

INITIAL SUBMITTAL OF WALKTHROUGH JPMS

FOR THE BRAIDWOOD INITIAL EXAMINATION - OCTOBER 2000

JOB PERFORMANCE MEASURE

TASK TITLE: Excess Letdown Operation (improper lineup)

JPM No.: N-11

REV: 0

K&A No.: 004A4.05

TASK No.: CV-007

K&A IMP: 3.6/3.1

TRAINEE: _____

DATE: 4/15/98

EVALUATOR: _____

The Trainee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*)5,6,11,12,14,16-20

JPM TIME: _____

CRITICAL TIME: NA

APPROX. COMPLETION TIME 10 MINUTES

EVALUATION METHOD:

LOCATION:

PERFORM
 SIMULATE

IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. BwOP CV-15, Rev. 8E2

MATERIALS: None

TASK STANDARDS:

1. Establish excess letdown.
2. Identify loss of cooling to excess letdown heat exchangers

TASK CONDITIONS:

1. You are the Unit 1 NSO.
2. Unit 1 is at 100% Power, Steady State.
3. All plant systems and controls are normal.

INITIATING CUES:

1. Last shift identified increasing ΔP across the RC filter.
2. The Unit Supervisor directs you to establish excess letdown from all RCS loops to the VCT through the 1A Excess Letdown Heat Exchanger and secure normal letdown per BwOP CV-15 "Excess Letdown Operations" to facilitate investigation of the RC filter.

RECORD START TIME _____

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|----|----------------------|---|--------------------------|--------------------------|--------------------------|
| 1. | Refer to BwOP CV-15. | Locate and Open BwOP CV-15. Determine section F.1 is the applicable step. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|----|----------------------|---|--------------------------|--------------------------|--------------------------|

NOTE

Step F.1 establishes excess letdown flow.
 Step F.2 removes excess letdown from service.

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|----|---|---|--------------------------|--------------------------|--------------------------|
| 2. | Establish excess letdown flow at _PM05J:
Verify Rx Power is at least 0.1% below the applicable power limit for plant operating conditions. | Determines that Rx Power is at least 0.1% below the applicable power level. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|----|---|---|--------------------------|--------------------------|--------------------------|

Cue: Calorimetric Power is 99.85%

- | | | | | | |
|-----|--|-------------------------------------|--------------------------|--------------------------|--------------------------|
| 3. | Verify/Open _CV8100, Seal Water Return Cnmt Isolation Valve. | Verifies 1CV8100 is open. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. | Verify/Open _CV8112, Seal Water Return Cnmt Isolation Valve. | Verifies 1CV8112 is open. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| *5. | Open _CC9437A, CC to Exc Ltdn HX Isol Vlv, at _PM06J. | Opens 1CC9437A | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| *6 | Open _CC9437B, CC from Exc Ltdn HX Isol Vlv, at _PM06J. | Opens 1CC9437B | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | Verify/Close _HCV-CV123, Exc Ltdwn HX Flow Cont Vlv at _PM05J. | Verifies 1HCV-123 is closed. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. | To direct flow to the VCT, Place _CV8143, Exc Ltdwn to Seal Filter or RCDT Vlv, in the VCT position at _PM05J. | Places 1CV8143 to the VCT position. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

PERFORMANCE CHECKLIST

STANDARDS

SAT UNSAT N/A

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|--|--|---|---|---|
| <p>9. If excess letdown is to remain in service for any extended period of time, it may be desirable to direct the seal return flow to the VCT spray nozzles by performing the following, at the Shift Manager discretion:</p> <p> a. Open CV8482, Seal Water HX Outlet to VCT Isol Vlv.</p> <p> b. Close CV8484, Seal Water HX Outlet to CV Pp Suct Hdr.</p> <p>Cue: When asked, Shift Manager does not want Seal Return Flow to the VCT nozzles.</p> | <p>Contacts Shift Manager and determines Seal Return Flow will not be directed to the VCT Spray Nozzles.</p> | <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> |
| <p>10. To direct flow to the RCDT, Place CV8143, Exc Ltdwn to Seal Filter or RCDT Vlv, in the RCDT position.</p> | <p>Determines that step is N/A.</p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |
| <p>*11. Open RC8037A/B/C/D, Loop Drain Valve, for the desired loop(s).</p> | <p>Opens 1RC8037A/B/C/D</p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |
| <p>*12. Open CV8153A/B, Exc Ltdwn HX A/B Inlet Isol Vlv.</p> | <p>Opens 1CV8153A</p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |

CAUTION

RCP Seal Leakoff Flows Must Be Closely Monitored While Establishing Excess Letdown Flow.

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|---|----------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <p>13. Slowly open HCV-CV123, Exc. Ltdwn HX Flow Cont Vlv, as required to obtain the desired flow.</p> | <p>• Slowly opens 1HCV-CV123</p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |
|---|----------------------------------|---------------------------------|---------------------------------|---------------------------------|

PERFORMANCE CHECKLIST		STANDARDS	SAT	UNSAT	N/A
*14.	Ensure that excess letdown outlet temperature is <165°F, as indicate on <u>TI-122A</u> , Exc Ltdwn HX Temp.	<ul style="list-style-type: none"> Determines temperature can not be controlled <165°F Closes 1HCV-123 Notifies the Unit Supervisor Dispatches operator to investigate local valve lineup (not critical) References 1-7-E2 (not critical) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Cue: Local Operator reports CC flow through excess letdown is ½ normal flow.</p> <p>Unit Supervisor acknowledges report.</p> <p>Unit Supervisor directs you to secure excess letdown.</p>					
15.	Transitions to step F.2	Transitions to step F.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*16.	Remove Excess Letdown from service: Slowly close 1HCV-CV123, Exc Ltdwn HX Flow Cont Vlv.	Ensures 1HCV-CV123 is closed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*17.	Close <u>CV8153A/B</u> , Exc Ltdwn HX <u>A/B</u> Inlet Isol Vlv.	Closes 1CV8153A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*18.	Close <u>RC8037A/B/C/D</u> , Loop Drain Valve.	Closes 1RC8037A/B/C/D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*19.	Close 1CC9437A, CC to Exc Ltdwn HX Isol Vlv, at <u>PM06J</u> .	Closes 1CC9437A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*20.	Close 1CC9437B, CC to Exc Ltdwn HX Isol Vlv, at <u>PM06J</u> .	Closes 1CC9437B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.	Verify/Place <u>CV8143</u> , Exc Ltdwn to Seal Filter or RCDT Vlv, in the VCT position.	Verifies 1CV8143 in the VCT position.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are the Unit 1 NSO.
2. Unit 1 is at 100% Power, Steady State.
3. All plant systems and controls are normal.

INITIATING CUES:

1. Last shift identified increasing ΔP across the RC filter.
2. The Unit Supervisor directs you to establish excess letdown from all RCS loops to the VCT through the 1A Excess Letdown Heat Exchanger and secure normal letdown per BwOP CV-15 "Excess Letdown Operations" to facilitate investigation of the RC filter.

Facility: <u>Braidwood Unit 1 and 2</u>		Date of Examination: <u>10/23/00</u>
Exam Level (circle one): RO / SRO(I)		Operating Test No.: <u>1</u>
B.1 Control Room Systems		
System / JPM Title	Type Code*	Safety Function
a. CVCS / Place Excess L/D in Service with Failure of Cooling to 1A L/D Hx. (N-11) KA 004A4.05	M A S	2
b. Pressurizer Relief Tank / Drain PRT with failure of 1B RCDT pump. (N-119) KA 007A1.01	M A S	5
c. Component Cooling Water System / Swap CC pumps with high current on started pump. (N-140) KA 008A3.01	N A S	8
d. Liquid Radwaste System / Perform a Radwaste Liquid Release Radiation Monitor Valve interlock check. (N-32) KA 068A4.02	D S	9
e. A.C. Electrical Distribution / Respond to Loss of 4KV ESF Bus. (N-99) KA 062A2.12	D S	6
f. Residual Heat Removal System / Place RH in recirculation for sampling. (N-139) KA 005K5.09	N S L	4
g. Nuclear Instrumentation System / Source Range Instrument failure in Mode 4. (N-141) KA 015A2.01)	N S L A	7
B.2 Facility Walk-Through		
a. CVCS / Local Emergency Boration with Emergency Boration Valve failed closed. (N-89) Unit 2 (KA APE068AA1.08)	M A R	1
b. Service Water System / Emergency Control of 2A SX Pump. (N-67) High PRA (47.2%) Unit 2 (KA 013A4.01)	D	4
c. Reactor Protection System / Local Rest of SI. (N-85) Unit 2 (KA E02EA1.1)	D	7
* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA		

JOB PERFORMANCE MEASURE

TASK TITLE: Drain the Pressurizer Relief Tank (PRT)

JPM No.: N-119

REV: 2

K&A No.: 007A1.01

TASK No.: RY-008

K&A IMP: 2.9/3.1

TRAINEE: _____

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*)3,4,6,7

JPM TIME: _____ MINUTES

CRITICAL TIME: NA

APPROX COMPLETION TIME 10 MINUTES

EVALUATION METHOD:

 X PERFORM
 SIMULATE

LOCATION:

 IN PLANT
 X SIMULATOR

GENERAL REFERENCES:

- 1. BwOP RY-4 Rev. 7, Draining the Pressurizer Relief Tank

MATERIALS:

None

TASK STANDARDS:

- 1. Decrease PRT level to < 80% , but > 69%.
- 2. Restores PRT Pressure to > 0 psig.

TASK CONDITIONS:

- 1. You are an extra NSO.
- 2. The Unit is at 100% power.

INITIATING CUES:

- 1. PRT level has risen to 81% due to inadvertent opening of a PZR PORV. The Unit Supervisor has directed you to return the PRT level to 75% per BwOP RY-4.

RECORD START TIME _____

Note: Examinee may refer to BwAR 1-12-A7 PRT LEVEL HIGH LOW. Actions here will direct 1) Checking PORVs and Safety Valves NOT open, 2) Drain the PRT per the BwOP, 3) Check RCS leakage. It is not required for the examinee to perform these actions, but is acceptable if he does so. Initiating cues provided the cause for the high level alarm.

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|----|--|----------------------------|--------------------------|--------------------------|--------------------------|
| 1. | Refer to BwOP RY-4,
"Draining the PRT". | Locate and Open BwOP RY-4. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|----|--|----------------------------|--------------------------|--------------------------|--------------------------|

Cue: All Prerequisites have been met.

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|----|--|---|--------------------------|--------------------------|--------------------------|
| 2. | Verify/Open at PM05J,
AOV-RY8033, N2 to PRT
Isolation valve. | At 1PM05J, VERIFY:
• 1AOV-RY8033 is Open | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|----|--|---|--------------------------|--------------------------|--------------------------|

Cue: 1AOV-RY8033 is open

- | | | | | | |
|-----|---|-------------------------------|--------------------------|--------------------------|--------------------------|
| *3. | Verify/Open at PM11J,
RE1003, RCDT Pumps
Discharge Cnmt Isol Vlv. | At 1PM11J, Open:
• 1RE1003 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|-----|---|-------------------------------|--------------------------|--------------------------|--------------------------|

Cue: 1RE1003 is open

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|-----|---|-----------------------------------|--------------------------|--------------------------|--------------------------|
| *4. | Open 1AOV-RY8031, PRT
Drain Isolation Valve. | At 1PM05J, Open:
• 1AOV-RY8031 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|-----|---|-----------------------------------|--------------------------|--------------------------|--------------------------|

Cue: 1AOV-RY8031 is open

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|----|---------------------------------------|--|--------------------------|--------------------------|--------------------------|
| 5. | Verify/Start 1RE01PA/B,
RCDT Pump. | At 1PM05J:
• Verify the 1B RCDT
pump automatically
started.

• VERIFY PRT pressure
remains > 0 psig on
1PI-469. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|----|---------------------------------------|--|--------------------------|--------------------------|--------------------------|

NOTE

The rate at which the PRT is drained is greater than the rate at which N2 is supplied. Verify that the PRT pressure remains above 0 psig as indicated on _PI-469 at _PM05J.

Cue: PRT pressure is 1.5 psig.

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|--|---|---|
| <p>*6. If PRT pressure reaches approximately 0 psig, Perform the following:</p> <p>Stop _RE01PA/B, RCDT Pump, at _PM05J</p> <p>After PRT pressure is restored to approximately 3 psig, Start the RCDT pump at _PM05J</p> | <p>On 1PM05J:</p> <ul style="list-style-type: none"> • Monitors PRT pressure indicator 1PI-469 • Determines PRT pressure is close to 0 psig. • Stops draining PRT by stopping the running RCDT pump. • Allows PRT pressure to rise to ~3 psig, before restarting RCDT pump. | <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> |
|--|---|---|

Cue: PRT Pressure is .5 psig and lowering.
Once draining is secured:
PRT pressure is 3 psig.

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|---|---|---|
| <p>*7. Close _AOV-RY8031, Drn Isol Vlv at _PM05J when desired level is reached.</p> | <p>When PRT level is between 69 and 80%, on 1PM05J, Takes control switch for 1AOV-RY8031 to CLOSED.</p> | <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> |
|---|---|---|

Cue: PRT Level is 75%.

- | | | |
|--|--|---|
| <p>8. Verify/Stop _RE01PA/B when _AOV-RY8031 closes.</p> | <p>On 1PM05J VERIFY RCDT pump stops when 1AOV RY-8031 CLOSES:</p> <ul style="list-style-type: none"> • 1RE01PA • 1RE01PB | <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> |
|--|--|---|

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are an extra NSO.
2. The Unit is at 100% power.

INITIATING CUES:

1. PRT level has risen to 81% due to inadvertent opening of a PZR PORV. The Unit Supervisor has directed you to return the PRT level to 75% per BwOP RY-4.

JOB PERFORMANCE MEASURE

TASK TITLE: **Swap Component Cooling Pumps (Faulted)**

JPM No.: N-140

REV: 0

K&A No.: 008A3.01

TASK No.: CC-002

K&A IMP: 3.2/3.0

TRAINEE: _____

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____ TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 3,4

JPM TIME: _____ MINUTES

CRITICAL TIME: NA

APPROX COMPLETION TIME 15 MINUTES

EVALUATION METHOD:

LOCATION:

X PERFORM
 SIMULATE

 IN PLANT
 X SIMULATOR

GENERAL REFERENCES:

1BwOP CC-15 "Switching Operating and Standby Component Cooling System Pumps" Rev 8E6

MATERIALS:

1BwOP CC-15 "Switching Operating and Standby Component Cooling System Pumps"

TASK STANDARDS:

Perform Component Cooling Water Pump Switchover.
Recognize faulty standby pump.

TASK CONDITIONS:

1. Unit 1 and Unit 2 are at 100% power steady state.
2. System Engineering has reported that the 1A Component Cooling Water Pump has excessive vibrations.
3. System Engineering has recommended that the 1A Component Cooling Water Pump be secured.

INITIATING CUES:

1. The Unit Supervisor has directed you to start the 1B CCW Pump and secure the 1A CCW Pump per BwOP CC-15 "Switching Operating and Standby Component Cooling System Pumps".
2. All Component Cooling Water Pumps have been vented.

PERFORMANCE CHECKLIST

STANDARDS

SAT UNSAT N/A

RECORD START TIME _____

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|----|----------------------|---|--------------------------|--------------------------|--------------------------|
| 1. | Refer to BwOP CC-15. | Locate and open BwOP CC-15. Reads Precautions, Limitations and Actions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|----|----------------------|---|--------------------------|--------------------------|--------------------------|

NOTE

To prevent preconditioning, pump casing MUST NOT be vented before an ASME surveillance.

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|----|---|--|--------------------------|--------------------------|--------------------------|
| 2. | Verify/Vent the pump casing of the CC Pump to be started. | Determines that the pump has been vented per the initiating cue. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|----|---|--|--------------------------|--------------------------|--------------------------|

Cue: Local Operator reports that the 1B CC Pump casing has been vented.

CAUTION

Starting an additional Component Cooling pump could result in Auto-Closure of _CC685, CC from RCP Thermal Barrier HX Isol Vlv, on High Flow of 231 gpm.

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| *3. | Start _CC01PA/B or OCC01P Component Cooling Pump. | Starts the 1B CC Pump and determines that motor current does not decrease to less than 56 amps within 5 seconds. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|-----|---|--|--------------------------|--------------------------|--------------------------|

Trips the 1B CC Pump

Cue: After the candidate trips the 1B CC Pump:
Unit Supervisor directs you to start the 0 CCW pump.

- | | | | | | |
|--|--|------------------------|--------------------------|--------------------------|--------------------------|
| | | Starts the "0" CC Pump | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--|------------------------|--------------------------|--------------------------|--------------------------|

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|-----|--|----------------------|--------------------------|--------------------------|--------------------------|
| *4. | Stop the desired CC pump when system pressure increases and hold the control switch in the Trip position until system pressure stabilizes. | Stops the 1A CC Pump | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|-----|--|----------------------|--------------------------|--------------------------|--------------------------|

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|----|--|----------------------------|--------------------------|--------------------------|--------------------------|
| 5. | Verify/Open _CC685, CC from RCP Thermal Barrier HX Isol Vlv. | Determines 1CC685 is open. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|----|--|----------------------------|--------------------------|--------------------------|--------------------------|

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|----|--|---|--------------------------|--------------------------|--------------------------|
| 6. | Verify/Clear any RCP CC annunciators/alarms. | Determines RCP CC annunciators are clear. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|----|--|---|--------------------------|--------------------------|--------------------------|

- | | | | | | |
|----|--|---|--------------------------|--------------------------|--------------------------|
| 7. | Verify/Clear "CNMT PEN CLG FLOW HIGH/LOW" alarm. | Determines "CNMT PEN CLG FLOW HIGH/LOW" alarm is clear. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|----|--|---|--------------------------|--------------------------|--------------------------|

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. Unit 1 and Unit 2 are at 100% power steady state.
2. System Engineering has reported that the 1A Component Cooling Water Pump has excessive vibrations.
3. System Engineering has recommended that the 1A Component Cooling Water Pump be secured.

INITIATING CUES:

1. The Unit Supervisor has directed you to start the 1B CCW Pump and secure the 1A CCW Pump per BwOP CC-15 "Switching, Operating and Standby Component Cooling System Pumps".
2. All Component Cooling Water Pumps have been vented.

JOB PERFORMANCE MEASURE

TASK TITLE: **Prepare/Perform a Liquid Radwaste Release**

JPM No.: N-32

REV: 11

K&A No.: 068A4.02

TASK No.: WX-002

K&A IMP: 3.2/3.1

TRAINEE: _____

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 9,10a,b,d,f,g,11,13

JPM TIME: _____ MINUTES

CRITICAL TIME: NA

APPROX COMPLETION TIME 16 MINUTES

EVALUATION METHOD:

X PERFORM
 SIMULATE

LOCATION:

 IN PLANT
 X SIMULATOR

GENERAL REFERENCES:

1. BwOP WX-501T1 Rev. 13, Liquid Release Tank OWX01T Release Form

MATERIALS:

Copy of BwOP WX-501T1, Liquid Release Tank OWX01T Release Form completed through section D.

TASK STANDARDS:

1. Complete Section E of a Liquid Release Tank Release Form in accordance with BwOP WX-501T1.
2. Correctly operate the RM-11 for setpoint adjustment/testing.

TASK CONDITIONS:

1. You are an extra NSO.
2. Both Units are at 100% power.
3. OPR01J, OPR10J, and OUR-CW032 are operable.

INITIATING CUES:

1. The Unit Supervisor has handed you a OWX01T liquid release package, completed through section D, and has directed you to complete the release package through Section E, using the low flowrate path.

4. Obtain and record the values of the following CHAN ITEMS for the ORE-PR001 (OPS101) from its CHAN ITEM display on the RM-11 Console. (DEPRESS GRID 1 key, key in 101, DEPRESS SEL key and then DEPRESS CHAN ITEMS key).

Obtain and record the High Alarm and Alert Alarm Setpoints for ORE-PR001 from the RM-11 as follows:

- DEPRESS Grid 1 key.
- Key in "101".
- DEPRESS SEL key.
- DEPRESS CHAN ITEMS key.
- RECORD Chan Item #9, High Alarm Setpoint.
- RECORD Chan Item #10, Alert Alarm Setpoint.

Chan Item #9 1.31 E-4

Chan Item #10 6.56 E-5

NOTE

Step E.5.a is not required if ORE-PR001, ORE-PR010, OUR-CW32, ORE-PR001 is inoperable and AAR OBWOS RETS 2.1-1a has been initiated.

5. Verify OBWOS 0.1-0 daily channel check is complete on:

- Rad Monitor ORE-PR001
- Rad Monitor ORE-PR010
- Station Blowdown Monitor Loop 0-CW032

CUE: As examinee asks for status of surveillances, report they are all completed SAT as of shift 1 today.

Check rounds to ensure OBWOS 0.1-0 daily channel check surveillance is complete on the following:

- ORE-PR001 Liquid Radwaste Effluent.
- ORE-PR010 Station Blowdown.
- 0-CW032 Station Blowdown Line Monitor Loop.

NOTE

Steps E.6 and E.7 are not required if ORE-PR001 is inoperable and AAR OBwOS RETS 2.1-1a has been initiated.

NOTE

For a release through the low flow rate path COMPLETE Step E.6. If a high flow rate release, PROCEED to Step E.7

NOTE

If the OPR01J is in HIGH Alarm at this point in the procedure due to high background, it will be necessary to reset the HIGH alarm setpoint to a value higher than the background. This will allow the OAOV-WX896 to open to test the interlock function. Otherwise, Step E.6.f is not required.

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| <p>6. Verify valve OAOV-WX896, Release Tank Disch Isolation Valve, automatically closes on high radiation by performing the following steps:</p> | <p>Contact Radwaste to prepare to verify OAOV-WX896 Auto closes on high radiation as follows:</p> |
|--|---|

Verify sufficient blowdown flow is established

- VERIFY sufficient blowdown flow is established.

Verify/Close OAOV-WX897, Flow Control Radwaste Effluent Discharge Valve.

- VERIFY/CLOSE OAOV-WX897.

Verify/Close OAOV-WX890, Release Tk Pp 0WX53P Dsch Isol.

- VERIFY/CLOSE OAOV-WX890.

Verify/Open OAOV-WX889, Release Tk Pp 0WX01P Dsch Isol.

- VERIFY/OPEN OAOV-WX889.

Verify/Start 0WX01P, Release Tank Pump

- VERIFY/START 0WX01P, Release Tank pump.

CUE: As asked, sufficient blowdown flow is established; WX-897 and 890 are CLOSED; WX889 is OPEN; release tank pump is running.

PERFORMANCE CHECKLIST

STANDARDS

SAT UNSAT N/A

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|--|--|---------------------------------|---------------------------------|---------------------------------|
| <p>7. If the OPR01J is in HIGH alarm, Change the HIGH alarm setpoint to a value higher than background. This will allow the RELEASE TANK DISCHARGE HEADER RADIATION HIGH alarm (Window 77A09 on OPL01J) to be reset, the OAOV-WX896 valve to be opened. This can be accomplished as follows:</p> | <p>Determines OPR01J is not in HIGH alarm.</p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |
|--|--|---------------------------------|---------------------------------|---------------------------------|

CAUTION

Some actions possible in the supervisor mode may have serious detrimental effects on system operation. Therefore use caution when in this mode and do not leave the RM-11 console unattended when it is in this mode.

- | | | | | |
|--|---|--|--|--|
| <p>a. Place the RM-11 Console in SUPERVISOR MODE</p> | <ul style="list-style-type: none"> • N/A | | | |
| <p>b. SELECT the HIGH alarm setpoint (Channel item 9) to be changed on the ORE-PR001 (OPS101) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters)</p> | <ul style="list-style-type: none"> • N/A | | | |
| <p>c. ENTER a high alarm setpoint using the format XYZ + AB (i.e. a value of 3.76E-10 would be entered as 376-10) and depress the enter key. The new value will be displayed after a short delay.</p> | <ul style="list-style-type: none"> • N/A | | | |

- | | | | | |
|--|---|---------------------------------|---------------------------------|---------------------------------|
| <p>8. Verify/Clear Release Tank Discharge Header Radiation High Annunciator Window (77A09 on OPL01J)</p> | <p>Contacts Rad Waste Operator to verify Window 77A09 is clear on OPL01J.</p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |
|--|---|---------------------------------|---------------------------------|---------------------------------|

Cue: High Radiation annunciator is clear.

- | | | | | |
|--|---|---------------------------------|---------------------------------|---------------------------------|
| <p>*9. Open OAOV-WX896, Release Tank Discharge Isolation Valve. (The key to operate the OAOV-WX896 valve control switch must be obtained from the Radwaste Supervisor or Shift Manager).</p> | <p>Contacts Rad Waste Operator to open OAOV-WX896 utilizing key from the Shift Manager.</p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |
|--|---|---------------------------------|---------------------------------|---------------------------------|

Cue: OAOV-WX896 is open

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
*10. AUTO Close valve OAOV-WX896, Release Tank Disch Isolation Valve, by lowering the Liquid Radwaste Effluent monitor ORE-PR001 HIGH alarm setpoint to a value below the current activity as follows:				
a. PLACE the RM-11 Console in Supervisor Mode	• PLACE the RM-11 console in the SUPERVISOR mode.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Select the HIGH alarm setpoint (channel item 9) to be changed on the ORE-PR001 (OPS101) CHAN ITEMS display by KEYING in 9 and depressing the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)	• SELECT the HIGH alarm setpoint (channel item #9) to be changed on ORE-PR001 (OPS101) CHAN ITEMS by keying in 9 and DEPRESSING the SEL key.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Record the current activity reading Current activity setting _____	• Record the current activity reading.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Enter a new HIGH alarm setpoint below the current activity value (from the upper right corner of the display) using the format XYZ + AB for XYZ E + AB (i.e. a value of 3.76E-10 would be entered as 376-10).	• ENTER a new HIGH alarm setpoint below the current activity value.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Record the new HIGH alarm setpoint that was entered. (Channel item 9) New activity setting _____	• RECORD the new HIGH alarm setpoint that was entered.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Depress the ENTER key.	• DEPRESS the ENTER key.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. ACKNOWLEDGE the alarm at the RM-11 console.	• ACKNOWLEDGE the alarm at the RM-11 console.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*11. Verify OAOV-WX896, Release Tank Disch Isolation Valve, Auto Closes. Cue: OAOV-WX896 Auto closed.	Contact the local operator to: • VERIFY OAOV-WX896 AUTO CLOSES.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PERFORMANCE CHECKLIST

STANDARDS

SAT UNSAT N/A

12. Verify Release Tank Discharge Header Radiation HIGH alarm (Window 77A09 at OPL01J) annunciates at OPL01J and acknowledge.

Contact the local operator to:

- VERIFY Release Tank discharge Header Radiation High alarm annunciates.

Cue: Release Tank Discharge header Radiation High Alarm annunciates.

*13. Place key locked switch for OAOV-WX896, Release Tank Disch Isolation Valve, in Close.

Contact the local operator to:

PLACE key locked switch for OAOV-WX896 in CLOSE.

Cue: Key locked switch for OAOV-WX896 is in close.

CAUTION

Some actions possible in the SUPERVISOR MODE may have serious detrimental effects on system operation. Therefore use caution when in this mode and do not leave the RM-11 console unattended when it is in this mode.

14. Verify/Adjust the ALERT alarm and HIGH alarm setpoints for ORE-PR001 (OPS101) to the values specified by Health Physics in Step D.7.b using the instructions that follow:

VERIFY/ADJUST the ALERT alarm and HIGH alarm setpoints to the values specified by Health Physics in step D.7.b as follows:

NOTE: Alert alarm should not need to be changed.

a. Place the RM-11 Console in the Supervisor Mode.

- PLACE the RM-11 in the SUPERVISOR mode.

b. Select the ALERT alarm setpoint (channel item 10) to be changed on the ORE-PR001 (OPS101) CHAN ITEMS display by KEYING in 10 and DEPRESSING the SEL key. (Following this CHAN ITEM 10 should be displayed in reverse characters).

- SELECT the ALERT alarm setpoint (channel item #10) to be changed on the ORE-PR001 (OPS101) CHAN ITEMS display by KEYING in 10 and DEPRESSING the SEL key.

c. Enter the new ALERT alarm setpoint using the format XYZ + AB (i.e. a value of 3.76E-10 would be entered as 376-10) and depress the ENTER key. The new value will be displayed after a short delay.

- ENTER the new ALERT alarm setpoint (131-4) and DEPRESS the ENTER key.

PERFORMANCE CHECKLIST

	STANDARDS	SAT	UNSAT	N/A
d. Select the HIGH alarm setpoint (channel item 9) to be changed on the ORE-PR001 (OPS101) CHAN ITEMS display by keying in 9 and depressing the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)	<ul style="list-style-type: none"> • SELECT the HIGH alarm setpoint (channel item #9) to be changed on the ORE-PR001 (OPS101) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Enter the new HIGH alarm setpoint using the format XYZ + AB (i.e. a value of 3.76E-10 would be entered as 376-10) and depress the ENTER key. The new value will be displayed after a short delay.	<ul style="list-style-type: none"> • ENTER the new HIGH alarm setpoint (656-5) and DEPRESS the ENTER key. • INDEPENDENT VERIFICATION obtained. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUE: When asked, Independent Verification is complete.				
15. Verify/Clear Release Tank Discharge Header Radiation High annunciator (Window 77A09 at OPL01J).	Contact the Radwaste Operator and VERIFY/CLEAR Release Tank Discharge Header Radiation High annunciator.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUE: When asked, Release Tank Discharge Header Radiation High annunciator is clear.				
16. Determine step 7 is N/A per previous NOTE.	Determines step 7 is N/A.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE

Step E.8 is not required if ORE-PR010 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated or if ALERT ALARM & HIGH ALARM setpoints have not changed from step D.8.b.

Note: This step is NOT required (because there were no changes to these setpoints), but is included here in case the examinee performs it anyway.

17. Verify/Adjust the ALERT and HIGH setpoints for ORE-PR010 to the values specified by Health Physics in step D.8.b using the instructions that follow:				
a. Select the ALERT alarm setpoint (channel item 10) to be changed on the ORE-PR010 (OPS110) CHAN ITEMS display by keying in "10" and depressing the SEL key. (Following this CHAN ITEM 10 should be displayed in reverse characters.)	<ul style="list-style-type: none"> • SELECT the ALERT alarm setpoint (channel item #10) to be changed on the ORE-PR010 (OPS110) CHAN ITEMS display by KEYING in 10 and DEPRESSING the SEL key. • Determines no actions required. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Enter the new ALERT alarm setpoint using the format XYZ + AB (i.e. a value of 3.76E-10 would be entered as 376-10) and depress the enter key.	<ul style="list-style-type: none"> • ENTER the new ALERT alarm setpoint (819-6) and DEPRESS the ENTER key. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PERFORMANCE CHECKLIST

	STANDARDS	SAT	UNSAT	N/A
c. Select the HIGH alarm setpoint (channel item 9) to be changed on the ORE-PR010 (OPS110) CHAN ITEMS display by keying in 9 and depressing the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters).	<ul style="list-style-type: none"> • SELECT the HIGH alarm setpoint (channel item #9) to be changed on the ORE-PR010 (OPS110) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. • Determines no actions required. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Enter the new HIGH alarm setpoint using the format XYZ + AB (i.e. a value of 3.76E-10 would be entered as 376-10) and depress the enter key. The new value will be displayed after a short delay.	<ul style="list-style-type: none"> • ENTER the new HIGH alarm setpoint (573-6) and DEPRESS the ENTER key. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Place the RM-11 Console in the NORMAL MODE.	<ul style="list-style-type: none"> • PLACE the RM-11 console in the NORMAL mode. • INDEPENDENT VERIFICATION obtained. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CUE: When asked, INDEPENDENT VERIFICATION is complete.

18. Record the following data in the space provided. Obtain/Record the following:

a. Circulating Water Blowdown Rate _____ gpm (OUR-CW032 at PNL OPM01J, or computer point F2400)	<ul style="list-style-type: none"> • Circ Water Blowdown rate from OUR-CW032 at OPM01J, or computer point F2400. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Supervisor Verification	<ul style="list-style-type: none"> • SUPERVISOR VERIFICATION. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cue: Supervisor review is complete				
c. Verify CW Blowdown Rate is Equal to or Greater than 8,000 gpm.	<ul style="list-style-type: none"> • VERIFY CW blowdown rate \geq 8000 gpm. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are an extra NSO.
2. Both Units are at 100% power.
3. OPR01J, OPR10J, and OUR-CW032 are operable.

INITIATING CUES:

1. The Unit Supervisor has handed you a 0WX01T liquid release package, completed through section D, and has directed you to complete the release package through Section E, using the low flowrate path.

SIMULATOR SETUP INSTRUCTIONS

JPM NO: N-32

REQUIRED SIMULATOR MODE(S): ANY

MALFUNCTION #'S: N/A

COMMENTS:

- 1) BwOP WX501T1 needs to be filled out through section D.
- 2) Verify/Start OWX01P on SDG WD5.
- 3) When contacted as Radwaste operator, report:
 - adequate blowdown flow
 - OWX897 is CLOSED
 - OWX890 is CLOSED
 - OWX889 is OPEN
 - Release Tank pump is started
 - Release Tank discharge Header Rad High annunciator is CLEAR.
- 4) When contacted as Radwaste Operator report OWX896 is OPEN.
- 5) When contacted as Radwaste Operator report OWX896 is CLOSED.
- 6) When contacted as RWO, report the Release Header Rad High Alarm is in and has been acknowledged.
- 7) When contacted as RWO, report the high rad alarm is CLEAR.

JOB PERFORMANCE MEASURE

TASK TITLE: Respond to Loss of A 4kV ESF Bus

JPM No.: N-99

REV: 2

K&A No.: 062A2.12

TASK No.: CA-010

K&A IMP: 3.2/3.6

TRAINEE: _____

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.
 FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 2a, 2b, 3, 5

JPM TIME: _____ MINUTES

CRITICAL TIME: NA

APPROX COMPLETION TIME 6 MINUTES

EVALUATION METHOD:

PERFORM
 SIMULATE

LOCATION:

IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. 1BWOA ELEC-3, Rev. 56, Loss of 4kV ESF Bus.

MATERIALS:

Copy of 1BWOA ELEC-3, Attachment C Rev 56.

TASK STANDARDS:

1. Restore power to Bus 142 from Bus 242.

TASK CONDITIONS:

1. You are an extra NSO.
2. Unit 1 is MODE 5.
3. A fault on SAT 142-1 caused SATs 142-1 and 142-2 to trip.
4. Unit 2 is at 100% power with Normal Offsite power aligned.
5. Bus 141 is being energized by 1A EDG.
6. Bus 142 alive light is not lit.

INITIATING CUES:

1. The Unit Supervisor has directed you to re-energize bus 142 from bus 242 per 1BWOA ELEC-3, Attachment C, starting at step 2. Do not load bus 142.

PERFORMANCE CHECKLIST

STANDARDS

SAT UNSAT N/A

RECORD START TIME _____

- | | | | | |
|--|--|---------------------------------|---------------------------------|---------------------------------|
| <p>1. Refer to 1BWOA ELEC-3 Attachment C.</p> | <p>Locate and open 1BWOA ELEC-3 Attachment C to step 2.</p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |
| 2. Check Bus 142 not faulted. | | | | |
| <p>* a. PLACE DG 1B feed breaker control switch in - PULL OUT: ACB 1423</p> | <p>• PLACE ACB 1423 in PULL OUT.</p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |
| <p>* b. Place breaker control switches in -PULL OUT:</p> <ul style="list-style-type: none"> • Non-ESF Bus Tie (ACB 1421) • SAT feed (ACB 1422) • Reserve feed (ACB 1424) | <ul style="list-style-type: none"> • PLACE ACB 1421 in PULL OUT. • PLACE ACB 1422 in PULL OUT. • PLACE ACB 1424 in PULL OUT. | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |
| <p>c. Check Bus 142 lockout alarms-NOT LIT:</p> <ul style="list-style-type: none"> • BUS 142 FD BRKR 1422 TRIP (1-22-A7) • BRKR 1424 CROSS-TIE OVERCURRENT (1-22-B8) • DG 1B OVERLOAD (1-22-B9) | <ul style="list-style-type: none"> • Verifies Bus 142 Fd Brkr 1422 Trip (1-22-A7) NOT LIT. • Verifies Brkr 1424 Cross-Tie Overcurrent (1-22-B8) NOT LIT. • Verifies DG 1B Overload (1-22-B9) NOT LIT. | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |

CUE: After breakers are in pull out, specified annunciators are not lit.

- | | | | | |
|--|--|---------------------------------|---------------------------------|---------------------------------|
| <p>*3. Limit Bus 142 load.</p> | <p>Limit bus 142 load by placing in PULL OUT:</p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |
| Place loads in -Pull Out: | | | | |
| <ul style="list-style-type: none"> • CV pump 1B • RH pump 1B • SI pump 1B • CS pump 1B • CC pump 0 feed from bus 142 • CC pump 1B • SX pump 1B • VC train 0B | <ul style="list-style-type: none"> • 1B CV pump • 1B RH pump • 1B SI pump • 1B CS pump • Bus 142 feed to U-0 CC pump • 1B CC pump • 1B SX pump • VC Train 0B | | | |

NOTE

Energizing Bus 142 from Unit 2 will prevent Bus 142 from supplying Bus 144.

PERFORMANCE CHECKLIST

STANDARDS

SAT UNSAT N/A

4. Energize Bus 142 from Bus
 242.
 Check Unit 2 Bus Tie
 242/244 breaker Open -ACB
 2421.

Request U-2 to CHECK Unit
2 Bus Tie 242/244 breaker
2421 OPEN.

Cue: Unit 2 reports ACB 2421 is
 open.

*5. Sync and close Bus 242/142
 reserve feed breakers:
 ACB 2424
 ACB 1424

- Request U-2 to SYNC
 and CLOSE Bus 242/142
 reserve feed breaker
 ACB 2424.
- SYNC and CLOSE ACB
 1424.
- CHECK bus 142
 ENERGIZED

Cue: Bus Alive light is lit
 Indication on 1EI-AP086

Note: The booth operator will
 report that breaker 2424 is
 closed. Utilize MRF ED007
 CLOSE.

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are an extra NSO.
2. Unit 1 is in MODE 5.
3. A fault on SAT 142-1 caused SATs 142-1 and 142-2 to trip.
4. Unit 2 is at 100% power with Normal Offsite power aligned.
5. Bus 141 is being energized by 1A EDG.
6. Bus 142 alive light is not lit.

INITIATING CUES:

1. The US has directed you to re-energize bus 142 from bus 242 per 1BWOA ELEC-3, Attachment C, starting at step 2.
2. Do not load bus 142.

JOB PERFORMANCE MEASURE

TASK TITLE: RH System Startup for Recirculation

JPM No.: N-139

REV: 0

K&A No.: 005K5.09

TASK No.: RH-001

K&A IMP: 3.2/3.4

TRAINEE: _____

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*)7,14,17,19,20,22

JPM TIME: _____ MINUTES

CRITICAL TIME: NA

APPROX COMPLETION TIME 15 MINUTES

EVALUATION METHOD:

X PERFORM
 SIMULATE

LOCATION:

 IN PLANT
 X SIMULATOR

GENERAL REFERENCES:

- 1. BwOP RH-5 "RH System Startup for Recirculation" Rev 11

MATERIALS:

BwOP RH-5 "RH System Startup for Recirculation" Rev 11

TASK STANDARDS:

- 1. Place the RH system in recirculation.

TASK CONDITIONS:

- 1. You are an extra NSO.
- 2. Unit 1 is in MODE 5.
- 3. The 1B RH Pump was lost due to electrical problems.
- 4. In the process of switching to the 1A RH Train on Unit 1.
- 5. 1A RH Train needs to be sampled prior to aligning for RH cooling per BwOP RH-7

INITIATING CUES:

- 1. The US directs you to align the "A" Train of the RH system for recirculation per BwOP RH-5 "RH System Startup for Recirculation".
- 2. All Prerequisites have been met.

RECORD START TIME _____

Note: Provide cues to the examinee only if actual equipment is unavailable.

- | | | | | | |
|----|-----------------------------|--|---|---|---|
| 1. | Refer to 1BwOP RH-5, Step 1 | Locate and open 1BwOP RH-5, Step 1. Review Precautions, Limitations and Actions. | □ | □ | □ |
|----|-----------------------------|--|---|---|---|

NOTE

If the RH System is being recirculated for sampling, the RH System must be recirculated for a minimum of 15 minutes.

NOTE

It may be necessary to start an additional CC pump to facilitate the high flowrates through the RH Heat Exchanger

- | | | | | | |
|----|--|---|---|---|---|
| 2. | If desired, OPEN MOV-CC9412A/B, CC to RH HX A/B, and VERIFY that the CC flow is between 5000-6000 gpm. | Ensures that 1CC9412A is open.
Ensures CC flow is between 5000 & 6000 gpm. | □ | □ | □ |
|----|--|---|---|---|---|

Cue: 1CC9412A is open.

- | | | | | | |
|----|--|----------------------------------|---|---|---|
| 3. | VERIFY/CLOSE RH8701A & B/8702A & B, RC Loop A/C to RH Pump A/B Suct Isol Vlvs. | Ensures 1RH8701A & B are closed. | □ | □ | □ |
|----|--|----------------------------------|---|---|---|

Cue: 1RH8701A & B are closed.

- | | | | | | |
|----|---|-----------------------------|---|---|---|
| 4. | VERIFY/CLOSE SI8811A/B, Cnmt Sump A/B Isol Vlv. | Ensures 1RH8811A is closed. | □ | □ | □ |
|----|---|-----------------------------|---|---|---|

Cue: 1SI8811A is closed.

- | | | | | | |
|----|---|----------------------------|---|---|---|
| 5. | VERIFY/CLOSE CS009A/B, Cs Pp A/B Sump Suct Vlv. | Ensures 1CS009A is closed. | □ | □ | □ |
|----|---|----------------------------|---|---|---|

Cue: 1CS009A is closed.

- | | | | | | |
|----|---|-----------------------------|---|---|---|
| 6. | VERIFY/CLOSE CV8804A/SI8804B A/B RH HX to CV/SI Pp Suct Isol Vlv. | Ensures 1CV8804A is closed. | □ | □ | □ |
|----|---|-----------------------------|---|---|---|

Cue: 1CV8804A is closed.

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
*7. VERIFY/OPEN SI8812A/B, RH Pp A/B Suct from RWST Isol Vlv.	Opens 1SI8812A.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cue: 1SI8812A is open.				
8. VERIFY/LOCK OPEN RH8724A/B, RH Pp A/B Manual Dsch Isol Vlv.	Contacts local operator and ensures 1RH8724A is locked open.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cue: NLO reports that 1RH8724A is locked open.				
9. VERIFY/CLOSE SI8840, RH to Hot Legs A & C Isol Vlv.	Ensures 1SI8840 is closed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cue: 1SI8840 is closed.				
10. VERIFY that the RH610/611, RH Pp A/B Miniflow Vlv, is in the AUTO position and OPEN.	Ensures that 1RH610 is open and the switch is in AUTO.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cue: 1RH610 is open 1RH610 controller is in Auto.				
11. In MODES 1-3, VERIFY/LOCK CLOSE the following valves: a. RH8734A, RH Train "A" to CV Letdown Isol Vlv, (U1 364' S-14/U2 364'S-22) b. RH8734B, RH Train "B" to CV Letdown Isol Vlv, (U1 364'V-14/U2 364 V-23)	Determines the step is N/A.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CAUTION

Letdown must be maintained from at least one RH train whenever the RCS is water solid.

12. In MODES 4-6, VERIFY/LOCK CLOSE RH 8734A/B, RH Train A/B to CV Ltdn Isol Vlv., for the applicable train being placed on recirc.	Directs local operator to Lock Closed 1RH8734A.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cue: Local operator reports 1RH8734A is locked closed.				

CAUTION

Performance of the next step, closure of RH606/607 will make its respective train inoperable. Notify the Shift Manager to initiate the applicable LCOAR.

- | | | | | | |
|-----|--|----------------|--------------------------|--------------------------|--------------------------|
| 13. | If desired, CLOSE
RH606/607, RH HX A/B
Outlet Flow Cont Vlv. | Closes 1RH606. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|-----|--|----------------|--------------------------|--------------------------|--------------------------|

Cue: 1RH606 is closed.

- | | | | | | |
|------|---|--|--------------------------|--------------------------|--------------------------|
| *14. | VERIFY/CLOSE in MANUAL
RH618/619, RH HX A/B
Bypass Flow Cont Vlv. | <ul style="list-style-type: none"> • Places 1RH618 in MANUAL. • Closes 1RH618. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|------|---|--|--------------------------|--------------------------|--------------------------|

Cue: 1RH618 is closed
1RH618 controller is in Manual.

- | | | | | | |
|-----|--|------------------------|--------------------------|--------------------------|--------------------------|
| 15. | For MODE 1,2 and 3
VERIFY/OPEN RH8716A and
B, RH HX A and B Dsch Hdr
X-tie Vlv. | Determines step is N/A | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|-----|--|------------------------|--------------------------|--------------------------|--------------------------|

CAUTION

In the event of a safeguards actuation, the RH8716A/B must be immediately reopened, at PM06J.

- | | | | | | |
|-----|--|--|--------------------------|--------------------------|--------------------------|
| 16. | For MODE 4, VERIFY/CLOSE
RH8716A/B for the train
NOT being recirculated.
For MODES 5 and 6
VERIFY/PLACE OOS CLOSED
RH8716A/B, RH HX A/B
Dsch Hdr X-tie Vlv for the
train NOT being
recirculated. | Ensures 1RH8716B is
closed and OOS. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|-----|--|--|--------------------------|--------------------------|--------------------------|

Cue: 1RH8716B is closed.

NOTE

SI8809A/B, RH to Cold Legs A & D/ B & C, must be OPEN in MODES 1-4. Prior to starting the RH on Recrc, ENSURE RCS pressure >300 psig, to prevent discharging the RWST to the RCS loops.

- | | | | | | |
|------|--|--|--------------------------|--------------------------|--------------------------|
| *17. | In MODES 5 and 6, IF RCS
pressure is less than 300
psig, THEN CLOSE
SI8809A/B, RH to Cold
Legs A & D/B & C Isol
Vlv, for the train being
recirculated. | Directs Local Operator to
close 1SI8809A. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|------|--|--|--------------------------|--------------------------|--------------------------|

NOTE: Will only be performed if
RCS pressure < 300 psig.

CAUTION

In MODES 1-3, _RH8735 must be maintained closed. In MODE 4,5, and 6 an operator must be stationed near the _RH8735 valve, while the RH system is recirculating back to the RWST. In the event of a safeguards actuation, _RH8735 must be immediately closed, to maintain system flow available to all four cold legs. Communications must be established between the operator and the control room.

NOTE

If the RH System is to be run on Miniflow (_RH610/611) Recirculation, then go to BwOP RH-2, securing the RH system from Recirculation when shutdown is desired.

- | | | | | |
|---|------------------------|--------------------------|--------------------------|--------------------------|
| 18. Obtain the Shift Managers (or designee's) permission to open <u>_RH8735</u> , RH Recirc to RWST Isol Vlv, Locked Closed Vlave, and OBTAIN the required key. | Receives SM permission | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|---|------------------------|--------------------------|--------------------------|--------------------------|

Cue: Shift Manager has given permission to open 1RH8735. Local operator is standing by 1RH8735 with the required key.

- | | | | | |
|---|---|--------------------------|--------------------------|--------------------------|
| *19. If desired, UNLOCK and OPEN <u>_RH8735</u> (U1 364' S-13+11'/U2 364' S-23+11') RH Recirc to RWST Isol Vlv, and COMPLETE OP-AA-101-301.03, Abnormal Component Position Sheet. | Directs local operator to open 1RH8735. Notifies US requirement to complete OP-AA-101-301.03. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|---|---|--------------------------|--------------------------|--------------------------|

**Cue: Unit Supervisor has prepared OP-AA-101-301.03.
Cue: 1RH8735 is Unlocked and Open.**

NOTE

When starting an RH Pump, the control switch for _RH610/611, RH Pump Recirc Valve, should be held in the open position until pump flow stabilizes, then the control switch may be returned to AUTO. This prevents the RH pump from being deadheaded due to flow perturbations on the RH Pump start, reducing the possibility of RH pump damage.

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
*20. Start the RH pump per the following: a. HOLD the control switch for RH610/611, RH Pp A/B Miniflow Valve, to OPEN while starting the RH Pump. b. START RH01PA/B, RH Pump A/B. c. SLOWLY PLACE the control switch for RH610/611, RH Pp A/B Miniflow Valve, to the AUTO position.	<ul style="list-style-type: none"> • Holds 1RH610 control switch to open. • Starts to 1A RH Pump • Places 1RH610 controller to the AUTO position. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Cue: 1A RH Pump is running.
1RH610 is in Auto.

21. MONITOR RH Pump A/B flow and VERIFY that the Miniflow Valve, RH610/611, is maintaining a minimum of 500 gpm flow rate.	Ensures that a minimum of 500 gpm flow rate is obtained.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--	--------------------------	--------------------------	--------------------------

Cue: Local operator reports 1000 gpm on local gage.

*22. If recirculating back to the RWST, THEN ADJUST RH618/619, RH HX A/B Bypass flow control valve, until a flow of approximately 3300 gpm is established, or until the desired flow rate is established.	Adjusts 1RH618 to obtain a flow of approximately 3300 gpm (+300gpm)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	---	--------------------------	--------------------------	--------------------------

Cue: 1FI-618 indicates 3300 gpm.

NOTE

When the Pressurizer is water solid and RH is operating, it is desired to maintain RH flow rate at least 3000 gpm due to LTOP concerns.

23. At approximately 3300 gpm, PLACE RH618/619, RH HX A/B Bypass Flow Cont Vlv, Flow Controller in the AUTO position.	Places the 1RH618 flow control valve in AUTO.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	---	--------------------------	--------------------------	--------------------------

Cue: 1RH618 controller is in the Auto position.

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS

1. You are an extra NSO.
2. Unit 1 is in MODE 5.
3. The 1B RH Pump was lost due to electrical problems.
4. In the process of switching to the 1A RH Train on Unit 1.
5. 1A RH Train needs to be sampled prior to aligning for RH cooling per BwOP RH-7

INITIATING CUES:

1. The US directs you to align the "A" Train of the RH system for recirculation per BwOP RH-5 "RH System Startup for Recirculation".
2. All Prerequisites have been met.

JOB PERFORMANCE MEASURE

TASK TITLE: Respond to Source Range NI Failure

JPM No.: N-141

Task No: OA-053

K&A No.: 015A2.01

K&A IMP. 3.5/3.9

Trainee: _____

Evaluator: _____

DATE: ___/___/___

The Trainee: PASSED _____ this JPM

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*)2,4,5,6,7,8

JPM TIME: _____ MINUTES

CRITICAL TIME: N/A

APPROX COMP TIME 12 MINUTES

EVALUATION METHOD: PERFORM _____

SIMULATE _____

LOCATION: IN PLANT _____

SIMULATOR _____

MATERIALS:

None

GENERAL REFERENCES:

BWOA INST-1, "Nuclear Instrumentation Malfunction" Rev 54

TASK STANDARDS:

Respond to a Second Source Range NI Failure.

TASK CONDITIONS:

1. You are the Unit NSO.
2. The Unit is in MODE 5.
3. One hour ago N-31 failed low. All actions of 1BWOA INST-1 have been completed.
4. N-32 has just failed.
5. Bus 142 is de-energized due to SAT failure

INITIATING CUES:

1. Perform the actions of 1BWOA INST-1 for the failed N-32 Source Range channel.

PERFORMANCE CHECKLIST

STANDARDS

SAT

UNSAT

N/A

RECORD START TIME _____

1. Refer to BWOA INST-1, Nuclear Instrument Malfunction. Locate and open BWOA INST-1 Attachment C.

*2. Check SR Required: Determines P6 should be lit but is not due to SAT failure.
• SR Block Permissive P6

Cue: Bypass Permissive Panel is deenergized and P6 is in the appropriate status for current plant conditions

3. Check Audio Count Rate Channel: Determines that this step is not applicable (2 failed channels)
• Operable channel - SELECTED AT 1PM07J

*4. Check Unit MODE: Determines Unit in MODE 5 and transitions to step 5.
Unit in MODE 2
Unit in MODE 3,4,5
Unit in MODE 6

PERFORMANCE CHECKLIST

STANDARDS

SAT

UNSAT

N/A

*5. Determine MODE 3,4, or 5 Actions:

Check SR channels-Only one failed

Cue: May dispatch operator to check bypass breakers. If so bypass breakers are racked out.

Cue: No positive reactivity additions in progress.

Determines that 2 SR channels have failed and transition to the RNO column:

- Verifies reactor trip and bypass breakers are open
- Suspend positive reactivity additions (N/A)
- Required actions of LCOAR 1BwOL 3.3.9, BDPS (Informs Unit Supervisor)
- Monitor Source Range counts (OPM02J):
1NI-NR005B (Computer Point N0063)
1NI-NR006B (Computer Point N0062) (determines this is de-energized)

Cue: Unit Supervisor will take the actions of 1BwOL 3.3.9

Once the NSO begins to monitor SR counts on OPM02J or computer points, inform NSO that an extra NSO will continue to monitor.

*6 Place LEVEL TRIP switch for the affected channel(s) on 1PM07J in BYPASS

Place LEVEL TRIP switch for N-32 in BYPASS

Cue: Level Trip switch for N-32 in BYPASS.

PERFORMANCE CHECKLIST

STANDARDS

SAT

UNSAT

N/A

*7. Place HIGH FLUX AT SHUTDOWN switch for the affected channel(s) on 1PM07J in-BLOCK.

Place HIGH FLUX AT SHUTDOWN switch for N-32 in BLOCK

Cue: HIGH FLUX AT SHUTDOWN switch for N-32 in BLOCK.

*8. Place both BDPS RESET/BLOCK switches to BLOCK:

Places BDPS for Train A/B in BLOCK.

Train A

Train B

Cue: BDPS for Train A/B in BLOCK

9. Check CV pump suction aligned to VCT:

- Check VCT level greater than 37%
- Check VCT pressure between 15 psig and 65 psig
- VCT outlet isol valves OPEN:
1CV112B
1CV112C
- RWST to CV pump suction valve(s)-Closed
1CV112D
1CV112E

Verifies VCT level >37% and pressure between 15-65 psig.

Verifies 1CV112B/C are open.

Verifies 1CV112D/E are closed.

**Cue: VCT Level 41%
VCT Pressure 25 psig
1CV112B/C Open
1CV112D/E Closed**

Note: Ensure student does not interfere with the RH JPM.

PERFORMANCE CHECKLIST

STANDARDS

SAT

UNSAT

N/A

10. Bypass BDPS signal for the affected SR channel:

Places BDPS TEST-NORMAL switch to TEST

- Place BDPS TEST-NORMAL switch on card NM107 (inside SR drawer) in-TEST:

NOTE: Use in book diagram to show how to operate switch.

NOTE: Simulator Operator action: IRF RP25 to BYPASS.

- Check BDPS BYPASSED-LIT

Cue: BDPS TEST-NORMAL switch is in TEST

11. Check BDPS BYPASSED (1-10-D3)- LIT.

Check BDPS BYPASSED - LIT

Cue: (1-10-D3) is LIT

12. Check BDPS - OPERABLE
Refer to Tech Spec 3.3.9

Informs Unit Supervisor to verify operability of BDPS per Tech Spec 3.3.9.

Transitions to step 5.i

Cue: Unit Supervisor states that BDPS is inoperable.

PERFORMANCE CHECKLIST

STANDARDS

SAT

UNSAT

N/A

13. Notify US to evaluate
Tech Specs.

Inform US to Evaluate
T.S.

Cue: US Notified

Cue: THIS COMPLETES JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are the Unit NSO.
2. The Unit is in MODE 5.
3. One hour ago N-31 failed low. All actions of 1BwOA INST-1 have been completed.
4. N-32 has just failed.
5. Bus 142 is de-energized due to SAT failure.

INITIATING CUES:

1. Perform the actions of 1BwOA INST-1 for the failed N-32 Source Range channel.

JOB PERFORMANCE MEASURE

TASK TITLE: **Perform Local Emergency Boration**

JPM No.: **N-89**

REV: 2

TPO No.: IV.D.OA-08

K&A No.: APE068AA1.08

TASK No.: OA-033

K&A IMP: 4.2/4.2

TRAINEE: _____

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.

FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

CRITICAL ELEMENTS: **(*), 2, 3**

JPM TIME: _____ MINUTES

CRITICAL TIME: **NA**

APPROX COMPLETION TIME **8** MINUTES

EVALUATION METHOD:

PERFORM
 X SIMULATE

LOCATION:

 X IN PLANT
SIMULATOR

GENERAL REFERENCES:

1. 2BwOA PRI-2 Rev. 58, Emergency Boration

MATERIALS:

Copy of 2BwOA PRI-2

TASK STANDARDS:

1. Establish an emergency boration flowpath locally.

TASK CONDITIONS:

1. You are the Unit 2 Safe Shutdown NLO.
2. There has been a fire in the MCR requiring evacuation.
3. Both Remote Shutdown Panels are manned and a Unit shutdown is in progress on both units.
4. Unit 2 is currently in 2BwOA PRI-2 "Emergency Boration".
5. 2CV8104 will NOT open from the RSDP.
6. The boric acid filter has been determined clogged.
7. Alternate boration flow from the RWST can not be established.

INITIATING CUES:

1. The US has directed you to establish an emergency boration flowpath per 2BwOA PRI-2 step 2.a RNO.

PERFORMANCE CHECKLIST

STANDARDS

SAT UNSAT N/A

RECORD START TIME _____

- | | | | | |
|--|--|---------------------------------|---------------------------------|---------------------------------|
| <p>1. Refer to 2BwOA PRI-2 step 2.a RNO.</p> | <ul style="list-style-type: none"> • Locate and open 2BwOA PRI-2 to step 2a RNO. • Determines correct portion of 2a RNO. | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |
|--|--|---------------------------------|---------------------------------|---------------------------------|

CUE: After examinee has located the procedure, provide him with a copy.

- | | | | | |
|--|--|---------------------------------|---------------------------------|---------------------------------|
| <p>*2.If the boric acid filter is plugged, THEN bypass the filter by opening the boric acid filter supply to boric acid tank valve:
2AB8458 (401' N17)</p> | <p>Determines boric acid filter is plugged from initial conditions.</p> <p>Opens valve 2AB8458</p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |
|--|--|---------------------------------|---------------------------------|---------------------------------|

Cue: 2AB8458 is open

- | | | | | |
|---|--|---------------------------------|---------------------------------|---------------------------------|
| <p>*3.Manually or locally open emergency boration valve:</p> <ul style="list-style-type: none"> - 2CV8104 (426' Q19 VCT Valve Aisle) - (MCC 232X5 B1) | <p>Establish local emergency boration flowpath through 2CV8104 as follows:</p> <ul style="list-style-type: none"> • LOCATE MCC232X5 B1 • DE-ENERGIZE MCC232X5 B1 • LOCATE 2CV8104 (426' Q19 VCT Valve Aisle) • OPEN 2CV8104 Emergency Boration valve | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> | <p><input type="checkbox"/></p> |
|---|--|---------------------------------|---------------------------------|---------------------------------|

Cue: Breaker at MCC232X5 B1 is open

Note: Ensure motor is declutched from handwheel 2CV8104 is open

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are the Unit 2 Safe Shutdown NLO.
2. There has been a fire in the MCR requiring evacuation.
3. Both Remote Shutdown Panels are manned and a Unit shutdown is in progress on both units.
4. Unit 2 is currently in 2BwOA PRI-2 "Emergency Boration".
5. 2CV8104 will NOT open from the RSDP.
6. The boric acid filter has been determined clogged.
7. Alternate boration flow from the RWST can not be established.

INITIATING CUES:

1. The US has directed you to establish an emergency boration flowpath per 2BwOA PRI-2 step 2.a RNO.

JOB PERFORMANCE MEASURE

TASK TITLE: Establish Local Emergency Control of the 2A SX Pump.

JPM No.: N-67

REV: 8

TPO No.: IV.D.OA-35

K&A No.: 013A4.01
2.1.30

TASK No.: OA-099

K&A IMP: 4.5/4.8
3.9/3.4

TRAINEE: _____

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 11,13

JPM TIME: _____ MINUTES

CRITICAL TIME: NA

APPROX COMPLETION TIME 16 MINUTES

EVALUATION METHOD:

PERFORM
 X SIMULATE

LOCATION:

X IN PLANT
SIMULATOR

GENERAL REFERENCES:

1. 2BwOA ELEC-5, Att. A, Rev. 54, Local Emergency Control of Safe Shutdown Equipment Unit 2.

MATERIALS:

Copy of 2BwOA ELEC-5, Att. A; F-2 Key to obtain electrical safety equipment and tools, and laser pointer.

TASK STANDARDS:

1. Perform a local emergency start of 2A SX pump.

TASK CONDITIONS:

1. You are an NLO assigned to assist the shift.
2. U-2 has just tripped in conjunction with an electrical fire in the U2 Remote Shutdown Panel.
3. 2B SX pump has tripped on overcurrent, and the SX systems can not be cross-tied.
4. The 2A SX pump will not manually start with the MCR switch.

INITIATING CUES:

1. The Shift Manager has directed you to perform a local emergency start of 2A SX pump per 2BwOA ELEC-5 Attachment A.

RECORD START TIME _____

Note(s): Prompt the use of a laser pointer to show the location of required actions inside electrical cabinets. After locating the correct breaker cubicle, move to an unassigned cubicle to complete the JPM. DO NOT OPEN THE DOOR TO THE 2A SX PUMP BREAKER CUBICLE.

- | | | | | | |
|----|------------------------|--|---|---|---|
| 1. | Refer to 2BwOA ELEC-5. | Locate and Open 2BwOA ELEC-5 and determine that Attachment A step 1 is applicable: | □ | □ | □ |
|----|------------------------|--|---|---|---|

CUE: After the correct procedure is located, provide a copy.

CAUTION

EITHER of the following will disable protective trips on 4KV or 6.9KV equipment:

- o Loss of DC control power
- o Control power fuses removed

- | | | | | | |
|----|--|------------------------------------|---|---|---|
| 2. | Proceed to 2A SX pump breaker cubicle. | Locate 2A SX pump breaker cubicle. | □ | □ | □ |
|----|--|------------------------------------|---|---|---|

CUE: When cubicle is located, move to unassigned cubicle.

- | | | | | | |
|----|--|---|---|---|---|
| 3. | Local Closing of 4KV or 6.9KV Breakers:
Check breaker - RACKED IN | Perform the following to attempt local closure of 2A SX pump breaker:
• CHECK breaker RACKED IN. | □ | □ | □ |
|----|--|---|---|---|---|

Cue: 2A SX Pump breaker is RACKED IN.

- | | | | | | |
|----|------------------------------|-----------------------------|---|---|---|
| 4. | Check relay targets - NOT UP | CHECK relay targets NOT UP. | □ | □ | □ |
|----|------------------------------|-----------------------------|---|---|---|

Cue: No targets are up.

- | | | | | | |
|----|--|---|---|---|---|
| 5. | Check trip and close circuit fuses - INSTALLED | CHECK trip and close circuit fuses INSTALLED. | □ | □ | □ |
|----|--|---|---|---|---|

Cue: Fuses are installed.

- | | | | | | |
|----|------------------------------|-------------------------------|---|---|---|
| 6. | Check closing spring CHARGED | CHECK closing spring CHARGED. | □ | □ | □ |
|----|------------------------------|-------------------------------|---|---|---|

Cue: Closing spring is charged.

PERFORMANCE CHECKLIST

STANDARDS

SAT UNSAT N/A

7. Verify MCR control switch in - AFTER TRIP

VERIFY MCR control switch in AFTER TRIP.

Cue: MCR switch is in AFTER TRIP

8. Close breaker with the close reach rod.

Don or simulate donning PPE for HVS (must occur before attempting closure with reach rod)

o CLOSE breaker using the close reach rod.

Cue: Breaker trips back open. If another attempt is made, breaker trips open again.

o Inform SM/US of failed attempts.

Cue: If contacted as SM/US acknowledge failed attempt(s) and direct continuing with procedure. The 2B SX pump and unit crosstie are still not available.

9. Verify equipment-RUNNING

o Determines the 2A SX pump is not running from previous actions.
o Transitions to step 2.

Cue: Breaker CLOSED light is NOT LIT, OPEN light is LIT. If asked as NSO in MCR, NO run current indicated at MCB. If asked as NLO at pump, pump is NOT running.

CAUTION

DO NOT attempt to close a breaker without control power if its power cable is damaged.

10. Start of equipment without control power:

Determines 2A SX pump is still the pump to start.

- Select equipment for start without control power
- Check relay targets-not up

Verifies no relay targets are up.

Cue: Relay Targets not up.

Note: HVS PPE must be worn (or simulated being worn as discussed previously) for this next step.

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
*11. Pull trip and close circuit fuses. Cue: Trip and Close circuit fuses are removed.	Dons protective equipment Pulls trip and close circuit fuses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Check closing spring-CHARGED Cue: Closing spring is charged.	Verifies closing spring is charged.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*13. Close breaker with close reach rod Cue: Breaker is closed.	Closes the 2A SX pump breaker with the reach rod.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Verify equipment running. CUE: Breaker indicates CLOSED. If asked as MCR NSO, report run current indicated. If asked as NLO at pump, report pump is running, and cubicle cooler is running	Verify 2A SX pump is running: o Breaker indicates CLOSED. o Ammeter at MCB indicates RUN CURRENT. o Local observation. o Cubicle cooler is RUNNING.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are an NLO assigned to assist the shift.
2. U-2 has just tripped in conjunction with an electrical fire in the U2 Remote Shutdown Panel.
2. 2B SX pump has tripped on overcurrent, and the SX systems can not be cross-tied.
4. The 2A SX pump will not manually start with the MCR switch.

INITIATING CUES:

1. The Shift Manager has directed you to perform a local emergency start of 2A SX pump per 2BWOA ELEC-5 Attachment A,

JOB PERFORMANCE MEASURE

TASK TITLE: Local Reset of SI Signal

JPM No.: N-85

REV: 5

TPO No.: IV.D.OA-27

K&A No.: E02EA1.1

TASK No.: EP-027

K&A IMP: 4.0/3.9

TRAINEE: _____

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 3

JPM TIME: _____ MINUTES

CRITICAL TIME: NA

APPROX COMPLETION TIME 15 MINUTES

EVALUATION METHOD:

LOCATION:

____ PERFORM
 X SIMULATE

X IN PLANT
____ SIMULATOR

GENERAL REFERENCES:

1. 2BwOA PRI-5, Rev. 57D, Control Room Inaccessability, Attachment E ESF Manual Block or Reset.

MATERIALS:

- 2BwOA PRI-5 Attachment E
- 2PA10J cabinet key, Laser Pointer.

TASK STANDARDS:

1. Reset Safety Injection signal as required by 2BwOA PRI-5, Attachment E.

TASK CONDITIONS:

1. You are an extra NSO.
2. An inadvertant SI has occurred and the transition from 2BwEP-0 to 2BwEP ES-1.1 has just been made.
3. The resetting of SI from the MCB was unsuccessful for Train B.

INITIATING CUES:

1. The US directs you to locally reset Train B per 2BwOA PRI-5, Attachment E. No habitability concerns exist for entry into the AEER.

INSTRUCTOR INFORMATION: PROMPT the use of a LASER pointer to show the location of required actions inside electrical cabinets.

- | | | | | | |
|----|-------------------------------------|--|---|---|---|
| 1. | Refer to 2BWOA PRI-5, Attachment E. | Locate and open 2BWOA PRI-5, Attachment E.
Determine entry can be made into the U-2 AEER. | □ | □ | □ |
|----|-------------------------------------|--|---|---|---|

Notes: After operator locates the procedure, provide a copy. Initiating cue provided information that allows AEER entry. If actually going to the RSP, have the examinee locate the jumpers and keys, but do not allow them to be removed from the cabinet. Keys may be obtained from the key cabinet in the shift office or from the MCR rack.)

- | | | | |
|---|---|---|---|
| Obtain the following: | □ | □ | □ |
| <ul style="list-style-type: none"> • Key to EF cabinet (2PA10J) from RSP. • 2 Jumpers from cabinet at RSP or MCR. | | | |

- | | | | | | |
|----|---|--|---|---|---|
| 2. | Determine Reactor Trip Breaker (P4) status. | VERIFY:
Reactor Trip Breakers OPEN (P4 Actuated) by either of the following: | □ | □ | □ |
|----|---|--|---|---|---|

CUE: P4 Bypass Permissive is in solid, both trip breakers are OPEN

- o Call the control room to obtain status.
- o Check breakers locally.

PERFORMANCE CHECKLIST

STANDARDS

SAT UNSAT N/A

- *3. Install jumpers across terminal points listed below for Trains A and/or B:
 - a. Install TWO jumpers per train to -RESET:

In the AEER (Aux bldg, 451 elev),

At 2PA10J, Unlock and OPEN the rear of 2PA10J.

TRAIN B Rear of Logic Cabinet - 2PA10J Terminal Board TB505 points 7 and 8 (Resets SI signal, blocks Auto SI)

Rear of Output Cabinet - 2PA10J Terminal Board TB644 points 9 and 10 (Unlatches slave relays)

Reset Train B SI:
INSTALL a jumper at each of the following:

- Rear of LOGIC Cabinet, Terminal Board TB505, points 7 and 8.
- Rear of OUTPUT Cabinet, Terminal Board TB644, points 9 and 10.

CUE: Inform examinee that all required actions in 2PA10J are to be simulated, and DO NOT break the plane of 2PA10J.

CUE: Jumper installed across points 7 and 8.

CUE: Jumper installed across points 9 and 10.

CUE: If either of the jumpers were installed improperly, then when the candidate requests the status of the Train B SI signal, provide the following: The control room reports that Train B SI signal is still active.

- b. Check K602 relay(s) DEENERGIZED. Ensures K602 relay DE-ENERGIZED at 2PA10J.
 - o Train A (2PA09J)
 - o Train B (2PA10J)

CUE: K602 post is OUT.

- c. Remove jumpers Removes both jumpers that were previously installed utilizing appropriate safety precautions.
 - Both jumpers.

(CUE: Both jumpers are removed)

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are an extra NSO.
2. An inadvertent SI has occurred and the transition from 2BwEP-0 to 2BwEP ES-1.1 has just been made.
3. The resetting of SI from the MCB was unsuccessful for Train B.

INITIATING CUES:

1. The US directs you to locally reset Train B per 2BWOA PRI-5, Attachment E. No habitability concerns exist for entry into the AEER.