

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Loss of reactor coolant has occurred

Quench spray has actuated due to a valid containment depressurization signal

1-E-1, Loss of Reactor or Secondary Coolant, has been entered

Containment pressure is less than 12 psia

**INITIATING CUE**

You are requested to terminate quench spray in accordance with 1-E-1, Attachment 3, Termination of Quench Spray.

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R755

**TASK**

Terminate quench spray (1-E-1).

**TASK STANDARDS**

QS pumps were placed in auto, QS pumps with discharge MOVs were closed, and CAT outlet MOVs were closed.

**K/A REFERENCE:**

026-A4.05 (3.5/3.5)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 8 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                                     SATISFACTORY                                     UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station

**JOB PERFORMANCE MEASURE  
(Evaluation)**

**OPERATOR PROGRAM**

**R755**

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level.

### **INITIAL CONDITIONS**

Loss of reactor coolant has occurred

Quench spray has actuated due to a valid containment depressurization signal

1-E-1, "Loss of Reactor or Secondary Coolant," has been entered

Containment pressure is less than 12 psia

### **INITIATING CUE**

You are requested to terminate quench spray in accordance with 1-E-1, Attachment 3, Termination of Quench Spray.

### **EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

### **TOOLS AND EQUIPMENT**

Copy 1-E-1, Attachment 3.

**PERFORMANCE STEPS**

START TIME \_\_\_\_\_

---

1	Reset both trains of CDA using the spray actuation reset switches.	Procedure Step 1-E-1, Att. 3 Step 1
---	--------------------------------------------------------------------	----------------------------------------

SAT [ ] UNSAT [ ]

<u>Standards</u>	Both Spray Actuation Reset switches are momentarily placed in RESET <b>OR</b> Annunciator 1K-H6, CDA INITIATED is verified NOT LIT.
------------------	-------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
CDA was previously reset by 1-E-1, Step 9.

---

2	Stop both quench spray pumps.	Procedure Step 1-E-1, Att. 3 Step 2
---	-------------------------------	----------------------------------------

<b>Critical Step</b>	SAT [ ] UNSAT [ ]
----------------------	-------------------

<u>Standards</u>	Operator stops the following pumps by momentarily placing their respective control switches in STOP.  • 1-QS-P-1A <b>AND</b> • 1-QS-P-1B
------------------	------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

3	Close quench spray pump discharge valves 1-QS-MOV-101A and 1-QS-MOV-101B.	Procedure Step 1-E-1, Att. 3 Step 3
---	---------------------------------------------------------------------------	-------------------------------------

<b>Critical Step</b>	SAT [ ] UNSAT [ ]
----------------------	-------------------

<u>Standards</u>	<p>Operator closes the following valves by momentarily depressing their respective CLOSE push-buttons:</p> <ul style="list-style-type: none"> <li>• 1-QS-MOV-101A</li> <li style="text-align: center;"><b>AND</b></li> <li>• 1-QS-MOV-101B</li> </ul>
------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

4	Close chemical addition tank outlet valves 1-QS-MOV-102A and 1-QS-MOV-102B.	Procedure Step 1-E-1, Att. 3 Step 4
---	-----------------------------------------------------------------------------	-------------------------------------

<b>Critical Step</b>	SAT [ ] UNSAT [ ]
----------------------	-------------------

<u>Standards</u>	<p>Operator closes the following valves by momentarily placing their respective Control switches in CLOSE:</p> <ul style="list-style-type: none"> <li>• 1-QS-MOV-102A</li> <li style="text-align: center;"><b>AND</b></li> <li>• 1-QS-MOV-102B</li> </ul>
------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

**END OF EVALUATION**

STOP TIME \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

\_\_\_\_\_ Recall IC 174

**Instructor Note:**

- The step for securing QS pumps requires RWST level to be < 3% and QS pumps fluctuating.
  
- To simulate fluctuation of QS pump amps the instructor must toggle two variables as follows:
  - Call up MONITOR and type qsp1a ENTER then qsp1b ENTER.
  
  - To toggle the two variables type 1,2=1 ENTER.
  
  - To repeat, depress up arrow then ENTER.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

10820

**TASK**

Restore RHR flow

**TASK STANDARDS**

1-RH-P-1A was stopped and 1-RH-P-1B was started with flow restored to 3000-4000 gpm

**K/A REFERENCE:**

005-A4.01 (3.6/3.4)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 10 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                       SATISFACTORY                       UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

10820

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

**INITIAL CONDITIONS**

Unit 1 is in mode 4

"A" RHR pump is running, "B" RHR pump is available

Annunciator E-A8, RHR SYSTEM LOW FLOW, has just lit

The Crew has entered 1-AP-11, Loss of RHR

Step 1 of 1-AP-11 has been completed and the crew has determined that RCS level is **NOT** decreasing.

**INITIATING CUE**

You are requested to continue 1-AP-11, beginning at Step 5, and restore Residual Heat Removal flow to approximately 3,400 gpm.

**EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

**TOOLS AND EQUIPMENT**

None

**PERFORMANCE STEPS**

START TIME \_\_\_\_\_

**Note: Operator may elect to review the following procedure cautions since they precede Step 1 of the procedure.**

- CAUTION:**
- RCS make-up concentration **MUST** be greater than or equal to current Shutdown Margin and Boron concentration requirements of the COLR.
  - Changes in RCS pressure due to boiling in the core can result in Reactor Vessel water level changes that may not show on RCS standpipe level indicator 1-RC-LI-103.

---

1	Verify that the Residual Heat Removal System inlet isolation valves are open.	Procedure Step 5.a of 1-AP-11
---	-------------------------------------------------------------------------------	-------------------------------

SAT [ ] UNSAT [ ]

<u>Standards</u>	Operator completes the following actions. <ul style="list-style-type: none"><li>• Verifies that 1-RH-MOV-1700 is open</li><li>• Notes that 1-RH-MOV-1701 indicates mid-position</li></ul>
------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

2	Stop RHR pump(s). <b>(Alternate path step)</b>	Procedure Step 5.a RNO (1) of 1-AP-11
---	---------------------------------------------------	---------------------------------------------

SAT  UNSAT

<u>Standards</u>	1-RH-P-1A is stopped
------------------	----------------------

Notes/Comments
----------------

3	Open 1-RH-MOV-1701 after RCS pressure is verified less than 418 psig	Procedure Step 5.a RNO (2) & (3) of 1-AP-11
---	----------------------------------------------------------------------	---------------------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	1-RH-MOV-1701 is opened
------------------	-------------------------

<u>Performance Cue(s)</u>	<b>IF</b> required provide cue that during breaker testing (checking contactors) by the electrical department, 1-RH-MOV-1701 was inadvertently closed (they were on the wrong component and have since restored), and the SM authorizes re-opening the valve.
---------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

4	Verify that at least one Residual Heat Removal System outlet valve is open.	Procedure Step 5.b of 1-AP-11
---	-----------------------------------------------------------------------------	-------------------------------

SAT  UNSAT

<u>Standards</u>	Operator confirms that one RHR outlet valve is open (1-RH-MOV-1720A)
------------------	----------------------------------------------------------------------

<u>Notes/Comments</u>
Normal plant configuration is only one of the valves (1-RH-MOV-1720A <b>OR</b> B) is open.

**Note: Operator reads the following procedure caution and note.**

**CAUTION:** RHR flow less than minimum requirements may cause RCS temperature to increase.

**NOTE:** • Operating at low RHR system flow rates during reduced inventory operations greatly reduces the risk of air entrainment (vortexing).

- Indications of a pump sheared shaft are low flow and low motor amps. A degraded pump or a pump with a sheared shaft is to be considered as NOT running.

**Evaluators Note:** Step 6 is Check ONE RHR pump running, operator will answer "NO" and go to the RNO column.

5	RNO 6a) IF the other RHR pump is available, THEN stop any degraded RHR pump. RNO 6b) IF a degraded RHR pump is running AND the other RHR pump is NOT available, THEN GO TO Step 7.	Procedure Step 6a & b RNO of 1-AP-11
---	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator N/As step 6a and 6b RNO since there is <ul style="list-style-type: none"> <li>• No degraded RHR pump</li> <li style="padding-left: 20px;">And</li> <li>• The both RHR pump are available</li> </ul>
------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Notes/Comments</u>

6	Determine if electrical power is available.	Procedure Step 6 RNO (c)of 1-AP-11
---	---------------------------------------------	---------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator checks that both emergency busses have power
------------------	-------------------------------------------------------

Notes/Comments

7	Manually close Residual Heat Removal System flow control valves 1-RH-FCV-1605 and 1-RH-HCV-1758.	Procedure Step 6.c.1 RNO of 1-AP-11
---	--------------------------------------------------------------------------------------------------	----------------------------------------

SAT  UNSAT

<u>Standards</u>	1-RH-HCV-1758 control knob is rotated in the counter-clockwise direction until its output demand indicates zero
<u>Standards</u>	1-RH-FCV-1605 controller <b>MANUAL</b> pushbutton is depressed and <b>DECREASE</b> button is depressed until the controller output demand indicates zero

Notes/Comments

Controller will be at 100% output since it is responding as expected to the loss of RHR flow.

8	Determine if an RHR pump was stopped due to air entrainment.	Procedure Step 6.c.2 RNO of 1-AP-11
---	--------------------------------------------------------------	----------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator determines that 1-RH-P-1A previously in response to MOV-1700 going closed (Step is N/A)
------------------	--------------------------------------------------------------------------------------------------

Notes/Comments

**IF operator conservatively decides to vent pumps then booth operator will respond as an operator in containment and report that pumps have been vented.**

9	If both RHR pumps are stopped, start one RHR pump.	Procedure Step 6 RNO c(3) of 1-AP-11
---	----------------------------------------------------	-----------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Control switch for the residual heat removal pump 1-RH-P-1B is placed in START
------------------	--------------------------------------------------------------------------------

Notes/Comments
<b>If operator attempts to start pump 1-RH-P-1A, then pump will not start.</b>

10	Restore Residual Heat Removal System flow.	Procedure Step 6.c.4 RNO of 1-AP-11
----	--------------------------------------------	----------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Operator increases Residual Heat Removal System flow to 3,000 - 4,000 gpm by the following method.  Ensures the controller for 1-RH-FCV-1605 is in MAN and depresses the RAISE pushbutton while monitoring RHR system flow.  Additionally, the operator may or may not reopen 1-RH-HCV-1758 depending on RCS temperature
------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

11	Verify that the RHR system is normal.	Procedure Step 7 of 1-AP-11
----	---------------------------------------	--------------------------------

SAT  UNSAT

<u>Standards</u>	RHR flow and motor amps are verified normal and stable, RCS temperature is verified stable.
------------------	---------------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	Assume that another operator will complete the procedure This completes the JPM
---------------------------	------------------------------------------------------------------------------------

Notes/Comments
----------------

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN-PLANT SETUP  
(If Required)

SIMULATOR SETUP

JOB PERFORMANCE MEASURE  
10820

**TASK**

Restore RHR flow

**CHECKLIST**

\_\_\_\_ Recall IC. 168

\_\_\_\_ Do simspray (the one for S/D unit) and check recorders

→ when simulator is taken out of freeze delete override on MOV-1701 control switch to allow valve to be re-opened

**IF operator conservatively decides to vent pumps then respond as an operator in containment and report that pumps have been vented.**

Note: IC is shot as follows:

\_\_\_\_ Verify "A" RHR pump is running

\_\_\_\_ Verify 1-RH-MOV-1720A and 1720B are energized

\_\_\_\_ override mov-1701 close PB to close valve

\_\_\_\_ override 1-RH-P1A control switch position START as OFF to prevent from from being capable of re-starting

\_\_\_\_ Verify pressurizer level trend is stable or increasing

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Unit 1 is in mode 4

"A" RHR pump is running, "B" RHR pump is available

Annunciator E-A8, RHR SYSTEM LOW FLOW, has just lit

The Crew has entered 1-AP-11, Loss of RHR

Step 1 of 1-AP-11 has been completed and the crew has determined that RCS level is **NOT** decreasing.

**INITIATING CUE**

You are requested to continue 1-AP-11, beginning at Step 5, and restore Residual Heat Removal flow to approximately 3,400 gpm.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Reactor Coolant System boron concentration is 945 ppm

In-service boric acid storage tank concentration is 14,800 ppm

The unit will be ramped from 100% to 75% at .3%/minute using rods and boron. Reactor engineering has requested that a 50 ppm boration be done to ensure rods are in the desired band after the ramp.

**INITIATING CUE**

You are requested to:

- 1) Determine the amount of boric acid needed to raise the boron concentration by 50 ppm.
- 2) Establish a 1.2 gpm boration flow rate and borate the RCS by the amount determined in order to raise the boron concentration to 995 ppm.

# PLACING THE BLENDER IN THE BORATE MODE OF OPERATION

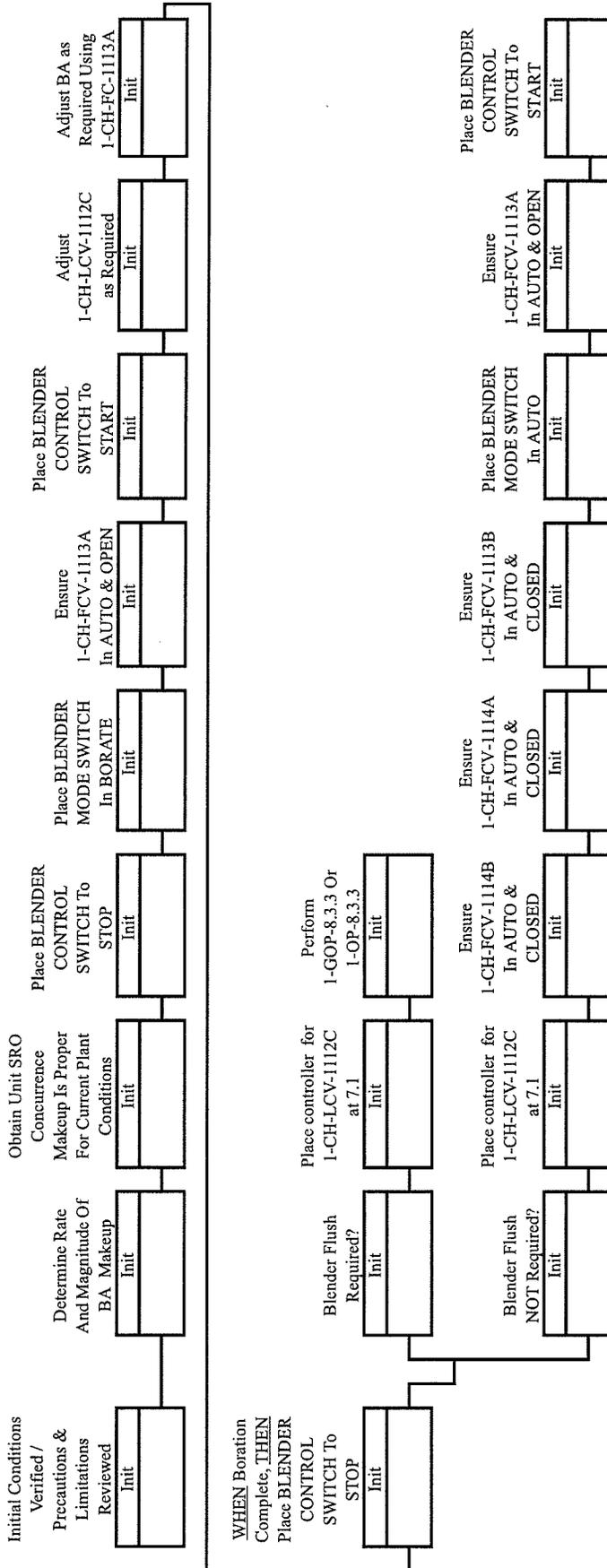


**PURPOSE** - To provide instructions for placing the blender in the Borate mode of operation.

**INITIAL CONDITIONS** - IF Unit 1 is in Mode 3, 4, 5, or 6, THEN 1-LOG-2A, RCS Makeup Log, has been initiated.

**PRECAUTIONS AND LIMITATIONS** - To minimize the risk of an unexpected RCS boron dilution, closely monitor blender Boric Acid and/or PG flows to ensure that the desired flows are maintained.

Peer checking is required for the performance of this procedure.



Completed By: \_\_\_\_\_ Date: \_\_\_\_\_  
Peer Check By: \_\_\_\_\_ Date: \_\_\_\_\_  
Reviewed By: \_\_\_\_\_ Date: \_\_\_\_\_

**BORON ADDITION**

The general equation for the gallons of Boric Acid from the Boric Acid Storage Tanks (BAST) to add to the Reactor Coolant System (RCS) to increase the RCS boron concentration is as follows:

$$\text{Gallons of Acid} = \frac{(\text{Volume of RCS}) \times (\text{Density of RCS Water})}{\text{Density of Charging Flow}} \times \ln \left( \frac{\text{BAST ppm} - \text{Initial RCS ppm}}{\text{BAST ppm} - \text{Desired RCS ppm}} \right)$$

Below are typical values to use in the equation:

- Density of Charging Flow:** 8.22 lbm/gallon
- BAST ppm:** 14,350 ppm  
(This is an average of the 12,950 ppm minimum value and 15,750 ppm maximum value listed in Tech Specs 3.1.2.7 and 3.1.2.8)
- Volume of RCS:** 9759 ft<sup>3</sup> with the Pressurizer Solid  
8757 ft<sup>3</sup> with the Pressurizer level at 28.4%  
9262 ft<sup>3</sup> with the Pressurizer level at 64.5%

Density of RCS Water:	RCS	RCS	RCS Water
	Temp	Pressure	Density
	100°F	14.7 psia	61.999 lbm/ft <sup>3</sup>
	200°F	350 psia	60.176 lbm/ft <sup>3</sup>
	300°F	400 psia	57.380 lbm/ft <sup>3</sup>
	400°F	900 psia	53.877 lbm/ft <sup>3</sup>
	500°F	2000 psia	49.643 lbm/ft <sup>3</sup>
	547°F	2250 psia	47.056 lbm/ft <sup>3</sup>
	580.8°F	2250 psia	44.779 lbm/ft <sup>3</sup>

**NOTE:** RCS Water above 100°F is typically a subcooled liquid and **NOT** a saturated liquid. Density values should be determined for the given RCS temperature and pressure.

APPROVED BY: 

DATE: 8/16/01

**BORON ADDITION**

Gallons of Boric Acid to Add per Desired PPM Change in RCS Boron Concentration For Given RCS Conditions  
 Assumed BAST Acid Concentration = 14,350 ppm

Values Are Most Accurate For 100 ppm Borations But May Be 3% Low For 1000 ppm Borations

Initial RCS Boron Concentration (ppm)	Gallons of Acid to Add per PPM RCS = 100°F PZR Solid	Gallons of Acid to Add per PPM RCS = 200°F PZR Solid	Gallons of Acid to Add per PPM RCS = 200°F 28.4% PZR Level	Gallons of Acid to Add per PPM RCS = 300°F 28.4% PZR Level	Gallons of Acid to Add per PPM RCS = 400°F 28.4% PZR Level	Gallons of Acid to Add per PPM RCS = 500°F 28.4% PZR Level	Gallons of Acid to Add per PPM RCS = 547°F 28.4% PZR Level	Gallons of Acid to Add per PPM RCS = 580.8°F 64.5% PZR Level
10	5.156	5.004	4.491	4.282	4.021	3.704	3.511	3.534
100	5.188	5.036	4.519	4.309	4.046	3.728	3.534	3.556
200	5.226	5.072	4.551	4.340	4.075	3.755	3.559	3.582
300	5.263	5.108	4.583	4.370	4.104	3.781	3.584	3.607
400	5.301	5.145	4.617	4.402	4.133	3.808	3.610	3.634
500	5.339	5.182	4.650	4.434	4.163	3.836	3.636	3.660
600	5.378	5.220	4.684	4.466	4.194	3.864	3.663	3.687
700	5.417	5.259	4.719	4.499	4.224	3.893	3.690	3.714
800	5.458	5.297	4.754	4.533	4.256	3.921	3.717	3.741
900	5.498	5.337	4.789	4.567	4.288	3.951	3.745	3.769
1000	5.540	5.377	4.825	4.601	4.320	3.980	3.773	3.798
1100	5.582	5.418	4.861	4.636	4.353	4.011	3.802	3.826
1200	5.624	5.459	4.899	4.671	4.386	4.041	3.831	3.856
1300	5.669	5.501	4.937	4.707	4.420	4.072	3.860	3.885
1400	5.712	5.544	4.975	4.744	4.454	4.104	3.890	3.916
1500	5.757	5.587	5.014	4.781	4.489	4.136	3.921	3.946
1600	5.803	5.632	5.053	4.818	4.524	4.169	3.951	3.977
1700	5.848	5.676	5.093	4.857	4.560	4.202	3.983	4.009
1800	5.895	5.722	5.134	4.896	4.597	4.236	4.015	4.041
1900	5.942	5.768	5.176	4.935	4.634	4.270	4.047	4.073

**BORON ADDITION**

Gallons of Boric Acid to Add per Desired PPM Change in RCS Boron Concentration For Given RCS Conditions  
Assumed BAST Acid Concentration = 14,350 ppm

Values Are Most Accurate For 100 ppm Borations But May Be 3% Low For 1000 ppm Borations

Initial RCS Boron Concentration (ppm)	Gallons of Acid to Add per PPM RCS = 100°F PZR Solid	Gallons of Acid to Add per PPM RCS = 200°F PZR Solid	Gallons of Acid to Add per PPM RCS = 200°F 28.4% PZR Level	Gallons of Acid to Add per PPM RCS = 300°F 28.4% PZR Level	Gallons of Acid to Add per PPM RCS = 400°F 28.4% PZR Level	Gallons of Acid to Add per PPM RCS = 500°F 28.4% PZR Level	Gallons of Acid to Add per PPM RCS = 547°F 28.4% PZR Level	Gallons of Acid to Add per PPM RCS = 580.8°F 64.5% PZR Level
2000	5.991	5.815	5.218	4.975	4.671	4.304	4.080	4.107
2100	6.041	5.862	5.261	5.016	4.710	4.340	4.114	4.141
2200	6.090	5.911	5.304	5.058	4.749	4.376	4.148	4.175
2300	6.141	5.961	5.349	5.100	4.788	4.412	4.182	4.209
2400	6.192	6.011	5.394	5.143	4.829	4.449	4.218	4.245
2500	6.245	6.061	5.439	5.187	4.870	4.487	4.253	4.281
2600	6.299	6.114	5.486	5.231	4.912	4.526	4.290	4.318
2700	6.353	6.166	5.533	5.276	4.954	4.565	4.327	4.355
2800	6.408	6.220	5.581	5.322	4.997	4.604	4.364	4.393
2900	6.465	6.275	5.630	5.369	5.041	4.645	4.403	4.431
3000	6.522	6.330	5.680	5.416	5.086	4.686	4.442	4.470

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**R706 – alternate path**

**TASK**

Borate the Reactor Coolant System using the blender (1-GOP-8.3.4).

**TASK STANDARDS**

The correct magnitude of boron addition was determined, the boration was started IAW 1-GOP-8.3.4, and the operator stops the boration when the malfunction (1-CH-FCV-1114 opening) is noted.

**K/A REFERENCE:**

004-A4.07 (3.9/3.7)

**ALTERNATE PATH:**

1-CH-FCV-1114A opens in borate mode

**TASK COMPLETION TIMES**

Validation Time = 12 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**Note: validation time includes time to perform and check calculations if performed**

**PERFORMANCE EVALUATION**

Rating                       SATISFACTORY                       UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_



Dominion  
North Anna Power Station

**JOB PERFORMANCE MEASURE  
(Evaluation)**

**OPERATOR PROGRAM**

**R706 – alternate path**

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level.

**INITIAL CONDITIONS**

Reactor Coolant System boron concentration is 945 ppm

In-service boric acid storage tank concentration is 14,800 ppm

The unit will be ramped from 100% to 75% at .3%/minute using rods and boron. Reactor engineering has requested that a 50 ppm boration be done to ensure rods are in the desired band after the ramp.

**INITIATING CUE**

You are requested to:

- 1) Determine the amount of boric acid needed to raise the boron concentration by 50 ppm.
- 2) Establish a 1.2 gpm boration flow rate and borate the RCS by the amount determined in order to raise the boron concentration to 995 ppm.

**EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

**TOOLS AND EQUIPMENT**

Calculator

Station curve book

PCS

**PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

**Note: element 3 (determine magnitude of BA makeup), may be done prior to initiating 1-GOP-8.3.4 as it is administrative in nature and therefore up to the discretion of the operator.**

1	Verify initial conditions are satisfied.	Procedure Step <u>1-GOP-8.3.4</u>
---	------------------------------------------	--------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator notes 1-LOG-2A, RCS Makeup Log does <b>NOT</b> need to be initiated based on plant conditions (Unit in Mode 1).
------------------	--------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

2	Review precautions and limitations.	Procedure Step 1-GOP-8.3.4
---	-------------------------------------	-------------------------------

SAT  UNSAT

<u>Standards</u>	Precautions and limitations have been reviewed.
------------------	-------------------------------------------------

Notes/Comments
----------------

3	Determine the rate and magnitude of boric acid addition.	Procedure Step 1-GOP-8.3.4
---	----------------------------------------------------------	-------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	182 gallons ± 10 gallons of boric acid is determined. Note: desired flowrate (1.2 gpm) provided by initiating cue.
------------------	-----------------------------------------------------------------------------------------------------------------------

<p><b>Evaluators Notes:</b></p> <p>Candidate may elect to use PCS and/or station curves (1-SC-2.2 page 1 of 3) to satisfy this element. However 1-SC-2.2, page 2 of 3, should not be used since it assumes BAST concentration at the nominal value of 14,350 ppm and the as given value in the JPM is 14,800 ppm.</p>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

4	Obtain concurrence from the unit supervisor that the rate and magnitude is set properly for the current plant condition.	Procedure Step 1-GOP-8.3.4
---	--------------------------------------------------------------------------------------------------------------------------	-------------------------------

SAT  UNSAT

<u>Standards</u>	Concurrence is obtained for magnitude (and rate) of boration.
------------------	---------------------------------------------------------------

<u>Performance Cue(s)</u>	I concur with your figures.
---------------------------	-----------------------------

Notes/Comments
----------------

5	Place the BLENDER CONTROL switch in STOP.	Procedure Step 1-GOP-8.3.4
---	-------------------------------------------	-------------------------------

SAT  UNSAT

<u>Standards</u>	Blender control switch is placed in STOP.
------------------	-------------------------------------------

Notes/Comments
----------------

6	Place the BLENDER MODE switch in BORATE.	Procedure Step 1-GOP-8.3.4
---	------------------------------------------	-------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	BLENDER MODE selector switch is in BORATE.
------------------	--------------------------------------------

Notes/Comments
----------------

---

7	Ensure the boric acid supply valve, 1-CH-FCV-1113A, is in AUTO and is open.	Procedure Step 1-GOP-8.3.4
---	-----------------------------------------------------------------------------	-------------------------------

SAT  UNSAT

<u>Standards</u>	1-CH-FCV-1113A is verified to be open (RED light LIT, Green light OFF) with control switch in auto.
------------------	-----------------------------------------------------------------------------------------------------

Notes/Comments
----------------

---

8	Place the BLENDER CONTROL switch in START.	Procedure Step 1-GOP-8.3.4
---	--------------------------------------------	-------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	BLENDER CONTROL selector switch is momentarily placed in START.
------------------	-----------------------------------------------------------------

Notes/Comments
----------------

9	Respond to 1-CH-FCV-1114A failure (alternate path step)	Procedure Step P&L AND OP-AP-300
---	------------------------------------------------------------	-------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<b>Evaluators Note:</b>	If operator does not notice PG flow within 15 minutes of beginning boration then give cue that jpm is complete.
-------------------------	-----------------------------------------------------------------------------------------------------------------

<u>Standards</u>	Operator identifies the unexpected PG water flow and places BLENDER CONTROL switch in STOP.
------------------	---------------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	Acknowledge operator and inform them that the jpm is complete.
---------------------------	----------------------------------------------------------------

<u>Notes/Comments</u>	<b>Per OP-AP-300, Reactivity Management, if unexpected conditions/indications are encountered during reactivity manipulations, stop the evolution and resolve prior to proceeding.</b>
-----------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

END OF EVALUATION

STOP TIME \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

SIMULATOR SETUP

JOB PERFORMANCE MEASURE

**R706 – alternate path**

**TASK**

Borate the Reactor Coolant System using the blender (1-GOP-8.3.4).

**CHECKLIST**

\_\_\_\_\_ Recall IC #171

**➔ ➔ REMEMBER TO CHECK PCS PROGRAM  
AND CHANGE NUMBERS, IF REQUIRED**

do simspray and check recorders and rod banks

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Unit 1 experienced a safety injection due to a Steam Generator Tube Rupture.

The operating crew has completed 1-E-0 and proceeded to 1-E-3.

Attachment 8 Ruptured Steam Generator Isolation of 1-E-0 has **NOT** been initiated.

AFW flow was throttled to each SG in accordance with 1-E-0.

**INITIATING CUE**

You are requested to identify and isolated the ruptured steam generator in accordance with 1-E-3.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

R187

**TASK**

Identify and isolate a ruptured steam generator (1-E-3.).

**TASK STANDARDS**

"B" SG was identified as ruptured and subsequently isolated per 1-E-3.

**K/A REFERENCE:**

039, 059, 061-EA1.32 (4.6/4.7)

**ALTERNATE PATH:**

Ruptured SG NOT isolated during E-0 requiring operator to initiate action in this procedure

**TASK COMPLETION TIMES**

Validation Time = 10 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                                     SATISFACTORY                                     UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

---

---

---

Dominion  
North Anna Power Station

JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

R187

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMS**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMS**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level.

**INITIAL CONDITIONS**

Unit 1 experienced a safety injection due to a Steam Generator Tube Rupture.

The operating crew has completed 1-E-0 and proceeded to 1-E-3.

Attachment 8 Ruptured Steam Generator Isolation of 1-E-0 has **NOT** been initiated.

AFW flow was throttled to each SG in accordance with 1-E-0.

**INITIATING CUE**

You are requested to identify and isolated the ruptured steam generator in accordance with 1-E-3.

**EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

**TOOLS AND EQUIPMENT**

Copy of 1-E-3.

**PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

---

1	Check RCP trip and charging pump recirc criteria.	Procedure Step 1a of 1-E-3
---	---------------------------------------------------	-------------------------------

SAT  UNSAT

<u>Standards</u>	Operator checks RCS subcooling based on Core Exit TCs less than 25°F → NO and proceeds to step 2 per RNO.
------------------	-----------------------------------------------------------------------------------------------------------

Notes/Comments

---

2	Identify ruptured SGs	Procedure Step 2 of 1-E-3
---	-----------------------	------------------------------

**Critical Step** SAT  UNSAT

<u>Standards</u>	Operator identifies the "B" SG is ruptured using any of the following: SG Narrow Range level trends Steam Line Radiation Monitors SG Blowdown Radiation Monitors SG sample results from chemistry
------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments  
**Based on the level disparity between SGs and/or Steam Line Radiation Monitor reading the operator will conclude that "B" SG is the ruptured SG.**

**Note: Operator will read the following procedure caution.**

**CAUTION:**

- If the Turbine-Driven AFW Pump is the only available source of feed flow, then steam supply to the Turbine-Driven AFW Pump should be maintained from at least one SG.
- At least one SG should be kept available for RCS cooldown to maintain secondary heat sink.

---

3	Adjust the setpoint of the ruptured steam generator's power-operated-relief valve controller to a potentiometer setting of 5.6.	Procedure Step 3.a of 1-E-3
---	---------------------------------------------------------------------------------------------------------------------------------	--------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	Controller for the "B" steam generator's power-operated-relief valve, 1-MS-PCV-101B, is adjusted to a potentiometer setting of 5.6
------------------	------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

---

4	Check that the ruptured steam generator's power-operated-relief valve is closed.	Procedure Step 3.b of 1-E-3
---	----------------------------------------------------------------------------------	--------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	Operator checks "B" SG power operated relief valve to be closed.
------------------	------------------------------------------------------------------

Notes/Comments
Operator may use demand on controller and/or PCS to make this determination.

5	Determine if Attachment 8 Ruptured Steam Generator Isolation of 1-E-0 has been initiated. <b>(alternate path step)</b>	Procedure Step <u>3.c of 1-E-3</u>
---	------------------------------------------------------------------------------------------------------------------------	---------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator answers step 3.c 1-E-0, Attachment 8, Ruptured SG Isolation – Initiated → NO and goes to step 3.c RNO
------------------	----------------------------------------------------------------------------------------------------------------

Notes/Comments  
Status of Attachment 8 provided by the initial conditions.

6	Request the safeguards operator to initiate 1-E-3, Attachment 7, MSVH Steam Generator Isolation Local Actions for the ruptured steam generator(s).	Procedure Step <u>3.c RNO c of 1-E-3</u>
---	----------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------

**Critical Step** SAT  UNSAT

<u>Standards</u>	Safeguards operator is requested to initiate 1-E-3, Attachment 7, MSVH Steam Generator Isolation Local Actions for "B" steam generator.
------------------	-----------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments  
**When called booth operator will acknowledge direction from operator and report back when action is complete**

7	Check that decay heat release valve 1-MS-HCV-104 is closed.	Procedure Step <u>3.d of 1-E-3</u>
---	-------------------------------------------------------------	---------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator notes that 1-MS-HCV-104 is closed (zero demand).
------------------	-----------------------------------------------------------

Notes/Comments  
Operator may use demand on HCV and/or PCS to make this determination.

---

8	Verify that the ruptured steam generator's blowdown trip valves are closed.	Procedure Step 3.e of 1-E-3
---	-----------------------------------------------------------------------------	--------------------------------

SAT  UNSAT

<u>Standards</u>	Operator checks that blowdown trip valves 1-BD-TV-100B & E are closed.
------------------	------------------------------------------------------------------------

Notes/Comments
----------------

---

9	Close the ruptured steam generator's main steam trip valve (MSTV) and Bypass Valve.	Procedure Step 3.f of 1-E-3
---	-------------------------------------------------------------------------------------	--------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	1) Close Pushbutton for Main steam trip valve 1-MS-TV-101B is momentarily depressed and 2) bypass valve 1-MS-TV-113B is checked closed. <b>Only item 1 is critical for this element since 1-MS-TV-113B is already closed (normal plant alignment)</b>
------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

**Note: Operator will read the following procedure caution.**

**CAUTION:** To prevent excessive RCS cooldown, feed flow to any ruptured SG that is faulted should remain isolated during subsequent recovery actions unless needed for cooldown.

10	Check Narrow-range level in the ruptured steam generator greater than 11% [22%].	Procedure Step 4.a of 1-E-3
----	----------------------------------------------------------------------------------	--------------------------------

SAT  UNSAT

<u>Standards</u>	Operator observes "B" SG level is greater than 11% [22%].
------------------	-----------------------------------------------------------

Notes/Comments
----------------

11	Stop feedwater flow to the ruptured steam generator.	Procedure Step 4.b of 1-E-3
----	------------------------------------------------------	--------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	Operator closes normal auxiliary feedwater supply valve to the "B" steam generator, 1-FW-MOV-100B.
------------------	----------------------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	After operator closes 1-FW-MOV-100B, inform operator that another operator will complete the procedure. This completes the JPM.
---------------------------	---------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

**END OF EVALUATION**

STOP TIME \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

\_\_\_\_\_ Recall IC #198

\_\_\_\_\_ Do simspray and check recorders

**E-0 Step 3.c RNO →** respond as safeguards operator to perform Attachment 7 for "B" SG

**Note: If asked by operator to come to the control, ask what he wants you to do, and when informed tell him you will obtain a copy of the procedure and perform the action.**

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Unit 1 is operating at 30% power.

Unit 2 safety injected 5 minutes ago due to a feedwater line rupture.

ALL Unit-2 main feedwater pumps and condensate pumps are in PULL-TO-LOCK.

SI/CDA load shed has actuated.

0-AP-47 has been completed through resetting AMSAC.

**INITIATING CUE**

You are requested to restore auto-start capability for affected pumps and reset SI/CDA load shed in accordance with 0-AP-47.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**R551**

**TASK**

Reset load shed (0-AP-47).

**TASK STANDARDS**

"A" Main Condensate pump and "A" Main Feed pump control switches were all placed in STOP, then AUTO-AFTER-STOP, and SI/CDA load shed was reset on both units.

**K/A REFERENCE:**

062-A4.01 (3.3/3.1).

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 7 minutes

Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_

Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                       SATISFACTORY                       UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

---

---

---

---

---

---

---

---

---

---

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

R551

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level.

**INITIAL CONDITIONS**

Unit 1 is operating at 30% power.

Unit 2 safety injected 5 minutes ago due to a feedwater line rupture.

ALL Unit-2 main feedwater pumps and condensate pumps are in PULL-TO-LOCK.

SI/CDA load shed has actuated.

0-AP-47 has been completed through resetting AMSAC.

**INITIATING CUE**

You are requested to restore auto-start capability for affected pumps and reset SI/CDA load shed in accordance with 0-AP-47.

**EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

**TOOLS AND EQUIPMENT**

Copy of 0-AP-47 signed off through resetting AMSAC.

**PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

**NOTE: Operator will read the following procedure CAUTION.**

CAUTION: Step 10b restores Condensate Pump auto-start capability. If an auto-start exists, then placing the pump control switches in AUTO-AFTER-STOP may result in auto-start of the pump.

1	Place the control switch for any Condensate Pump that has auto-started in AUTO-AFTER-START.	Procedure Step 10.a of 0-AP-47
---	---------------------------------------------------------------------------------------------	-----------------------------------

SAT [ ] UNSAT [ ]

<u>Standards</u>	Control switch for 1-CN-P-1B is momentarily placed in START, then in AUTO-AFTER-START.
------------------	----------------------------------------------------------------------------------------

Notes/Comments ("B" main condensate pump auto-started)
-----------------------------------------------------------

2	Place the control switch for any NON-RUNNING Condensate Pump as follows: In PTL <b>OR</b> In STOP, then in AUTO-AFTER-STOP.	Procedure Step 10.b of 0-AP-47
---	-----------------------------------------------------------------------------------------------------------------------------	-----------------------------------

**Critical Step** SAT [ ] UNSAT [ ]

<u>Standards</u>	Control switch for 1-CN-P-1A is momentarily placed in STOP, then in AUTO-AFTER-STOP.
------------------	--------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	( <b>IF</b> applicant requests guidance concerning the desired status of "A" main CN pump, <b>THEN</b> read the following cue):  Review your Initiating Cue.
---------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments ("A" main condensate pump tripped)
------------------------------------------------------

**NOTE: Operator will read the following procedure CAUTION.**

CAUTION: Step 11b restores Main Feed Pump auto-start capability. If an auto-start exists, then placing the pump control switches in AUTO-AFTER-STOP may result in auto-start of the pump.

3	Place control switches for any Main Feed Pump that has auto-started in AUTO-AFTER-START.	Procedure Step 11.a of 0-AP-47
---	------------------------------------------------------------------------------------------	--------------------------------

SAT  UNSAT

<u>Standards</u>	Operator determines that NO Main Feed pumps auto-started and N/As step 11.a.
------------------	------------------------------------------------------------------------------

Notes/Comments  
(No Main Feed pumps auto-started)

4	Place control switches for any NON-RUNNING Main Feed Pump as follows: In PTL <b>OR</b> In STOP, then in AUTO-AFTER-STOP.	Procedure Step 11.b of 0-AP-47
---	--------------------------------------------------------------------------------------------------------------------------	--------------------------------

**Critical Step** SAT  UNSAT

<u>Standards</u>	Control switches for 1-FW-P-1A1 and 1-FW-P-1A2 are momentarily placed in STOP, then in AUTO-AFTER-STOP.
------------------	---------------------------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	( <b>IF</b> applicant requests guidance concerning the desired status of "A" Main Feed pump, <b>THEN</b> read the following cue):  The US desires the standby Main Feed pump to be available for auto-start.
---------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

5	Place control switch for any circulating water pump that is not running as follows: In PTL <b>OR</b> In STOP, then in AUTO-AFTER-STOP.	Procedure Step <u>12 of 0-AP-47</u>
---	----------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator determines that all Circulating Water pumps are running, and N/As step 12.
------------------	-------------------------------------------------------------------------------------

Notes/Comments

6	Push Unit-1 Load Shed reset pushbutton on the Unit 1J Safeguards Panel.	Procedure Step <u>13.a of 0-AP-47</u>
---	-------------------------------------------------------------------------	------------------------------------------

**Critical Step** SAT  UNSAT

<u>Standards</u>	SI/CDA LOAD SHED 4160V BUSS 1G reset push-button is momentarily depressed.
------------------	----------------------------------------------------------------------------

Notes/Comments

7	Push Unit-2 Load Shed reset pushbuttons on the Unit 2J Safeguards Panel.	Procedure Step 13.b of 0-AP-47
---	--------------------------------------------------------------------------	-----------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Operator requests the Unit 2 OATC to push the following pushbuttons: <ul style="list-style-type: none"> <li>• SI/CDA LOAD SHED 4160V BUSS 2G</li> <li>• UNIT 1 SI/CDA LOAD SHED 4160V BUSS 2A</li> <li>• UNIT 1 SI/CDA LOAD SHED 4160V BUSS 2B</li> </ul>
------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Notes/Comments</u>	When called to perform the action, Simulator Booth Operator will acknowledge the request and report back when the action is complete.
-----------------------	---------------------------------------------------------------------------------------------------------------------------------------

8	Setup Unit-1 PCS to monitor computer points Y4060D through Y4072D.	Procedure Step 14 of 0-AP-47
---	--------------------------------------------------------------------	---------------------------------

<u>Standards</u>	Operator states that he/she has completed the task.
------------------	-----------------------------------------------------

<u>Performance Cue(s)</u>	Assume that another operator will complete the procedure. This completes the JPM.
---------------------------	-----------------------------------------------------------------------------------

<u>Notes/Comments</u>	
-----------------------	--

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN-PLANT SETUP  
(If Required)

SIMULATOR SETUP

JOB PERFORMANCE MEASURE  
**R551**

**TASK**

Reset load shed (0-AP-47).

**CHECKLIST**

\_\_\_\_\_ Recall IC #200

Do simspray, then check recorders and rod banks

**WHEN** applicant resets 1G bus load shed by depressing SI/CDA LOAD SHED 4160V BUSS 1G button (1J Safeguards Panel), **THEN** delete the alarm override.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Loss of reactor coolant has occurred.

1-E-1, Loss of Reactor or Secondary Coolant, has been completed to the point of restoring the blowdown radiation monitors.

1-BD-TV-100G, H, and J have been verified open.

John Leake has been briefed and is standing by to rack breakers for 1-FW-P-1A when directed.

**INITIATING CUE**

You are requested to place the Steam Generator Blowdown Radiation Monitors in service in accordance with 1-E-1, Attachment 4, Restoring Blowdown Radiation Monitors.

Dominion  
North Anna Power Station  
**JOB PERFORMANCE MEASURE EVALUATION**  
  
**OPERATOR PROGRAM**  
  
R184

**TASK**

Restore the blowdown radiation monitors (1-E-1).

**TASK STANDARDS**

Blowdown radiation monitors have been returned to service using 1-E-1, Attachment 4.

**K/A REFERENCE:**

073 – Process Radiation Monitoring System (A4.02, 3.7/3.7).

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 10 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                                     SATISFACTORY                                     UNSATISFACTORY

Candidate (Print)                                    \_\_\_\_\_

Evaluator (Print)                                    \_\_\_\_\_

Evaluator's Signature /  
Date                                    \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

R184

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level.

**INITIAL CONDITIONS**

Loss of reactor coolant has occurred.

1-E-1, "Loss of Reactor or Secondary Coolant," has been completed to the point of restoring the blowdown radiation monitors.

1-BD-TV-100G, H, and J have been verified open.

John Leake has been briefed and is standing by to rack breakers for 1-FW-P-1A when directed.

**INITIATING CUE**

You are requested to place the Steam Generator Blowdown Radiation Monitors in service in accordance with 1-E-1, Attachment 4, Restoring Blowdown Radiation Monitors.

**EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

**TOOLS AND EQUIPMENT**

Copy of 1-E-1, Attachment 4, Restoring Blowdown Radiation Monitors.

**PERFORMANCE STEPS**

START TIME \_\_\_\_\_

---

1	Place all main feedwater pump control switches in PULL-TO-LOCK.	Procedure Step 1 of 1-E-1, att.4
---	-----------------------------------------------------------------	-------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Operator places all main feedwater pump control switches in PULL-TO-LOCK.
------------------	---------------------------------------------------------------------------

Notes/Comments
----------------

2	Open one main feedwater pump recirculation valve: <ul style="list-style-type: none"> <li>• 1-FW-FCV-150A</li> <li>• 1-FW-FCV-150B</li> <li>• 1-FW-FCV-150C</li> </ul>	Procedure Step 2 of 1-E-1, att.4
---	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------

SAT  UNSAT

<b>NOTE TO EXAMINER</b>	One of the valves is previously directed to be opened in 1-E-0 step 6.b of Att. 5.
-------------------------	------------------------------------------------------------------------------------

<u>Standards</u>	Operator observes that 1-FW-FCV-150A is OPEN.
------------------	-----------------------------------------------

Notes/Comments
----------------

3	Request the turbine building operator to rack both breakers for main feedwater pump 1-FW-P-1A (15A5 and 15A6) to TEST.	Procedure Step 3 of 1-E-1, att.4
---	------------------------------------------------------------------------------------------------------------------------	-------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	Turbine building operator is requested to rack both breakers for main feedwater pump 1-FW-P-1A to TEST.
------------------	---------------------------------------------------------------------------------------------------------

Notes/Comments <b>After being requested Booth operator will call back and inform the operator that the breakers for 1-FW-P-1A have been racked to test.</b>
----------------------------------------------------------------------------------------------------------------------------------------------------------------

4	Close discharge valve 1-FW-MOV-150A for main feedwater pump 1-FW-P-1A.	Procedure Step 4 of 1-E-1, att.4
---	------------------------------------------------------------------------	----------------------------------

SAT  UNSAT

<u>NOTE TO EXAMINER</u>	Valve would have automatically closed on an SI signal.
-------------------------	--------------------------------------------------------

<u>Standards</u>	Operator verifies that valve 1-FW-MOV-150A is closed.
------------------	-------------------------------------------------------

Notes/Comments
----------------

5	Close both breakers for main feedwater pump 1-FW-P-1A.	Procedure Step 5 of 1-E-1
---	--------------------------------------------------------	---------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	Control switches for both breakers (15A5 and 15A6) on main feedwater pump 1-FW-P-1A are placed in AUTO-AFTER-START.
------------------	---------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

6	Check status of steam supply valve to turbine-driven auxiliary feedwater pump 1-MS-TV-111A.	Procedure Step 6.a of 1-E-1, att.4
---	---------------------------------------------------------------------------------------------	------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator observes 1-MS-TV-111A is open
------------------	----------------------------------------

Notes/Comments
----------------

7	Place the control switch for the steam supply valve to the turbine-driven auxiliary feedwater pump 1-MS-TV-111A in OPEN.	Procedure Step 6.a of 1-E-1, att.4
---	--------------------------------------------------------------------------------------------------------------------------	------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	Control switch for 1-MS-TV-111A is placed in OPEN.
------------------	----------------------------------------------------

Notes/Comments
----------------

8	Check status of steam supply valve to the turbine-driven auxiliary feedwater pump 1-MS-TV-111B.	Procedure Step 6.b of 1-E-1, att.4
---	-------------------------------------------------------------------------------------------------	------------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	Operator observes 1-MS-TV-111B is open
------------------	----------------------------------------

Notes/Comments
----------------

9	Place the control switch for the steam supply valve to the turbine-driven auxiliary feedwater pump 1-MS-TV-111B in OPEN.	Procedure Step 6.b of 1-E-1, att.4
---	--------------------------------------------------------------------------------------------------------------------------	------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	Control switch for 1-MS-TV-111B is placed in OPEN.
------------------	----------------------------------------------------

Notes/Comments
----------------

10	Place the control switches for the steam supply valves to the turbine-driven auxiliary feedwater pump 1-MS-TV-111A and 1-MS-TV-111B to AUTO.	Procedure Step 6.c of 1-E-1, att.4
----	----------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator positions control switches for 1-MS-TV-111A and 1-MS-TV-111B to AUTO.
------------------	--------------------------------------------------------------------------------

Notes/Comments

11	Ensure that steam generator blowdown valve 1-BD-1005 is closed.	Procedure Step 7.a of 1-E-1, att.4
----	-----------------------------------------------------------------	---------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator directs field operator to close 1-BD-1005.
------------------	-----------------------------------------------------

Notes/Comments  
**After being requested Booth operator will call back and inform the operator that 1-BD-1005 has been closed.**

12	Request the turbine building operator to close the steam generator blowdown header to recovery tank isolation valves: <ul style="list-style-type: none"> <li>• 1-BD-57</li> <li>• 1-BD-58</li> <li>• 1-BD-59</li> </ul>	Procedure Step <u>7.b of 1-E-1, att.4</u>
----	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator directs field operator to close 1-BD-57, 58, and 59.
------------------	---------------------------------------------------------------

Notes/Comments <b>After being requested Booth operator will call back and inform the operator that 1-BD-57, 58, and 59 have been closed.</b>
-------------------------------------------------------------------------------------------------------------------------------------------------

13	<p>Open the steam generator blowdown trip valves.</p> <ul style="list-style-type: none"> <li>• 1-BD-TV-100A</li> <li>• 1-BD-TV-100B</li> <li>• 1-BD-TV-100C</li> <li>• 1-BD-TV-100D</li> <li>• 1-BD-TV-100E</li> <li>• 1-BD-TV-100F</li> </ul>	<p>Procedure Step 8 of 1-E-1, att.4</p>
----	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	<p>OPEN push-button is momentarily depressed for the following trip valves:</p> <ul style="list-style-type: none"> <li>• 1-BD-TV-100A</li> <li>• 1-BD-TV-100B</li> <li>• 1-BD-TV-100C</li> <li>• 1-BD-TV-100D</li> <li>• 1-BD-TV-100E</li> <li>• 1-BD-TV-100F</li> </ul>
------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

14	Check that steam generator blowdown radiation is normal.	Procedure Step 9 of 1-E-1, att.4
----	----------------------------------------------------------	-------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator observes that SG blowdown rad monitors are normal (no alarms or elevated readings).
------------------	----------------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	Acknowledge completion of 1-E-1, Attachment 4. This completes the JPM.
---------------------------	---------------------------------------------------------------------------

Notes/Comments
----------------

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN-PLANT SETUP  
(If Required)

SIMULATOR SETUP

JOB PERFORMANCE MEASURE  
**R184**

**TASK**

Restore the blowdown radiation monitors (1-E-1).

**CHECKLIST**

\_\_\_\_\_ Recall IC #197

\_\_\_\_\_ Do simspray and check recorders

**Step 3 of Att.4** → When requested, place the "A" main feedwater pump in TEST using main feed pumps drawing and report action complete to operator.

**Steps 7a & 7b of Att.4** → When requested, acknowledge orders to close 1-BD-1005, 1-BD-57, 58, and 59 and report action complete to operator.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Unit 1 is at 100%.

Flooding has occurred in the turbine building.

TURB BLD FLOOD ALARM TROUBLE annunciator (1D-G7) has just alarmed.

Circulating Water System rupture has been reported on Unit 1.

Liquid waste discharge is aligned to the Unit 1 discharge tunnel.

**INITIATING CUE**

You are requested to respond to circulating water flooding in the turbine building in accordance with 0-AP-39.1, Turbine Building Flooding.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**13355**

**TASK**

Respond to turbine building flooding with Circulating water pump fails to trip (0-AP-39.1).

**TASK STANDARDS**

All waterbox inlets were closed, 15G10 was defeated, 15G1 was opened, all waterbox outlets were closed, and 1-LW-PCV-115 was placed in HAND.

**K/A REFERENCE:**

075-A2.04 (3.1/3.4)

**ALTERNATE PATH:**

Waterbox inlet MOVs fail to close requiring additional actions in response to failure

**TASK COMPLETION TIMES**

Validation Time = 13 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                                     SATISFACTORY                                     UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station

**JOB PERFORMANCE MEASURE  
(Evaluation)**

**OPERATOR PROGRAM**

**13355**

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level

**INITIAL CONDITIONS**

Unit 1 is at 100%.

Flooding has occurred in the turbine building.

TURB BLD FLOOD ALARM TROUBLE annunciator (1D-G7) has just alarmed.

Circulating Water System rupture has been reported on Unit 1.

Liquid waste discharge is aligned to the Unit 1 discharge tunnel.

**INITIATING CUE**

You are requested to respond to circulating water flooding in the turbine building in accordance with 0-AP-39.1, Turbine Building Flooding.

**EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

**TOOLS AND EQUIPMENT**

None

**PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

---

**Note: Operator will read the following procedure caution and note:**

**CAUTION:** Auxiliary Building flooding could carry over into the Turbine Building through the Service Water Tunnel into the Turbine Building Valve Pit.

**NOTE:** If a Reactor trip occurs, then, in order to recover the plant from the flooding, this procedure should be performed in conjunction with Emergency Operating Procedures.

1	Identify source of the flooding	Procedure Step 1 of 0-AP-39.1
---	---------------------------------	----------------------------------

SAT [ ] UNSAT [ ]

<u>Standards</u>	Operator initials step and continues with Step 2. (source, Unit 1 Circ Water, was provided by initial conditions)
------------------	----------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

2	Determine if reactor should be tripped - YES. (based on initial conditions provided – circ water system rupture)	Procedure Step 2.a,b, &c of 0-AP-39.1
---	---------------------------------------------------------------------------------------------------------------------	------------------------------------------

SAT  UNSAT

<u>Standards</u>	Reactor trip switch on benchboard 1-1 and or 1-2 momentarily placed in TRIP. Reheater Reset pushbutton momentarily depressed.
------------------	----------------------------------------------------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	<b>After immediate operator actions are done:</b> The remaining crew members will perform 1-E-0, you are directed to continue performance of 0-AP-39.1
---------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

3	Check if Bearing Cooling System status is abnormal - NO.	Procedure Step 3 of 0-AP-39.1
---	----------------------------------------------------------	----------------------------------

SAT  UNSAT

<u>Standards</u>	Operator goes to RNO column and continues with Step 4.
------------------	--------------------------------------------------------

<u>Notes/Comments</u> This step is intended to initiate additional actions IF the leak were in the bearing cooling (BC) system, based on the initial conditions of the JPM the leak is in the Circ Water System. The candidate may elect to check items such as BC system annunciators, basin level, makeup valve position, etc. to satisfy themselves, but these actions are not required based on the initial conditions provided.
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**Note: Operator will read the following procedure note:**

- NOTE:**
- If a G-Bus is de-energized because of a CW system rupture, then a reduced Bearing Lube flow condition could result on the opposite unit. The de-energized bus should be re-energized as soon as possible.
  - When the waterbox inlet box valves start to close, then the CW pumps for the affected unit should trip.

4	Check CW system abnormal - YES.	Procedure Step 4a of 0-AP-39.1
---	---------------------------------	-----------------------------------

SAT  UNSAT

<u>Standards</u>	Operator continues to substep 4b based on initial conditions provided.
------------------	------------------------------------------------------------------------

Notes/Comments
----------------

5	Place all Unit 1 circulating water motor-operated valve interlock defeat switches in NORMAL.	Procedure Step 4.b.1 of 0-AP-39.1
---	----------------------------------------------------------------------------------------------	--------------------------------------

SAT  UNSAT

<u>Standards</u>	Circulating water motor-operated valve switches are verified to be in NORMAL
------------------	---------------------------------------------------------------------------------

Notes/Comments
----------------

6	Close the following water box inlet motor-operated valves. <ul style="list-style-type: none"> <li>• 1-CW-MOV-101A</li> <li>• 1-CW-MOV-101B</li> <li>• 1-CW-MOV-101C</li> <li>• 1-CW-MOV-101D</li> </ul>	Procedure Step <u>4.b.2 of O-AP-39.1</u>
---	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>NOTE TO THE EVALUATOR</u>	1-CW-MOV-101C and 101D will close once the pumps have tripped. <b>There is no RNO for this step.</b>
------------------------------	---------------------------------------------------------------------------------------------------------

<u>Standards</u>	CLOSE push-button is depressed for the following motor-operated valves <ul style="list-style-type: none"> <li>• 1-CW-MOV-101A</li> <li>• 1-CW-MOV-101B</li> <li>• 1-CW-MOV-101C</li> <li>• 1-CW-MOV-101D</li> </ul>
------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

7	Verify that the Unit1 Circulating Water pumps are trip - NO. <b>(Alternate path step)</b>	Procedure Step 4.b.3 of 0-AP-39.1
---	----------------------------------------------------------------------------------------------	--------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator determines that Unit 1 CW pumps are <b>NOT</b> tripped (by observing breaker indication on Circ Water panel) and implements step 4.b.3) RNO
------------------	------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

8	De-energize the unit-1 "G" bus.	Procedure Step 4.b.3 RNO a,b,&c of 0-AP-39.1
---	---------------------------------	-------------------------------------------------

**Critical Step** SAT  UNSAT

<u>Standards</u>	1) 15G10 transfer switch is placed in DEFEAT. 2) 15G10 status checked as open. 3) 15G1 is opened. <b>ONLY elements 1&amp;3 are critical since 15G10 is already open (normal alignment)</b>
------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

9	Place the unit-1 circulating water pumps in PULL-TO-LOCK.	Procedure Step 4.b.3. RNO d of 0-AP-39.1
---	-----------------------------------------------------------	---------------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator places all four (4) CW pump switches in PTL
------------------	------------------------------------------------------

Notes/Comments

10	Verify that all circulating water pump breakers are open.	Procedure Step 4.b.3 RNO e of 0-AP-39.1
----	-----------------------------------------------------------	--------------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator verifies CW pump breakers open <u>prior</u> to placing switches in pull-to-lock, or locally, or using PCS.
------------------	---------------------------------------------------------------------------------------------------------------------

Notes/Comments  
Control room breaker light indication is when the previous step is performed (placing pump breakers in pull-to-lock).

11	Re-energize the unit-1 "G" bus..	Procedure Step 4.b.3. RNO f of 0-AP-39.1
----	----------------------------------	---------------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator acknowledges that another operator will re-energize the bus.
------------------	-----------------------------------------------------------------------

<u>Performance Cue(s)</u>	Another operator will re-energize the bus
---------------------------	-------------------------------------------

Notes/Comments

12	Close the following water box outlet motor-operated valves. <ul style="list-style-type: none"> <li>• 1-CW-MOV-102A</li> <li>• 1-CW-MOV-102B</li> <li>• 1-CW-MOV-102C</li> <li>• 1-CW-MOV-102D</li> </ul>	Procedure Step <u>4.b.4 of 0-AP-39.1</u>
----	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	CLOSE push-button is momentarily depressed for the following motor-operated valves <ul style="list-style-type: none"> <li>• 1-CW-MOV-102A</li> <li>• 1-CW-MOV-102B</li> <li>• 1-CW-MOV-102C</li> <li>• 1-CW-MOV-102D</li> </ul>
------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Notes/Comments</u> <b>Operator will most likely be waiting on inlet valves to stroke fully closed</b>
-------------------------------------------------------------------------------------------------------------

13	Request the turbine building operator to secure the unit-1 High-capacity Steam Generator Blowdown System.	Procedure Step <u>4.b.5 of 0-AP-39.1</u>
----	-----------------------------------------------------------------------------------------------------------	---------------------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	Operator calls Turbine bldg. operator to secure HCBBD per the OP
------------------	------------------------------------------------------------------

<u>Notes/Comments</u> When requested Booth operator will acknowledge operators direction and call back and report action is complete
-----------------------------------------------------------------------------------------------------------------------------------------

14	Check if liquid waste releases can be continued -NO.	Procedure Step 4.b.6 RNO of 0-AP- 39.1
----	------------------------------------------------------	----------------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator determines that LW releases <b>cannot</b> be continued and places 1-LW-PCV-115 in HAND and verifies it is closed (status of LW aligned to Unit 1 tunnel provided by initial conditions).
------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	<b>Another operator will complete 0-AP-39.1. This completes JPM.</b>
---------------------------	--------------------------------------------------------------------------

<u>Notes/Comments</u> If operator calls HP booth operator will respond that the release permit requires 3 CW pumps to be running on the tunnel that LW is discharging to.
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

SIMULATOR SETUP

JOB PERFORMANCE MEASURE  
**13355**

**TASK**

Respond to turbine building flooding with Circulating water pump fails to trip (0-AP-39.1).

**CHECKLIST**

\_\_\_\_\_ Recall IC # 195 (100% power)

\_\_\_\_\_ Do simspray and check recorders

Step 4.b.5) → when called acknowledge as turbine operator to secure high capacity blowdown in accordance with 1-OP-32.3

**If** called as outsidest operator report that all 4 Unit 1 CW pump breakers are verified open locally

**If** called as HP respond that the release permit requires 3 CW pumps running.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Both units are stable at 100% power.

Indicated water level in safety injection accumulator 1-SI-TK-1A is 57%.

Chloride concentration in Unit 1 RWST is > 150 ppb.

Initial Conditions have been verified satisfied.

Precautions and Limitations have been reviewed.

Shift Manager directs that Unit 2 RWST be used as the water source.

An operator has been briefed and is standing by with a copy of the procedure.

**INITIATING CUE**

You are requested to fill safety injection accumulator 1-SI-TK-1A to approximately 64% from the Unit 2 refueling water storage tank using the hydro-test pump in accordance with 1-OP-7.3.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

R170

**TASK**

Fill the safety injection accumulators (1-OP-7.3).

**TASK STANDARDS**

1-SI-TK-1A level is raised to approximately 64% in accordance with 1-OP-7.3.

**K/A REFERENCE:**

006-A4.02 (A4.0/3.8)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 10 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                                     SATISFACTORY                                     UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station

**JOB PERFORMANCE MEASURE  
(Evaluation)**

**OPERATOR PROGRAM**

**R170**

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level.

## **INITIAL CONDITIONS**

Both units are stable at 100% power.

Indicated water level in safety injection accumulator 1-SI-TK-1A is 57%.

Chloride concentration in Unit-1 RWST is > 150 ppb.

Initial Conditions have been verified satisfied.

Precautions and Limitations have been reviewed.

Shift Manager directs that Unit 2 RWST be used as the water source.

An operator has been briefed and is standing by with a copy of the procedure.

## **INITIATING CUE**

You are requested to fill safety injection accumulator 1-SI-TK-1A to approximately 64% from the unit-2 refueling water storage tank using the hydro-test pump in accordance with 1-OP-7.3.

## **EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

## **TOOLS AND EQUIPMENT**

Copy of 1-OP-7.3, signed off thru Sub-step 5.1.3

## **PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

---

**Note: Operator will read the following procedure caution.**

WHEN 1-SI-58, Hydro Test PP To SI Accum Makeup Line Isol Valve, is open in Mode 1, 2, 3, OR 4, THEN an Operator MUST remain in the immediate area in order to close 1-SI-58 quickly if containment isolation becomes necessary.

**Evaluators Note: Based on direction provided by JPM, operator will N/A Step 5.1.4 of procedure.**

1	Request Field Operator to align the hydro-test pump to take suction from the Unit 2 refueling water storage tank and perform a visual inspection of the hydro test pump.	Procedure Step 5.1.5 & 5.1.6 of 1-OP-7.3
---	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------

SAT [ ] UNSAT [ ]

<u>Standards</u>	Field Operator is requested to align the hydro-test pump to take suction from the Unit 2 refueling water storage tank and perform a visual inspection of the hydro test pump (perform steps 5.1.5 & 5.1.6 of 1-OP-7.3)
------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Notes/Comments</u> <b>When requested, booth operator will acknowledge direction from operator and call back when action is complete.</b>
------------------------------------------------------------------------------------------------------------------------------------------------

---

2	Verify that the HYDRO TEST PP STUFFING BOX RESERVOIR LO LEVEL annunciator (1G-G5) is <u>NOT</u> lit.	Procedure Step 5.1.7 of 1-OP-7.3
---	------------------------------------------------------------------------------------------------------	----------------------------------

SAT [ ] UNSAT [ ]

<u>Standards</u>	Operator observes Annunciator 1G-G5 is <u>NOT</u> lit.
------------------	--------------------------------------------------------

<u>Notes/Comments</u>
-----------------------

3	Record the indicated level for 1-SI-TK-1A.	Procedure Step 5.1.8 of 1-OP-7.3
---	--------------------------------------------	-------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator observes level in 1-SI-TK-1A is approximately 57%.
------------------	-------------------------------------------------------------

Notes/Comments Operator may use PCS and/or vertical board meters to satisfy this step.
-------------------------------------------------------------------------------------------

**Note: Operator will read the following procedure caution.**

DO NOT fill more than ONE SI Accumulator at a time. The cross-connection of the liquid space of SI Accumulator to the liquid space of another SI Accumulator is NOT allowed.

4	Open fill valve 1-SI-HCV-1851A, for safety injection accumulator 1-SI-TK-1A.	Procedure Step 5.1.9 of 1-OP-7.3
---	------------------------------------------------------------------------------	-------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	OPEN Pushbutton for 1-SI-HCV-1851A is momentarily depressed.
------------------	--------------------------------------------------------------

Notes/Comments  Sub-steps that are not applicable should be marked N/A
------------------------------------------------------------------------------

5	Place the hydro-test pump's speed controller 1-SI-HIC-1947 to zero output.	Procedure Step 5.1.11 of 1-OP-7.3
---	----------------------------------------------------------------------------	--------------------------------------

SAT  UNSAT

<u>Standards</u>	Controller is confirmed to be set to zero output.
------------------	---------------------------------------------------

Notes/Comments Normal configuration is zero output.
--------------------------------------------------------

---

6	Start 1-SI-P-2, hydro-test pump.	Procedure Step 5.1.12 of 1-OP-7.3
---	----------------------------------	--------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	START pushbutton for 1-SI-P-2 is momentarily depressed.
------------------	---------------------------------------------------------

Notes/Comments
----------------

---

7	Increase the hydro-test pump's speed control to the desired output.	Procedure Step 5.1.13 of 1-OP-7.3
---	---------------------------------------------------------------------	--------------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	1-SI-HIC-1947 controller setpoint is raised.
------------------	----------------------------------------------

Notes/Comments
----------------

---

**Note: Operator will read the following procedure caution.**

IF accumulator pressure rises excessively during filling, THEN the accumulator must be vented to the Gaseous Waste System using Subsection 5.5, Venting Safety Injection Accumulators.

---

8	When the indicated level in safety injection accumulator 1-SI-TK-1A reaches the desired value place the hydro-test pump's speed control to zero percent output.	Procedure Step 5.1.18.a of 1-OP-7.3
---	-----------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	Hydro-test pump's speed control is lowered to zero percent output.
------------------	--------------------------------------------------------------------

<u>Notes/Comments</u> Operator may use PCS and/or vertical board to monitor Accumulator level.
---------------------------------------------------------------------------------------------------

---

9	Wait 15 seconds.	Procedure Step 5.1.18.b of 1-OP-7.3
---	------------------	----------------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	Operator pauses for approximately 15 seconds.
------------------	-----------------------------------------------

<u>Notes/Comments</u>
-----------------------

10	Stop the hydro-test pump 1-SI-P-2.	Procedure Step 5.1.18.c of 1-OP-7.3
----	------------------------------------	----------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	STOP pushbutton for 1-SI-P-2 is momentarily depressed.
------------------	--------------------------------------------------------

Notes/Comments  
**This pump has a 5 second time delay in the motor control circuit; the pump will stop approximately 5 seconds AFTER the stop pushbutton is depressed.**

11	Wait 60 seconds.	Procedure Step 5.1.18.d of 1-OP-7.3
----	------------------	----------------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	Operator waits approximately 60 seconds.
------------------	------------------------------------------

Notes/Comments

12	Close 1-SI-HCV-1851A, the fill valve for 1-SI-TK-1A.	Procedure Step 5.1.19 of 1-OP-7.3
----	------------------------------------------------------	--------------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	CLOSE pushbutton for 1-SI-TK-1A is momentarily depressed.
------------------	-----------------------------------------------------------

Notes/Comments  
 Sub-steps that are not applicable should be marked N/A.

13	Record the indicated level for 1-SI-TK-1A in Attachment 1, Section 1.	Procedure Step 5.1.21 of 1-OP-7.3
----	-----------------------------------------------------------------------	-----------------------------------

SAT  UNSAT

<u>Standards</u>	Level is recorded in Attachment 1 Section 1
------------------	---------------------------------------------

Notes/Comments  
Operator may use PCS and/or vertical board meters to obtain Accumulator level.

14	If filling another Accumulator, repeat steps 5.1.8 through 5.1.21.	Procedure Step 5.1.22 of 1-OP-7.3
----	--------------------------------------------------------------------	-----------------------------------

SAT  UNSAT

<u>Standards</u>	Step is marked N/A.
------------------	---------------------

Performance Cue(s)	Another crew member will complete the rest of 1-OP-7.3. This completes the JPM.
--------------------	---------------------------------------------------------------------------------

Notes/Comments

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

\_\_\_\_\_ Recall IC # 196

\_\_\_\_\_ Do simspray and check recorders

**1-OP-7.3 Step 5.1.5 & 5.1.6** → when called align hydro test pump using extreme view from page SI1 open SI-48 & SI-58 and report to the operator that Steps 5.1.5 & 5.1.6 are complete.

Note: This is a different lineup than that called for by the procedure, however Unit 2 RWST is not modelled on the simulator.

**IF** called by operator report that hydro test pump is operating satisfactory.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Unit-1 is at 100% power.

Maintenance has been completed on 1-I battery charger

The swing charger is NOT supplying battery 1-I

No annunciators have been defeated

The 1-I battery room exhaust fan is in operation

No maintenance rule actions are required

Initial conditions of 1-OP-26.4.1 are satisfied

All P&Ls of 1-OP-26.4.1 have been reviewed

**INITIATING CUE**

You are requested to place the 1-I battery charger in service on battery 1-I per 1-OP-26.4.1.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

N437

**TASK**

Place a battery charger in operation on the safeguards watchstation (1-OP-26.4.1, 1-ECA-0.0).

**TASK STANDARDS**

Battery charger 1-I is in service on battery 1-I

**K/A REFERENCE:**

058-AA1.03 (3.1/3.3)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 20 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                                     SATISFACTORY                                     UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

---

---

---

---

---

---

---

---

Dominion  
North Anna Power Station

**JOB PERFORMANCE MEASURE  
(Evaluation)**

**OPERATOR PROGRAM**

**N437**

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

Before being evaluated on the task, the trainee must have completed the reactor operator's course checkout during which the objectives listed below would have been addressed.

### **INITIAL CONDITIONS**

Unit-1 is at 100% power.

Maintenance has been completed on 1-I battery charger

The swing charger is NOT supplying battery 1-I

No annunciators have been defeated

The 1-I battery room exhaust fan is in operation

No maintenance rule actions are required

Initial conditions of 1-OP-26.4.1 are satisfied

All P&Ls of 1-OP-26.4.1 have been reviewed

### **INITIATING CUE**

You are requested to place the 1-I battery charger in service on battery 1-I per 1-OP-26.4.1.

### **EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

### **TOOLS AND EQUIPMENT**

Copy of 1-OP-26.4.1 signed off thru 5.1.2

### **PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

1	Verify Initial Condition is satisfied.	Procedure Step 5.1.1 of 1-OP-26.4.1
---	----------------------------------------	----------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator initials step 5.1.1.
------------------	-------------------------------

<u>Simulation Cue(s)</u>	Review the JPM Initial Conditions.
--------------------------	------------------------------------

<u>Notes/Comments</u>	Operator may elect to review Initial Conditions even though this is given in the initial conditions of this JPM.
-----------------------	------------------------------------------------------------------------------------------------------------------

2	Review Precautions and Limitations.	Procedure Step 5.1.2 of 1-OP-26.4.1
---	-------------------------------------	----------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator initials step 5.1.2.
------------------	-------------------------------

<u>Simulation Cue(s)</u>	Review the JPM Initial Conditions.
--------------------------	------------------------------------

<u>Notes/Comments</u>	Operator may elect to review Precautions and Limitations even though this is given in the initial conditions of this JPM.
-----------------------	---------------------------------------------------------------------------------------------------------------------------

3	<b>IF</b> battery charger 1-I annunciator alarm was defeated, <b>THEN</b> establish communications with the unit CRO and notify the Unit 1 CRO that Panel "H" B-1, BATTERY CHGR 1-I TROUBLE, will light while performing this subsection..	Procedure Step <u>5.1.3 of 1-OP-26.4.1</u>
---	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator N/A's step 5.1.3.
------------------	----------------------------

<u>Simulation Cue(s)</u>	Review the JPM Initial Conditions.
--------------------------	------------------------------------

Notes/Comments
----------------

4	<b>IF</b> battery charger 1-I annunciator alarm was defeated, <b>THEN</b> enable the Panel "H" B-1, BATTERY CHGR 1-I TROUBLE, annunciator as follows.	Procedure Step <u>5.1.4 of 1-OP-26.4.1</u>
---	-------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator N/A's step 5.1.4 (including all substeps).
------------------	-----------------------------------------------------

<u>Simulation Cue(s)</u>	Review the JPM Initial Conditions.
--------------------------	------------------------------------

Notes/Comments
----------------

5	Determine status of Swing Battery Charger 1C-1: <b>IF</b> Swing Battery Charger 1C-1 is supplying Battery 1-I, <b>THEN</b> do the following.	Procedure Step <u>5.1.5.a of 1-OP-26.4.1</u>
---	-------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator N/A's step 5.1.5.a (including all substeps).
------------------	-------------------------------------------------------

<u>Simulation Cue(s)</u>	Review the JPM Initial Conditions.
--------------------------	------------------------------------

<u>Notes/Comments</u>	
-----------------------	--

6	<b>IF</b> Swing Battery Charger 1C-1 is idle OR is supplying Battery 1-II, <b>THEN</b> at DC distribution panel 1-EP-CB-12A, ensure Breaker 11, Feeder from Swing Charger, is open.	Procedure Step <u>5.1.5.b of 1-OP-26.4.1</u>
---	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator N/A's step 5.1.5.b.
------------------	------------------------------

<u>Simulation Cue(s)</u>	Review the JPM Initial Conditions.
--------------------------	------------------------------------

<u>Notes/Comments</u>	
-----------------------	--

7	<b>IF</b> the battery charger will be operated without an exhaust fan running in the Battery Room, <b>THEN</b> do the following..	Procedure Step 5.1.6 of 1-OP-26.4.1
---	-----------------------------------------------------------------------------------------------------------------------------------	----------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator N/A's step 5.1.6 (including all substeps).
------------------	-----------------------------------------------------

<u>Simulation Cue(s)</u>	Review the JPM Initial Conditions.
--------------------------	------------------------------------

<u>Notes/Comments</u>	
-----------------------	--

8	Close 1-EE-BKR-1H1-4 D2L, Battery Charger 1-I Power Supply Circuit Bkr 1-BY-C-2.	Procedure Step 5.1.7 of 1-OP-26.4.1
---	-------------------------------------------------------------------------------------	----------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	480-V breaker 1-EE-BKR-1H1-4 D2L handle is rotated clockwise approximately 75 degrees.
------------------	----------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Breaker 1-EE-BKR-1H1-4 D2L handle is closed.
--------------------------	----------------------------------------------

<u>Notes/Comments</u>	Protected Equipment for the week of June 7, 2010 is Unit 2H (no impact on this task) Protected Equipment for the week of June 21, 2010 is N/A (week 13 – bye week)
-----------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------

---

9	At Normal Battery Charger Cabinet 1-I, close the DC Output Circuit Breaker.	Procedure Step 5.1.8 of 1-OP-26.4.1
---	-----------------------------------------------------------------------------	-------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	DC output circuit breaker handle is rotated clockwise approximately 90 degrees.
------------------	---------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	DC output circuit breaker is closed.
--------------------------	--------------------------------------

Notes/Comments
----------------

---

10	At DC distribution panel 1-EP-CB-12A, close Breaker 12, Feeder from normal charger.	Procedure Step 5.1.9 of 1-OP-26.4.1
----	-------------------------------------------------------------------------------------	-------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	Breaker #12 in 1-EP-CB-12A is pushed from right to left.
------------------	----------------------------------------------------------

<u>Performance Cue(s)</u>	Breaker #12 in 1-EP-CB-12A is closed.
---------------------------	---------------------------------------

Notes/Comments
----------------

11	At Normal Battery Charger Cabinet 1-I, do the following: Close the AC Input Circuit Breaker.	Procedure Step 5.1.10.a of 1-OP-26.4.1
----	-------------------------------------------------------------------------------------------------	----------------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	AC input circuit breaker handle is rotated clockwise approximately 90 degrees.
------------------	--------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	AC input circuit breaker is closed.
--------------------------	-------------------------------------

Notes/Comments

12	Ensure that the POWER ON light is bright.	Procedure Step 5.1.10.b of 1-OP-26.4.1
----	-------------------------------------------	----------------------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	POWER ON light is checked.
------------------	----------------------------

<u>Simulation Cue(s)</u>	POWER ON light is bright.
--------------------------	---------------------------

Notes/Comments

13	Verify Panel "H" B-1, BATTERY CHGR 1-I TROUBLE, is <b>NOT</b> lit.	Procedure Step 5.1.11 of 1-OP-26.4.1
----	--------------------------------------------------------------------	-----------------------------------------

SAT  UNSAT

<u>Standards</u>	The operator states that he/she would call control room to verify annunciator status.
------------------	---------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Panel "H" B-1, BATTERY CHGR 1-I TROUBLE, is <b>NOT</b> lit.
--------------------------	-------------------------------------------------------------

Notes/Comments

14	If Swing Battery Charger 1C-1 was on EQUALIZE in step 5.1.5.a.2, <b>THEN</b> place Battery Charger 1C-1 on EQUALIZE.	Procedure Step 5.1.12 of 1-OP-26.4.1
----	----------------------------------------------------------------------------------------------------------------------	-----------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator N/A's step 5.1.12.
------------------	-----------------------------

<u>Simulation Cue(s)</u>	Review the JPM Initial Conditions.
--------------------------	------------------------------------

Notes/Comments

15	Observe the battery charger and record the data below.	Procedure Step 5.1.13 of 1-OP-26.4.1
----	--------------------------------------------------------	-----------------------------------------

SAT  UNSAT

<u>Standards</u>	The operator records data.
------------------	----------------------------

<u>Simulation Cue(s)</u>	Output Current is 91 amps Output Voltage is 133.5 volts Negative Ground is 68 volts Positive Ground is 67 volts
--------------------------	--------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

**NOTE: Operator will read the following procedure CAUTION.**

CAUTION: Battery charger output voltage must be at least 132 VDC but **NOT** higher than 139 VDC.

16	If battery charger voltage is less than 132 VDC <u>or</u> higher than 139 VDC, <b>THEN</b> notify the Electrical Department and the SRO.	Procedure Step 5.1.14 of 1-OP-26.4.1
----	------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator reviews data and N/A's step 5.1.14
------------------	---------------------------------------------

<u>Simulation Cue(s)</u>	Assume that another operator will complete the procedure. This completes the JPM.
--------------------------	--------------------------------------------------------------------------------------

Notes/Comments
----------------

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)



None



**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

AC power has been lost

1-ECA-0.0 has been entered due to a loss of all AC power

**INITIATING CUE**

You are requested to isolate reactor coolant pump seals locally in accordance with 1-ECA-0.0, Attachment 3.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**N10**

**TASK**

Isolate the reactor coolant pump seals locally (1-ECA-0.0, 1-ECA-0.2, 1-AP-33.2, B.5.b.).

**TASK STANDARDS**

Seal Injection, Seal Return, and Component Cooling return from the thermal barrier heat exchanger, have been isolated

Work was performed in compliance with the Radiation Work Permit; exposure to surface and airborne contamination was minimized; and ALARA principles were applied

**K/A REFERENCE:**

003-A2.01 (3.5/3.9)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 10 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                                     SATISFACTORY                                     UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

---

---

---

---

---

---

---

---

---

---

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

**N10**

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

Before being evaluated on the task, the trainee must have completed the reactor operator's course checkout during which the objectives listed below would have been addressed.

**INITIAL CONDITIONS**

AC power has been lost

1-ECA-0.0 has been entered due to a loss of all AC power

**INITIATING CUE**

You are requested to isolate reactor coolant pump seals locally in accordance with 1-ECA-0.0, Attachment 3.

**EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

**TOOLS AND EQUIPMENT**

Administrative key

**PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

**NOTE: Operator will read the following procedure NOTE.**

NOTE: An Admin Key is required for performance of this attachment.

1	Isolate Seal Injection to all RCPs by closing the following valves (located in Unit 1 Penetration Area): <ul style="list-style-type: none"> <li>• 1-CH-318, 1A RCP Seal Injection Header Inlet Isol Valve</li> <li>• 1-CH-314, 1B RCP Seal Injection Header Inlet Isol Valve</li> <li>• 1-CH-310, 1C RCP Seal Injection Header Inlet Isol Valve</li> </ul>	Procedure Step <u>1 of 1-ECA-0.0 Att. 3</u>
---	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------

<b>Critical Step</b>	SAT [ ] UNSAT [ ]
----------------------	-------------------

<u>Standards</u>	Operator unlocks and removes covers, loosens jam nuts, and closes the following valves: <ul style="list-style-type: none"> <li>• 1-CH-318, 1A RCP Seal Injection Header Inlet Isol Valve</li> <li>• 1-CH-314, 1B RCP Seal Injection Header Inlet Isol Valve</li> <li>• 1-CH-310, 1C RCP Seal Injection Header Inlet Isol Valve</li> </ul>
------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Seal injection supply throttle valves 1-CH-318, 1-CH-314, and 1-CH-310 are all closed.
--------------------------	----------------------------------------------------------------------------------------

<u>Notes/Comments</u>	These valves are in close proximity to an area where the dose rates are 50 – 90 mRem/hr.
-----------------------	------------------------------------------------------------------------------------------

2	Close 1-CC-757, Reactor Cool PPs Thermal Barrier CC Ret Isol Valve (located at penetration 8)	Procedure Step <u>2 of 1-ECA-0.0 Att. 3</u>
---	-----------------------------------------------------------------------------------------------	------------------------------------------------

<b>Critical Step</b>	SAT [ ] UNSAT [ ]
----------------------	-------------------

<u>Standards</u>	Operator closes 1-CC-757, RCP thermal barrier CC return valve
------------------	---------------------------------------------------------------

<u>Simulation Cue(s)</u>	RCP thermal barrier CC return valve 1-CC-757 is closed.
--------------------------	---------------------------------------------------------

<u>Notes/Comments</u>	
-----------------------	--

3	Locally close 1-CH-MOV-1381, RCPs Seal Water Return Outside MOV (located behind the BIT).	Procedure Step 3 of 1-ECA-0.0 Att. 3
---	-------------------------------------------------------------------------------------------	-----------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	RCP seal leak-off valve 1-CH-MOV-1381 is closed locally
------------------	---------------------------------------------------------

<u>Simulation Cue(s)</u>	RCP seal leak-off valve 1-CH-MOV-1381 is closed.
--------------------------	--------------------------------------------------

Notes/Comments	This valve is located in an area where the dose rates are 50 – 90 mRem/hr. Consider waiting in a low dose rate waiting area while the operator locates the valve, then having the operator indicate the valve's location (e.g., shine a flashlight on the valve) and show how he/she would close the valve by simulating on a MOV in a low dose rate area (suggest 1-CH-MOV-1115B or -1115D, which are located near the entrance to the penetration area).
----------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

4	Notify the Control Room that Attachment 3 is complete.	Procedure Step 4 of 1-ECA-0.0 Att. 3
---	--------------------------------------------------------	-----------------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	Control room is informed that Attachment 3 is complete.
------------------	---------------------------------------------------------

<u>Simulation cue</u>	Respond as CRO that attachment 3 is complete. This completes the JPM.
-----------------------	--------------------------------------------------------------------------

Notes/Comments	
----------------	--

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

None

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**INITIAL CONDITIONS**

TURBINE DRIVEN AUX FEED PUMP TROUBLE/LO TROUBLE annunciator is lit

Turbine-driven auxiliary feedwater pump trip/throttle valve is discovered closed

**INITIATING CUE**

You are requested to reset the steam driven auxiliary feedwater pump's trip/throttle valve in accordance with 1-AR-F-D8.

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

N441

**TASK**

Reset the auxiliary feedwater pump turbine trip/throttle valve (1-AR-F-D8).

**TASK STANDARDS**

The unit 1 steam driven auxiliary feedwater pump overspeed trip valve has been reset

**K/A REFERENCE:**

061-A2.04 (3.4/3.8)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 7 minutes

Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_

Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                       SATISFACTORY                       UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dominion

North Anna Power Station  
JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

N441

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

Before being evaluated on the task, the trainee must have completed the reactor operator's course checkout during which the objectives listed below would have been addressed.

**INITIAL CONDITIONS**

TURBINE DRIVEN AUX FEED PUMP TROUBLE/LO TROUBLE annunciator is lit

Turbine-driven auxiliary feedwater pump trip/throttle valve is discovered closed

**INITIATING CUE**

You are requested to reset the steam driven auxiliary feedwater pump's trip/throttle valve in accordance with 1-AR-F-D8.

**EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

**TOOLS AND EQUIPMENT**

None

**PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

1	<b>IF</b> 1-MS-TV-115 has tripped, <b>THEN</b> reset the valve as follows: Rotate hand wheel clockwise until the latch lever end is at the trip hook.	Procedure Step <u>2.1.a of 1-AR-F-D8</u>
---	----------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Handwheel is rotated in the clockwise direction until the latch lever end is at the trip hook or until the handwheel is at full travel in the clockwise direction.
------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Latch lever end is at the trip hook.
--------------------------	--------------------------------------

<u>Notes/Comments</u>
Protected Equipment for the week of June 7, 2010 is Unit 2H (no impact on this task) Protected Equipment for the week of June 21, 2010 is N/A (week 13 – bye week)
Applicant may refer to a placard on the wall, which includes instructions for resetting the trip valve.

2	Push and hold the latch shaft toward the trip valve and ensure the tappet is fully down.	Procedure Step <u>2.1.b of 1-AR-F-D8</u>
---	------------------------------------------------------------------------------------------	---------------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Latch shaft is pushed towards the trip valve until the tappet is fully down.
------------------	------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Tappet is fully down.
--------------------------	-----------------------

<u>Notes/Comments</u>

3	Release the latch shaft.	Procedure Step 2.1.c of 1-AR-F-D8
---	--------------------------	--------------------------------------

SAT  UNSAT

<u>Standards</u>	Latch shaft is released.
------------------	--------------------------

<u>Simulation Cue(s)</u>	After releasing the latch shaft, the shaft did not move.
--------------------------	----------------------------------------------------------

<u>Notes/Comments</u>	
-----------------------	--

4	Rotate the hand wheel counterclockwise until the valve stem is fully up, then back off ¼ turn.	Procedure Step 2.1.d of 1-AR-F-D8
---	------------------------------------------------------------------------------------------------	--------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	Handwheel is rotated in the counterclockwise direction until the valve stem is fully up or until the handwheel is at full travel in the counterclockwise direction.
------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Handwheel is at full travel in the counterclockwise direction and the valve stem is fully up.
--------------------------	-----------------------------------------------------------------------------------------------

<u>Notes/Comments</u>	Backing off ¼ turn is NOT critical.
-----------------------	-------------------------------------

---

5	Verify 1-MS-TV-115 is fully latched open.	Procedure Step 2.1.e of 1-AR-F-D8
---	-------------------------------------------	--------------------------------------

SAT  UNSAT

<u>Standards</u>	1-MS-TV-115 is verified latched fully open.
------------------	---------------------------------------------

<u>Simulation Cue(s)</u>	The valve stem is fully up.
--------------------------	-----------------------------

<u>Notes/Comments</u>
-----------------------

---

6	Verify the tappet is fully down.	Procedure Step 2.1.f of 1-AR-F-D8
---	----------------------------------	--------------------------------------

SAT  UNSAT

<u>Standards</u>	The tappet is verified fully down.
------------------	------------------------------------

<u>Simulation Cue(s)</u>	The tappet is fully down.
--------------------------	---------------------------

<u>Notes/Comments</u>
-----------------------

---

7	IF lube oil reservoir is low, THEN have Maintenance Department refill lube oil reservoir to normal operating level.	Procedure Step 2.2 of 1-AR-F-D8
---	---------------------------------------------------------------------------------------------------------------------	---------------------------------

SAT [] UNSAT []

Standards	Operator N/As step 2.2.
-----------	-------------------------

Simulation Cue(s)	This completes the JPM.
-------------------	-------------------------

Notes/Comments
----------------

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

None

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Unit 1 down power was in progress. Ramp was held at approximately 76% power when the OATC noted that one control bank D rod was not tracking with the rest of the bank.

Control bank "D" control rod H-14 is at 205 steps, as indicated by individual rod position.

1-AP-1.3, Control Rod Out of Alignment, has been signed off to the point of performing Attachment 4, Realigning Control Rod - Rod High.

An operator has been briefed and is standing by in the rack room with a copy of the attachment.

**INITIATING CUE**

You are requested to perform 1-AP-1.3, Attachment 4, Realigning Control Rod - Rod High.

Maximum rod withdrawal and ramp rates are unrestricted.

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R477 (Modified)

**TASK**

Respond to a misaligned control rod (1-AP-1.3).

**TASK STANDARDS**

Operator correctly performs steps for rod realignment in accordance with 1-AP-1.3.  
Operator performs immediate operator actions of 1-AP-1.1.

**K/A REFERENCE:**

001-A2.03 (3.5/4.2)

**ALTERNATE PATH:**

Operator implements 1-AP-1.1 in response to rod control system malfunction during rod realignment.

**TASK COMPLETION TIMES**

Validation Time = 15 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                                     SATISFACTORY                                     UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

**R477 (Modified)**

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level.

**INITIAL CONDITIONS**

Unit 1 down power was in progress. Ramp was held at approximately 76% power when the OATC noted that one control bank D rod was not tracking with the rest of the bank.

Control bank "D" control rod H-14 is at 205 steps, as indicated by individual rod position.

1-AP-1.3, Control Rod Out of Alignment, has been signed off to the point of performing Attachment 4, Realigning Control Rod - Rod High.

An operator has been briefed and is standing by in the rack room with a copy of the attachment.

### **INITIATING CUE**

You are requested to perform 1-AP-1.3, Attachment 4, Realigning Control Rod - Rod High.

Maximum rod withdrawal and ramp rates are unrestricted.

### **EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

### **TOOLS AND EQUIPMENT**

Copy of 1-AP-1.3 signed off to step 17.

**PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

---

1	Check misaligned rod in controlling bank - YES.	Procedure Step 1 of 1-AP-1.3 Att.4
---	-------------------------------------------------	---------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator verifies both rod groups in the bank are at the same reading.
------------------	------------------------------------------------------------------------

Notes/Comments

---

2	Record the affected bank position.	Procedure Step 2 of 1-AP-1.3 Att.4
---	------------------------------------	---------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator records the affected bank position (D 195).
------------------	------------------------------------------------------

Notes/Comments

---

3	Record the misaligned rod's position.	Procedure Step 3 of 1-AP-1.3 Att.4
---	---------------------------------------	---------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator records the misaligned rod's position (H-14, 205 steps).
------------------	-------------------------------------------------------------------

Notes/Comments  
Can use bench board indicator and/or PCS to perform this step.

---

4	Record the number of steps that the rod is misaligned.	Procedure Step 4 of 1-AP-1.3 Att.4
---	--------------------------------------------------------	---------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator records the number of steps that the rod is misaligned (H-14, 10 steps).
------------------	-----------------------------------------------------------------------------------

Notes/Comments

5	Place the control rod bank selector switch in BANK SELECT.	Procedure Step 5 of 1-AP-1.3 Att.4
---	------------------------------------------------------------	---------------------------------------

**Critical Step** SAT  UNSAT

<u>Standards</u>	Rod control selector switch is selected to CONTROL BANK D position
------------------	--------------------------------------------------------------------

Notes/Comments

**NOTE: Operator will read the following procedure note.**

**NOTE:** A flashing Group Step Counter display indicates low battery.

6	Manually adjust the Group Step Counter for the affected group to the actual position of the misaligned rod, using the (UP) button.	Procedure Step 6 of 1-AP-1.3 Att.4
---	------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------

**Critical Step** SAT  UNSAT

<u>Standards</u>	UP button is depressed and control bank D group 1 step counter indicates 205 steps.
------------------	-------------------------------------------------------------------------------------

Notes/Comments

---

**NOTE: Operator will read the following procedure note.**

**NOTE:** The shutdown banks do not have Pulse-to-Analog Converters.

7	Locally record the affected bank pulse-to-analog converter reading.	Procedure Step 7 of 1-AP-1.3 Att.4
---	---------------------------------------------------------------------	---------------------------------------

SAT [ ] UNSAT [ ]

<u>Standards</u>	Operator requests that extra operator report the affected bank pulse to analog converter reading.
------------------	---------------------------------------------------------------------------------------------------

<u>Notes/Comments</u>	When called booth operator will respond and report that Control bank D pulse-to-analog converter reading is 195.
-----------------------	------------------------------------------------------------------------------------------------------------------

---

8	Locally reset the affected bank Pulse-To-Analog Converter.	Procedure Step 8 of 1-AP-1.3 Att.4
---	------------------------------------------------------------	---------------------------------------

SAT [ ] UNSAT [ ]

<u>Standards</u>	Operator requests extra operator reset the affected bank Pulse-To-Analog Converter (perform step 8 of att.4) to 205 steps for control bank D.
------------------	-----------------------------------------------------------------------------------------------------------------------------------------------

<u>Notes/Comments</u>	When requested booth operator will acknowledge order and report back that Pulse-To-Analog converter has been reset to 205 steps for Control Bank D.
-----------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------

---

9	Open all lift coil disconnect switches for the affected bank, except for the switch for the misaligned rod.	Procedure Step 9 of 1-AP-1.3 Att.4
---	-------------------------------------------------------------------------------------------------------------	---------------------------------------

**Critical Step** SAT [ ] UNSAT [ ]

<u>Standards</u>	All lift coil disconnect switches (7 total) for control bank D are open (placed in the "UP" or "DISCONNECTED" position) except for rod H-14
------------------	---------------------------------------------------------------------------------------------------------------------------------------------

<u>Notes/Comments</u>	
-----------------------	--

10	Have second person independently verify that all Lift Coil Disconnect switches for the affected bank, except for the misaligned rod(s), are open.	Procedure Step 10 of 1-AP-1.3 Att.4
----	---------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator acknowledges the IV is Complete.
------------------	-------------------------------------------

<u>Performance Cue(s)</u>	Inform the operator that the IV is complete.
---------------------------	----------------------------------------------

Notes/Comments

11	Adjust turbine load to maintain Tave within 1.5 °F of Tref during rod insertion.	Procedure Step 11 of 1-AP-1.3 Att.4
----	----------------------------------------------------------------------------------	----------------------------------------

SAT  UNSAT

<u>Standards</u>	Tave is monitored during rod movement.
------------------	----------------------------------------

Notes/Comments

Based on the existing Tave/Tref mismatch movement of a single rod by only 10 steps is relatively inconsequential; no adjustments will be necessary to compensate for the slight change in reactivity.

**NOTE: Operator will read the following procedure note. THEY should expect this alarm to occur since an urgent failure will be generated in power cabinet 2BD, since as stated all of it's lift coils are disconnected.**

**NOTE: When the affected rod(s) are inserted, then Annunciator Panel "A" D-1, ROD CONTROL URGENT FAILURE, may annunciate, indicating the affected bank lift coils are de-energized.**

12	Manually insert the affected control rod.	Procedure Step 12 of 1-AP-1.3 Att.4
----	-------------------------------------------	----------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Operator momentarily places IN/HOLD/OUT switch to IN to insert Control rod H-14 until it is aligned with the rest of the bank.
------------------	--------------------------------------------------------------------------------------------------------------------------------

<u>Notes/Comments</u>	
Operator may choose to insert the full 10 steps in one motion (since as given in the JPM rate is unrestricted), or insert in smaller step increments.	

13	Manually insert the affected control rod two steps below the affected bank position. <b>(alternate path step – rod continues to move uncontrolled when In/hold/Out switch is released.)</b>	Procedure Step 13 of 1-AP-1.3 Att.4
----	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Operator begins inserting Control rod H-14 to 2 steps below the affected bank position (193 steps) by placing the IN/HOLD/OUT switch to IN.
------------------	---------------------------------------------------------------------------------------------------------------------------------------------

<u>Notes/Comments</u>	
<b>Modification - Rod continues to insert when the In/hold/Out switch is released. Operator will be required to implement 1-AP-1.1, Continuous Uncontrolled Rod Motion.</b>	

12	Perform immediate operator actions of 1-AP-1.1 from memory. ( <b>alternate path step</b> , 1-AP-1.1 Step 2 RNO)	Procedure Step 1&2 of 1-AP-1.1
----	--------------------------------------------------------------------------------------------------------------------	-----------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	1) Control Rod Bank Selector Switch is placed in MANUAL. AND 2) Rod motion is verified <u>NOT</u> stopped and operator trips the reactor and implements 1-E-0.
------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

13	Perform immediate operator actions of 1-E-0.	Procedure Step Steps 1-4 of 1-E-0
----	----------------------------------------------	--------------------------------------

<u>Standards</u>	Immediate actions for 1-E-0 are completed.
------------------	--------------------------------------------

<u>Demonstration Cues</u>	Acknowledge completion of 1-E-0 immediate operator actions. JPM is complete.
---------------------------	---------------------------------------------------------------------------------

Notes/Comments
----------------

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

**R477 (Modified)**

Bring up 75% power IC (184)

Do Simspray and check recorders

Do rod bank update, then

Check PCS rod bank position

**Attachment 4, step 7** → respond as extra operator and report P/A converter reading for control bank D is 195 steps

**Attachment 4, step 8** → respond as extra operator and report P/A converter for control bank D has been reset to 205 steps

---

NOTE: IC is shot with the following malfunctions & overrides:

- On monitor set rdp600(3) at 205.
- To make rods keep stepping in when misaligned rod is inserted to 194 steps:
  1. Switch overrides: ROD\_CONT\_IN = ON, Trigger = 5
  2. CNTRL\_ROD\_AUTO = OFF, Trigger = 5
  3. CNTRL\_ROD\_MAN = OFF, Trigger = 5
- Set trigger 5 on trigger screen as rdp600(3) .ie. 194

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Unit 1 has experienced a Steam Generator Tube Rupture.

The operating crew is implementing 1-E-3.

**INITIATING CUE**

You are requested to align the condenser air ejector discharge to containment in accordance with 1-E-3, Step 9.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**R726**

**TASK**

Manually align condenser air ejector discharge to containment (1-E-3).

**TASK STANDARDS**

Air ejector discharge manually aligned to containment in accordance with 1-E-3.

**K/A REFERENCE:**

073-A4.01 (3.9/3.9)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 5 minutes

Start Time = \_\_\_\_\_

Actual Time = \_\_\_\_\_ minutes

Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating

SATISFACTORY

UNSATISFACTORY

Candidate (Print)

\_\_\_\_\_

Evaluator (Print)

\_\_\_\_\_

Evaluator's Signature /  
Date

\_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

R726

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level.

**INITIAL CONDITIONS**

Unit 1 has experienced a Steam Generator Tube Rupture.

The operating crew is implementing 1-E-3.

**INITIATING CUE**

You are requested to align the condenser air ejector discharge to containment in accordance with 1-E-3, Step 9.

**EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s)).

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s)).

**TOOLS AND EQUIPMENT**

Copy of 1-E-3 page 9 of 45.

**PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

---

1	Remove the instrument fuses from the Condenser Air Ejector Radiation Monitor drawer.	Procedure Step 9.a of 1-E-3
---	--------------------------------------------------------------------------------------	-----------------------------

<b>Critical Step</b>	SAT [ ] UNSAT [ ]
----------------------	-------------------

<u>Standards</u>	Instrument fuses are removed from 1-SV-RM-121, Condenser Air Ejector Radiation Monitor.
------------------	-----------------------------------------------------------------------------------------

Notes/Comments
This action will cause the HI and Hi-Hi radiator monitor annunciators to annunciate; these are expected alarms.

---

2	Reset phase "A" isolation.	Procedure Step 9.b of 1-E-3
---	----------------------------	--------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Both PHASE "A" ISOLATION RESET switches are momentarily placed in RESET.
------------------	--------------------------------------------------------------------------

Notes/Comments
----------------

---

3	Put both COND AIR EJECTOR DIVERT TO CONT SI RESET switches in RESET.	Procedure Step 9.c of 1-E-3
---	----------------------------------------------------------------------	--------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Both COND AIR EJECTOR DIVERT TO CONT SI RESET switches are momentarily placed in RESET.
------------------	-----------------------------------------------------------------------------------------

Notes/Comments
----------------

4	Verify that the condenser air ejector's discharge is automatically aligned to the containment.	Procedure Step 9.d of 1-E-3
---	------------------------------------------------------------------------------------------------	--------------------------------

SAT  UNSAT

<u>Standards</u>	Condenser air ejector's discharge valves are verified in proper position: <ul style="list-style-type: none"> <li>• 1-SV-TV-102-1 is verified OPEN</li> <li>• 1-SV-TV-103 is verified OPEN</li> <li>• 1-SV-TV- 102-2 is verified CLOSED</li> </ul>
------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

5	Open the auxiliary steam supply valves to the condenser air ejectors.	Procedure Step 9.e of 1-E-3
---	-----------------------------------------------------------------------	--------------------------------

**Critical Step** SAT  UNSAT

<u>Standards</u>	Auxiliary steam supply valves to the condenser air ejectors, 1-AS-FCV-100A and 1-AS-FCV-100B, are opened by momentarily depressing the OPEN push-button for each valve.
------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	Acknowledge operator that 1-E-3, Step 9 is complete. This completes the JPM.
---------------------------	------------------------------------------------------------------------------

Notes/Comments

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN-PLANT SETUP  
(If Required)

\_\_\_\_\_ Recall IC # 199

\_\_\_\_\_ Do simspray and check recorders

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Unit 1 is stable at 100% power.

Reactor Coolant Pump 1A has just lost seal cooling.

**INITIATING CUE**

You are requested to respond to the loss of seal cooling in accordance with 1-AP-33.2, Loss of Reactor Coolant Pump Seal Cooling.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**R724**

**TASK**

Respond to a loss of reactor coolant pump seal cooling (1-AP-33.2).

**TASK STANDARDS**

Reactor manually tripped, "A" RCP stopped, seal return isolated.

**K/A REFERENCE:**

015-AA1.22 (4.0/4.2)

**ALTERNATE PATH:**

Take action in response to MSR FCVs failing to reset and 1-CH-MOV-1381 failing to close.

**TASK COMPLETION TIMES**

Validation Time = 8 minutes

Start Time = \_\_\_\_\_

Actual Time = \_\_\_\_\_ minutes

Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                                     SATISFACTORY                                     UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station

JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

R724

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level.

**INITIAL CONDITIONS**

Unit 1 is stable at 100% power.

Reactor Coolant Pump 1A has just lost seal cooling.

### **INITIATING CUE**

You are requested to respond to the loss of seal cooling in accordance with 1-AP-33.2, Loss of Reactor Coolant Pump Seal Cooling.

### **EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s)).

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s)).

### **TOOLS AND EQUIPMENT**

None

**PERFORMANCE STEPS**

START TIME \_\_\_\_\_

---

**Note: Operator will read the following procedure caution.**

**CAUTION:**

Affected RCP seal cooling must be isolated and remain isolated until the RCS is cooled down to less than 200°F.

1	Verify that the affected reactor coolant pump(s) stopped.	Procedure Step 1 of 1-AP-33.2
---	-----------------------------------------------------------	----------------------------------

SAT  UNSAT

<u>Standards</u>	Operator verifies that all RCPs are running and applies RNO step to trip the reactor.
------------------	---------------------------------------------------------------------------------------

Notes/Comments

---

2	Trip the reactor.	Procedure Step 1 RNO a of 1-AP-33.2 RNO
---	-------------------	-----------------------------------------------

**Critical Step** SAT  UNSAT

<u>Standards</u>	Reactor trip switches on benchboard 1-1 and/or 1-2 momentarily placed in the TRIP position
------------------	--------------------------------------------------------------------------------------------

Notes/Comments

3	Verify reactor tripped.	Procedure Step 1 of 1-E-0
---	-------------------------	------------------------------

SAT  UNSAT

<u>Standards</u>	Operator verifies reactor is tripped (RTBs open, rod bottom lights on, flux decreasing).
------------------	------------------------------------------------------------------------------------------

Notes/Comments

4	Verify turbine trip – YES <b>Modified element, step 2 of 1-E-0 has the operator manually close Reheater FCVs when normal reset pushbutton fails.</b>	Procedure Step 2 of 1-E-0
---	---------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------

<u>Standards</u>	Operator verifies turbine stop valves closed, <b>manually closes Reheater FCVs when RESET pushbutton fails</b> , and verifies G-12 open.
------------------	------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments  
This requires operator to perform additional actions to ensure reheaters are isolated.

5	Verify both ac emergency busses energized – yes.	Procedure Step 3 of 1-E-0
---	--------------------------------------------------	------------------------------

SAT  UNSAT

<u>Standards</u>	Verifies 1H and 1J busses both energized by observing volt meters on 1H and 1J EDG control panels.
------------------	----------------------------------------------------------------------------------------------------

Notes/Comments

---

6	Check if SI is actuated	Procedure Step 4 of 1-E-0
---	-------------------------	------------------------------

SAT  UNSAT

<u>Standards</u>	<ul style="list-style-type: none"> <li>• Checks low head pumps running- NO.</li> <li>• Any first out annunciator lit – NO.</li> </ul>
------------------	---------------------------------------------------------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	Additional crew members will continue with 1-E-0. The Unit Supervisor directs you to continue performance of 1-AP-33.2.
---------------------------	-------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

---

7	Stop the affected reactor coolant pump(s).	Procedure Step 1.RNO b of 1-AP-33.2
---	--------------------------------------------	----------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	Control switch for reactor coolant pump 1A is placed in AUTO-AFTER-STOP or PULL-TO-LOCK.
------------------	------------------------------------------------------------------------------------------

Notes/Comments
----------------

8	Close the affected reactor coolant pump's spray valve.	Procedure Step 1.RNO c of 1-AP-33.2
---	--------------------------------------------------------	----------------------------------------

SAT  UNSAT

<u>Standards</u>	Controller for 1-RC-PCV-1455A is placed in MANUAL and the lower push-button is momentarily depressed until the controller output indicates zero.
------------------	--------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

9	Verify that reactor coolant pump seal water return valve, 1-CH-MOV-1381, is closed - NO. <b>(alternate path step – valve open and cannot be closed)</b>	Procedure Step 2.a RNO of 1-AP-33.2
---	---------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator recognizes that 1-CH-MOV-1381 is still open (after momentarily depressing close pushbutton) and applies RNO to close 1-CH-MOV-1380.
------------------	----------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

Valve is open and will not close requiring operator to take action and close alternative valve 1-CH-MOV-1380.

10	Close reactor coolant pump seal water return valve 1-CH-MOV-1380. (alternate path step)	Procedure Step 2.a RNO of 1-AP-33.2
----	-----------------------------------------------------------------------------------------	-------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	Close push-button for reactor coolant pump seal water return valve, 1-CH-MOV-1380, is momentarily depressed.
------------------	--------------------------------------------------------------------------------------------------------------

Notes/Comments

11	Request an auxiliary building qualified operator to close the affected reactor coolant pump's seal injection isolation valve, 1-CH-318.	Procedure Step 2.b of 1-AP-33.2
----	-----------------------------------------------------------------------------------------------------------------------------------------	---------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	Operator requests an auxiliary operator to close 1-CH-318.
------------------	------------------------------------------------------------

Notes/Comments  
Booth operator will acknowledge direction and report back when action complete.

12	Close the affected Reactor Coolant Pump thermal barrier trip valve.	Procedure Step 2.c of 1-AP-33.2
----	---------------------------------------------------------------------	---------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	Operator verifies that 1-CC-TV-116A, 1A RCP thermal barrier CC return valve, is closed.
------------------	-----------------------------------------------------------------------------------------

Notes/Comments  
Valve in the closed position is an Initial Condition of the IC for this JPM (loss of both seal injection flow and thermal barrier cooling) to provide entry conditions of 1-AP-33.2.

13	Verify that the Component Cooling Water System is in service.	Procedure Step 3 of 1-AP-33.2
----	---------------------------------------------------------------	----------------------------------

SAT  UNSAT

<u>Standards</u>	Operator verifies that Component Cooling Water is in service.
------------------	---------------------------------------------------------------

Notes/Comments

**Note: Operator will read the following procedure notes.**

NOTE:

- Affected RCP(s) should not be run before seal package inspection is completed.
- Affected RCP seals must be disassembled and inspected upon safe plant shutdown and cooldown.

14	Determine if natural circulation cooldown is required.	Procedure Step 4.a RNO of 1-AP-33.2
----	--------------------------------------------------------	----------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator determines that natural circulation is <u>NOT</u> required since RCPs are running. Applies RNO step a → go to 1-OP-3.2.
------------------	----------------------------------------------------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	As Unit Supervisor acknowledge procedure transition requirement and completion of 1-AP-33.2, inform operator that this completes the JPM.
---------------------------	-------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

SIMULATOR SETUP

JOB PERFORMANCE MEASURE  
**R724**

**TASK**

Respond to a loss of Reactor Coolant Pump seal cooling (1-AP-33.2).

**CHECKLIST**

\_\_\_\_\_ Recall IC #185

\_\_\_\_\_ Do Simspray and check recorders

Respond as Auxiliary Building operator to close affected RCP Seal injection Isolation valve (1-CH-318) when directed by operator (1-AP-33.2, Sub-step 2.b).

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Unit 1 is at 95% power. Unit 2 is at 100% power.

Electrical System Status is as follows:

- Both unit-2 emergency busses are being supplied from the normal feeders.
- 1H emergency bus is being supplied by its normal feeder.
- 1J emergency bus normal feeder breaker tripped open, and the 1J Emergency Diesel Generator has loaded onto the bus.

0-AP-10, Loss of Electrical Power, has been completed through notifying the Shift Manager of the results of the electrical system diagnosis.

**INITIATING CUE**

You are requested to complete 0-AP-10, Attachment 21, Unit 1 EDG Load Configuration to Prevent Overloading.

Dominion  
North Anna Power Station  
**JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

R506

**TASK**

Configure emergency bus loads to prevent emergency diesel generator overload (0-AP-10).

**TASK STANDARDS**

Equipment is started and stopped as required to configure loads on 1J emergency bus to prevent EDG overload.

**K/A REFERENCE:**

026-A2.05 (3.1/3.2)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 8 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                                     SATISFACTORY                                     UNSATISFACTORY

Candidate (Print)                                    \_\_\_\_\_

Evaluator (Print)                                    \_\_\_\_\_

Evaluator's Signature /  
Date                                    \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station

**JOB PERFORMANCE MEASURE**  
(Evaluation)

**OPERATOR PROGRAM**

**R506**

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level.

## **INITIAL CONDITIONS**

Unit 1 is at 95% power. Unit 2 is at 100% power.

Electrical System Status is as follows:

- Both unit-2 emergency busses are being supplied from the normal feeders.
- 1H emergency bus is being supplied by its normal feeder.
- 1J emergency bus normal feeder breaker tripped open, and the 1J emergency diesel generator has loaded onto the bus.

0-AP-10, "Loss of Electrical Power," has been completed through notifying the shift manager of the results of the electrical system diagnosis.

## **INITIATING CUE**

You are requested to complete the "Unit 1 EDG Load Configuration to Prevent Overloading" Attachment in 0-AP-10.

## **EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s)).

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s)).

## **TOOLS AND EQUIPMENT**

None

**PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

**Note: Operator may call to have equipment checked when starting/stopping, booth operator will respond as need and report back that operation is satisfactory.**

---

**Note: Operator will read the following procedure note.**

**NOTE:** Monitor EDG load parameters closely during any pump operations.

1	Check 1H EDG is the sole source of power to the 1H Emergency Bus.	Procedure Step 1 of 0-AP-10, Att. 21
---	-------------------------------------------------------------------	-----------------------------------------

SAT [ ] UNSAT [ ]

<u>Standards</u>	1H EDG is the sole source of power to the 1H Emergency Bus. – NO Operator marks Step 1 of the procedure - N/A.
------------------	----------------------------------------------------------------------------------------------------------------

Notes/Comments

---

**Note: Operator will read the following higher order action step, determine that this step (2) applies and proceed.**

IF 1J EDG is the sole source of power to 1J Emergency Bus, THEN do the following to limit the amount of instantaneous loading that could occur in the event of an SI/CDA:

2	Start service water pump 1-SW-P-1B.	Procedure Step 2.a of 0-AP-10, Att. 21
---	-------------------------------------	-------------------------------------------

**Critical Step** SAT [ ] UNSAT [ ]

<u>Standards</u>	Control switch for 1-SW-P-1B is momentarily placed in START
------------------	-------------------------------------------------------------

Notes/Comments

3	Stop service water pump 2-SW-P-1A.	Procedure Step 2.b of 0-AP-10, Att. 21
---	------------------------------------	-------------------------------------------

SAT  UNSAT

<b>Evaluators Note:</b>	Operator may state that he would ask Unit 2 OATC to stop 2-SW-P-1A; IF required, THEN provide cue listed below.
-----------------------------	--------------------------------------------------------------------------------------------------------------------

<b>Standards</b>	Control switch for 2-SW-P-1A is momentarily placed in STOP.
------------------	-------------------------------------------------------------

<b>Performance Cue(s)</b>	The unit supervisor requests that <b>you</b> stop 2-SW-P-1A
-------------------------------	-------------------------------------------------------------

Notes/Comments

4	Place 1-CH-P-1B in Pull-To-Lock.	Procedure Step 2.c.1 of 0-AP-10, Att. 21
---	----------------------------------	------------------------------------------------

SAT  UNSAT

<b>Standards</b>	Condition is <u>NOT</u> met and operator marks step N/A
------------------	---------------------------------------------------------

Notes/Comments

5	Place 1-CH-P-1C in Pull-To-Lock.	Procedure Step 2.c.2 of 0-AP-10, Att. 21
---	----------------------------------	------------------------------------------------

SAT  UNSAT

<b>Standards</b>	Condition is <u>NOT</u> met and operator marks step N/A
------------------	---------------------------------------------------------

Notes/Comments

6	Start charging pump 1-CH-P-1B.	Procedure Step <u>2.c.3 of 0-AP-10,</u> <u>Att. 21</u>
---	--------------------------------	--------------------------------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	Control switch for 1-CH-P-1B is momentarily placed in START
------------------	-------------------------------------------------------------

<p><u>Notes/Comments</u> Annunciator C-A7 will alarm (expected) as a result of this action. <b>IF</b> mentioned by operator, as SRO acknowledge receipt of alarm.</p>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------

7	Stop charging pump 1-CH-P-1A.	Procedure Step <u>2.c.4 of 0-AP-10,</u> <u>Att. 21</u>
---	-------------------------------	--------------------------------------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	Control switch for 1-CH-P-1A is momentarily placed in STOP
------------------	------------------------------------------------------------

<u>Performance Cue(s)</u>	<b>If</b> asked, then as SRO, direct the operator to place 1-CH-P-1A in auto-after-stop (stop pump and place in standby).
---------------------------	---------------------------------------------------------------------------------------------------------------------------

<p><u>Notes/Comments</u></p>
------------------------------

---

8	Clear the Lockout Alarm on 1-CH-P-1C.	Procedure Step <u>2.c.5 of 0-AP-10,</u> <u>Att. 21</u>
---	---------------------------------------	--------------------------------------------------------------

SAT  UNSAT

<u>Standards</u>	Control switch for 1-CH-P-1C is momentarily placed in STOP.
------------------	-------------------------------------------------------------

<u>Performance Cue(s)</u>	<b>After</b> operator resets lockout, <b>then</b> inform them that another operator will complete 0-AP-10, Attachment 21. This completes the JPM.
---------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

---

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN-PLANT SETUP  
(If Required)

SIMULATOR SETUP

JOB PERFORMANCE MEASURE  
**R506**

**TASK**

Configure emergency bus loads to prevent emergency diesel generator overload (0-AP-10).

**CHECKLIST**

- Recall IC #181 (~95 % power)
- Check rod banks and perform update if required
- Do simspray and check recorders
- Have sufficient copies of 0-AP-10 attachment 21, Unit-1 EDG Load Configuration to Prevent Overloading.

**Throughout JPM** → respond as field operator if requested during pump starts/stops and report that all equipment status changes are satisfactory.

Note: IC is shot as follows

"A" charging pump is running

the unit-2 service water pumps (2-SW-P-1A and 1B) are running

Enter on monitor screen

EL15J11\_BKR = F      **OR**      Open 15J11 using Extreme View

Perform the actions of 0-AP-10 through determining from the shift supervisor if the 480-volt busses are to be checked

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Loss of normal charging has occurred

The running charging pump has been in service for several weeks

**INITIATING CUE**

You are requested to restore charging flow in accordance with 1-AP-49, Loss of Normal Charging.

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

12423

**TASK**

Charging flow control valve fails closed

**TASK STANDARDS**

1-CH-FCV-1122 is shifted to local control and charging flow is established from the auxiliary shutdown panel

**K/A REFERENCE:**

004-A4.06 (3.6/3.1)

**ALTERNATE PATH:**

Establish control of charging from aux shutdown panel in response to failure of 1-CH-FC-1122.

**TASK COMPLETION TIMES**

Validation Time = 13 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                                     SATISFACTORY                                     UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dominion

North Anna Power Station  
JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

12423

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level.

**INITIAL CONDITIONS**

Loss of normal charging has occurred

The running charging pump has been in service for several weeks

**INITIATING CUE**

You are requested to restore charging flow in accordance with 1-AP-49, Loss of Normal Charging.

**EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

**TOOLS AND EQUIPMENT**

Copy of 1-AP-49  
Copy of 1-AP-20 page 7 of 24 (only)

**PERFORMANCE STEPS**

START TIME \_\_\_\_\_

---

1	Check charging pump for gas binding.	Procedure Step 1 of 1-AP-49
---	--------------------------------------	--------------------------------

SAT [ ] UNSAT [ ]

<u>Standards</u>	Charging pump is checked for gas binding – NO (goes to step 3 per RNO).
------------------	-------------------------------------------------------------------------

<u>Notes/Comments</u> Charging pump flow, amps, and discharge pressure are all stable (amps are slightly lower than normal since 1-CH-FCV-1122 is failed closed).
----------------------------------------------------------------------------------------------------------------------------------------------------------------------

2	Verify charging pump manipulations in progress.	Procedure Step 3 of 1-AP-49
---	-------------------------------------------------	--------------------------------

SAT  UNSAT

<u>Standards</u>	Charging pump manipulations are determined to be NOT in progress – RNO is implemented.
------------------	----------------------------------------------------------------------------------------

Notes/Comments
Provided by initial conditions of JPM (running charging pump has been in service for several weeks).

3	Isolate letdown by closing the letdown orifice isolation valves.	Procedure Step 3 RNO a(1) of 1-AP-49
---	------------------------------------------------------------------	-----------------------------------------

**Critical Step** SAT  UNSAT

<u>Standards</u>	1-CH-HCV-1200B control switch is momentarily placed in CLOSE.
------------------	---------------------------------------------------------------

Notes/Comments

4	Isolate letdown by closing the letdown isolation valves.	Procedure Step 3 RNO a(2) of 1-AP-49
---	----------------------------------------------------------	-----------------------------------------

SAT  UNSAT

<u>Standards</u>	Control switch for 1-CH-LCV-1460A is placed in either ISOL or CLOSE.
<u>Standards</u>	Control switch for 1-CH-LCV-1460B is placed in CLOSE.

**Candidate will now go to step 10 of the procedure per step 3b RNO.**

Notes/Comments

5	Verify volume control tank level is greater than 12%.	Procedure Step 10 of 1-AP-49
---	-------------------------------------------------------	---------------------------------

SAT  UNSAT

<u>Standards</u>	VCT level is verified greater than 12%.
------------------	-----------------------------------------

Notes/Comments

6	Verify the charging pump suction valves from the volume control tank are open.	Procedure Step 11 of 1-AP-49
---	--------------------------------------------------------------------------------	---------------------------------

SAT  UNSAT

<u>Standards</u>	Charging pump suction valves from the VCT 1-CH-MOV-1115C <b>AND</b> 1-CH-MOV-1115E are verified open
------------------	------------------------------------------------------------------------------------------------------------

Notes/Comments

7	Verify volume control tank pressure is greater than 15 psig.	Procedure Step 12 of 1-AP-49
---	--------------------------------------------------------------	---------------------------------

SAT  UNSAT

<u>Standards</u>	VCT pressure is verified greater than 15 psig
------------------	-----------------------------------------------

**Candidate will now go to step 15 of the procedure per step 13.**

Notes/Comments

8	Verify charging pump suction MOVs - OPEN.	Procedure Step 15 of 1-AP-49
---	-------------------------------------------	---------------------------------

SAT  UNSAT

<u>Standards</u>	The following Charging pump suction MOVs are verified open: <ul style="list-style-type: none"> <li>• 1-CH-MOV-1267A</li> <li>• 1-CH-MOV-1267B</li> <li>• 1-CH-MOV-1269A</li> <li>• 1-CH-MOV-1269B</li> <li>• 1-CH-MOV-1270A</li> <li>• 1-CH-MOV-1270B</li> </ul>
------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

9	Check charging pump discharge MOVs - OPEN.	Procedure Step 16.a of 1-AP-49
---	--------------------------------------------	-----------------------------------

SAT  UNSAT

<u>Standards</u>	The following Charging pump discharge MOVs are verified open: <ul style="list-style-type: none"> <li>• 1-CH-MOV-1286A</li> <li>• 1-CH-MOV-1287A</li> <li>• 1-CH-MOV-1286B</li> <li>• 1-CH-MOV-1287B</li> <li>• 1-CH-MOV-1286C</li> <li>• 1-CH-MOV-1287C</li> </ul>
------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

10	Check charging line isolation valves open.	Procedure Step 16.b of 1-AP-49
----	--------------------------------------------	-----------------------------------

SAT  UNSAT

<u>Standards</u>	Charging line isolation MOVs 1-CH-MOV-1289A <b>AND</b> 1-CH-MOV-1289B are verified open
------------------	-----------------------------------------------------------------------------------------------------

Notes/Comments

11	Check output demand indicated on 1-CH-FCV-1122.	Procedure Step 16.c of 1-AP-49
----	-------------------------------------------------	-----------------------------------

SAT  UNSAT

<u>Standards</u>	1-CH-FCV-1122 controller demand is determined to be zero and candidate goes to RNO.
------------------	-------------------------------------------------------------------------------------

Notes/Comments

12	Open 1-CH-FCV-1122. (alternate path step)	Procedure Step 16.c RNO c bullet 1 of 1-AP-49
----	----------------------------------------------	-----------------------------------------------------

SAT  UNSAT

<u>Standards</u>	Candidate attempts to place controller for 1-CH-FCV-1122 in manual and open valve (candidate continues to next RNO since they are unable to open valve).
------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments  Controller will not transfer to manual when attempted.
------------------------------------------------------------------------------

13	Locally throttle 1-CH-289.	Procedure Step 16.c RNO c bullet 2 of 1-AP-49
----	----------------------------	-----------------------------------------------------

SAT  UNSAT

<u>Standards</u>	Candidate directs operator to locally throttle 1-CH-289, and when informed that valve will not open, continues with next bullet in RNO column.
------------------	------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments  When called booth operator will acknowledge direction and report back that 1-CH-289 <b>CAN NOT</b> be opened.
-------------------------------------------------------------------------------------------------------------------------------------

Note: the next step will use the Auxiliary shutdown panel located in the simulator.

\*\*\*\*\* Provide candidate Copy of 1-AP-20, page 7 of 24, (located behind this page) with cue. \*\*\*\*\*

14	1-CH-FCV-1122 to local control and control charging flow.	Procedure Step 16.c RNO c bullet 3 of 1-AP-49 & 1-AP-20 step 11.a
----	-----------------------------------------------------------	----------------------------------------------------------------------------

<b>Critical Step</b>	SAT [ ] UNSAT [ ]
----------------------	-------------------

<u>Standards</u>	1-CH-FCV-1122 LOCAL-REMOTE switch in the auxiliary shutdown panel is placed in LOCAL
<u>Standards</u>	1-CH-FCV-1122 half-station controller output is increased to achieve approximately 40 gpm flow as indicated at the auxiliary shutdown panel

<u>Performance Cue(s)</u>	<ul style="list-style-type: none"> <li>• <b><u>You are now the Safeguards Operator, the SRO directs you to establish 40 gpm charging flow from the auxiliary shutdown panel using 1-AP-20, step 11a RNO ONLY</u></b></li> <li>• <b>If</b> asked by operator, <b>then</b> provide cue → Assume another operator is monitoring the board.</li> <li>• <b>When</b> operator establishes 40gpm charging flow, acknowledge and inform them that this completes the JPM.</li> </ul>
---------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

END OF EVALUATION

STOP TIME \_\_\_\_\_

SIMULATOR, LABORATORY, IN-PLANT SETUP  
(If Required)

SIMULATOR SETUP

JOB PERFORMANCE MEASURE  
**12423**

**TASK**

Charging flow control valve fails closed

**CHECKLIST**

- \_\_\_\_\_ Recall IC 182
- \_\_\_\_\_ Do simspray and check recorders
- \_\_\_\_\_ WHEN OPERATOR GOES TO THE ASDP TURN HORNS OFF if desired, or just silence alarms.

**Step 16c RNO → When called by operator acknowledge order to locally throttle 1-CH-289, call back and report that 1-CH-289 CAN NOT be opened.**

Note: IC is shot with the following setup:

- \_\_\_\_\_ Go to RUN, place 1-CH-FCV-1122 in manual, and lower output to zero
- \_\_\_\_\_ Enter the following controller overrides (delay time = 0 for all)
  - FCV122\_MAN = OFF
  - FCV122\_R1 = ON
  - FCV122\_R4 = OFF
  - FCV122\_RAISE = OFF
- \_\_\_\_\_ Place the simulator in FREEZE

**Dominion  
North Anna Power Station  
CONTROL ROOM JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Recirculation Spray System is in operation due to a valid Containment Depressurization Actuation (CDA) signal.

Increasing radiation is indicated 1-RM-SW-126, 1C Recirc Spray Ht Exch SW Return Rad Monitor.

Trend recorder 1-RM-RR-100 indicates increasing radiation for 1-RM-SW-126, 1C Recirc Spray Ht Exch SW Return Rad Monitor.

High and High-High alarms are illuminated on radiation monitor 1-RM-SW-126, 1C Recirc Spray Ht Exch SW Return Rad Monitor.

High Volume Blowdown of Service Water Reservoir is NOT in service.

**INITIATING CUE**

You are requested to respond to the high radiation indicated on 1-RM-SW-126, 1C Recirc Spray Ht Exch SW Return Rad Monitor, in accordance with 1-AP-5, Attachment 10.

Dominion  
North Anna Power Station  
IN-PLANT JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R775

**TASK**

Respond to a Recirculation Spray Heat Exchanger Service Water Radiation Monitor alarm (1-AP-5).

**TASK STANDARDS**

CDA was reset, 1-RS-P-2B was stopped, and SW was isolated to the "C" RSHX.

**K/A REFERENCE:**

073-A4.01 (3.9/3.9)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 15 minutes      Start Time = \_\_\_\_\_  
Actual Time = \_\_\_\_\_ minutes      Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                       SATISFACTORY                       UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station

IN-PLANT JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

R775

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMS**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMS**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the Reactor Operator level.

### **INITIAL CONDITIONS**

Recirculation Spray System is in operation due to a valid Containment Depressurization Actuation (CDA) signal.

Increasing radiation is indicated 1-RM-SW-126, 1C Recirc Spray Ht Exch SW Return Rad Monitor.

Trend recorder 1-RM-RR-100 indicates increasing radiation for 1-RM-SW-126, 1C Recirc Spray Ht Exch SW Return Rad Monitor.

High and High-High alarms are illuminated on radiation monitor 1-RM-SW-126, 1C Recirc Spray Ht Exch SW Return Rad Monitor.

High Volume Blowdown of Service Water Reservoir is NOT in service.

### **INITIATING CUE**

You are requested to respond to the high radiation indicated on 1-RM-SW-126, 1C Recirc Spray Ht Exch SW Return Rad Monitor, in accordance with 1-AP-5, Attachment 10.

### **EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

### **TOOLS AND EQUIPMENT**

Blank copy of 1-AP-5, Attachment 10 (ONLY) to be provided to applicant.

**PERFORMANCE STEPS**

START TIME \_\_\_\_\_

**EVALUATOR'S NOTE**

This JPM has been formatted for ease of use. Steps in the LEFT column match the steps of Attachment 10 of 1-AP-5. The pages listed in the right column correspond to the pages of Attachment 10 of 1-AP-5.

---

<b>1</b>	Check 1-RM-SW-126 to determine if the alarm is the result of an obvious radiation monitor malfunction.	Page 1 of 4
----------	--------------------------------------------------------------------------------------------------------	----------------

	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
--	-------------------------------------------------------------

<u>Standards</u>	<b>This Step marked N/A.</b> May Check drawer light indication, meter reading not pegged, trend on recorder, etc. to confirm Radiation Monitor is NOT failed.
------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

---

<b>2a</b>	Secure Service Water Reservoir High Volume Blowdown, if in service.	Page 2 of 4
-----------	---------------------------------------------------------------------	----------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	<b>This Step marked N/A.</b> Operator determines Service Water Reservoir High Volume Blowdown is NOT in service.
------------------	---------------------------------------------------------------------------------------------------------------------

Notes/Comments Information provided by Initial Conditions of JPM.

<b>2b</b>	Request the Health Physics Department to sample the affected Recirculation Spray Heat Exchanger and to check radiation levels in the quench spray basement area.	Page 2 of 4
-----------	------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------

SAT  UNSAT

<u>Standards</u>	Operator requests HP to perform sampling and check radiation levels.
------------------	----------------------------------------------------------------------

Notes/Comments  
When called Booth Operator will respond as Health Physics and report that the service water sample from 1-RS-E-1C, C Recirc Spray Heat Exchanger, has abnormally high activity AND that the radiation level in the Quench Spray basement has increased significantly.

<b>2c</b>	Request Station Management to determine if the affected heat exchanger should be isolated.	Page 2 of 4
-----------	--------------------------------------------------------------------------------------------	----------------

SAT  UNSAT

<u>Standards</u>	Operator contacts Shift Manager or SRO (e.g. Operations Supervisor, Operations Manager, Operations Manager ON-Call, etc.) for guidance.
------------------	-----------------------------------------------------------------------------------------------------------------------------------------

<u>Performance Cues</u>	Respond as SRO and inform the operator that Station Management directs 1-RS-E-1C, C Recirc Spray Heat Exchanger, be isolated.
-------------------------	-------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

<b>3</b>	Refer to Tech Spec 3.6.7 for the Recirc Spray System requirements.	Page 2 of 4
----------	--------------------------------------------------------------------	----------------

SAT  UNSAT

<u>Standards</u>	Operator identifies the need to refer to Tech Spec 3.6.7.
------------------	-----------------------------------------------------------

<u>Performance Cues</u>	Respond as SRO and acknowledge the operator's request and inform them that you will refer to TS 3.6.7.
-------------------------	--------------------------------------------------------------------------------------------------------

Notes/Comments

<b>4a</b>	Reset both trains of CDA.	Page 3 of 4
-----------	---------------------------	----------------

SAT  UNSAT

<u>Standards</u>	Both Spray Actuation Reset switches are momentarily placed in RESET <b>OR</b> Annunciator 1K-H6, CDA INITIATED is verified NOT LIT.
------------------	-------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

CDA was previously reset by 1-E-1, Step 9.

---

<b>4b</b>	To isolate 1-RS-E-1A.	Page 3 of 4
-----------	-----------------------	----------------

| SAT  UNSAT  |

<u>Standards</u>	Step is marked N/A.
------------------	---------------------

Notes/Comments

---

<b>4c</b>	To isolate 1-RS-E-1B.	Page 3 of 4
-----------	-----------------------	----------------

| SAT  UNSAT  |

<u>Standards</u>	Step is marked N/A.
------------------	---------------------

Notes/Comments

<b>4d1</b>	<b>To isolate 1-RS-E-1C, do the following:</b> Request the Safeguards operator to place the key-lock switches for 1-SW-MOV-103C and 1-SW-MOV-104C in the DEFEAT position.	Page 3 of 4
------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Safeguards operator is requested to place the key-lock switches for 1-SW-MOV-103C and 1-SW-MOV-104C in the DEFEAT position.
------------------	-----------------------------------------------------------------------------------------------------------------------------

<p>Notes/Comments</p> <p>When called booth operator will acknowledge direction from operator and report back action complete.</p> <p>Note: this action will result in the following annunciators:</p> <ul style="list-style-type: none"> <li>• 1K-E3, SER WTR SYS LOGIC CABS UNITS 1 AND 2 DOOR OPEN</li> <li>• 1J-F8, UNIT 1 SW KEY LOCK SWITCH IN DEFEAT</li> </ul>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<b>4d2</b>	Stop 1-RS-P-2B.	Page 3 of 4
------------	-----------------	----------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	1-RS-P-2B is stopped by momentarily placing the control switch in STOP.
------------------	-------------------------------------------------------------------------

Notes/Comments
----------------

---

<b>4d3</b>	Stop 1-SW-P-7 (sample pump).	Page 3 of 4
------------	------------------------------	----------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	1-SW-P-7 is stopped by momentarily placing the control switch in STOP.
------------------	------------------------------------------------------------------------

Notes/Comments	There are no light indications for the sample pump.
----------------	-----------------------------------------------------

---

<b>4d4</b>	Close 1-SW-MOV-103C.	Page 3 of 4
------------	----------------------	----------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	1-SW-MOV-103C is closed by momentarily depressing the CLOSE pushbutton.
------------------	-------------------------------------------------------------------------

Notes/Comments	
----------------	--

---

<b>4d5</b>	Close 1-SW-MOV-104C.	Page 3 of 4
------------	----------------------	----------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	1-SW-MOV-104C is closed by momentarily depressing the CLOSE pushbutton.
------------------	-------------------------------------------------------------------------

Notes/Comments	
----------------	--

<b>4e</b>	To isolate 1-RS-E-1D.	Page 4 of 4
-----------	-----------------------	----------------

SAT  UNSAT

<u>Standards</u>	Step is marked N/A.
------------------	---------------------

Notes/Comments

<b>5</b>	Submit a condition report / work request to initiate repairs.	Page 4 of 4
----------	---------------------------------------------------------------	----------------

SAT  UNSAT

<u>Standards</u>	Operator identifies the need to generate a condition report / work request.
------------------	-----------------------------------------------------------------------------

<u>Performance</u> <u>Cues</u>	Inform the operator that the SRO will perform this action. This completes the JPM.
-----------------------------------	---------------------------------------------------------------------------------------

Notes/Comments

>>>> END OF EVALUATION <<<<

STOP TIME \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

SIMULATOR SETUP

JOB PERFORMANCE MEASURE  
R775

**TASK**

Respond to a recirculation spray heat exchanger service water radiation monitor alarm (1-AP-5).

**CHECKLIST**

\_\_\_\_\_ Recall IC 175

- When called, respond as Health Physics and report that the service water sample from 1-RS-E-1C, C Recirc Spray Heat Exchanger, has abnormally high activity AND that the radiation level in the Quench Spray basement has increased significantly.
- When called, respond Safeguards operator and acknowledge order to place the key-lock switches for 1-SW-MOV-103C and 1-SW-MOV-104C in the DEFEAT position (1-AP-5, Attachment 10, Step 4.d.1) as described below:
- Actuate TRIGGER 1. TRIGGER 1 will override annunciator K-E3 ON (simulates opening door on cabinet). After a 20 second time delay, the interlock switch for 1-SW-MOV-103C will automatically be placed in DEFEAT. After an additional 10 seconds the interlock switch for 1-SW-MOV-104C will automatically be placed in DEFEAT.)
  - After the functions associated with TRIGGER 1 have been fully implemented, call up the K-E3 override in the malfunction section of the INSTRUCTOR SUMMARY, override the annunciator OFF (simulates closing door on cabinet).

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Loss of reactor coolant has occurred.

Containment Depressurization Actuation has occurred due to a valid containment depressurization signal.

Containment pressure is less than 13 psia.

1-E-1, Loss of Reactor or Secondary Coolant, has been completed to the point of establishing redundant cold-leg injection flow paths.

**INITIATING CUE**

You are requested to establish redundant cold-leg injection flow paths in accordance with Step 26 of 1-E-1, Loss of Reactor or Secondary Coolant.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**R758-AP**

**TASK**

Establish redundant cold-leg injection flow paths (1-E-1).

**TASK STANDARDS**

Charging pumps are correctly aligned (dependent on initial pump configuration) for redundant cold-leg injection flow paths.

**K/A REFERENCE:**

006-A4.05 (3.9/3.8)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 6 minutes

Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_

Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                                     SATISFACTORY                                     UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

---

---

---

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

**R758-AP**

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level.

**INITIAL CONDITIONS**

Loss of reactor coolant accident has occurred.

Containment Depressurization Actuation has occurred due to a valid containment depressurization signal.

Containment pressure is less than 13 psia.

1-E-1, Loss of Reactor or Secondary Coolant, has been completed to the point of establishing redundant cold-leg injection flow paths.

**INITIATING CUE**

You are requested to establish redundant cold-leg injection flow paths in accordance with Step 26 of 1-E-1, Loss of Reactor or Secondary Coolant.

**EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

**TOOLS AND EQUIPMENT**

Copy of 1-E-1 pages 22, 23, and 24

**PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

1	Check two charging pumps running - NO. <b>Alternate Path step</b>	Procedure Step 26.a
---	----------------------------------------------------------------------	---------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	<ul style="list-style-type: none"> <li>• Candidate identifies only one charging pump running (1-CH-P-1C).</li> <li>• Candidate performs Step 26.a RNO and starts charging pump 1-CH-P-1B.</li> </ul> <p>NOTE: Step specifies that only ONE running charging pump is permitted for each emergency bus. Since 1-CH-P-1C is already being supplied by the 1H emergency bus, the Candidate must start 1-CH-P-1B and NOT 1-CH-P-1A. Starting 1-CH-P-1A will result in a loss of redundancy between trains since a loss of 1H emergency bus will cause a loss of both trains of HHSI.</p>
------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Notes/Comments</u>	
-----------------------	--

2	Power to BOTH trains of redundant flow path SI MOVs – AVAILABLE.	Procedure Step 26.b
---	------------------------------------------------------------------	---------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	Candidate verifies power is being supplied to redundant SI flow path motor-operated valves for "A" train and "B" train.
------------------	-------------------------------------------------------------------------------------------------------------------------

<u>Notes/Comments</u>	
Per the initial conditions of the JPM there is NO equipment out of service, and power has NOT been lost to any safeguards train.	

3	Energize and open 1-SI-MOV-1836, SI COLD LEG INJECTION ALTERNATE HEADER ISOLATION.	Procedure Step 26.c
---	------------------------------------------------------------------------------------	---------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	<ul style="list-style-type: none"> <li>• Candidate depresses ON push-button for 1-SI-MOV-1836 control power.</li> <li><b>AND</b></li> <li>• Candidate opens 1-SI-MOV-1836 by depressing the OPEN pushbutton.</li> </ul>
------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

4	Check "A" Charging Pump – RUNNING <b>Alternate Path step</b>	Procedure Step 26.d
---	-----------------------------------------------------------------	---------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	<ul style="list-style-type: none"> <li>• Candidate determines that 1-CH-P-1A is <b>NOT</b> running and refers to the RNO for Step 26.d.</li> <li>• Candidate closes 1-CH-MOV-1286C, C Charging Pump Normal Header Discharge by momentarily placing control switch in CLOSE.</li> <li>• Candidate goes to Step 26.f.</li> </ul>
------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

---

5	Check if the "B" charging pump is running.	Procedure Step 26.f.
---	--------------------------------------------	----------------------

SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>
------------------------------	--------------------------------

<u>Standards</u>	Candidate determines that the "B" charging pump is running.
------------------	-------------------------------------------------------------

Notes/Comments
----------------

---

6	Close 1-CH-MOV-1287B, B Charging Pump Alternate Header Discharge.	Procedure Step 26.g
---	-------------------------------------------------------------------	---------------------

<b>Critical Step</b>	SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>
----------------------	------------------------------	--------------------------------

<u>Standards</u>	Candidate closes 1-CH-MOV-1287B by momentarily placing control switch in the CLOSE position.
------------------	----------------------------------------------------------------------------------------------

Notes/Comments
----------------

---

7	Verify SI flow.	Procedure Step 26.h
---	-----------------	---------------------

SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>
------------------------------	--------------------------------

<u>Standards</u>	License applicant verifies SI flow indicated on the following flow indicators: <ul style="list-style-type: none"><li>• 1-SI-FI-1943</li><li>• 1-SI-FI-1943-1</li><li>• 1-SI-FI-1940</li><li>• 1-SI-FI-1940-1</li></ul>
------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

---

8	Open the recirculation valve for the charging pump that is <b>NOT</b> running.	Procedure Step 26.i
---	--------------------------------------------------------------------------------	---------------------

SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>
------------------------------	--------------------------------

<u>Standards</u>	Candidate opens 1-CH-MOV-1275A, "A" Charging Pump Recirculation Valve by momentarily placing the control switch in the OPEN position. (other valves listed should be marked N/A)
------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

9	Close the discharge valves for the charging pump that is NOT running.	Procedure Step 26.j
---	-----------------------------------------------------------------------	---------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	<ul style="list-style-type: none"> <li>• Candidate closes 1-CH-MOV-1286A by momentarily placing the control switch in the CLOSE position.</li> <li>• Candidate closes 1-CH-MOV-1287A by momentarily placing the control switch in the CLOSE position.</li> </ul> <p>(other valves listed should be marked N/A)</p>
------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	Acknowledge completion of 1-E-1, Step 26. This completes the JPM.
---------------------------	----------------------------------------------------------------------

Notes/Comments
----------------

>>>> END OF EVALUATION <<<<

STOP TIME \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

SIMULATOR SETUP

JOB PERFORMANCE MEASURE  
**R758-AP**

**TASK**

Establish redundant cold-leg injection flow paths (1-E-1).

**NOTE: Recall IC 173 for NRC initial license exam 2010**

**Booth operator → If called for pump starts/stops respond as directed and report operation is satisfactory.**

**CHECKLIST**

- \_\_\_\_\_ Recall 100% power IC
- \_\_\_\_\_ Enter malfunction MRC0101, time delay = 10, ramp = 60, start = 0, stop = 100
- \_\_\_\_\_ Go to RUN, and perform 1-E-0 to 1-E-1
- \_\_\_\_\_ Start 1-CH-P-1C
- \_\_\_\_\_ Stop 1-CH-P-1A and 1-CH-P-1B
- \_\_\_\_\_ When the Safety Injection System swaps to cold-leg recirculation, then perform the steps to the point of establishing redundant cold-leg injection flow paths
- \_\_\_\_\_ Place the simulator in FREEZE

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Containment depressurization actuation has not been actuated.

Containment pressure is approximately 23 psia and slowly increasing due to an intermediate size break LOCA.

1-FR-Z.4, Response to Containment Positive Pressure, has been completed through establishing Instrument Air to the Containment.

**INITIATING CUE**

You are requested to reduce containment pressure to subatmospheric in accordance with 1-FR-Z.4, beginning with Step 4.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**R765**

**TASK**

Reduce containment pressure to subatmospheric (1-FR-Z.4).

**TASK STANDARDS**

Recirc spray is started and CRDM fans are stopped.

**K/A REFERENCE:**

022-A4.04 (3.1/3.2)

**ALTERNATE PATH:**

Recirc Spray must be started and CRDM fans must be stopped in response to CNTMT pressure NOT decreasing

**TASK COMPLETION TIMES**

Validation Time = 15 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                       SATISFACTORY                       UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station

**JOB PERFORMANCE MEASURE  
(Evaluation)**

**OPERATOR PROGRAM**

**R765**

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

The trainee has completed the applicable course knowledge training at the reactor operator level.

### **INITIAL CONDITIONS**

Containment depressurization actuation has not been actuated

Containment pressure is approximately 23 psia and slowly increasing due to an intermediate size break LOCA.

1-FR-Z.4, Response to Containment Positive Pressure, has been completed through establishing Instrument Air to the Containment.

### **INITIATING CUE**

You are requested to reduce containment pressure to subatmospheric in accordance with 1-FR-Z.4, beginning with Step 4.

### **EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

### **TOOLS AND EQUIPMENT**

Copy of 1-FR-Z.4 signed off through Step 3 (establishing instrument air to the containment)

**PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

---

1	Verify that the containment air recirculation fan chilled water supply isolation valves are open.	Procedure Step 4.a of 1-FR-Z.4
---	---------------------------------------------------------------------------------------------------	--------------------------------

SAT  UNSAT

<u>Standards</u>	Operator verifies the following valves open: <ul style="list-style-type: none"><li>• 1-CC-TV-115A</li><li>• 1-CC-TV-115B</li><li>• 1-CC-TV-115C</li></ul>
------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

---

2	Verify that the containment air recirculation fan chilled water return isolation valves are open.	Procedure Step 4.b of 1-FR-Z.4
---	---------------------------------------------------------------------------------------------------	--------------------------------

SAT  UNSAT

<u>Standards</u>	Operator verifies the following valves open: <ul style="list-style-type: none"><li>• 1-CC-TV-105A</li><li>• 1-CC-TV-105B</li><li>• 1-CC-TV-105C</li><li>• 1-CC-TV-100A</li><li>• 1-CC-TV-100B</li><li>• 1-CC-TV-100C</li></ul>
------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

3	Verify that the containment air recirculation fans are running: <ul style="list-style-type: none"> <li>• 1-HV-F-1A</li> <li>• 1-HV-F-1B</li> <li>• 1-HV-F-1C</li> </ul>	Procedure Step 4.c of 1-FR-Z.4
---	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------

SAT  UNSAT

<u>Standards</u>	Operator determines that 1-HV-F-1A, 1-HV-F-1B, and 1-HV-F-1C are in a trip condition.
------------------	---------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	The containment air recirculation fans have tripped on over-current. Station management has directed that no attempt be made to try and restart the fans.
---------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

4	Verify that the chilled water system is in service.	Procedure Step 4.d of 1-FR-Z.4
---	-----------------------------------------------------	-----------------------------------

SAT  UNSAT

<u>Standards</u>	Operator verifies that Mechanical Chiller is in service.
------------------	----------------------------------------------------------

Notes/Comments
----------------

5	Check CRDM fans - RUNNING.	Procedure Step 5 of 1-FR-Z.4
---	----------------------------	---------------------------------

SAT  UNSAT

<u>Standards</u>	<p>Operator verifies three control rod drive mechanism cooling fans are running: (Running fans shown in <b>BOLD</b> type)</p> <ul style="list-style-type: none"> <li>• 1-HV-F-37A or <b>1-HV-F37D</b></li> <li>• 1-HV-F-37B or <b>1-HV-F37E</b></li> <li>• <b>1-HV-F-37C</b> or 1-HV-F37F</li> </ul>
------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

6	Check containment pressure stable or decreasing. <b>(alternate path step)</b>	Procedure Step 6 of 1-FR-Z.4
---	----------------------------------------------------------------------------------	---------------------------------

SAT  UNSAT

<u>Standards</u>	<p>Operator checks containment pressure stable or decreasing.- NO, and goes to Step 9 of the procedure per the RNO.</p> <ul style="list-style-type: none"> <li>• 1-LM-PI-100A</li> <li>• 1-LM-PI-100B</li> <li>• 1-LM-PI-100C</li> <li>• 1-LM-PI-100D</li> <li>• 1-LM-PR-110B</li> </ul>
------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

7	Check recirculation spray sump level - YES.	Procedure Step 9 of 1-FR-Z.4
---	---------------------------------------------	---------------------------------

SAT  UNSAT

<u>Standards</u>	Operator determines containment recirculation spray sump level is greater than 4 ft 10 in. using the following: <ul style="list-style-type: none"> <li>• 1-RS-LI-151A</li> <li>• 1-RS-LI-151B</li> </ul>
------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

8	Verify all CRDM fans are stopped. <b>(alternate path step)</b>	Procedure Step 10 of 1-FR-Z.4
---	-------------------------------------------------------------------	----------------------------------

SAT  UNSAT

<u>Standards</u>	Operator checks all CRDM fans stopped – NO and goes to RNO.
------------------	-------------------------------------------------------------

Notes/Comments

9	Stop all CRDM fans.	Procedure Step 10 RNO of 1-FR-Z.4
---	---------------------	--------------------------------------

**Critical Step** SAT  UNSAT

<u>Standards</u>	Operator places control switches for running CRDM fans to OFF: <ul style="list-style-type: none"> <li>• 1-HV-F37D</li> <li>• 1-HV-F37E</li> <li>• 1-HV-F-37C</li> </ul>
------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

10	Check that 1-RS-P-1A is available.	Procedure Step 11 of 1-FR-Z.4
----	------------------------------------	----------------------------------

SAT  UNSAT

<u>Standards</u>	Operator determines based on current conditions that 1-RS-P-1A available.
------------------	---------------------------------------------------------------------------

Notes/Comments

11	Align service water to 1-RS-E-1A.	Procedure Step 12.a of 1-FR-Z.4
----	-----------------------------------	------------------------------------

**Critical Step** SAT  UNSAT

<u>Standards</u>	The following valves are opened by momentarily depressing the OPEN push-buttons for each valve. <ul style="list-style-type: none"> <li>• 1-SW-MOV-101A</li> <li>• 1-SW-MOV-103A</li> <li>• 1-SW-MOV-104A,</li> <li>• 1-SW-MOV-105C</li> </ul>
------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

12	Start inside recirculation spray pump 1-RS-P-1A.	Procedure Step 12.b of 1-FR-Z.4
----	--------------------------------------------------	------------------------------------

**Critical Step** SAT  UNSAT

<u>Standards</u>	Control switch for 1-RS-P-1A is momentarily placed in START
------------------	-------------------------------------------------------------

Notes/Comments

13	Operate 1-RS-P-1A to maintain containment pressure < 13 psia.	Procedure Step 13 of 1-FR-Z.4
----	---------------------------------------------------------------	----------------------------------

SAT  UNSAT

<u>Standards</u>	Operator acknowledges another operator will be assigned to monitor containment pressure.
------------------	------------------------------------------------------------------------------------------

<u>Performance Cue(s)</u>	Another operator will be assigned to monitor containment pressure. This completes the jpm
---------------------------	----------------------------------------------------------------------------------------------

Notes/Comments

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

SIMULATOR SETUP

JOB PERFORMANCE MEASURE  
**R765**

**TASK**

Reduce containment pressure to subatmospheric (1-FR-Z.4).

**CHECKLIST**

\_\_\_\_\_ Recall IC 176

\_\_\_\_\_ Ensure CRDM fan alignment is 1-HV-F37C, D, and E running, and 1-HV-F-37A, B, and F OFF.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

A fire has occurred in the control room

**INITIATING CUE**

You are requested to establish local Charging control through the boron injection tank (BIT) and isolate normal charging on Unit 1 in accordance with 0-FCA-1, attachment 15, step 6.

Assume you have the following equipment:

- Radio and emergency lantern from the Appendix R locker
- Admin key

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**N921**

**TASK**

Align and control charging flow through the boron injection tank locally (0-FCA-1).

**TASK STANDARDS**

BIT recirculation flow is isolated, charging flow through the BIT is established, and normal charging is isolated.

Work was performed in compliance with the Radiation Work Permit; exposure to surface and airborne contamination was minimized; and ALARA principles were applied.

**K/A REFERENCE:**

002-A2.01 (4.3/4.4).

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 15 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                       SATISFACTORY                       UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

---

---

---

---

---

---

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

N921

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

Before being evaluated on the task, the trainee must have completed the reactor operator's course checkout during which the objectives listed below would have been addressed.

## **INITIAL CONDITIONS**

A fire has occurred in the control room.

## **INITIATING CUE**

You are requested to establish local Charging control through the boron injection tank (BIT) and isolate normal charging on Unit 1 in accordance with 0-FCA-1, attachment 15, step 6.

Assume you have the following equipment:

- Radio and emergency lantern
- Admin key

## **EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

## **TOOLS AND EQUIPMENT**

Administrative key

Appendix-R lantern

Appendix-R radio

## **PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

1	Establish local Charging control through Boron Injection Tank as follows: Proceed to unit 1 penetration area.	Procedure Step 6.a of 0-FCA-1 Att. 15
---	------------------------------------------------------------------------------------------------------------------	------------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator proceeds to unit-1 penetration area.
------------------	-----------------------------------------------

Notes/Comments

2	Establish communications with Unit-1 RO/SRO.	Procedure Step 6.b of 0-FCA-1 Att. 15
---	----------------------------------------------	------------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator contacts Unit-1 RO/SRO.
------------------	----------------------------------

<u>Simulation Cue(s)</u>	Unit-1 RO/SRO acknowledges the message.
--------------------------	-----------------------------------------

Notes/Comments

3	Check closed at least one of the following Boron Injection Tank outlet recirc valves (BIT area): <ul style="list-style-type: none"> <li>• 1-SI-TV-1884A</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>• 1-SI-TV-1884B</li> </ul>	Procedure Step <u>6.c of 0-FCA-1 Att. 15</u>
---	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator checks 1-SI-TV-1884A and 1-SI-TV-1884B.
------------------	--------------------------------------------------

<u>Simulation Cue(s)</u>	1-SI-TV-1884A <b>AND</b> 1884B are both <b>OPEN</b> . If operator checks BIT recirc flow, inform operator that flow is 9 gpm.
--------------------------	----------------------------------------------------------------------------------------------------------------------------------

<u>Notes/Comments</u> These valves are in close proximity to an area where the dose rates are 50 – 90 mRem/hr.
-------------------------------------------------------------------------------------------------------------------

4	<p>If at least one BIT outlet recirculation valve is <b>NOT</b> closed, <b>THEN</b> close one of the following valves (BIT area):</p> <ul style="list-style-type: none"> <li>• 1-SI-71, BIT Outlet Header to Boric Acid Tanks isolation</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>• 1-SI-74, BIT Outlet Recirc Header isolation</li> </ul>	<p>Procedure Step 6.c of 0-FCA-1 Att. 15 <b>(Alternate path)</b></p>
---	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------

<b>Critical Step</b>	SAT [ ] UNSAT [ ]
----------------------	-------------------

<u>Standards</u>	<p>Operator closes <u>at least</u> one of the following valves:</p> <ul style="list-style-type: none"> <li>• 1-SI-71</li> <li>• 1-SI-74</li> </ul>
------------------	----------------------------------------------------------------------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	<p>After one of the valves has been closed, inform operator that BIT recirculation flow indicates zero.</p>
--------------------------	-------------------------------------------------------------------------------------------------------------

<p><u>Notes/Comments</u> These valves are in close proximity to an area where the dose rates are 50 – 90 mRem/hr.</p>
---------------------------------------------------------------------------------------------------------------------------

5	Locally open one of the following BIT outlet isolation valves (East wall): <ul style="list-style-type: none"> <li>• 1-SI-MOV-1867C</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>• 1-SI-MOV-1867D</li> </ul>	Procedure Step <u>6.d of 0-FCA-1 Att. 15</u>
---	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Operator opens <u>at least</u> one of the following valves: <ul style="list-style-type: none"> <li>• 1-SI-MOV-1867C</li> <li>• 1-SI-MOV-1867D</li> </ul>
------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	1-SI-MOV-1867C (or 1-SI-MOV-1867D) stem indicator is now at the top red line
--------------------------	------------------------------------------------------------------------------

<u>Notes/Comments</u> These valves are located near an area where the dose rates are 50 – 90 mRem/hr. Consider waiting in a low dose rate waiting area while the operator locates the valve(s), then having the operator indicate the valves' location (e.g., shine a flashlight on the valves) and show how he/she would open the valve by simulating on a MOV in a low dose rate area (suggest 1-CH-MOV-1115B or -1115D, which are located near the entrance to the penetration area).
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

6	Establish charging flow through the BIT by locally throttling open one of the following BIT outlet isolation valves (BIT area): <ul style="list-style-type: none"> <li>• 1-SI-MOV-1867A</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>• 1-SI-MOV-1867B</li> </ul>	Procedure Step <u>6.e of 0-FCA-1 Att. 15</u>
---	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Operator throttles open <u>at least</u> one of the following valves: <ul style="list-style-type: none"> <li>• 1-SI-MOV-1867A</li> <li>• 1-SI-MOV-1867B</li> </ul>
------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Flow noise is now heard through the pipe.
--------------------------	-------------------------------------------

<u>Simulation Cue(s)</u>	<b>IF</b> operator requests guidance from RO, <b>then</b> inform the operator that the RO reports PRZR level is adequate and no additional throttling is required at this time.
--------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Notes/Comments</u>	These valves are located near an area where the dose rates are 50 – 90 mRem/hr. Consider waiting in a low dose rate waiting area while the operator locates the valve(s), then having the operator indicate the valves' location (e.g., shine a flashlight on the valves) and show how he/she would open the valve by simulating on a MOV in a low dose rate area (suggest 1-CH-MOV-1115B or -1115D, which are located near the entrance to the penetration area).
-----------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

7	Perform the following to isolate Normal Charging: <ul style="list-style-type: none"> <li>• Request Unit 1 RO/SRO to close 1-CH-FCV-1122</li> </ul> <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> <li>• Locally close 1-CH-287, inlet isolation for 1-CH-FCV-1122</li> </ul> <p style="text-align: center;"><u>AND</u></p> <ul style="list-style-type: none"> <li>• Locally close 1-CH-289, bypass for 1-CH-FCV-1122</li> </ul>	Procedure Step <u>6.f of O-FCA-1 Att. 15</u> <b>(Alternate path)</b>
---	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	1-CH-287 is closed.
------------------	---------------------

<u>Simulation Cue(s)</u>	<p><b><u>IF</u> RO is requested to close 1-CH-FCV-1122, <u>THEN</u> read the following cue:</b></p> <p>RO reports that 1-CH-FCV-1122 is failed open due to fire damage.</p> <p><b><u>After</u> operator closes 1-CH-287, <u>THEN</u> read the following cue:</b></p> <p>1-CH-287 and 289 are both closed.</p>
--------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Notes/Comments</u>	Checking closed 1-CH-289, bypass for 1-CH-FCV-1122, is NOT critical, since the valve is normally closed.
-----------------------	----------------------------------------------------------------------------------------------------------

---

8	Maintain PRZR level by adjusting the following valve(s) that were opened in step 6.e, as directed by Unit-1 RO/SRO.	Procedure Step 6.g of 0-FCA-1 Att. 15
---	---------------------------------------------------------------------------------------------------------------------	------------------------------------------

SAT  UNSAT

<u>Standards</u>	Unit-1 RO/SRO is contacted to determine if additional throttling is required.
------------------	-------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Another operator will adjust charging flow as directed by the Unit-1 RO/SRO. This completes the JPM.
--------------------------	------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

None

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

The Station Blackout (SBO) diesel generator auto-started due to a valid signal on Unit 1

All initial conditions of 0-OP-6.4 are satisfied

All P&Ls of 0-OP-6.4 have been reviewed

Assume you have a Sync key

**INITIATING CUE**

You are requested to align the SBO diesel generator to supply the "F" transfer bus in accordance with 0-OP-6.4, Section 5.1.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**N1671**

**TASK**

Prepare the station blackout diesel generator for loading following an automatic start (0-OP-6.4).

**TASK STANDARDS**

The SBO diesel is aligned to supply the "F" transfer bus.

**K/A REFERENCE:**

055-EA2.03 (3.9/4.7)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 20 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                       SATISFACTORY                       UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

N1671

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

Before being evaluated on the task, the trainee must have completed the reactor operator's course checkout during which the objectives listed below would have been addressed.

### **INITIAL CONDITIONS**

The Station Blackout (SBO) diesel generator auto-started due to a valid signal on Unit 1

All initial conditions of 0-OP-6.4 are satisfied

All P&Ls of 0-OP-6.4 have been reviewed

Assume you have a Sync key

### **INITIATING CUE**

You are requested to align the SBO diesel generator to supply the "F" transfer bus in accordance with 0-OP-6.4, Section 5.1.

### **EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

### **TOOLS AND EQUIPMENT**

None

### **PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

---

1	Verify Initial Conditions are satisfied.	Procedure Step 5.1.1 of 0-OP-6.4
---	------------------------------------------	-------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator initials step 5.1.1.
------------------	-------------------------------

<u>Simulation Cue(s)</u>	Review the JPM Initial Conditions.
--------------------------	------------------------------------

<u>Notes/Comments</u> Operator may elect to review Initial Conditions even though this is given in the initial conditions of this JPM.
-------------------------------------------------------------------------------------------------------------------------------------------

---

2	Review Precautions and Limitations.	Procedure Step 5.1.2 of 0-OP-6.4
---	-------------------------------------	-------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator initials step 5.1.2.
------------------	-------------------------------

<u>Simulation Cue(s)</u>	Review the JPM Initial Conditions.
--------------------------	------------------------------------

<u>Notes/Comments</u> Operator may elect to review Precautions and Limitations even though this is given in the initial conditions of this JPM.
----------------------------------------------------------------------------------------------------------------------------------------------------

3	Do one of the following. Mark steps not performed N/A: a. <b>IF</b> the engine is running, <b>THEN</b> do one of the following: 1) <b>IF</b> engine speed is approximately 900 rpm as indicated on 0-AAC-SPI-2, Engine Speed meter, on 0-AAC-PNL-2, SBO Diesel Control Panel, <b>THEN</b> go to step 5.1.5.	Procedure Step <u>5.1.3.a.1 of 0-OP-6.4</u>
---	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------

SAT [ ] UNSAT [ ]

<u>Standards</u>	Operator determines SBO diesel is running at 900 rpm, initials substep 5.1.3.a.1, and N/As substeps 5.1.3.a.2 through 5.1.4 (all)
------------------	-----------------------------------------------------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	SBO engine speed is 900 rpm.
--------------------------	------------------------------

Notes/Comments

4	Place the HAND/OFF/AUTO switch for 0-BFO-P-4, SBO DG Fuel Oil Xfer Pump, in AUTO (located on 0-AAC-MCC-0M1-B3).	Procedure Step <u>5.1.5 of 0-OP-6.4</u>
---	-----------------------------------------------------------------------------------------------------------------	--------------------------------------------

**Critical Step** SAT [ ] UNSAT [ ]

<u>Standards</u>	HAND/OFF/AUTO switch for 0-BFO-P-4, SBO DG Fuel Oil Xfer Pump, is placed in AUTO.
------------------	-----------------------------------------------------------------------------------

Notes/Comments  
Switch is normally in OFF.

**NOTE: Operator will read the following procedure NOTE.**

**NOTE: The SRO should be notified if any of the following breakers are NOT closed before any attempt is made to close the breakers in Step 5.1.7.**

5	Verify proper breaker alignment as follows: a. Verify the following breakers are aligned as indicated. Use the status lights next to the appropriate 0-AAC-BKR Breaker Control Switches on 0-AAC-PNL-1, SBO Diesel Generator Control Panel. Refer to Attachment 1, SBO Diesel Generator Breaker Control Panel Mimic, as required. Do NOT reposition any breakers at this time.	Procedure Step <u>5.1.6.a of 0-OP-6.4</u>
---	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------

SAT [ ] UNSAT [ ]

<u>Standards</u>	Operator checks the following breaker alignment: <ul style="list-style-type: none"><li>• 05M1 - CLOSED</li><li>• 05M5 - CLOSED</li><li>• 04M1-1 - OPEN</li><li>• 04M1-2 - CLOSED</li></ul>
------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	<ul style="list-style-type: none"><li>• Breaker 05M1 RED light is LIT</li><li>• Breaker 05M5 RED light is LIT</li><li>• Breaker 04M1-1 GREEN light is LIT</li><li>• Breaker 04M1-2 RED light is LIT</li></ul>
--------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments

6	IF any breaker in substep 5.1.6.a was NOT properly aligned, THEN inform the SRO. Breaker will be realigned in step 5.1.7.	Procedure Step 5.1.6.b of 0-OP-6.4
---	---------------------------------------------------------------------------------------------------------------------------	------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator N/As step 5.1.6.b.
------------------	-----------------------------

<u>Simulation Cue(s)</u>	None.
--------------------------	-------

<u>Notes/Comments</u>	
-----------------------	--

7	For all breakers properly aligned in substep 5.1.6.a, THEN flag the breakers as follows:  <ul style="list-style-type: none"> <li>• 05M1 - RED</li> <li>• 05M5 - RED</li> <li>• 04M1-1 - GREEN</li> <li>• 04M1-2 - RED</li> </ul>	Procedure Step 5.1.6.c of 0-OP-6.4
---	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator manipulates control switches as follows: <ul style="list-style-type: none"> <li>• 05M1 control switch to CLOSE, then AUTO</li> <li>• 05M5 control switch to CLOSE, then AUTO</li> <li>• 04M1-1 control switch to OPEN, then AUTO</li> <li>• 04M1-2 control switch to CLOSE, then AUTO</li> </ul>
------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	
--------------------------	--

<u>Notes/Comments</u>	
-----------------------	--

8	IF the breakers are NOT correctly aligned in substep 5.1.6.a, THEN align the breakers on 0-AAC-PNL-1, SBO Diesel Generator Control Panel, as follows. Refer to Attachment 1 as required.	Procedure Step 5.1.7 of 0-OP-6.4
---	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------

SAT  UNSAT

Standards Operator N/As step 5.1.7.

Simulation Cue(s) None.

Notes/Comments

**NOTE: Operator will read the following procedure NOTE.**

**NOTE: WHEN evaluating which Transfer Bus will be supplied, THEN consideration should be given to selecting a Transfer Bus which would power Unit 1 or Unit 2 H Bus. H Bus supplies the Instrument Air compressors. IF there would not be any adverse plant impact as a result of choosing the H bus instead of the J bus, THEN the H Bus is the preferred bus.**

9	Have the SRO determine which transfer bus will be supplied by the SBO. Record the bus.	Procedure Step 5.1.8 of 0-OP-6.4
---	----------------------------------------------------------------------------------------	----------------------------------

SAT  UNSAT

Standards Operator records "F" in the blank.

Simulation Cue(s) IF needed, cue that SRO directs that "F" transfer bus be aligned.

Notes/Comments  
Direction to align to "F" transfer bus is provided by the initiating cue.

---

10	Ensure Interlock Defeat 43-15E3 Switch is in NORM (located on 0-AAC-PNL-1).	Procedure Step 5.1.9 of 0-OP-6.4
----	-----------------------------------------------------------------------------	----------------------------------

SAT  UNSAT

<u>Standards</u>	Operator checks Interlock Defeat 43-15E3 Switch and observes it is in NORMAL.
------------------	-------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Interlock Defeat 43-15E3 Switch is as you see it now (in normal).
--------------------------	-------------------------------------------------------------------

<u>Notes/Comments</u>
-----------------------

---

11	IF Transfer Bus "D" was recorded in step 5.1.8, THEN do the following.	Procedure Step 5.1.10 of 0-OP-6.4
----	------------------------------------------------------------------------	-----------------------------------

SAT  UNSAT

Standards	Operator N/As step 5.1.10.
-----------	----------------------------

Simulation Cue(s)	None.
-------------------	-------

Notes/Comments
----------------

---

12	IF Transfer Bus "E" was recorded in step 5.1.8, THEN do the following.	Procedure Step 5.1.11 of 0-OP-6.4
----	------------------------------------------------------------------------	-----------------------------------

SAT  UNSAT

Standards	Operator N/As step 5.1.11.
-----------	----------------------------

Simulation Cue(s)	None.
-------------------	-------

Notes/Comments
----------------

13	<p>IF Transfer Bus F was recorded in step 5.1.8, THEN do the following:</p> <ol style="list-style-type: none"> <li>Ensure 0-AAC-BKR-05L3, SBO D Bus Tie Circuit Breaker, is open.</li> <li>Ensure 0-AAC-BKR-05L2, SBO M Bus Tie Circuit Breaker, is open.</li> <li>Ensure 0-AAC-BKR-05M3, Feed to Bus L Circuit Breaker, is open.</li> <li>Ensure 0-AAC-BKR-05L1, SBO E Bus Circuit Breaker, is open.</li> </ol>	<p>Procedure Step 5.1.12.a of 0-OP-6.4</p>
----	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------

SAT  UNSAT

<p><u>Standards</u></p>	<p>Operator checks the following breakers indicate open:</p> <ul style="list-style-type: none"> <li>0-AAC-BKR-05L3, SBO D Bus Tie Circuit Breaker</li> <li>0-AAC-BKR-05L2, SBO M Bus Tie Circuit Breaker</li> <li>0-AAC-BKR-05M3, Feed to Bus L Circuit Breaker</li> <li>0-AAC-BKR-05L1, SBO E Bus Circuit Breaker</li> </ul>
-------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p><u>Simulation Cue(s)</u></p>	<ul style="list-style-type: none"> <li>Breaker 0-AAC-BKR-05L3 GREEN light is LIT</li> <li>Breaker 0-AAC-BKR-05L2 GREEN light is LIT</li> <li>Breaker 0-AAC-BKR-05M3 GREEN light is LIT</li> <li>Breaker 0-AAC-BKR-05L1 GREEN light is LIT</li> </ul>
---------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p><u>Notes/Comments</u></p>
------------------------------

14	Close 0-ACC-BKR-05M2, Feed to Transfer Bus F Tie Breaker.	Procedure Step 5.1.12.e of 0-OP-6.4
----	-----------------------------------------------------------	----------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Operator places the control switch for breaker 0-ACC-BKR-05M2, Feed to Bus "F" Circuit Breaker, to CLOSE.
------------------	-----------------------------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Breaker 0-ACC-BKR-05M2 RED light is LIT and GREEN light is NOT lit.
--------------------------	---------------------------------------------------------------------

Notes/Comments
----------------

15	Insert Synch Switch Key in receptacle for Manual Synch SW Feed to F Bus 1SS-15F5 and place in ON.	Procedure Step 5.1.12.f of 0-OP-6.4
----	---------------------------------------------------------------------------------------------------	----------------------------------------

<b>Critical Step</b>	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Operator performs the following: <ul style="list-style-type: none"> <li>• Inserts Synch Switch Key in receptacle for Manual Synch SW Feed to F Bus 1SS-15F5</li> <li>• Rotates Synch Switch Key to the ON position.</li> </ul>
------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Synch switch 1SS-15F5 is on.
--------------------------	------------------------------

Notes/Comments
----------------

16	Do the following: <ul style="list-style-type: none"> <li>Have Unit 1 OATC ensure 1-EP-BKR-15F1, "C" RSS Transformer Normal Feed, is OPEN</li> </ul>	Procedure Step <u>5.1.12.g.1 of 0-OP-6.4</u>
----	-----------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------

SAT  UNSAT

<u>Standards</u>	Operator requests the OATC to ensure breaker 1-EP-BKR-15F1, "C" RSS Transformer Normal Feed, is OPEN.
------------------	-------------------------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Breaker 1-EP-BKR-15F1, "C" RSS Transformer Normal Feed, is OPEN.
--------------------------	------------------------------------------------------------------

Notes/Comments
----------------

17	<p>Have the Backboards Operator ensure the following breakers are open:</p> <ul style="list-style-type: none"> <li>• 1-EP-BKR-15F3, 4160V TRANS BUS 1F FEED TO EMER BUS 1H</li> <li>• 1-EP-BKR-15F4, 4160V TRANS BUS 1F FEED TO EMER BUS 2J</li> <li>• 1-EE-BKR-15H11, 4160V EMER BUS 1H NORMAL FEED</li> <li>• 1-EE-BKR-25J11, 4160V EMER BUS 2J NORMAL FEED</li> </ul>	<p>Procedure Step 5.1.12.g.2 of 0-OP-6.4</p>
----	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------

SAT  UNSAT

<u>Standards</u>	<p>Operator requests the Backboards Operator to ensure the following breakers are open:</p> <ul style="list-style-type: none"> <li>• 1-EP-BKR-15F3, 4160V TRANS BUS 1F FEED TO EMER BUS 1H</li> <li>• 1-EP-BKR-15F4, 4160V TRANS BUS 1F FEED TO EMER BUS 2J</li> <li>• 1-EE-BKR-15H11, 4160V EMER BUS 1H NORMAL FEED</li> <li>• 1-EE-BKR-25J11, 4160V EMER BUS 2J NORMAL FEED</li> </ul>
------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	<p>The following breakers are open:</p> <ul style="list-style-type: none"> <li>• 1-EP-BKR-15F3, 4160V TRANS BUS 1F FEED TO EMER BUS 1H</li> <li>• 1-EP-BKR-15F4, 4160V TRANS BUS 1F FEED TO EMER BUS 2J</li> <li>• 1-EE-BKR-15H11, 4160V EMER BUS 1H NORMAL FEED</li> <li>• 1-EE-BKR-25J11, 4160V EMER BUS 2J NORMAL FEED</li> </ul>
--------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Notes/Comments
----------------

18	Close 0-AAC-BKR-15F5, SBO F Bus Tie Circuit Breaker.	Procedure Step 5.1.12.h of 0-OP-6.4
----	------------------------------------------------------	----------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	Operator places control switch for breaker 0-ACC-BKR-15F5 in the CLOSE position.
------------------	----------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Breaker 0-ACC-BKR-15F5 RED light is LIT and GREEN light is NOT lit.
--------------------------	---------------------------------------------------------------------

Notes/Comments
----------------

19	Place Synch Switch Key in receptacle for Manual Synch SW Feed to F Bus 1SS-15F5 in OFF.	Procedure Step 5.1.12.i of 0-OP-6.4
----	-----------------------------------------------------------------------------------------	----------------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	Operator Rotates Synch Switch Key to the OFF position.
------------------	--------------------------------------------------------

<u>Simulation Cue(s)</u>	Synch switch for 1SS-15F5 is OFF.
--------------------------	-----------------------------------

Notes/Comments
----------------

---

20	Record the time when the station blackout diesel generator started.	Procedure Step 5.1.13 of 0-OP-6.4
----	---------------------------------------------------------------------	--------------------------------------

SAT  UNSAT

Standards	Operator records time in the blank.
-----------	-------------------------------------

Simulation Cue(s)	Another operator will complete the procedure. This completes the JPM.
-------------------	-----------------------------------------------------------------------

Notes/Comments
----------------

---

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

SIMULATOR SETUP

JOB PERFORMANCE MEASURE  
**N1671**

**TASK**

Prepare the station blackout diesel generator for loading following an automatic start (0-OP-6.4).

**CHECKLIST**

THIS PROCEDURE NEEDS TO BE REVIEWED BEFORE GOING TO SBO DIESEL ROOM SO THAT SYNC KEY CAN BE OBTAINED.

Sync keys are located in light bulb cabinet in MCR and in WCC key locker.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION  
OPERATOR PROGRAM**

**INITIAL CONDITIONS**

Instrument air has been lost

Secondary heat sink has been lost

Both motor-driven auxiliary feedwater pumps are running

Turbine-driven auxiliary feedwater pump is unavailable

**INITIATING CUE**

You are requested to align both motor-driven auxiliary feedwater pumps to the MOV header in accordance with 1-AP-22.1, Attachment 3.

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**N930**

**TASK**

Align both motor-driven auxiliary feedwater pumps to feed the steam generator by way of the motor-operated valve header (1-AP-22.1).

**TASK STANDARDS**

Both motor-driven auxiliary feedwater pumps are aligned to the MOV header

**K/A REFERENCE:**

061-A2.04 (3.4/3.8)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 10 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                                     SATISFACTORY                                     UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

**N930**

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**PREREQUISITES**

Before being evaluated on the task, the trainee must have completed the reactor operator's course checkout during which the objectives listed below would have been addressed.

### **INITIAL CONDITIONS**

Instrument air has been lost

Secondary heat sink has been lost

Both motor-driven auxiliary feedwater pumps are running

Turbine-driven auxiliary feedwater pump is unavailable

### **INITIATING CUE**

You are requested to align both motor-driven auxiliary feedwater pumps to the MOV header in accordance with 1-AP-22.1, Attachment 3.

### **EVALUATION METHOD**

Perform if conducted in the simulator or in a laboratory (use Performance Cue(s))

Simulate if conducted in the station or on a dead simulator (use Simulation Cue(s))

### **TOOLS AND EQUIPMENT**

Administrative key

**PERFORMANCE STEPS**

**START TIME** \_\_\_\_\_

---

1	Have the CRO close the following AFW valves: <ul style="list-style-type: none"><li>• 1-FW-MOV-100A, AFW MOV header to A SG</li><li>• 1-FW-MOV-100D, Turbine-driven AFW pump to A SG</li><li>• 1-FW-MOV-100C, AFW MOV header to C SG</li><li>• 1-FW-HCV-100C, AFW HCV header to C SG</li></ul>	Procedure Step <u>1 of 1-AP-22.1 Att. 3</u>
---	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------

SAT  UNSAT

<u>Standards</u>	Control room operator is requested to close 1-FW-MOV-100A, 100D, 100C and 1-FW-HCV-100C
------------------	-----------------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	Control room operator reports that 1-FW-MOV-100A, 100D, 100C, and 1-FW-HCV-100C are closed
--------------------------	--------------------------------------------------------------------------------------------

<u>Notes/Comments</u> Protected Equipment for the week of June 7, 2010 is Unit 2H (no impact on this task) Protected Equipment for the week of June 21, 2010 is N/A (week 13 – bye week)
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

2	Locally unlock and open the following valves (located in the Motor-Driven AFW Pumphouse): <ul style="list-style-type: none"> <li>1-FW-166, 3A Motor-driven AFW pump to MOV header</li> </ul>	Procedure Step 2 of 1-AP-22.1 Att. 3
---	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	1-FW-166, 3A Motor-driven AFW pump to MOV header valve, is unlocked and opened.
------------------	---------------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	1-FW-166 stem is fully extended.
--------------------------	----------------------------------

Notes/Comments
----------------

3	Locally unlock and open the following valves (located in the Motor-Driven AFW Pumphouse): <ul style="list-style-type: none"> <li>1-FW-62, 1-FW-MOV-100A Outlet Isolation Valve</li> </ul>	Procedure Step 2 of 1-AP-22.1 Att. 3
---	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	1-FW-62, 1-FW-MOV-100A outlet valve, is unlocked and opened.
------------------	--------------------------------------------------------------

<u>Simulation Cue(s)</u>	1-FW-62 stem is fully extended.
--------------------------	---------------------------------

Notes/Comments
----------------

4	Locally unlock and open the following valves (located in the Motor-Driven AFW Pumphouse): <ul style="list-style-type: none"> <li>1-FW-126, AFW Outlet C MOV Outlet Isolation Valve</li> </ul>	Procedure Step 2 of 1-AP-22.1 Att. 3
---	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------

<b>Critical Step</b>	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
----------------------	-------------------------------------------------------------

<u>Standards</u>	1-FW-126, AFW Outlet C MOV Outlet Isolation Valve, is unlocked and opened
------------------	---------------------------------------------------------------------------

<u>Simulation Cue(s)</u>	1-FW-126 stem is fully extended
--------------------------	---------------------------------

<u>Notes/Comments</u>	
-----------------------	--

5	Notify the Control Room that Attachment 3 is complete.	Procedure Step 3 of 1-AP-22.1 Att. 3
---	--------------------------------------------------------	-----------------------------------------

SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
-------------------------------------------------------------

<u>Standards</u>	Control room is informed that attachment is complete.
------------------	-------------------------------------------------------

<u>Simulation Cue(s)</u>	Acknowledge as control room operator. This completes the JPM.
--------------------------	---------------------------------------------------------------

<u>Notes/Comments</u>	
-----------------------	--

**END OF EVALUATION**

**STOP TIME** \_\_\_\_\_

SIMULATOR, LABORATORY, IN--PLANT SETUP  
(If Required)

None