stroke time, close CV-3820. HT

2.3.1 Record closing stroke time in section 3.0. HT

2.4 Open CV-3820. HT

2.5 Verify P-4B to P-4C Crossties open:

- CV-3640 HT
- CV-3642 HT

2.6 Stroke test CV-3642 and CV-3640 closed as follows:

2.6.1 While measuring CV-3642 stroke time, close CV-3642. HT

2.6.2 Record CV-3642 closing stroke time in section 3.0. HT

2.6.3 While measuring CV-3640 stroke time, close CV-3640. HT

2.6.4 Record CV-3640 closing stroke time in section 3.0. HT

2.7 From SPDS diagnostic display or SPDS point F3901, verify SW Loop II flow is ≥ 4000 gpm. AT

NOTE

Actual SW/ACW loop flow of less than 1500 gpm will cause SPDS flow indication to indicate 0 gpm.

2.7.1 If SW Loop II flow is <4000 gpm, perform the following. Otherwise N/A. NA

A. Place idle load(s) in service to raise SW Loop II flow to ≥ 4000 gpm. List load(s) placed in service below. NA

_____

_____

B. If additional load(s) are added, monitor component temperatures closely and adjust cooling water flows as necessary. Otherwise N/A. NA

2.8 After at least two minutes of stable operation, gather necessary pump data and record measured values in appropriate spaces provided in section 3.0. ☐

NOTE

Bearing temperature is considered stable when three consecutive readings at ten-minute intervals vary no more than 3%.

2.8.1 If this test is to prove operability after significant maintenance, continue test until motor bearing temperatures are stable. Record applicable temperatures in section 3.0. Otherwise N/A here and in section 3.0. NA

2.9 Using pump ΔP and flow values from section 3.0, plot test value on P-4C pump curve in section 3.0. ☐

2.10 Verify SW Loop II flow ≥ 5600 gpm. _____

2.10.1 If SW Loop II flow is <5600 gpm, perform the following. Otherwise N/A. _____

A. Place idle load(s) in service to raise SW Loop II flow to ≥ 5600 gpm. List load(s) placed in service below. _____

_____

_____

B. If additional load(s) are added, monitor component temperatures closely and adjust cooling water flows as necessary. Otherwise N/A. _____

2.10.2 Record open stroking of P-4C DISCH CK (SW-1C) in section 3.0. _____

2.11 If additional load(s) were added in order to raise SW flow for this test, restore load(s) to original status. Otherwise N/A. _____

CAUTION

- Analyses for Unit One long term containment cooling following a Design Bases LOCA do not account for the SW Pump suctions initially aligned to the ECP. In such a case, long term containment cooling will eventually require SW suction from the lake. Therefore, time spent with SW Pump suctions aligned to the ECP with the SW Pump in operation, other than "Loss of Dardanelle Reservoir" or "Excessive debris accumulation at the Intake Structure", or "Controlled Conditions" to support Maintenance or Testing, should be minimized.
- With SW Bay Level starting at ≤ 332 feet and SW Flow ≥ 8000 gpm, SW pump NPSH limits could be exceeded during suction transfer from Lake to Pond. This could result in pump damage.

2.12 Verify "B" and "C" SW Bay Levels >332 feet. _____

NOTE

Any delay during the performance of the following series of steps could result in lowering "B" SW Bay level.

2.13 While measuring stroke time, close B/C SW Bay Crosstie (SG-4) at C26. _____

NOTE

Aligning a SW Pump suction to Emergency Cooling Pond will cause the ECP level to drop.

2.13.1 If P-4B is in service and A/B SW Bay Crosstie (SG-3) is closed, then open Pond Supply to "B" SW Bay (SG-6). Otherwise N/A. No stroke time required. _____

2.13.2 Record closing stroke time of SG-4 in section 3.0. _____

NOTE

Any delay during the performance of the following series of steps will result in lowering "C" SW Bay level.

2.14 While measuring stroke time, close Lake Supply to "C" SW Bay (SG-2) at C26. _____

2.14.1 Record closing stroke time in section 3.0. _____

NOTE

Aligning a SW Pump suction to Emergency Cooling Pond will cause the ECP level to drop.

2.15 While measuring stroke time, open Pond Supply to "C" SW Bay (SG-7) at C26. _____

2.15.1 If SG-7 fails to operate, open the following sluice gates as necessary to supply "C" SW Bay until condition can be resolved. Otherwise N/A. _____

- SG-2

or

- SG-3 and SG-4

2.15.2 Record opening stroke time in section 3.0. _____

CAUTION
Sediment may enter pump suction when going on emergency pond.

2.16 Monitor P-4C discharge pressure and strainer ΔP while in this configuration. _____

2.17 After 15 minutes of operation on emergency pond:

2.17.1 Record "C" SW Bay level (on emergency pond) in section 3.0. _____

2.17.2 Record Loop II flow from either SPDS diagnostic display or SPDS point F3901. _____

_____ GPM

NOTE
Any delay during the performance of the following series of steps will result in lowering "C" SW Bay level.

2.18 While measuring stroke time, close SG-7. _____

2.18.1 Record closed stroke time in section 3.0. _____

2.19 Open SG-2. _____

2.19.1 If SG-2 fails to operate, open SG-4 or SG-7 to supply "C" SW Bay until condition can be resolved. Otherwise N/A. _____

2.20 If P-4B is in service supplied from the ECP, then perform the following. Otherwise N/A. _____

NOTE
Any delay during the performance of the following series of steps will result in lowering "B" SW Bay level.

2.20.1 Close SG-6. _____

2.21 While measuring stroke time, open SG-4. _____

2.21.1 Record opening stroke time in section 3.0. _____

2.22 Stroke test CV-3642 and CV-3640 open as follows:

2.22.1 While measuring CV-3642 stroke time, open CV-3642. _____

2.22.2 Record CV-3642 opening stroke time in section 3.0. _____

2.22.3 While measuring CV-3640 stroke time, open CV-3640. _____

2.22.4 Record CV-3640 opening stroke time in section 3.0. _____

NOTE

If three SW pumps are operating due to high SW system heat loads, delay in performance of the subsequent steps to restart P-4C can cause overheating of SW system loads.

2.23 If P-4A and P-4B are operable, stop P-4C as follows. Otherwise N/A.

CAUTION

P-4A and P-4B shall be powered from opposite buses.

2.23.1 Ensure P-4A and P-4B are powered from opposite buses. _____

2.23.2 Start or verify operating P-4A and P-4B. _____

2.23.3 If both P-4A and P-4C are operating, verify SW Crossties open:

- CV-3640 _____
- CV-3642 _____
- CV-3644 _____
- CV-3646 _____

NOTE

Stopping of pump shaft upon stop of P-4C verifies adequate seating of SW-1C.

2.23.4 Stop P-4C and verify P-4C shaft stops. _____

A. Record result in section 3.0. _____

NOTE

If plant is in cold shutdown, only one SW pump is required to be operating.

2.24 If plant is in cold shutdown and P4C was not stopped in previous step, stop P-4C as follows. Otherwise N/A.

2.24.1 Verify P-4A or P-4B in service. _____

2.24.2 Verify SW Crosstie valves open:

- CV-3640 _____
- CV-3642 _____
- CV-3644 _____
- CV-3646 _____

NOTE

Stopping of pump shaft upon stop of P-4C verifies adequate seating of SW-1C.

2.24.3 Stop P-4C and verify P-4C shaft stops. _____

A. Record results in section 3.0. _____

2.25 If desired, restart P-4C. Otherwise N/A. _____

2.26 Return system to desired pump configuration per section 9.0 of this procedure. _____

2.26.1 Verify that sluice gates and crossties are aligned as required by section 9.0. _____

NOTE

P-4C baseline deviation may be a negative number. For trending purposes, the negative sign should not be neglected.

2.27 Calculate P-4C baseline deviation using data from section 3.0 as follows: _____

$(\Delta P_B$ _____ PSI) - (ΔP_A _____ PSI) = _____ P-4C baseline deviation

2.27.1 Record P-4C baseline deviation in section 3.0. _____

2.28 Review all calculations and verify correct.

Reviewed and verified by (SRO) _____ Date _____

2.29 Record and review required trend data.

Recorded and reviewed by (SE/SRO) _____ Date _____

2.29.1 If available, attach copies of graphs. Otherwise N/A. _____

2.30 Send copy of completed surveillance to System Engineer.

3.0 ACCEPTANCE CRITERIA

3.1 Compare measured values observed during P-4C testing with "Acceptable Normal Range" and "Limiting Range for Operability". _____

TEST QUANTITY	INSTRUMENT (Circle Instrument Used)	MEASURED VALUES	ACCEPTABLE NORMAL RANGE	LIMITING RANGE FOR OPERABILITY	IS DATA WITHIN LIMITING RANGE Circle YES or NO
"C" SW Bay Level	(SPDS)/Alt Test Inst	337.9 FEET	N/A	> 332 feet	(YES) NO
Suction Press. (calculated)***	SPDS/(Alt Test) Inst	[8.05] PSIG	N/A	N/A	N/A
SW Loop II Press	(SPDS)/Alt Test Inst	82.0 PSIG	N/A	N/A	N/A
	PI-3607	82.0 PSIG			
Discharge Press	PI-3610 (Local)	85 PSIG	N/A	N/A	N/A
Loop II Flow	(SPDS)/Alt Test Inst	4056 GPM	Acceptable Normal and Limiting Range values are shown on P-4C Pump Curve on following page		YES (NO)
**Actual (ΔP_A) Pump ΔP	Discharge plus suction press.	[93.05] PSI			
Baseline (ΔP_B) Pump ΔP	Baseline ΔP for Loop II Flow	PSI	N/A	N/A	N/A
Motor, (Radial) Upper Brg. Vib.	*(1) Vibrometer	0.135 IN/SEC	<0.292 IN/SEC	<0.7 IN/SEC	(YES) NO
Motor, (Radial) Upper Brg. Vib.	*(2) Vibrometer	0.226 IN/SEC	<0.325 IN/SEC	<0.7 IN/SEC	(YES) NO
Motor, (Axial) Upper Brg. Vib.	*(3) Vibrometer	0.075 IN/SEC	<0.217 IN/SEC	<0.522 IN/SEC	(YES) NO
Motor, Upper Brg. Temp.	TE-3611 (P1290 or TR-3651)	NA °F	<180°F	N/A	N/A
Motor, Lower Brg. Temp.	TE-3612 (P1291 or TR-3651)	NA °F	<180°F	N/A	N/A
"C" SW Bay Level (On Emer. Pond)	SPDS/Alt Test Inst	FEET	N/A	N/A	N/A
P-4C Baseline Deviation	$\Delta P_B - \Delta P_A$	PSI	N/A	N/A	N/A

* See attached drawing for vibration point locations.

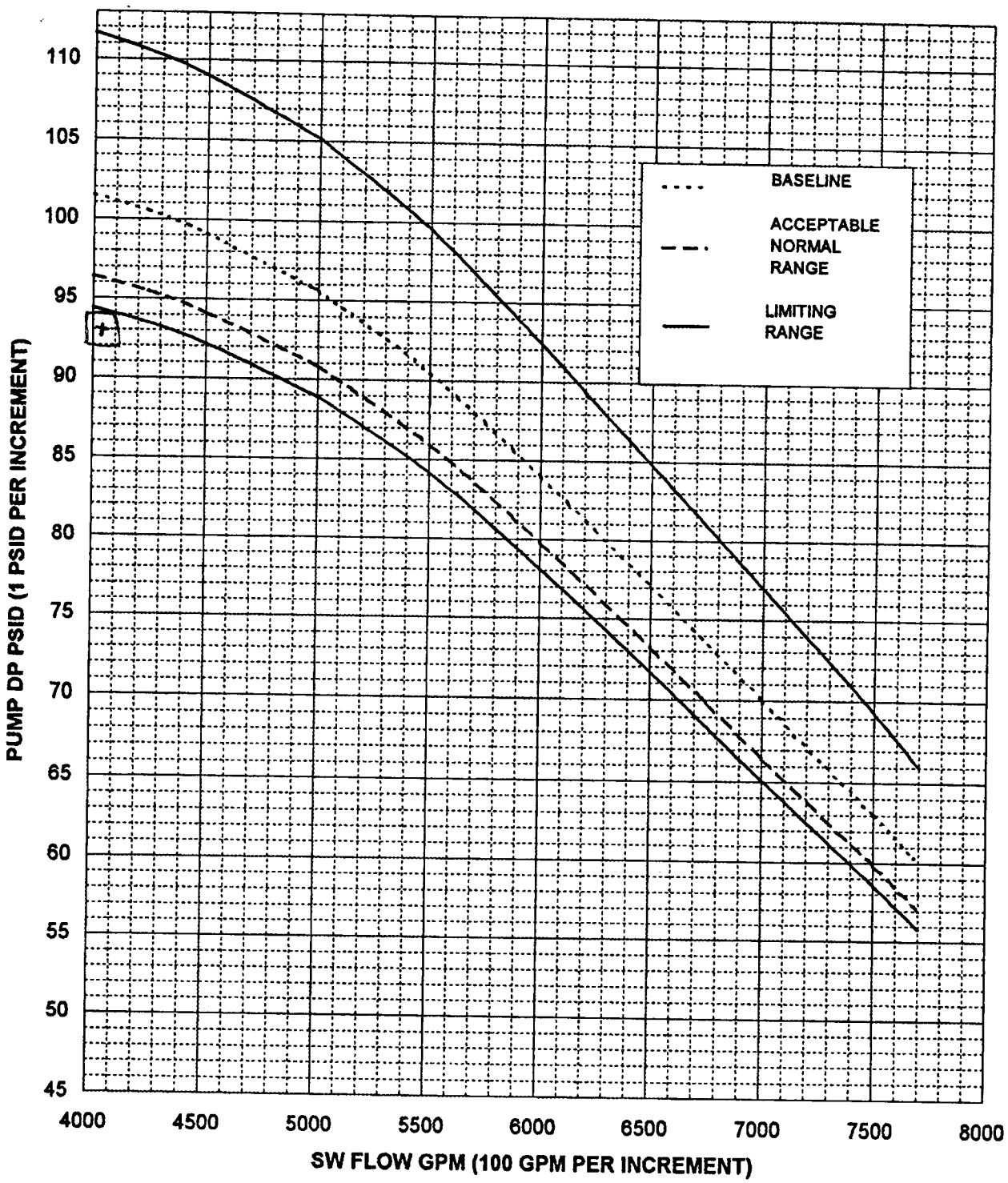
** Use local discharge pressure for calculating ΔP.

*** Suction pressure is calculated on SPDS display. To calculate: SUCT PRESS=(356.5-Bay Level).433

3.2 If "NO" is circled in any space above, declare P-4C inoperable, immediately notify the Shift Manager, write a Condition Report and initiate corrective action. Reference applicable Tech Specs for LCO. _____

3.3 If any measured value does not fall within the "Acceptable Normal Range", initiate corrective action. _____

SUPPLEMENT 3



3.4 Stroke Criteria

3.4.1 Compare results/measured stroke times with "Acceptable Normal Range" and "Limiting Value For Operability". _____

Stopwatch M&TE #s DES041, DES027 Cal Due Dates 5-10-2003, 8-26-2003

Valve	Cont PNL	Test Direct	Local Verif	Measured Stroke Time (Nearest 1/10 Sec)	Acceptable Normal Range Time (Sec)	Limiting Value For Operability Time (Sec)	Is Measured Stroke Time Less Than Limiting Value? Circle Yes or No	Design Bases Value
CV-3820	C18	Close	NA	44.3	43.0 - 58.2	65.8	(YES) NO	75
CV-3642	C16	Close	NA	46.8	39.7 - 53.7	60.7	(YES) NO	75
CV-3640	C18	Close	NA	45.7	42.9 - 58.1	65.7	(YES) NO	75
SW-1C	N/A	Open	N/A	*(✓) if stroke is SAT ( )	N/A	Valve Stroke SAT	YES NO	N/A
SG-4	C26	Close	NA		142.9 - 193.3	218.5	YES NO	N/A
SG-2	C26	Close	NA		153.3 - 207.3	234.4	YES NO	N/A
SG-7	C26	Open	NA		149.0 - 201.6	227.9	YES NO	N/A
SG-7	C26	Close	NA		148.8 - 201.3	227.5	YES NO	N/A
SG-4	C26	Open	NA		154.2 - 208.6	235.8	YES NO	N/A
CV-3642	C16	Open	NA		43.6 - 59.0	66.7	YES NO	75
CV-3640	C18	Open	NA		44.5 - 60.2	68.1	YES NO	75
SW-1C	N/A	Close	N/A	(✓) if PP stops ( )	Closure verified by pump shaft stopping		** YES N/A NO	N/A

* Full stroke is satisfactory when design flow is established.
** N/A if P-4C cannot be stopped (performed during cold shutdown).

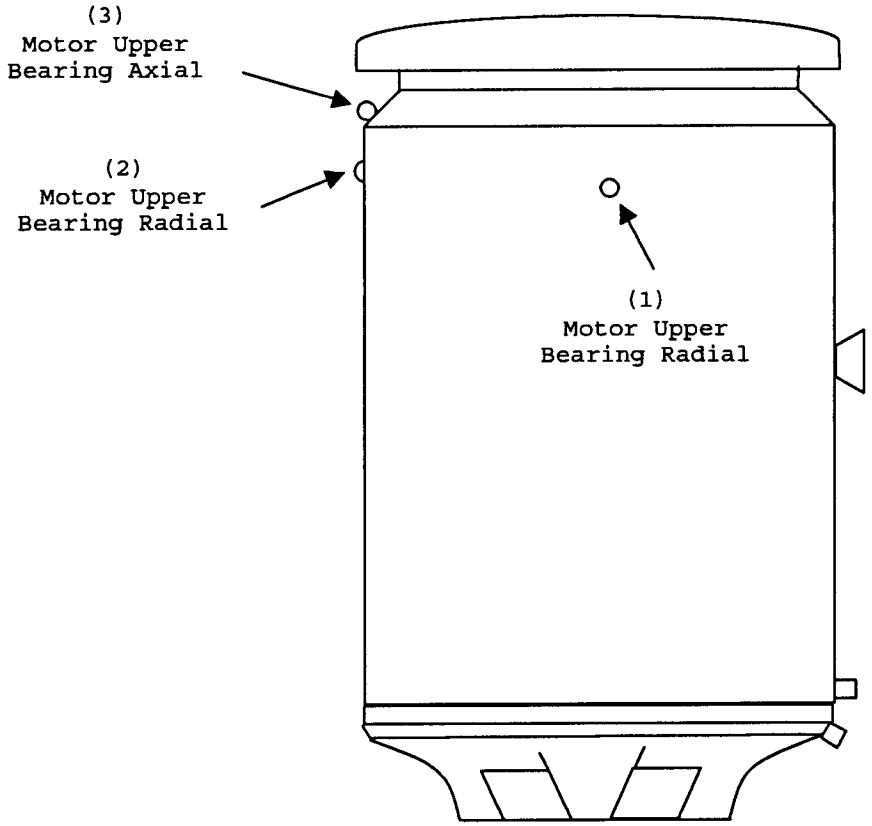
3.4.2 If "NO" is circled in any space above, then perform the following: _____

- declare that valve inoperable
- immediately notify Shift Manager
- verify Condition Report initiated
- initiate corrective action
- reference applicable Tech Spec for LCO.

3.4.3 If any measured stroke time does not fall within the "Acceptable Normal Range", immediately retest valve or declare that valve inoperable. Refer to "Operability" section of this procedure for additional guidance. _____

Performed by _____ Operator Date/Time _____

Harrison Ford



Hold vibrometer probe tip firmly against the survey point marker, perpendicular to the surface. Locations of markers are depicted above.

Data Collected By Korrin Ford

Date _____

Vibrometer M&TE # DVA 003

Calibration Due Date 3-10-2003

POINT NO.	VELOCITY (in./sec.)
1	0.135
2	0.226
3	0.075

SUPPLEMENT 3

4.0 SHIFT MANAGER REVIEW AND ANALYSIS

(circle one)

4.1 Do all measured values/stroke times recorded in the Acceptance Criteria section fall within the specified "Limiting Range For Operability"? YES NO

4.2 Do all measured values recorded in Acceptance Criteria section fall within the "Acceptable Normal Range"? YES NO

4.2.1 If "NO" and reason is pump related, initiate corrective action and schedule to double test frequency.

4.3 Do all measured valve stroke times recorded in Acceptance Criteria section fall within the "Acceptable Normal Range"? YES NO

4.3.1 If "NO", immediately retest valve or declare that valve inoperable. Refer to "Operability" section of this procedure for additional guidance. Initiate corrective action.

4.4 If answer to either 4.1, 4.2 or 4.3 is "NO", describe the action taken below.

_____

_____

_____

_____

_____

_____

_____

_____

4.5 Has this equipment been proven operable per the ACCEPTANCE CRITERIA? YES NO

4.6 Have all of the administrative requirements of this test been satisfied (i.e., all initial blocks initialed or N/A'd, all data entered, cal due dates listed, applicable signature spaces signed, etc.)? YES NO

SHIFT MANAGER _____ DATE _____

Arkansas Nuclear One - Unit One
2002 RO License Examination Administrative Topics

Candidate: _____ Examination Level (Circle One): RO / SRO

Examiner: _____

Topic Area (Circle One)	Question **A3-JPM-1**	Expected Response and Reference source
A.1 A.2 **(A.3)** A.4	A1JPM-RO-RAD1 SEE ATTACHED JPM	

Candidate Response:

UNIT: 1 REVISION # 0 DATE: _____

TUOI NUMBER: A1JPM-RO-RAD1

SYSTEM: A.3 – Radiation Control

TASK: Ability to Control Radiation Releases

JTA: ANO1-WCO-CZ-NORM-11

KA VALUE RO 2.7 SRO 3.2 KA REFERENCE: 2.3.11

APPROVED FOR ADMINISTRATION TO: RO X SRO _____

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 15 MINUTES

REFERENCES: 1104.020 (040-03-0), Clean Waste System Operation, Attachment B2; Offsite Dose Calculation Manual (ODCM); P47B Pump Differential Pressure vs. Flow Rate Graph.

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Plant is shutdown for a Refueling Outage. Circulating Water Pump P-3A in service. ALL other Circ Water Pumps are OOS for maintenance. Discharge flow to flume indicator (FI-4642) is INOPERABLE and OOS. T-16B TWMT release is in progress. Maximum allowable flow rate for the release from Preliminary Report is 90 gpm. WCO reports CV-4642, CZ Discharge to Flume Flow Control Valve, is throttled open. WCO reports that P-47B, Treated Waste Monitoring Pump, parameters after establishing flow through CV-4642: Suction Pressure = 10 psig, Discharge Pressure = 38 psig

TASK STANDARD: Candidate estimates release flow rate between 75 to 85 gpm and is within the allowable flow rate specified in the Preliminary Report.

TASK PERFORMANCE AIDS: Copies of 1104.020, Attachment "B2", Offsite Dose Calculation Manual (ODCM) Table 2.1-1 and P-47B Pump Differential Pressure versus Flow Rate graph.

INITIATING CUE:

The CRS directs you to perform step 4.15.1 of 1104.020 Att. "B2" Treated Waste Monitor Tank (TWMT) T-16B Liquid Release Permit and report if the release flow rate is within the allowable limit.

CRITICAL ELEMENTS (C): 3, 5

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
Examiner Cue: Provide Candidate with copy of partially completed 1104.020, ATT "B2".					
	1. Candidate performs a review of ATT "B" TWMT Release Permit.	Performed review of T-16B Liquid Release Permit.			
	2. Perform step 4.15.1.A FI-4642 inoperable actions.	Recognize actions for inoperable flow indicator contained in ODCM App. 1 Table 2.1-1.			
(C)	3. Determine required actions for conducting release with FI-4642 inoperable.	Utilizing ODCM App. 1 Table 2.1-1 Action 2. Determines release flow rate required to be estimated at least once every four hours utilizing pump curves.			
NOTE: Candidate should discuss options available to obtain pump curve data which may include any of the following: 1) Contacting System Engineer 2) Reference Pump Technical Manual. **Provide Candidate with copy of P-47B Pump Curve upon request.**					
	4. Obtain pump curve data. To estimate release flow rate.	Candidate obtains pump curve data.			
Note: Pump Suction and Discharge pressure are given in Initial Task Conditions.					
(C)	5. Determine pump flow rate based on pump differential pressure.	Candidate calculates pump differential pressure and estimates flow rate of 75 to 85 gpm using pump curve.			
	6. Report that flow is within allowable limit.	Candidate reports to CRS that flow is within allowable limit.			

END

JPM INITIAL TASK CONDITIONS:

- Plant is shutdown for a Refueling Outage.
- Circulating Water Pump P-3A in service. ALL other Circ Water Pumps are OOS for maintenance.
- Discharge flow to flume indicator (FI-4642) is INOPERABLE and OOS.
- T-16B TWMT release is in progress.
- Maximum allowable flow rate for the release from Preliminary Report is 90 gpm.
- WCO reports CV-4642, CZ Discharge to Flume Flow Control Valve, is throttled open.
- WCO reports that P-47B, Treated Waste Monitoring Pump, parameters after establishing flow through CV-4642:
  - Suction Pressure = 10 psig
  - Discharge Pressure = 38 psig

INITIATING CUE:

The CRS directs you to perform step 4.15.1 of 1104.020 Att. “B2” Treated Waste Monitor Tank (TWMT) T-16B Liquid Release Permit and report if the release flow rate is within the allowable limit.

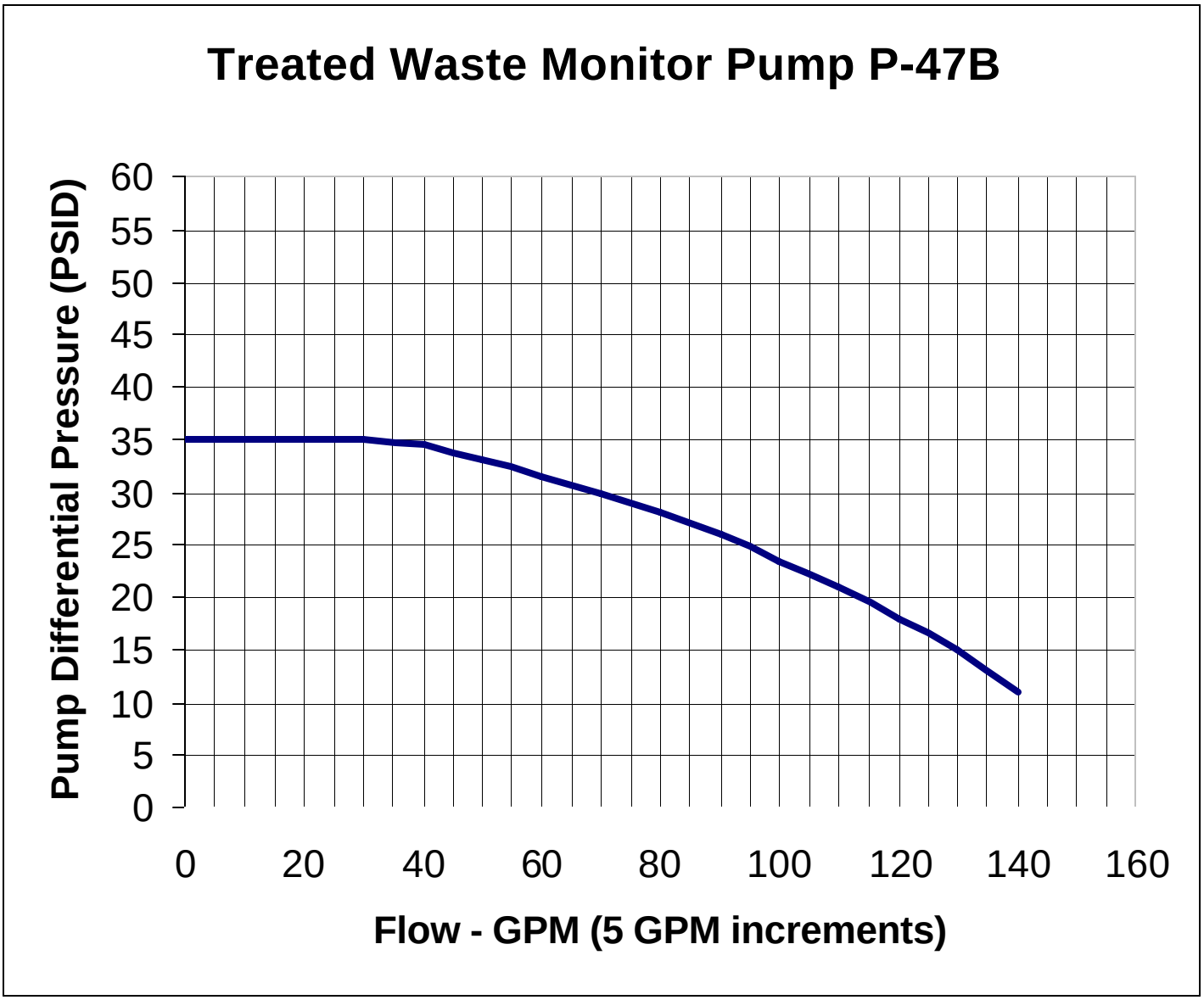

Treated Waste Monitor Pump P-47B
Pump Differential Pressure (PSID)
60
55
50
45
40
35
30
25
20
15
10
5
0
0
20
40
60
80
100
120
140
160
Flow - GPM (5 GPM increments)

TABLE 2.1-1

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
1. Gross Radioactivity Monitor(s) (provides alarm and automatic termination of release)			
a. Liquid Radwaste Effluent Line	1	During Releases Via This Pathway (DRVTP)	1
2. Flow Monitor(s)			
a. Liquid Radwaste Effluent Line	1	DRVTP	2

TABLE 2.1-1 (Continued)

TABLE NOTATION

ACTION 1 With the number of channels operable less than required by the Minimum Channels operable requirement, effluent releases may be resumed provided that prior to initiating a release:

a. At least two independent samples are analyzed; and

b. At least two technically qualified members of the Facility Staff independently verify the release rate computer input data; and

c. At least two technically qualified members of the Facility Staff independently verify the discharge valve lineup.

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION 2 With the number of channels operable less than required by the Minimum Channels operable requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours during actual releases. Pump curves may be used to estimate flow.

ATTACHMENT B2

TREATED WASTE MONITOR TANK (TWMT)
T-16B LIQUID RELEASE PERMIT

PERMIT #__1-LR-2002-0100__(Assigned by Nuclear Chemistry) ___08/21/2002
Date

INITIALS

1.0 REQUEST (Operations)

1.1 T-16B taken out of service and placed on recirc for sampling and release:

Date 08/21/2002 Time 0010 SRP

NOTE
Tag contains information to remind personnel that tank is isolated for chemistry sample.

1.2 Verify Treated Waste Monitor T-16B Inlet (CZ-47B) is closed and tag is installed on handwheel or chain operator. SRP

1.3 Initial T-16B level _____92_____%. Record local or remote level indication. (Circle one) SRP

1.4 Check Liquid Radwaste Process Monitor (RI-4642) available by one of the following methods: SRP

1.4.1 If monitor count rate is ≤ 1000 cpm perform the following:

A. Verify no Liquid Release in progress using FI-4642.

B. Select "Check Source" on RI-4642 and verify that the monitor responds to check source with a count rate rise >100 cpm.

1.4.2 If monitor count rate >1000 cpm, then verify that count rate is <4.22E6.

1.5 Verify that RI-4642 is not inoperable for any other reason. SRP

1.6 If RI-4642 is operable, Then record Rad Monitor RI-4642 background counts. __1.0 E4_____ SRP

1.7 Record the following: SRP

1.7.1 # of CW pumps running __1___

and CW pump Disch Press _1.1 PSIG__

1.8 If adjustments are made to CW flow, terminate release. ◄

1.9 Submitted to Nuclear Chemistry for Analysis, Section 2.0. SRP

Date _08/21/2002____ Time _0120_____

Section 1.0 Performed By __Steve R. Pullin_____

ATTACHMENT B2

2.0 Analysis (Nuclear Chemistry)

2.l Tank T-16B sample obtained for release analysis. JB

Date/Time _08/21/2002__/_0200___

Performed by __John Brown_____.

2.2 If required for weekly sample for oil and grease, Tank T-16B sample obtained. Otherwise N/A. N/A

Performed by _____N/A_____

2.3 T-16B pH analysis performed by _John Brown_____ JB

2.3.1 T-16B pH __7.0____

2.4 If pH is not between 6.0 and 9.0, adjust per Sampling the Treated Waste Monitor Tanks (T-16A/B) (1607.009). Otherwise N/A. N/A

2.4.1 Tank T-16B post neutralization pH sample, N/A

Obtained by _____N/A_____

2.4.2 T-16B post neutralization pH sample, N/A

Analysis performed by ____N/A_____

2.4.3 T-16B post neutralization pH _N/A___

2.4.4 If pH is not between 6.0 and 9.0, re-perform adjustment and analysis sequence until pH is between 6.0 and 9.0. Otherwise N/A. N/A

2.5 Gamma spectroscopy performed by ___John Brown____ _____

2.6 Gamma spectroscopy report reviewed by _Jim Smith _____

2.7 Tritium analysis performed by __John Brown ___

2.8 If Liquid Radwaste Process Monitor (RI-4642) is inoperable or unavailable as identified in "Request" or "Verification of Pre-Release Requirements" sections of this permit, the following ODCM App. 1, Table 2.1-1 requirements shall be met. Otherwise N/A. N/A

2.8.1 An independent sample of the tank contents shall be obtained and analyzed.

Performed by _____N/A_____

2.8.2 Computer input data shall be independently verified correct.

Performed by _____N/A_____

2.9 Sample results indicate release of total tank contents will not violate ANO radioactive effluent discharge limit. JB

2.10 Preliminary release report prepared by ___John Brown_____
If not radioactive N/A.

2.11 Preliminary release report and/or permit returned to Control Room.
By _John Brown_____ Date _08/21/2002_ Time ___0900___

3.0 Verification of Pre-Release Requirements (Operations)

3.1 Verify CW flow/configuration recorded in initial release submittal data is still valid. JG

3.2 Verify appropriate signatures on preliminary report. JG

3.3 CRS/SM approval to proceed with release.

CRS/SM ___Abel Leader_____

3.4 Provide copy of Setpoints section from Preliminary Report to Control Room Operators. JG

3.5 Verify F560 in service by performing the following:

3.5.1 Verify open:

- CZ-74 (LRW Disch Filter F-560 Inlet) JG
- CZ-77 (LRW Disch Filter F-560 Outlet) JG

3.5.2 Verify closed CZ-83 (LRW Disch Filter F-560 Bypass) JG

3.6 If Liquid Radwaste Process Monitor (RI-4642) is operable and available, verify proper operation of radiation monitor and interlocks as follows. Otherwise N/A.

3.6.1 Check Liquid Radwaste Process Monitor (RI-4642) available by one of the following methods: JG

- If monitor count rate is ≤ 1000 cpm, select CHECK SOURCE on RI-4642 and verify that the monitor responds to check source with a count rate rise >100 cpm.
- If monitor count rate >1000 cpm, then verify that count rate is <4.22E6.

3.6.2 Verify the following valves closed:

- FWMT Disch to CW Flumes (DZ-25) JG
- LZ Drain Pump P-45 Discharge to Flume (LZ-5) JG
- Treated Waste Discharge to Circ Water Flume (CZ-58) JG

3.6.3 Place CZ Disch to Flume Flow Control Valve (CV-4642) hand switch to OPEN. JG

A. Verify FIC-4642 in Manual and fully open CV-4642 using the Manual Adjustment Knob. JG

3.6.4 Lower RI-4642 alarm setpoint until HIGH RAD alarm actuates. JG

3.6.5 Verify from CV-4642 indicating lights that CV-4642 trips closed. JG

3.6.6 Place CV-4642 HS to CLOSED position. JG

A. Turn Man. Adj. Knob to fully Closed Position (fully counterclockwise). JG

3.6.7 Adjust RI-4642 setpoint to the value listed in the Preliminary Report for total Circ Water flow. JG

3.6.8 Verify a Licensed Operator, other than individual who initially set RI-4642 setpoint, has independently verified that RI-4642 setpoint is correct for total circ water flow. JG

3.6.9 Reset RI-4642 HIGH RAD alarm. JG

3.7 If RI-4642 is inoperable or unavailable, verify requirements specified in "Analysis" section of this permit for RI-4642 inoperable or unavailable have been performed. Otherwise N/A. N/A

Section 3.0 Performed By __Joe Gogetter_____

4.0 Release (Operations)

CAUTION

Unauthorized discharge to Lake Dardanelle via the flume shall be avoided.

4.1 Verify CZ Disch to Flume Flow (CV-4642) closed. JG

4.2 Verify T-16B X-FER PP (P-47B) stopped. JG

4.2.1 If T-16B neutralization was required, verify VCT-9 is isolated per Sampling TWMT (T-16A or T-16B) Section of this procedure. JG

NOTE

Tag contains information to remind personnel that tank is isolated for chemistry sample.

4.3 Verify Treated Waste Monitor Tank T-16B Inlet (CZ-47B) closed and tagged. JG

4.3.1 If tag is missing or has been removed since tank was last sampled, perform the following. Otherwise N/A.

A. Terminate this release. N/A

B. Install tag on CZ-47B. N/A

C. Submit new release permit to Nuclear Chemistry. N/A

4.4 Verify Treated Waste Monitor Tank T-16B Outlet (CZ-48B) open. JG

4.5 Verify Treated Waste Discharge Valve to Header from P-47A (CZ-55A) closed. JG

4.6 Verify Treated Waste Monitor Tank T-16B Recirc Inlet (CZ-54B) closed. JG

4.7 Open Treated Waste Discharge Valve to Header from P-47B (CZ-55B). JG

4.8 Open Treated Waste Discharge to Circ. Water Flume (CZ-58). JG

4.9 Verify Treated Waste Monitor Pump Discharge to Clean Waste Tanks (CZ-57) closed. JG

ATTACHMENT B2

4.10 Verify Unit 1/Unit 2 Liquid Radwaste Manifold Isol (CZ-87) closed. JG

4.11 Verify Suction Crossover on Treated Waste Monitor Pumps (CZ-50) closed. JG

4.12 If Liquid Radwaste Process Monitor (RI-4642) is inoperable or unavailable, perform the following. Otherwise N/A (ODCM App.1, L2.1.1).

4.12.1 Verify FWMT Disch to CW Flumes (DZ-25) closed. JG

4.12.2 Verify LZ Drain Pump P-45 Discharge to Flume (LZ-5) closed. JG

4.12.3 Person qualified as Waste Control Operator, independently verify release path valve alignment prior to release (ODCM App.1, Table 2.1-1). JG

4.13 Notify control room of intent to begin release. JG

4.14 Commence T-16B release as follows:

4.14.1 Start P-47B. JG

4.14.2 Place CZ Disch to Flume Flow (CV-4642) hand switch to OPEN. JG

NOTE

Allowable Release Flow Rate is Listed in the "Max Waste (GPM)" Column of the Preliminary Report.

{4.3.1}

CAUTION

Use of flow rate greater than allowable by the release permit may violate ODCM limits for release and may be NRC reportable.

{4.3.1}

4.14.3 Use CZ Disch to Flume (FIC-4642) to obtain flow rate ≤ allowable release flow rate for total circ water flow. JG

Max Flow Rate from Preliminary Report (__90_ gpm)

4.15 When release has started, perform the following: {4.3.1}

4.15.1 Control Room Personnel shall observe Discharge Flow to Flume (FI-4642). Verify release flow rate is ≤ allowable release flow rate for total circ water flow. _____

A. If FI-4642 is inoperable, estimate flow rate at least once every four hours during release (ODCM App.1, Table 2.1-1). Otherwise N/A.

NOTE

If a Plant Computer tabular Log (DUMP) is used instead of Process Radiation Monitoring Effluent Recorder (RR-4830), the tabular log shall contain at least points R4642, R3618 and be set at ≤ 5 minute intervals and cover the duration of the release.

4.15.2 Record the following data on RR-4830. If RR-4830 not available, verify Plant Computer tabular log is activated and record data on it. _____

A. Release start time _____ Date _____

B. Release permit number _____

C. Name and number of tank being released: "TWMT (T-16B)"

4.15.3 Notify HP that T-16B release has started and LRW disch filter F-560 should be periodically monitored for Rad levels. _____

4.15.4 Notify Chemistry that T-16B release has started. _____

CAUTION

Pumping radioactive liquid tanks empty can cause sediment in bottom of tank to be deposited in discharge piping. This can produce higher radiation areas in the vicinity of the discharge piping that previously existed.

4.16 Verify by tank level observation that only T-16B is being released. _____

NOTE

Liquid Radwaste Disch Filter (F-560) inlet press should not exceed 25 psig.

4.16.1 Monitor F-560 during release for a rise in d/p. ⬅

4.16.2 If LRW Disch Filter (F-560) inlet press on PI-4606 exceeds 25 psig, then stop release, and perform "Backflushing Liquid Radwaste Discharge Filter (F-560)" section of this procedure. _____

ATTACHMENT B2

4.17 When release is complete, perform the following.

4.17.1 Verify P-47B is off and hand switch is "Green Flagged". _____

4.17.2 Verify discharge flow ~zero gpm. _____

4.17.3 Notify HP that T-16B release is complete and that F-560 should be surveyed for Rad levels to determine the need to back flush F-560. _____

4.17.4 Back flush F-560 as necessary per HP survey. ⬅

4.18 Notify control room that release is complete. _____

4.19 Record the following data on RR-4830. If RR-4830 was not available, record on Plant Computer tabular logsheets. _____

A. Release stop time _____ Date _____

B. Release permit number _____

4.20 Flush clean waste to discharge flume piping as follows:

4.20.1 Close Treated Waste Discharge Valve to Header from P-47B (CZ-55B) _____

4.20.2 Close CZ-58. _____

4.20.3 Align demineralized water to discharge piping by opening Condensate Flush Disch Hdr (CS-256). _____

4.20.4 After flushing piping for ~ 5 minutes, Close CS-256. _____

4.21 Place CV-4642 hand switch to CLOSE and verify indicating lights show valve closed. _____

4.21.1 Verify FIC-4642 in manual and turn Man. Adj. Knob to CLOSED position (fully counterclockwise) _____

4.22 Record final T-16B level _____% _____

4.23 Remove tag from Treated Waste Monitor T-16B Inlet (CZ-47B). _____

4.24 Return release permit with all attachments to CRS/SM. _____

Performed by __Joe Gogetter /_____ Date _____

Approved by CRS/SM _____ Date _____

4.25 Return the following to Nuclear Chemistry:

- This attachment
- Release permit
- Tabular logsheets, if used.

Arkansas Nuclear One - Unit One
2002 RO License Examination Administrative Topics

Candidate: _____ Examination Level (Circle One): RO / SRO

Examiner: _____

Topic Area (Circle One)	Question **A4-JPM-1**	Expected Response and Reference source
A.1 A.2 A.3 **A.4**	A1JPM-RO-COMM2 SEE ATTACHED JPM	

Candidate Response:

UNIT: 1 REVISION # 0 DATE: _____

TUOI NUMBER: A1JPM-RO-COMM2

SYSTEM: A.4 – Emergency Procedures / Plan

TASK: Activate the Fire Brigade

JTA: ANO1-RO-AOP-OFFNORM-311

KA VALUE RO 2.8 SRO 3.5 KA REFERENCE: 2.4.43

APPROVED FOR ADMINISTRATION TO: RO X SRO X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCES: 1203.034 (012-03-0), Smoke, Fire and Explosion; Paging Encoder Operation Instruction Sheet

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is at 100% power operations. A fire has been reported in the #1 EDG room of Unit One.

TASK STANDARD: The examinee has correctly activated the radio-voice pagers and notified the Fire Brigade of the location of the fire.

TASK PERFORMANCE AIDS: Copies of 1203.034, Smoke, Fire or Explosion and Paging Encoder Operation Instruction Sheet

INITIATING CUE:

A fire has been reported in the #1 EDG of Unit One, the CRS directs you to activate the Fire Brigade by performing step 3.2 of 1203.034, Smoke, Fire or Explosion.

CRITICAL ELEMENTS (C): 1, 3, 5, 7, 8

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
(C)	1. Select Channel 1 on radio console.	At the CRS desk, selected Channel 1 on radio console.			
	2. Verify "Scramble Off" is selected on radio console.	Verified "Scramble Off" selected on radio console.			
(C)	3. Select "FIRE" response group from INSTANT CALL keys.	Selected "FIRE" response group from INSTANT CALL keys on encoder panel.			
	4. Verify correct key is selected.	Verified "FIRE" selected on encoder panel.			
(C)	5. Depress IC SEND KEY.	Depressed IC SEND KEY on encoder panel.			
	6. Wait for tone to be transmitted.	Waited until red LED indicator flashed on encoder panel.			
(C)	7. Momentarily depress and hold SIREN ALERT KEY.	Momentarily depressed and held SIREN ALERT KEY on encoder panel.			
(C)	8. Depress microphone key and deliver message.	Depressed microphone key on radio console and delivered message "Attention Fire Brigade members. A There is a fire in the #1 EDG room of Unit One. Fire Brigade members please respond." (Verbatim message not required)			
	9. Using plant paging system give message as per procedure to alert personnel to remain clear of the location of the emergency.	Used plant page system to alert personnel to remain clear of the #1 EDG Room.			

END

JPM INITIAL TASK CONDITIONS:

- The plant is at 100% power operations.
- A fire has been reported in the #1 EDG room of Unit One.

INITIATING CUE:

A fire has been reported in the #1 EDG of Unit One, the CRS directs you to activate the Fire Brigade by performing step 3.2 of 1203.034, Smoke, Fire or Explosion.

SECTION 2 - FIRE OR EXPLOSION

1.0 SYMPTOMS

One or more of the following:

1.1 Report of fire or explosion.

1.2 Annunciator FIRE (K12-A1) alarm and confirmation of fire.

1.3 Annunciator TURBINE MAIN GEN CO2 SYSTEM TROUBLE (K16-C2) alarm and confirmation of turbine generator bearing fire.

2.0 IMMEDIATE ACTION

None

3.0 FOLLOW-UP ACTIONS -- CONTROL ROOM SUPERVISOR

3.1 Obtain and record the following info from person reporting fire:

- Name: _____
- Location of fire: _____
- Any injured personnel: _____
- Size and extent of damage: _____
- Type of fire (if known): _____

3.1.1 Notify person reporting fire to evacuate all non-Fire Brigade personnel from immediate area.

3.2 Activate the Fire Brigade emergency pagers using instructions on the base radio.

3.3 Notify Fire Brigade and Operations personnel to switch to Maint/In Plant Emer Team channel (CH 1).

3.4 Momentarily depress the Fire and Medical Tone pushbutton and make the following announcement twice:

"Attention all personnel! Attention all personnel!
There is a fire in ... (give location).
The ANO Fire Brigade is responding.
All other personnel should stay clear of the (give location)."

3.5 If any injured personnel, refer to Personnel Emergency (1903.023).

3.6 Notify Shift Manager to refer to Emergency Action Level Classification (1903.010).

PAGING ENCODER OPERATION
Emergency Response Groups

INSTRUCTIONS

_____	**Step 1**	**Select Channel 1 on radio console.**
_____	**Step 2**	**Verify "Scramble Off" is selected on radio console.**
_____	**Step 3**	**Select response group needed (Fire, Medical, HazMat) from INSTANT CALL KEYS.**

NOTE: DETERMINE THE CONTENTS OF YOUR MESSAGE PRIOR TO ACTIVATING THE PAGERS (STEP 4 BELOW). YOU ONLY HAVE 16 SECONDS TO RECORD YOUR MESSAGE.

_____	**Step 4**	**Verify correct key is selected. Depress IC SEND KEY, and wait for the tones to be transmitted (red LED indicator will flash when tone has transmitted).**
_____	**Step 5**	**Momentarily depress and hold SIREN ALERT KEY.**
_____	**Step 6**	**Depress microphone key on radio console and give message.**
_____	**Step 7**	**Using plant paging system give message as per procedure to alert personnel to remain clear of the location of the emergency.**

EXAMPLES OF MESSAGES

FIRE: Attention Fire Brigade members. There is a fire at ***(give location and Unit)***. Fire Brigade members please respond.

MEDICAL: Attention Emergency Medical Team members. A personnel emergency has occurred at ***(give location and Unit)***. Emergency Medical Team members please respond.

HAZMAT: Attention Chemical Emergency Coordinators. A hazardous material spill has occurred at ***(give location and Unit)***. A Chemical Emergency Coordinator needs to call the **(give Unit #)** Control Room at extension ***(give Telephone number)***.

FOR MANUAL PAGING SEE BACK OF PAGE

MANUAL PAGING

Step 1 **Use keypad to enter number of pager desired (C + ###).**

FIRE = C100

MEDICAL = C500

HAZMAT = C555

Step 2 **Depress KEYPAD SEND button on encoder panel.**

Arkansas Nuclear One - Unit One
2002 SRO(U) License Examination Administrative Topics

Candidate: _____ Examination Level (Circle One): RO / (SRO)

Examiner: _____

Topic Area (Circle One)	Question **A1-JPM-1**	Expected Response and Reference source
(**A.1**) A.2 A.3 A.4	A1JPM-SRO-QUAL1 SEE ATTACHED JPM	

Candidate Response:

UNIT: 1 REVISION # 0 DATE: _____

TUOI NUMBER: A1JPM-SRO-QUAL1

SYSTEM: A.1 – Conduct of Operations

TASK: Assign a Fire Brigade Leader and a second Fire Brigade Member

JTA: ANO1-SRO-ADMIN-NORM-226

KA VALUE RO 2.3 SRO 3.4 KA REFERENCE: 2.1.4

APPROVED FOR ADMINISTRATION TO: RO _____ SRO X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 5 MINUTES

REFERENCES: 1015.007 (016-01-0) Fire Brigade Organization and Responsibilities

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is at 100% power operations. You are the oncoming CRS and have just assumed the watch from the previous crew. Your crew consists of: SM – Mark Gohman, CBO – Danny Hudson and Phil Morgan, WCO – Mike Fields, AO – Jon Gray and Mike Martin

TASK STANDARD: The examinee has correctly accessed the Fire Brigade Eligibility memo and assigned two qualified crew members as Fire Brigade Leader and second brigade member.

TASK PERFORMANCE AIDS: Copy of 1015.007 (016-01-0), Fire Brigade Organization and Responsibilities; Computer with Entergy Net access.

INITIATING CUE:

As part of your responsibilities for assuming the watch, assign a fire brigade leader and a second fire brigade member.

CRITICAL ELEMENTS (C): 2, 3

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
NOTE: This task may be performed without reference to 1015.007 or the physical memo of Fire Brigade Eligibility. It is helpful, but not required to be used. This task can be performed on a computer with access to Entergy Net.					
	1. Access Operations home page.	• At a PC, started MS Internet Explorer. • From LH column of Entergy Net home page, selected Departments. • Selected Operations. • From Operations home page menu under Operations, then General, selected Fire Brigade Eligibility.			
Note: The WCO is customarily assigned the duty of Fire Brigade Leader.					
(C)	2. Assign Fire Brigade Leader.	Verified Mike Fields' qualifications as a Leader were current: • GET Respirator Physical • Fire Brigade Training and Drills Assigned Mike Fields as Fire Brigade Leader.			
(C)	3. Assign second Fire Brigade Member.	Verified Jon Gray's qualifications as a Member were current: • GET Respirator Physical • Fire Brigade Training and Drills Assigned Jon Gray as second Fire Brigade Member. Recognized that Mike Martin was NOT qualified to be second Fire Brigade Member.			

END

JPM INITIAL TASK CONDITIONS:

- The plant is at 100% power operations.
- You are the oncoming CRS and have just assumed the watch from the previous crew.
- Your crew consists of:
  - SM – Mark Gohman
  - CBO – Danny Hudson and Phil Morgan
  - WCO – Mike Fields
  - AO – Jon Gray and Mike Martin

INITIATING CUE:

As part of your responsibilities for assuming the watch, assign a fire brigade leader and a second fire brigade member.

Arkansas Nuclear One - Unit One
2002 SRO(U) License Examination Administrative Topics

Candidate: _____ Examination Level (Circle One): RO / (SRO)

Examiner: _____

Topic Area (Circle One)	Question **A1-JPM-2**	Expected Response and Reference source
(**A.1**) A.2 A.3 A.4	A1JPM-SRO-PROC1 SEE ATTACHED JPM	

Candidate Response:

UNIT: 1 REVISION # 1 DATE: _____

TUOI NUMBER: A1JPM-SRO-PROC1

SYSTEM: A.1 – Conduct of Operations

TASK: Utilize Procedure Deviations

JTA: ANO-SRO-ADMIN-NORM-15

KA VALUE RO 3.9 SRO 4.0 KA REFERENCE: 2.1.23

APPROVED FOR ADMINISTRATION TO: RO _____ SRO X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCES: 1000.006 (050-03-0), Procedure Control

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: #2 EDG Monthly Test per 1104.036, Supplement 2, is in progress. 1104.036 Supplement 2 is complete up to Step 2.13.1.B. Damper TV-7902A does not indicate open. A deficiency tag identifies this as a known deficiency and that MAI# 123456 has been submitted to correct the position indication problem. The operator conducting the test has locally verified damper TV-7902A open.

TASK STANDARD: The examinee has correctly completed form 1000.006R, Procedure Deviation, and documented the deviation in 1104.036, Supplement 2.

TASK PERFORMANCE AIDS: Copies of modified page from 1104.036, Supplement 2; and partially completed Form 1000.006R, Procedure Deviation.

INITIATING CUE:

The operator performing the test has completed Sections A and B of 1000.006R and requests that you authorize a procedure deviation in order to continue with the test.

CRITICAL ELEMENTS (C): 2, 3

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
NOTE: Provide examinee with a copy of partially completed 1104.036, Supplement 2 and form 1000.006R, Procedure Deviation.					
	1. Review 1104.036, Supplement 2.	Examinee reviewed 1104.036, Supplement 2.			
(C)	2. Review 1000.006R, Sections A and B for agreement and initial for review/agreement.	Examinee reviewed 1000.006R, Sections A and B for agreement and initialed for review/agreement.			
NOTE: Inform examinee that peer check has been obtained from shift manager.					
(C)	3. Place initials adjacent to deviation and annotate justification for the deviation somewhere in the procedure.	Examinee has initialed adjacent to Step 2.13.1.B and annotated deviation with a note somewhere in the procedure. (Annotation could be written on bottom of page or in section 4.0)			
	4. N/A Step 4 and initial step 5 of 1000.006R.	Examinee has N/A'd Step 4 and initial step 5 (PIF not required) of 1000.006R.			
	5. Place copy of 1000.006R with 1104.036, Supplement 2. (SIMULATE)	Examinee has placed copy of 1000.006R with 1104.036, Supplement 2. (SIMULATE)			
	6. Forward copy of completed 1000.006R and applicable pages of 1104.036, Supplement 2 to Operations Manager. (SIMULATE)	Examinee has forwarded copy of completed 1000.006R and applicable pages of 1104.036, Supplement 2 to Operations Manager. (SIMULATE)			
	7. Direct operator to continue with the test.	Examinee has directed operator to continue with the test.			
NOTE: Inform examinee that procedure was modified just for this JPM and that a PIF is NOT required.					

END

JPM INITIAL TASK CONDITIONS:

- #2 EDG Monthly Test per 1104.036, Supplement 2, is in progress.
- 1104.036, Supplement 2 is complete up to Step 2.13.1.B.
- Damper TV-7902A does not indicate open. A deficiency tag identifies this as a known deficiency and that MA# 123456 has been submitted to correct the position indication problem.
- The operator conducting the test has locally verified damper TV-7902A open.

INITIATING CUE:

The operator performing the test has completed Sections A and B of 1000.006R and requests that you authorize a procedure deviation in order to continue with the test.

KEY

SUPPLEMENT 2

2.12 Data gathering after one hour between 2625 and 2750 KW:

2.12.1 Record DG2 parameters per log OPS-A15b. SN

2.12.2 Verify vibrometer readings taken per data sheet of this supplement. SN

2.12.3 Contact Chemistry and verify cooling water corrosion inhibitor concentration in-spec. SN

NOTE

The following values are given to help determine when diesel temperatures have stabilized, and are not intended to limit operation:

- Scavenging Pump Disc. Temp. - 190°F - 195°F
- Water Pump Suction Temp. - 155°F - 160°F
- Water Leaving Engine Temp. - 165°F - 175°F

2.13 After one hour between 2625 and 2750 KW and when engine water and oil temperatures have stabilized, proceed as follows.

2.13.1 Start, or verify started, Diesel Generator Room Exhaust Fans and verify dampers open on C19.

A. VEF-24C running. SN

B. Damper TV-7902A open. Locally Verified * (1)

C. VEF-24D running. ____

D. Damper TV-7902B open. ____

E. Record verification in section 3.0. ____

F. If VEF-24C or VEF-24D was manually started for this test, return hand switch to AUTO. Otherwise N/A. ____

2.13.2 If this is a test following a series of Supplement 12 Operability Tests, continue full load operation for a total time of 2 hours. Otherwise N/A. ____

(1) Note how candidate will write reason for Deviation

E-DOC TITLE: PROCEDURE DEVIATION	E-DOC NO. 1000.006-R	CHANGE NO. 050-00-0

KEY

This Document Contains 1 Page(s)

Procedure Number: 1104.036 Sup 2

PROCEDURE DEVIATION

A. Does the intended Deviation:

	YES	NO
1. Alter a step sequence	☐	☑
2. Designate a step as N/A	☐	☑
3. Make editorial enhancements (i.e. correct misspelling, misnumbering or typos)	☐	☑
4. Add a note - Notes may be used in cases where procedure steps, or portions thereof, cannot or should not be completed. Examples include equipment failures, malfunctions, or steps that are technically or administratively unnecessary to accomplish the overall intent of the activity. Notes shall NOT be used to add steps to a procedure.	☑	☐
5. Correct the title, form number, step number or page number of a reference to another document when the referenced document has been revised and the content and intent of the referenced portion of the document has not been effected by the revision	☐	☑

IF ALL of the above questions are answered **NO**, **THEN STOP!**
THE DEVIATION PROCESS MAY NOT BE USED

B. Will the proposed Deviation:

	YES	NO
1. Allow the procedure to perform a different function	☐	☑
2. Prevent the procedure from performing its intended function	☐	☑
3. Allow the procedure to be applied to a different component, subsystem or system	☐	☑
4. Change a requirement contained in a License Basis Document	☐	☑
5. Reduce the level of nuclear safety	☐	☑
6. Degrade any acceptance criteria	☐	☑
7. Create or correct a condition related to personnel safety	☐	☑

IF ANY of the above questions are answered **YES**, **THEN STOP!**
THE DEVIATION PROCESS MAY NOT BE USED

IF sections A and B above are BOTH satisfied, THEN you may continue with the deviation process. Otherwise STOP!

C. The responsible supervisor shall:

Supv Initials

1. Review the Sections A and B of this form for agreement. — SAP
2. Obtain a peer check that the Deviation meets the requirements of Sections A and B. — SAP

PEER CHECKED BY: Jay Winton
(print)

3. **IF** the procedure has initial blanks or signature blocks, **THEN** place initials adjacent to the deviation and annotate justification for the deviation somewhere on the procedure. Otherwise N/A. — SAP
4. **IF** the procedure does not have initial or signature blocks, **THEN** no initials or justification on the procedure is required. Otherwise N/A. — N/A
5. Submit a Procedure Improvement Form if appropriate. — SAP
6. **IF** the procedure has initial blanks or signature blocks, **THEN** maintain a copy of this form with the procedure. Otherwise N/A. — SAP
7. Send a copy of this form along with the affected pages to the department head for review. — SAP

Arkansas Nuclear One - Unit One
2002 SRO(U) License Examination Administrative Topics

Candidate: _____ Examination Level (Circle One): RO / (SRO)

Examiner: _____

Topic Area (Circle One)	Question **A2-JPM-1**	Expected Response and Reference source
A.1 (**A.2**) A.3 A.4	A1JPM-SRO-MNTC1 SEE ATTACHED JPM	

Candidate Response:

UNIT: 1 REVISION # 0 DATE: _____

TUOI NUMBER: A1JPM-SRO-MNTC1

SYSTEM: A.2 – Equipment Contol

TASK: Manage Maintenance Activities During Power Operations

JTA: ANO-SRO-ADMIN-NORM-48

KA VALUE RO 2.3 SRO 3.5 KA REFERENCE: 2.2.17

APPROVED FOR ADMINISTRATION TO: RO _____ SRO X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCES: 1025.003 (046-02-0), Conduct of Maintenance

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Maintenance has been completed on Spent Fuel Purification Loop Flow Indicator FI-2002. Maintenance is requesting Operations to perform the independent verification that components operated within the clearance boundaries have been properly restored.

TASK STANDARD: The examinee has correctly identified 2 administrative errors on the 1025.003C form.

TASK PERFORMANCE AIDS: Copy of 1025.003, Conduct of Maintenance; Copy of 1104.006, Spent Fuel Cooling System, Attachment B – Spent Fuel Purification Loop valve lineup, and completed 1025.003C, Maintenance Configuration Tracking Log Sheet (with errors).

INITIATING CUE:

The SM has given you the 1025.003C form, Maintenance Configuration Tracking Log, and asked you to perform the Operations independent verification. Review the form and identify at least 2 administrative errors.

CRITICAL ELEMENTS (C): 2

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
NOTE: Provide examinee with a copy of 1025.003, Maintenance Configuration Tracking Log Sheet.					
	1. Review the Maintenance Configuration Tracking Log Sheet.	Examinee reviewed the Maintenance Configuration Tracking Log Sheet and compared it to the normal lineup in 1104.006, Attachment B.			
(C)	2. Identify administrative errors.	Examinee identified 2 of the following: 1. As-found and restoration positions for SF-2002A are incorrect. 2. SS-99 restoration position is incorrect. 3. Restorer and Verifier initials for SF-1015 are the same.			

END

JPM INITIAL TASK CONDITIONS:

- Maintenance has been completed on Spent Fuel Purification Loop Flow Indicator FI-2002.
- Maintenance is requesting Operations to perform the independent verification that components operated within the clearance boundaries have been properly restored.

INITIATING CUE:

The SM has given you the 1025.003C form, Maintenance Configuration Tracking Log, and asked you to perform the Operations independent verification. Review the form and identify at least 2 administrative errors.

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
MAINTENANCE CONFIGURATION TRACKING LOG SHEET	**1025.003C**	**047-00-0**

This Document Contains 1 Page(s)

Component Label	Component Noun Name	As Found Position	Position required for Maint.	Remover Initials	Restoration Position	Restorer	Verifier
SF-2002B	Purification Loop FI-2002 isolation	Open	Closed	JRR	Open	WBC	TY
SF-2002A	Purification Loop FI-2002 isolation	Closed	Open	JRR	Closed	WBC	TY
SS-99	Purification Loop Sample Isolation Before Filters	Open	Closed	JRR	Closed	WBC	TY
SF-1014	Purification Loop Drain after SF-12	Closed	Open	JRR	Closed	WBC	TY
SF-1015	Purification Loop Vent	Closed	Open	JRR	Closed	WBC	WBC

Obtain an Independent Verification from Operations that the Components have been restored to the desired configuration. If the Restored Position in not the MODE 1 position then an alternate method of Configuration Control established. (ie. component-out-of-position log, clearance)

Operations Signature: _____

Ensure Operations CRS/SM has been contacted and authorization obtained before manipulating any components.

(1) For those components that do not have a label, use accurate descriptors to identify the manipulated component(s).
(2) For those components that must be manipulated several times, the restorer and verifier sections need only be completed upon final manipulation of the component(s).

6.5.10 Configuration Tracking in accordance with the following:

A. The Operations group is the ultimate owner of plant system(s) configuration. Operations has valve alignment procedures in place along with operating procedures to ensure that plant systems are properly configured for the various modes of operation. As such all components not specifically controlled by work task instructions, a procedure, or the Maintenance Configuration Tracking Log **shall** be tracked by Operations to assure continuity in system configuration control.

B. Components that may or may not be labeled, and/or are local to equipment are generally not contained within Operations procedural instructions and therefore depend upon the craftsman to realign the component(s) following maintenance, shall be tracked by Maintenance. Examples are skid mounted equipment/systems, such as chiller units, start up / plant heating boiler systems, schrader valves, instrument isolations on air compressors, etc.

C. Authorization must be obtained from the Operations CRS/SM before manipulating any components.

D. The Maintenance Configuration Tracking Log, Form 1025.003C, shall be used for components that are manipulated to facilitate maintenance such as vents/drains, etc, that fall within the boundary (i.e., Danger Tag boundary) of the maintenance being performed.

E. IF the work document does not provide the controls necessary to ensure components are properly restored following the activity,
THEN the craftsmen will utilize Form 1025.003C to document and control the configuration of components manipulated during maintenance activities. Refer to Attachment 3 for an example.

F. Once the work activities are complete and all components have been restored to their original position,
THEN Operations will perform an Independent Verification that all components have been properly restored,
AND will sign Form 1025.003C.

ATTACHMENT B
Spent Fuel Purification Loop

VALVE NUMBER	TAG (√)	OPEN	CLOSED	DESCRIPTION
WALL BY P-40s				
SF-1032			X	P-66 Suction Line Drain
SF-1014			X	Purification Loop Drain After SF-12
SF-2002A		X		Purification Loop FI-2002 Isol
SF-2002B		X		Purification Loop FI-2002 Isol
SF-1015			X	Purification Loop Vent
SS-99		X		Purification Loop Sample Isol Before Filters
SF-35		X		P-66 Suction Isol
SF-37		Note 2		P-66 Discharge Isol
SF-13			X	T-5 SF Demin Inlet
SF-14		X	Note 1	T-5 SF Demin Outlet
SF-15		Note 1	X	T-5 SF Demin Bypass
SF-16A			X	F4A Inlet from SF Demin
SF-16B		X		F4B Inlet from SF Demin
SF-17A		X	Note 1	F4A Inlet from SF Coolers/P-66 Discharge
SF-17B			X	F4B Inlet from SF Coolers/P-66 Discharge
SF-18A			X	F4A Outlet to SF Pool/BWST/DH Suct
SF-18B		X		F4B Outlet to SF Pool/BWST/DH Suct
SF-19A		X	Note 1	F4A Outlet to SF Demin
SF-19B			X	F4B Outlet to SF Demin

Note 1: If T-5 is not in service, SF-15 is open, SF-14, SF-17A, and SF-19A are closed.

Note 2: If placing Borated Wtr Recirc Pump (P-66) into service, throttle SF-37 ~ 25% open. Otherwise, close SF-37.

ATTACHMENT B

VALVE NUMBER	TAG (√)	OPEN	CLOSED	DESCRIPTION
PUMP ROOM				
DWD-14			X	P-66 Casing Drain
SF-2005C		X		P-66 Suction Pressure PI-2005 Isol
GCH-3			X	P-66 Vent
SF-2002C		X		P-66 Discharge Pressure PI-2002 Isol
T-5 ROOM				
GCH-12			Note 2 X	SF Demin Vent
RT-7			Note 2 X	Spent Fuel Demin T-5 Resin Outlet Flush
SF-50			Note 2 X	SF Demin Outlet Drain
CZ-30			Note 2 X	Sluice Water to SF Demin From Clean Waste
CZ-32			Note 2 X	Sluice Water to SF Demin Inlet Line
CZ-62			Note 2 X	SF Demin Resin Outlet Flush Conn.
T-36 UPPER VALVE GALLERY ROOM				
RT-6			X	Spent Fuel Demin T-5 Resin Outlet
F-4 FILTER ROOM				
ABD-4A			X	F4A Drain
ABD-4B			X	F4B Drain
GCH-4A			X	F4A Vent
GCH-4B			X	F4B Vent

Note 2: If Locked High Radiation area
or
system status is unchanged and there is no reason to suspect misalignment and lineup verification will cause excessive personnel exposure, Shift Manager may N/A, date and initial for that area.

ATTACHMENT B

VALVE NUMBER	TAG (√)	OPEN	CLOSED	DESCRIPTION
SF-2006A		X		F4A ΔP PDI-2006 High Side Isol
SF-2006B		X		F4A ΔP PDI-2006 Low Side Isol
SF-2007A		X		F4B ΔP PDI-2007 High Side Isol
SF-2007B		X		F4B ΔP PDI-2007 Low Side Isol
SF-1017			X	F4A Outlet Drain
SF-1018			X	F4B Outlet Drain
COOLER AREA				
SF-1019			X	F-4A & B Common Discharge Line Vent
SS-43			X	SF Filters Discharge Line Sample
SF-1021			X	Vent on Purification Loop to BWST and DH Suction Hdr
SF-1022			X	Drain Before SF-24 Purification Loop to SFP
SF-1024			X	Vent on Line from Cask Loading to P-66
SF-23			X	SF to Cask Loading Pit
SF-25		(1)	(1)	F-4 A & B Discharge to SF Pool
SF-28		X		Recirc Outlet to SF Pool (Low)
SF-29		X		Recirc Outlet to SF Pool (High)
SF-1020			X	Drain on Purification Loop to BWST and DH Suction Hdr
SF-1033			X	P-66 Discharge Line Vent
LOWER NORTH PIPING ROOM				
SF-20			X	SF to DH Suction Header

Note 1: SF-25 position is controlled by each applicable section of this procedure.

ATTACHMENT B

VALVE NUMBER	TAG (√)	OPEN	CLOSED	DESCRIPTION
WASTE GAS PANEL ROOM				
SF-22			Note 1 X	SF Purification Loop to BWST Isol
BWST AREA				
SF-51			Note 1 X	SF Purification Loop/Condensate Inlet to BWST
SF-1001			X	Vent after SF-51
CLEAN RESIN MIX TANK AREA				
RT-5			X	SF Demin Resin Inlet
The following valves are inaccessible and are controlled per Equipment Status and Control (1015.017) "Inaccessible Valves" section.				
T-5 ROOM				
CZ-71			X	SF Demin Resin Outlet Flush Conn.
SF-60			X	SF Demin Inlet Drain
CZ-31			X	Sluice Water to SF Demin Outlet Line
CZ-1002			X	Sluice Water to SF Demin Outlet Line Vent
ABD-3			X	Sluice Water to SF Demin Drain

Note 1: May be open when BWST (T-3) Purification is in progress.

Arkansas Nuclear One - Unit One
2002 SRO(U) License Examination Administrative Topics

Candidate: _____ Examination Level (Circle One): RO / (SRO)

Examiner: _____

Topic Area (Circle One)	Question **A3-Q1**	Expected Response and Reference source
A.1 A.2 (**A.3**) A.4	The following radiological postings are present in the P-36C HPI pump room: • The access boundary to the room has a single posting as a RADIATION AREA. • There is one HOT SPOT posted on the piping in the southeast corner of the room. You are preparing to conduct a pre-job briefing with your WCO. His job is to perform a special test on P-36C, HPI pump, with the System Engineer following completion of pump maintenance. Based on your review of the given survey map, state what changes to the room postings you would recommend to Radiation Protection and why.	**Answer:** *Candidate should identify at least two of the following three errors for successful completion:* • The room access boundary should be posted as a HIGH RADIATION AREA since the general area readings (115.0, 110.0 and 105.0 mr/hr) are greater than the 100 mR/hr threshold for a High Radiation area. • In addition, the access should also be posted as a CONTAMINATION AREA, since smear data indicates loose surface contamination of greater than 1000 dpm/cm^2 but less than 100,000 dpm/cm^2. • The hot spot posting is not valid since the contact reading is not greater than or equal to four times the 30 cm reading. **Reference:** 1012.017 Rev. 007-00-0 **K/A:** 2.3.1 RO 2.6 / SRO 3.0

Candidate Response:

Arkansas Nuclear One - Unit One
2002 SRO(U) License Examination Administrative Topics

The following radiological postings are present in the P-36C HPI pump room:

- The access boundary to the room has a single posting as a RADIATION AREA.

- There is one HOT SPOT posted on the piping in the southeast corner of the room.

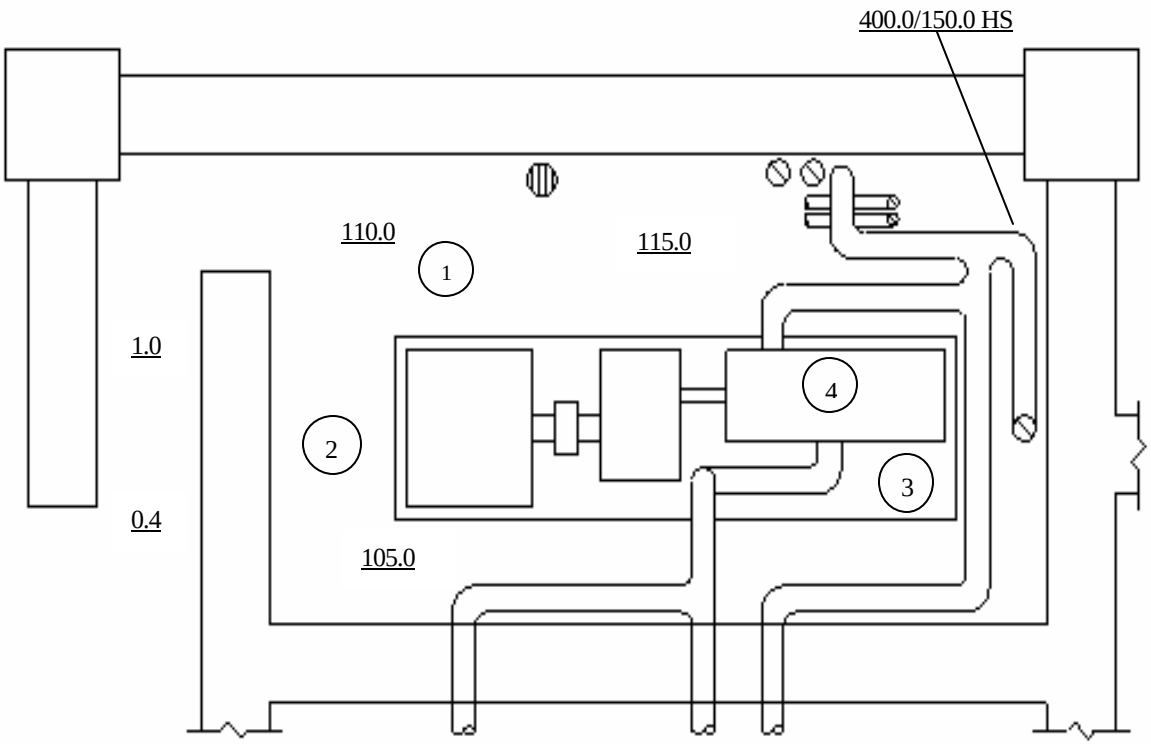
You are preparing to conduct a pre-job briefing with your WCO. His job is to perform a special test on P-36C, HPI pump, with the System Engineer following completion of pump maintenance.

Based on your review of the given survey map, state what changes to the room postings you would recommend to Radiation Protection and why.

MAP NUMBER: 1A2-16 LOCATION: U1 AUX 335' EL. P36C PUMP ROOM, ROOM NUMBER 54

Aux building
posted: RM,RWPR

335 posted RA



All Radiation values are in mrem/hour unless otherwise noted.
12.5 denotes gamma general area dose rates.
Smear contamination values are in DPM/100 Sqcm unless otherwise noted.
*12/13 Denotes Gamma Contact/Far reading (30 cm)
* 12 Denotes contact dose rate (gamma) *12 B Denotes Beta Contact Dose Rate
Form to be retained for records

H. S. Denotes Hot Spot Readings
O Denotes smear location (100 sqcm.)
Denotes large area smear location

DPM/ 100cm2

No.	Activity
1	20,000
2	30,000
3	60,000
4	10,000

Rx. % 100
Date 05/10/2002
Time 0000:00

Dose Rate Inst. HP-DR-170

Cal Due Date 12/31/2002

Dose Rate Inst. #2 RM-065

Cal Due Date 12/31/2002

Count Inst. RO-705

Cal Due Date 12/31/2002

Bkg. 80 cpm D/C 10

Count Inst. #2 _____

Cal Due Date _____

Bkg. 90 cpm D/C 10

Survey Frequency:
_____ Daily
_____ Bi-Weekly
__X__ Monthly
_____ Quarterly
_____ Job Coverage
_____ Other

RWP # 4005/1

Surveyor:
John Public 1234
Badge

RP Supervisor Review:

Imma N. Charge

DANI # 011256

Arkansas Nuclear One - Unit One
2002 SRO(U) License Examination Administrative Topics

Candidate: _____ Examination Level (Circle One): RO / (SRO)

Examiner: _____

Topic Area (Circle One)	Question **A3-Q2**	Expected Response and Reference source
A.1 A.2 (**A.3**) A.4	Given: • The plant is in a refueling outage. • An ALARA planning meeting between maintenance personnel and radiation protection personnel is being conducted prior to emergent work on CV-1050, Decay Heat Suction valve. • The maintenance job is expected to take one person 15 minutes to complete. • The dose rate at CV-1050 is 150 mR/hr. During the briefing the Radiation Protection Technician states that dose rates around CV-1050 could be reduced by using shielding. It will take two (2) workers, 10 minutes to install and 10 minutes to remove the shielding. The shielding will reduce the dose rate at CV-1050 to 15 mR/hr. Apply the principles of ANO's ALARA program to this situation and determine whether this job should be done with or without shielding.	**Answer:** One person performing the job without shielding will receive a dose of 37.5 mR. Two technicians installing the shielding and subsequent removal of the shielding will receive a total man-Rem dose of 100 mRem. The person performing the job with shielding will receive a dose of 3.75 mRem. Using shielding, will produce a total man-Rem dose of 103.75 mRem. Using ALARA principles, the job should be performed without the shielding for a lower total dose. **Reference:** 1012.027 Rev. 005-00-0 **K/A:** 2.3.2 RO 2.5 / SRO 2.9

Candidate Response:

Arkansas Nuclear One - Unit One
2002 SRO(U) License Examination Administrative Topics

Given:

- The plant is in a refueling outage.
- An ALARA planning meeting between maintenance personnel and radiation protection personnel is being conducted prior to emergent work on CV-1050, Decay Heat Suction valve.
- The maintenance job is expected to take one person 15 minutes to complete.
- The dose rate at CV-1050 is 150 mR/hr.

During the briefing the Radiation Protection Technician states that dose rates around CV-1050 could be reduced by using shielding. It will take two (2) workers, 10 minutes to install and 10 minutes to remove the shielding. The shielding will reduce the dose rate at CV-1050 to 15 mR/hr.

Apply the principles of ANO's ALARA program to this situation and determine whether this job should be done with or without shielding.

Arkansas Nuclear One - Unit One
2002 SRO(U) License Examination Administrative Topics

Candidate: _____ Examination Level (Circle One): RO / (SRO)

Examiner: _____

Topic Area (Circle One)	Question **A4-JPM-1**	Expected Response and Reference source
A.1 A.2 A.3 (**A.4**)	A1JPM-SRO-EAL7 SEE ATTACHED JPM	

Candidate Response:

UNIT: 1 REVISION # 0 DATE: _____

TUOI NUMBER: A1JPM-SRO-EAL7

SYSTEM: A.4 – Emergency Procedures / Plan

TASK: Take Emergency Direction and Control

JTA: ANO-SM-EPLAN-EMERG-302

KA VALUE RO 2.2 SRO 4.0 KA REFERENCE: 2.4.38

APPROVED FOR ADMINISTRATION TO: RO _____ SRO X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUTED: RO _____ SRO _____

ACTUAL TESTING ENVIRONMENT: PLANT SITE: _____ SIMULATOR: X LAB: _____

ACTUAL TESTING METHOD: SIMULATE: _____ PERFORM: X

APPROXIMATE COMPLETION TIME IN MINUTES: 5 MINUTES

REFERENCES: 1903.010 (036-05-0), Emergency Action Level Classification; 1903.011 (026-04-0), Emergency Response Notifications

EXAMINEE'S NAME: _____ SSN: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

START TIME: _____ STOP TIME: _____ TOTAL TIME: _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARTED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: While shutting down due to a tube leak in "B" OTSG, the Unit One Main Turbine tripped at approximately 50% power. The Reactor Protection System failed to trip the reactor automatically, requiring a manual trip. SPDS indicates that Main Steam Safety Valves (MSSVs) lifted momentarily following the trip but have reseated properly. Turbine Bypass Valves are controlling OTSG pressure. "B" OTSG tube leakage is approximately 45 gpm.

TASK STANDARD: Examinee correctly classifies this event as an Alert per EAL 6.2 and makes notifications to plant personnel per 1903.011M.

TASK PERFORMANCE AIDS: Copies of 1903.010 Attachments 1 and 3 and 1903.011 Attachment 2, and 1903.011M

INITIATING CUE:

For the given plant conditions, determine the applicable EAL classification and initiate notifications per the applicable Shift Manager Emergency Direction and Control Checklist in 1903.011.

CRITICAL ELEMENTS (C): 3, 6

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
	1. Compare event conditions with the Index of EALs, Attachment 1 of 1903.010, Emergency Action Level Classification.	Turned to Attachment 1 of 1903.010, Index of EALs.			
	2. Turn to appropriate EAL and compare EAL criteria with event conditions.	Turned to a specific EAL in Safety System Function, Attachment 3 of 1903.010.			
(C)	3. Declare the emergency classification.	Declared or stated the event is an ALERT per EAL 6.2, based on Reactor Protection System Failure to Complete an Automatic Trip Criteria: 1. A valid RPS trip setpoint is exceeded on ANY TWO RPS channels and the RPSfails to initiate and complete an automatic trip that brings the reactorsubcritical. AND 2. Subsequent efforts to manually trip the Reactor from the Control Room andbring it subcritical are successful. (Criteria not required to be stated).			
	4. Initiate immediate notifications.	Referred to 1903.011 and turned to Attachment 2.			
NOTE: Cue the examinee that the Unit 2 Shift Engineer is performing the initial notifications per 1903.011 after the examinee has stated that Unit 2 Shift Engineer (or control room communicator) has been requested.					
	5. Begin completion of form 1903.011M, Alert Emergency Direction and Control Checklist for Shift Manager.	Began completion of form 1903.011M Alert Emergency Direction and Control Checklist for Shift Manager. Examinee should fill in the data on items 1 and 2. Examinee should simulate (or state) direction of the SE to complete the initial notification.			

(CONTINUED)

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
(C)	6. (Simulate) Announce emergency on plant paging system.	Used plant-paging system to (simulate) make announcement per step 4 of form 1903.011M.			

NOTE: The remaining steps of 1903.011M are not required for completion of the task. Examiner may provide examinee with the following information to conclude performance of 1903.011M.

- **No localized evacuation is required at this time.**
- **All plant approach routes are accessible.**
- **Initial Dose Assessor is responding to the control room.**

END

JPM INITIAL TASK CONDITIONS:

- While shutting down due to a tube leak in “B” OTSG, the Unit One Main Turbine tripped at approximately 50% power.
- The Reactor Protection System failed to trip the reactor automatically, requiring a manual trip.
- SPDS indicates that Main Steam Safety Valves (MSSVs) lifted momentarily following the trip but have reseated properly. Turbine Bypass Valves are controlling OTSG pressure.
- “B” OTSG tube leakage is approximately 45 gpm.

INITIATING CUE:

For the given plant conditions, determine the applicable EAL classification and initiate notifications per the applicable Shift Manager Emergency Direction and Control Checklist in 1903.011.

KEY

ALERT

This form is intended to be used by the person with Emergency Direction and Control when an Alert has been declared.

☑1. Alert declared: Unit 1 Time _____ Date _____

****EMERGENCY CLASSIFICATION ANNOUNCEMENT SHOULD BE MADE WITHIN 15 MINUTES OF THE DECLARATION****

☑2. Conditions warranting declaration of an Alert:
EAL No. 6.2 Description: Reactor Protection System Failure to complete an Automatic Trip

☑3. Direct the communicator(s) (SE, opposite unit SE or Notifications Communicator) to initiate notifications and initiate ERO callout using the Computerized Notification System (CNS).

☑3.1 **IF** only one unit is affected,
THEN affected unit SE activates CNS (if not already performed for an Alert or higher emergency class) in accordance with Attachment 9 of this procedure, opposite unit SE performs notifications using Forms 1903.011BB or 1903.011CC of this procedure.

☐3.2 **IF** a dual unit emergency is occurring,
THEN the Unit 1 SE performs initial notifications and the Unit 2 SE activates CNS (if not already performed for an Alert or higher emergency class) unless additional communicators are available for these functions.

☑3.3 Inform the Control Room staff of the Emergency Class declaration.

☑3.4 Inform both units Non-Licensed Operators (NLO's) to log onto the Emergency RWP.

☑4. Make the following announcement over the plant paging system (dial 197):

"Attention all personnel. Attention all personnel. An Alert Emergency Class has been declared on Unit One (One/Two). Emergency response personnel report to your designated assembly areas. All other personnel continue normal activities unless instructed otherwise."

☑4.1 Make the above announcement over the EOF Public Address System (dial 199 and pause approximately 15 sec.)

☐5. **[IF on-site personnel hazards exits,
THEN direct implementation of protective actions as necessary.**

☐5.1 **Refer to Form 1903.030C, "Localized Evacuation Checklist", to determine if a localized evacuation will be performed.]**

☐6. **IF** an approach route to the plant site should be avoided, **THEN** instruct Security to direct incoming traffic. (Examples of this include security situations in which onsite/offsite personnel are directed to the EOF, radiological releases that prohibit entry to the site via either guard station, etc.)

☐7. Direct Chemistry personnel (Initial Dose Assessor) to the Control Room to implement procedure 1904.002, "Offsite Dose Projection - RDACS Computer Method".

Performed by: Sign