

Facility: <u>North Anna Set A</u>		Date of Examination: <u>6/21/2010</u>
Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test No.: <u>1</u>
Control Room Systems® (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title (KA)	Type Code*	Safety Function
a.) 026 / Terminate quench spray (1/2-E-1). (A4.05)	C, D, E, EN, L	5
b.) 005 / Restore RHR flow (1-AP-11). (A4.01)	A, L, M, S	4 (Pri)
c.) 001 / Borate the reactor coolant system using the blender (1-OP-8.3, 1-GOP-8.3.4, 1-OP-8.3.4). (A4.02)	A, D, S	1
d.) 039/059/061 / Identify and isolate a ruptured steam generator (EA1.32)	A, M, S	4 (Sec)
e.) 062 / Reset load shed (0-AP-47). (A4.01)	C, D, E	6
f.) 073 / Restore the blowdown radiation monitors (1-E-1). (A4.02)	D, E, S	7
g.) 075 / Respond to circulating water flooding in the turbine building (0-AP-39.1). (A2.02)	A, D, E, S	8
h.) 006 / Fill the safety injection accumulators (1-OP-7.3), 1-MOP-7.3). (A4.02)	D, EN, S	3
In-Plant Systems® (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i.) 063 / Place a battery charger in operation on the safeguards watchstation (1-OP-26.4.1, 1-ECA-0.0). (A4.01)	D	6
j.) 003 / Isolate the reactor coolant pump seals locally (1-ECA-0.0, 1-ECA-0.2, 1-AP-33.2, B.5.b)	D, E, R	2
k.) 061 / Reset the auxiliary feedwater turbine trip and throttle valve (1/2-PT-71.1Q, 1/2-AR-F-D8, B.5.b). (A2.04)	D, E	4
@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.		
* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (EN)gineered safety feature (L)ow-Power / Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (similar topic) (R)CA (S)imulator	4-6 / 4-6 / 2-3 $\leq 9 / \leq 8 / \leq 4$ $\geq 1 / \geq 1 / \geq 1$ - / - / ≥ 1 (control room system) $\geq 1 / \geq 1 / \geq 1$ $\geq 2 / \geq 2 / \geq 1$ $\leq 3 / \leq 3 / \leq 2$ (randomly selected) $\geq 1 / \geq 1 / \geq 1$	

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c.) 001 / Borate the reactor coolant system using the blender (1-OP-8.3, 1-GOP-8.3.4, 1-OP-8.3.4). (A4.02)	A, D, S	1
d.) 039/059/061 / Identify and isolate a ruptured steam generator (EA1.32)	A, M, S	4 (Sec)
e.) 062 / Reset load shed (0-AP-47). (A4.01)	C, D, E	6
f.) 073 / Restore the blowdown radiation monitors (1-E-1). (A4.02)	D, E, S	7
g.) 075 / Respond to circulating water flooding in the turbine building (0-AP-39.1). (A2.02)	A, D, E, S	8
h.) NOT USED FOR SRO-I		
In-Plant Systems [@] (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i.) 063 / Place a battery charger in operation on the safeguards watchstation (1-OP-26.4.1, 1-ECA-0.0). (A4.01)	D	6
j.) 003 / Isolate the reactor coolant pump seals locally (1-ECA-0.0, 1-ECA-0.2, 1-AP-33.2, B.5.b)	D, E, R	2
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<p>@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>		
* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (EN)gineered safety feature (L)ow-Power / Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (similar topic) (R)CA (S)imulator	<p>4-6 / 4-6 / 2-3</p> <p>$\leq 9 / \leq 8 / \leq 4$ $\geq 1 / \geq 1 / \geq 1$ - / - / ≥ 1 (control room system) $\geq 1 / \geq 1 / \geq 1$ $\geq 2 / \geq 2 / \geq 1$ $\leq 3 / \leq 3 / \leq 2$ (randomly selected) $\geq 1 / \geq 1 / \geq 1$</p>	

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a.) 026 / Terminate quench spray (1/2-E-1). (A4.05)	C, D, E, EN, L	5
b.) 005 / Restore RHR flow (1-AP-11). (A4.01)	A, L, M, S	4 (Pri)
c.) 001 / Borate the reactor coolant system using the blender (1-OP-8.3, 1-GOP-8.3.4, 1-OP-8.3.4). (A4.02)	A, D, S	1
d.) NOT USED FOR SRO-U		
e.) NOT USED FOR SRO-U		
f.) NOT USED FOR SRO-U		
g.) NOT USED FOR SRO-U		
h.) NOT USED FOR SRO-U		
In-Plant Systems® (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i.) 063 / Place a battery charger in operation on the safeguards watchstation (1-OP-26.4.1, 1-ECA-0.0). (A4.01)	D	6
j.) 003 / Isolate the reactor coolant pump seals locally (1-ECA-0.0, 1-ECA-0.2, 1-AP-33.2, B.5.b)	D, E, R	2
k.) NOT USED FOR SRO-U		
@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.		
* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path	4-6 / 4-6 / 2-3	
(C)ontrol room		
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$	
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$	
(EN)gineered safety feature	- / - / ≥ 1 (control room system)	
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$	
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$	
(P)revious 2 exams (similar topic)	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)	
(R)CA	$\geq 1 / \geq 1 / \geq 1$	
(S)imulator		

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 the attachment for quench spray termination in 1-E-1, "Loss of Reactor or Secondary Coolant."

Dominion
North Anna Power Station
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R755

TASK

Terminate quench spray (1-E-1).

TASK STANDARDS

CDA was reset, QS pumps were placed in auto with discharge MOVs closed, and CAT 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

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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 the attachment for quench spray termination in 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 attachment for quench spray termination of 1-E-1.

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
---	--	--

Critical Step	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
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<u>Standards</u>	Both CDA reset switches are placed in RESET and then released to NORMAL
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Notes/Comments

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

Critical Step	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
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<u>Standards</u>	Control switches for quench spray pumps 1-QS-P-1A and 1-QS-P-1B are placed in AUTO-AFTER-STOP
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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
---	---	--

Critical Step	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
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<u>Standards</u>	CLOSE push-buttons for quench spray pump discharge valves 1-QS-MOV-101A and 1-QS-MOV-101B are depressed
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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
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Critical Step	SAT [] UNSAT []
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<u>Standards</u>	Control switches for 1-QS-MOV-102A and 1-QS-MOV-102B are placed in CLOSE
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Notes/Comments

END OF EVALUATION

STOP TIME _____

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

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

INITIAL CONDITIONS

Unit is in mode 4

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

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

INITIATING CUE

You are requested to respond to a loss of the Residual Heat Removal System and to restore residual heat removal flow to approximately 3,400 gpm using 1-AP-11.

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

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PREREQUISITES

INITIAL CONDITIONS

Unit is in mode 4

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

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

INITIATING CUE

You are requested to respond to a loss of the Residual Heat Removal System and to restore residual heat removal flow to approximately 3,400 gpm using 1-AP-11.

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	Determine if Reactor Coolant System level is decreasing.	Procedure Step 1 of 1-AP-11
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SAT ☐ UNSAT ☐

<u>Standards</u>	Operator evaluates the following, determines level is NOT decreasing and goes to step 5 per RNO: <ul style="list-style-type: none"> • RCS standpipe level decreasing • RCS ultrasonic level indicator decreasing • Pressurizer level decreasing • RCS makeup rate increasing • Containment sump pumping frequency unexplained increase • PDTT pumping frequency unexplained increase
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<u>Simulation Cue(s)</u>	No change is indicated for the Reactor Coolant System's pressurizer level
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Notes/Comments

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

<u>Standards</u>	Operator completes the following actions. <ul style="list-style-type: none"> • Notes that 1-RH-MOV-1700 is closed • Verifies 1-RH-MOV-1701 is open
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<u>Simulation Cue(s)</u>	<ul style="list-style-type: none"> • 1-RH-MOV-1700 has green light lit and red light NOT lit • 1-RH-MOV-1701 has red light lit and green light NOT lit
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Notes/Comments
During breaker testing (checking contactors) by the electrical department, 1-RH-MOV-1700 was inadvertently closed (they were on the wrong component and have since restored)

3	Stop RHR pump(s). (Alternate path step)	Procedure Step 5.a RNO (1) of 1-AP-11
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SAT ☐ UNSAT ☐

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

4	Open 1-RH-MOV-1700 after RCS pressure is verified less than 418 psig	Procedure Step 5.a RNO (2) & (3) of 1-AP-11
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Critical Step	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
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<u>Standards</u>	1-RH-MOV-1700 is opened
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<u>Performance Cue(s)</u>	IF required provide cue that during breaker testing (checking contactors) by the electrical department, 1-RH-MOV-1700 was inadvertently closed (they were on the wrong component and have since restored), and the SM authorizes re-opening the valve.
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Notes/Comments

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

<u>Standards</u>	RHR outlet valve 1-RH-MOV-1720A is verified open
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<u>Simulation Cue(s)</u>	1-RH-MOV-1720B green light is lit and red light is NOT lit
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<u>Simulation Cue(s)</u>	1-RH-MOV-1720A red light is lit and green light is NOT lit
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Notes/Comments

6	If a degraded residual heat removal pump is running and the other pump is not available, go to step 7.	Procedure Step 6 RNO of 1-AP-11
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SAT ☐ UNSAT ☐

<u>Standards</u>	No action is required since no pumps are running
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Notes/Comments

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

<u>Standards</u>	Operator checks that both emergency busses have power
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<u>Simulation Cue(s)</u>	4160-volt emergency busses indicate 4300 volts and 60 Hz
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Notes/Comments

8	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
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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 MANUAL pushbutton is depressed (if required), then DECREASE button is depressed until the controller output demand indicates zero

<u>Simulation Cue(s)</u>	1-RH-HCV-1758 demand is zero and 1-RH-FCV-1605 demand is zero
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Notes/Comments

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

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

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

SAT ☐ UNSAT ☐

<u>Standards</u>	Control switch for the residual heat removal pump 1-RH-P-1B is placed in START
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<u>Simulation Cue(s)</u>	1-RH-P-1B red light is lit and green light is NOT lit, and the amperage reading is 37
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Notes/Comments

If operator attempts to start pump 1-RH-P-1A, then pump will not start.

11	Restore Residual Heat Removal System flow.	Procedure Step 6.c.4 RNO of 1-AP-11
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Critical Step	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
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<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
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<u>Performance Cue(s)</u>	Residual heat removal flow indicates 3,500 gpm
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<u>Simulation Cue(s)</u>	Residual heat removal flow indicates 3,500 gpm
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Notes/Comments

12	Verify that the RHR system is normal.	Procedure Step 7 of 1-AP-11
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SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>

<u>Standards</u>	RHR flow and motor amps are verified normal and stable, RCS temperature is verified stable.
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<u>Simulation Cue(s)</u>	RHR flow is stable at 3,300 gpm, motor amps are stable at 37 amps, RCS temperature is stable at ~210°F
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Notes/Comments

13	Check service water to CC heat exchangers.	Procedure Step 8 of 1-AP-11
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SAT ☐ UNSAT ☐

<u>Standards</u>	Operator acknowledges that the task is complete
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<u>Performance Cue(s)</u>	Assume that another operator will complete the procedure This completes the JPM
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<u>Simulation Cue(s)</u>	Assume that another operator will complete the procedure This completes the JPM
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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-1700 control switch to allow valve to be re-opened

Note: IC is shot as follows:

_____ Verify "A" RHR pump is running

_____ Verify 1-RH-MOV-1720A and 1720B are energized

_____ override mov-1700 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

Reactor Coolant System boron concentration is 945 ppm

In-service boric acid storage tank concentration is 14,043 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.

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 _____

EVALUATOR'S COMMENTS

Dominion
North Anna Power Station

JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

R706 – alternate path

READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE

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Instructions for In-Plant JPMs

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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 14,043 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 1-GOP-8.3.4
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SAT ☐ UNSAT ☐

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

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

<u>Standards</u>	193 gallons \pm 10 gallons of boric acid is determined. Note: desired flowrate (1.2 gpm) provided by initiating cue.
------------------	---

<u>Performance Cue(s)</u>	
---------------------------	--

<u>Simulation Cue(s)</u>	
--------------------------	--

Notes/Comments

Candidate may elect to use PCS and/or station curves to satisfy this element.

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>	Unit Supervisor concurs with your figures.
---------------------------	--

<u>Simulation 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.
------------------	---

<u>Simulation Cue(s)</u>	Blender control has green light LIT and red light NOT lit.
--------------------------	--

Notes/Comments

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

Critical Step	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 <input type="checkbox"/> UNSAT <input type="checkbox"/>

<u>Standards</u>	1-CH-FCV-1113A is verified to be open with control switch in auto.
------------------	--

<u>Simulation Cue(s)</u>	1-CH-FCV-1113A has red light LIT and green light NOT lit. 1-CH-FCV-1113A control switch is in AUTO position
--------------------------	--

Notes/Comments

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

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

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

<u>Simulation Cue(s)</u>	Blender control has red light LIT and green light NOT lit.
--------------------------	--

Notes/Comments

9	Adjust 1-CH-LCV-112C controller as required.	Procedure Step 1-GOP-8.3.4
---	--	-------------------------------

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

<u>Standards</u>	LCV is adjusted at discretion of operator.
------------------	--

<u>Performance Cue(s)</u>	.
---------------------------	---

<u>Simulation Cue(s)</u>	.
--------------------------	---

Notes/Comments
Operator may go directly to element 10 prior to performing this step if they note the unexpected PG flow.

10	Respond to 1-CH-FCV-1114A failure (alternate path step)	Procedure Step P&L
----	--	-----------------------

Critical Step	SAT [] UNSAT []
----------------------	----------------------

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

Notes/Comments

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 1 of 1-E-3
---	---	------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator checks RCS subcooling, notes it is greater than 25°F and proceeds to step 2 per RNO.
------------------	---

<u>Simulation Cue(s)</u>	Subcooling is approximately than 40°F.
--------------------------	--

Notes/Comments

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

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

<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
------------------	---

<u>Simulation Cue(s)</u>	<u>SG levels are as follows:</u> "A" steam generator's narrow-range level is 4% and increasing "B" steam generator's narrow-range level is 23% and increasing "C" steam generator's narrow-range level is 2% and increasing <u>Steam Line radiation Monitors are as follows:</u> "A" indicates normal radiation with NO alarms "B" indicates .64 X 10° with warning light LIT "C" indicates normal radiation with NO alarms SG blowdown Radiation Monitors ALL indicate normal SG sample results are not yet available.
--------------------------	--

<u>Notes/Comments</u> 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.

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
---	---	--------------------------------

Critical Step	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. (alternate path step)	Procedure Step 3.c of 1-E-3
---	--	--------------------------------

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

<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 the "Steam Generator Isolation Local Actions in the MSVH" attachment for the ruptured steam generator(s).	Procedure Step <u>3.c RNO c of 1-E-3</u>
---	---	---

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

<u>Standards</u>	Safeguards operator is requested to initiate the "Steam Generator Isolation Local Actions in the MSVH" attachment for "B" steam generator.
------------------	--

Notes/Comments

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

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

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

<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
---	---	--------------------------------

Critical Step	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.
------------------	---

Notes/Comments

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 notes "B" SG level is greater than 11% [22%].
------------------	--

<u>Simulation Cue(s)</u>	Ruptured steam generator narrow range level is 26% and increasing.
--------------------------	--

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

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

Critical Step	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.
---------------------------	---

<u>Simulation Cue(s)</u>	After operator discusses holding switch for 1-FW-MOV-100B in CLOSE position, valve has green light LIT and red light NOT lit. Inform operator 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)

_____ 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

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

INITIAL CONDITIONS

Unit 1 is operating at 40% 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 the reset of AMSAC.

Unit-1 condensate pump status is as follows:

	1-CN-P-1A	1-CN-P-1B	1-CN-P-1C
SWITCH	MID position	MID position	MID position
FLAG	RED	GREEN	RED
GREEN LIGHT	ON	OFF	OFF
AMBER LIGHT	ON	OFF	OFF
RED LIGHT	OFF	ON	ON

Unit-1 main feedwater pump status is as follows:

	1-FW-P-1A	1-FW-P-1B	1-FW-P-1C
SWITCH	MID position	P-T-L position	MID position
FLAG	GREEN	BLACK	RED
GREEN LIGHT	ON	OFF	OFF
AMBER LIGHT	OFF	OFF	OFF
RED LIGHT	OFF	OFF	ON

INITIATING CUE

You are requested to reset 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

Non-running condensate and MFW pumps were placed in stop and 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

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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 40% 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 the reset of AMSAC.

Unit-1 condensate pump status is as follows:

	1-CN-P-1A	1-CN-P-1B	1-CN-P-1C
SWITCH	MID position	MID position	MID position
FLAG	RED	GREEN	RED
GREEN LIGHT	ON	OFF	OFF
AMBER LIGHT	ON	OFF	OFF
RED LIGHT	OFF	ON	ON

Unit-1 main feedwater pump status is as follows:

	1-FW-P-1A	1-FW-P-1B	1-FW-P-1C
SWITCH	MID position	P-T-L position	MID position
FLAG	GREEN	BLACK	RED
GREEN LIGHT	ON	OFF	OFF
AMBER LIGHT	OFF	OFF	OFF
RED LIGHT	OFF	OFF	ON

INITIATING CUE

You are requested to reset 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 _____

1	Place the control switches for any condensate pump that automatically started to START.	Procedure Step 10.a of 1-AP-47
---	---	-----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator red flags "B" condensate pump.
------------------	---

<u>Simulation Cue(s)</u>	Provided by initial conditions of JPM
--------------------------	---------------------------------------

Notes/Comments (B pump auto-started)

2	Place the control switches for the non-running condensate pumps in STOP.	Procedure Step 10.b of 1-AP-47
---	--	-----------------------------------

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

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

<u>Simulation Cue(s)</u>	The unit supervisor desires that all condensate pumps be available for auto-start.
--------------------------	--

Notes/Comments

3	Place the control switches for any main feedwater pump that automatically started to AUTO-AFTER-START.	Procedure Step 11.a of 1-AP-47
---	--	-----------------------------------

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

<u>Standards</u>	Operator checks that all running feed pumps are red-flagged.
------------------	--

<u>Simulation Cue(s)</u>	Provided by initial conditions of JPM
--------------------------	---------------------------------------

Notes/Comments (no pumps auto-started)

4	Place the control switches for the non-running main feedwater pumps in STOP.	Procedure Step 11.b of 1-AP-47
---	--	-----------------------------------

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

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

<u>Simulation Cue(s)</u>	The unit supervisor desires that the standby ("A") main feed pump be available for auto-start.
--------------------------	--

Notes/Comments

5	Place the control switch for the non-running circulating water pumps in STOP.	Procedure Step 12 of 1-AP-47
---	---	---------------------------------

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

<u>Standards</u>	Operator checks all circulating water pumps running.
------------------	--

<u>Simulation Cue(s)</u>	All circulating water pumps have red lights LIT and green lights NOT lit.
--------------------------	---

Notes/Comments

6	Depress the unit-1 load shed reset push-buttons.	Procedure Step 13.a of 1-AP-47
---	--	-----------------------------------

Critical Step	SAT [] UNSAT []
----------------------	----------------------

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

<u>Simulation Cue(s)</u>	If operator asks, then state Unit-1 annunciator G-C2 is verified to be NOT lit.
--------------------------	---

Notes/Comments

7	Depress the unit-2 load shed reset push-buttons.	Procedure Step 13.b of 1-AP-47
---	--	-----------------------------------

Critical Step	SAT [] UNSAT []
----------------------	----------------------

<u>Standards</u>	SI/CDA LOAD SHED 4160V BUSS 2G reset push-button is momentarily depressed.
------------------	--

<u>Standards</u>	UNIT-1 SI/CDA LOAD SHED 4160V BUSS 2A reset push-button is momentarily depressed.
------------------	---

<u>Standards</u>	UNIT-1 SI/CDA LOAD SHED 4160V BUSS 2B reset push-button is momentarily depressed.
------------------	---

<u>Simulation Cue(s)</u>	If operator asks, then state Unit-2 annunciators K-H5 and K-G5 are verified to be NOT lit.
--------------------------	--

Notes/Comments

8	Setup unit-1 PCS to monitor the desired computer points.	Procedure Step 14 of 1-AP-47
---	--	---------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator acknowledges this step is being performed by another operator.
------------------	---

<u>Simulation Cue(s)</u>	Assume that another operator will perform this step
--------------------------	---

Notes/Comments

9	Setup unit-2 PCS to monitor the desired computer points.	Procedure Step 15 of 1-AP-47
---	--	---------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator acknowledges this step is being performed by another operator.
------------------	---

<u>Simulation Cue(s)</u>	Assume that another operator will perform this step
--------------------------	---

Notes/Comments

10	Verify that SI/CDA load shed is reset.	Procedure Step 16 of 1-AP-47
----	--	---------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	<ul style="list-style-type: none"> Unit-1 annunciator G-C2 is verified to be NOT lit Unit 2 annunciators K-H5 and K-G5 are verified NOT lit Verified that OFF is indicated for all of the unit-1 and unit-2 PCS points being monitored
------------------	---

<u>Simulate Cue(s)</u>	<ul style="list-style-type: none"> Unit-1 annunciator G-C2 is as you see it now Unit 2 annunciators K-H5 and K-G5 are as you see them now OFF is indicated for all of the unit-1 and unit-2 PCS points being monitored. <p>Another operator will complete 0-AP-47 This completes the JPM.</p>
------------------------	--

<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).

NOTE: JPM is intended for in-plant simulation, there is no IC shot for this JPM.

CHECKLIST

_____ Recall the IC for approximately 40% power

_____ Go to RUN

_____ Ensure the following configuration

- 1-FW-P-1A in auto
- 1-FW-P-1B in PULL-TO-LOCK
- 1-FW-P-1C running
- 1-CN-P-1A running
- 1-CN-P-1B in auto
- 1-CN-P-1C running

_____ Enter malfunction MCN0201, time delay = 0

_____ Place the simulator in FREEZE

**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 the blowdown radiation monitor restoration attachment of 1-E-1, "Loss of Reactor or Secondary Coolant."

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 the blowdown radiation monitor restoration attachment 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, 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
---	---	-------------------------------------

Critical Step	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"> • 1-FW-FCV-150A • 1-FW-FCV-150B • 1-FW-FCV-150C 	Procedure Step 2 of 1-E-1, att.4
---	---	-------------------------------------

<u>NOTE TO EXAMINER</u>	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.
------------------	---

<u>Simulation Cue(s)</u>	When operator checks status of main Feedwater pump recirc valves, inform operator 1-FW-FCV-150A is OPEN, red light LIT green light NOT lit.
--------------------------	---

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
---	--	-------------------------------------

Critical Step	SAT [] UNSAT []
----------------------	-------------------

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

<u>Performance Cue(s)</u>	Both breakers for main feedwater pump 1-FW-P-1A have been racked to TEST.
---------------------------	---

<u>Simulation Cue(s)</u>	Both breakers for main feedwater pump 1-FW-P-1A have been racked to TEST.
--------------------------	---

Notes/Comments

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.
------------------	---

<u>Simulation Cue(s)</u>	Valve 1-FW-MOV-150A has green light LIT and red light NOT lit.
--------------------------	--

Notes/Comments

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

Critical Step SAT ☐ UNSAT ☐

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

<u>Simulation Cue(s)</u>	Both breakers for main feedwater pump 1-FW-P-1A have red light LIT and green light NOT lit.
--------------------------	---

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
------------------	--

<u>Simulation Cue(s)</u>	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
---	--	---------------------------------------

Critical Step	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 ☐ UNSAT ☐

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

<u>Simulation Cue(s)</u>	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
---	--	---------------------------------------

Critical Step	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 <input type="checkbox"/> UNSAT <input type="checkbox"/>

<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 ☐

Standards Operator directs field operator to ensure valve is CLOSED.

Simulation Cue(s) Steam generator blowdown valve 1-BD-1005 is reported CLOSED.

Notes/Comments

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

SAT ☐ UNSAT ☐

Standards Operator directs field operator to close valves.

Simulation Cue(s) Recovery tank isolation valves are reported closed.

Notes/Comments

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

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

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

<u>Simulation Cue(s)</u>	Steam generator blowdown trip valves have red lights LIT green lights NOT lit.
--------------------------	--

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>Simulation Cue(s)</u>	Steam generator blowdown radiation is normal.
--------------------------	---

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 (100% power)

_____ 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 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.

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 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.

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	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, 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>	After immediate operator actions are done: 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.
------------------	--

Notes/Comments

4	Place all unit-1 circulating water motor-operated valve interlock defeat switches in NORMAL.	Procedure Step 4.a1 & 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

5	Close the following water box inlet motor-operated valves. <ul style="list-style-type: none"> • 1-CW-MOV-101A • 1-CW-MOV-101B • 1-CW-MOV-101C • 1-CW-MOV-101D 	Procedure Step <u>4.b.2 of 0-AP-39.1</u>
---	---	---

Critical Step	SAT [] UNSAT []
----------------------	-----------------

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

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

<u>Simulation Cue(s)</u>	1-CW-MOV-101A has red and green lights LIT 1-CW-MOV-101B has red and green lights LIT 1-CW-MOV-101C has red light LIT and green light NOT lit. 1-CW-MOV-101D has red light LIT and green light NOT lit.
--------------------------	--

<u>Notes/Comments</u>

6	Verify that the unit-1 circulating water pumps trip - NO. (Alternate path step)	Procedure Step 4.b.3 of 0-AP-39.1
---	--	--------------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator determines that unit-1 CW pumps are NOT tripped and implements step 4.b.3) RNO
------------------	---

<u>Simulation Cue(s)</u>	CW pump 1C and 1D breakers have red lights LIT and green lights NOT lit.
--------------------------	--

Notes/Comments

7	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. ONLY elements 1&3 are critical since 15G10 is already open (normal alignment)
------------------	---

<u>Simulation Cue(s)</u>	15G10 has green light LIT and red light NOT lit. After opening: 15G1 has green light LIT and red light NOT lit AND if status is checked at this time All CW pump breakers have green and amber lights LIT.
--------------------------	--

Notes/Comments

8	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

9	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 .
------------------	--

<u>Simulation Cue(s)</u>	All CW pump breakers have NO lights LIT. If field operator is asked to verify whether breakers are open locally, then report that that all circulating water pump breakers are open.
--------------------------	--

Notes/Comments

Control room breaker light indication will be lost when element 7 is performed.

10	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
---------------------------	---

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

Notes/Comments

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

Critical Step	SAT [] UNSAT []
----------------------	----------------------

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

<u>Simulation Cue(s)</u>	<p>1-CW-MOV-101A/B/C/D have green lights LIT and red lights NOT lit.</p> <p>After CLOSE is depressed: 1-CW-MOV-102A/B/C/D have red and green lights LIT.</p> <p>Later: 1-CW-MOV-102A/B/C/D have green lights LIT and red lights NOT lit.</p>
--------------------------	--

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

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

SAT ☐ UNSAT ☐

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

<u>Performance Cue(s)</u>	Turbine operator acknowledges order to secure HCBBD.
---------------------------	--

<u>Simulate Cue(s)</u>	Turbine operator acknowledges order to secure HCBBD.
------------------------	--

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

13	Check if liquid waste releases can be continued.	Procedure Step 4.b.6 RNO of 0-AP-39.1
----	--	--

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator determines that LW releases cannot 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>	If wants to call HP can give cue: The release permit requires 3 CW pumps to be running on the tunnel that LW is discharging to.
---------------------------	---

<u>Simulation Cue(s)</u>	1-LW-PCV-115 has green light LIT and red light NOT lit If wants to call HP can give cue: The release permit requires 3 CW pumps to be running on the tunnel that LW is discharging to. Inform operator that this concludes JPM.
--------------------------	--

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

END OF EVALUATION

STOP TIME

2010/03/25

Page: 13 of 14

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 #147 (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 outsidess 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 58%.

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 58%.

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

PERFORMANCE STEPS

START TIME _____

1	Request the auxiliary building 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>	Auxiliary building 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)
------------------	---

Notes/Comments

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>Simulation Cue(s)</u>	Annunciator 1G-G5 is <u>NOT</u> lit.
--------------------------	--------------------------------------

Notes/Comments

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 58%.
------------------	---

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

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
---	--	-------------------------------------

Critical Step

SAT ☐ UNSAT ☐

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

<u>Simulate Cue(s)</u>	1-SI-HCV-1851A has red light LIT and green light NOT lit.
------------------------	---

Notes/Comments
Steps 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 ☐

Standards	Controller is set to zero output.
-----------	-----------------------------------

Simulate Cue(s)	Controller output reads zero.
-----------------	-------------------------------

Notes/Comments

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

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

Standards	START pushbutton for 1-SI-P-2 is momentarily depressed.
-----------	---

Simulate Cue(s)	Hydro test pump has red light LIT and green light NOT lit.
-----------------	--

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 ☐ UNSAT ☐

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

<u>Simulate Cue(s)</u>	Level in 1-SI-TK-1A is increasing
------------------------	-----------------------------------

Notes/Comments

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
---	---	--

Critical Step SAT ☐ UNSAT ☐

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

<u>Simulate Cue(s)</u>	Level in 1-SI-TK-1A is approximately 64%.
------------------------	---

Notes/Comments

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

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

SAT ☐ UNSAT ☐

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

Notes/Comments

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

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

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

<u>Simulate Cue(s)</u>	Hydro test pump has green light LIT and red light NOT lit.
------------------------	--

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 ☐ UNSAT ☐

<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
----	--	--------------------------------------

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

<u>Simulate Cue(s)</u>	1-SI-HCV-1851A has green light LIT and red light NOT lit.
------------------------	---

Notes/Comments

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 satisfy this step.

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 ☐

Standards	Step is marked N/A.
-----------	---------------------

Performance Cue(s)	No additional accumulators are to be filled. Inform the operator that an additional crew member will complete the rest of 1-OP-7.3. This completes the JPM.
-----------------------	---

Simulate Cue(s)	No additional accumulators are to be filled. Inform the operator that an additional 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 _____

***** Note: Operator may elect to review Initial Conditions and P&Ls to refresh themselves, even though this is given in the Initial conditions of this JPM. *****

1	If battery charger annunciator was defeated then establish communications with the unit CRO.	Procedure Step 5.1.3 of 1-OP-26.4.1
---	--	--

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator reviews initial conditions of JPM and NA's step
------------------	--

<u>Simulation Cue(s)</u>	IF needed can cue as control room operator No annunciators were defeated
--------------------------	---

Notes/Comments

2	If battery charger annunciator was defeated then enable alarm.	Procedure Step 5.1.4 of 1-OP-26.4.1
---	--	--

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator reviews initial conditions of JPM (also answer to previous step) and NA's step
------------------	---

Notes/Comments

3	Verify that the swing battery charger is not supplying the DC bus.	Procedure Step 5.1.5 of 1-OP-26.4.1
---	--	--

SAT ☐ UNSAT ☐

<u>Standards</u>	The operator reviews the initial conditions of JPM and NA's the step
------------------	--

<u>Simulation Cue(s)</u>	IF needed can cue Swing charger 1C-1 is in normal standby alignment
--------------------------	--

Notes/Comments

4	Determine if the battery charger will be operated without an exhaust fan and take the appropriate actions, if required.	Procedure Step 5.1.6 of 1-OP-26.4.1
---	---	--

SAT ☐ UNSAT ☐

<u>Standards</u>	The operator reviews the initial conditions of JPM and NA's the step.
------------------	---

Notes/Comments

5	Close the supply breaker for battery charger 1-I.	Procedure Step 5.1.7 of 1-OP-26.4.1
---	---	--

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

<u>Standards</u>	Breaker 1-EE-BKR-1H1-4 D2L is closed
------------------	--------------------------------------

<u>Simulation Cue(s)</u>	Supply breaker for battery charger 1-I is positioned as described.
--------------------------	--

Notes/Comments

6	Close the DC output circuit breaker.	Procedure Step 5.1.8 of 1-OP-26.4.1
---	--------------------------------------	--

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

<u>Standards</u>	The DC output breaker for battery charger 1-I is closed.
------------------	--

<u>Simulation Cue(s)</u>	DC output breaker for battery charger is positioned as described.
--------------------------	---

Notes/Comments

7	Close the feeder breaker from the normal charger in the DC distribution panel.	Procedure Step 5.1.9 of 1-OP-26.4.1
---	--	--

Critical Step	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Breaker #12 in 1-EP-CB-12A is taken to the closed position
------------------	--

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

Notes/Comments

8	Close the AC input circuit breaker.	Procedure Step 5.1.10.a of 1-OP- 26.4.1
---	-------------------------------------	---

Critical Step	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	AC input breaker on the 1-I charger is closed
------------------	---

<u>Simulation Cue(s)</u>	AC input breaker on the 1-I charger is positioned as described.
--------------------------	---

Notes/Comments

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

SAT ☐ UNSAT ☐

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

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

Notes/Comments

10	Request the control room operator to verify that the BATTERY CHGR TROUBLE annunciator is not 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>	1-I BATTERY CHGR TROUBLE annunciator is not lit
--------------------------	---

Notes/Comments

11	If swing charger 1C-1 was on equalize then place charger 1-I on equalize.	Procedure Step 5.1.12 of 1-OP-26.4.1
----	---	---

SAT ☐ UNSAT ☐

<u>Standards</u>	The operator N/A's the step (based on information provided by initial conditions of the JPM)
------------------	--

Notes/Comments

12	Verify that the battery charger is operating normally, and record required data.	Procedure Step 5.1.13 of 1-OP-26.4.1
----	--	---

SAT ☐ UNSAT ☐

<u>Standards</u>	The operator records data from battery charger indications
------------------	--

<u>Simulation Cue(s)</u>	IF required confirm to operator that all data is as you see it
--------------------------	--

Notes/Comments

13	Notify the Electrical Department and the shift manager of abnormal voltages if the battery voltage is less than 132 volts DC or greater than 139 volts DC.	Procedure Step 5.1.14 of 1-OP-26.4.1
----	--	---

SAT ☐ UNSAT ☐

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

Notes/Comments

14	Request the unit supervisor to clear the applicable action statement.	Procedure Step 5.1.15 of 1-OP-26.4.1
----	---	---

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator states that he/she would call the unit supervisor and request he clear the action statement
------------------	--

<u>Simulation Cue(s)</u>	The unit supervisor will clear the applicable action statement
--------------------------	--

Notes/Comments

15	Perform any actions required by the maintenance rule.	Procedure Step 5.1.16 of 1-OP-26.4.1
----	---	---

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator reviews initial conditions given and initials step or N/A's step with SRO concurrence
------------------	--

<u>Simulation Cue(s)</u>	IF required confirm No actions are required by the maintenance rule
--------------------------	---

Notes/Comments

16	If a Hathaway cabinet key was obtained, then return it.	Procedure Step 5.1.17 of 1-OP-26.4.1
----	---	---

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator NA's step
------------------	--------------------

<u>Simulation Cue(s)</u>	IF required confirm that No annunciators have been defeated
--------------------------	---

Notes/Comments

17	<p>If an exhaust fan was not running, then perform the following actions when the fan is restored or the battery charger is removed from service.</p> <ul style="list-style-type: none"> Secure the compensatory actions that were initiated If a temporary blower was installed, inform the shift manager to have it removed 	<p>Procedure Step 5.1.18 of 1-OP-26.4.1</p>
----	---	---

SAT ☐ UNSAT ☐

Standards	Operator NA's step
-----------	--------------------

Simulation Cue(s)	IF required confirm Exhaust fan is running
-------------------	--

Notes/Comments

18	<p>If vital bus 1-I swapped from inverter to CVT take appropriate actions</p>	<p>Procedure Step 5.1.18 of 1-OP-26.4.1</p>
----	---	---

SAT ☐ UNSAT ☐

Standards	Operator NA's step
-----------	--------------------

Simulation Cue(s)	IF required confirm that vital bus 1-I is being supplied by Inverter 1-I. This completes the JPM.
-------------------	--

Notes/Comments

END OF EVALUATION

STOP TIME _____

2010/03/25

Page: 13 of 14

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:

003A201 (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 _____

1	Unlock and close the reactor coolant pump seal injection throttle valves.	Procedure Step 1 of 1-ECA-0.0 Att. 3
---	---	---

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

<u>Standards</u>	Seal injection supply throttle valves 1-CH-318, 1-CH-314, and 1-CH-310 are unlocked, jam nuts are loosened, and valves are closed
------------------	---

Notes/Comments

2	Close the reactor coolant pump thermal barrier component cooling water return valve.	Procedure Step 2 of 1-ECA-0.0 Att. 3
---	--	---

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

<u>Standards</u>	RCP thermal barrier return valve 1-CC-757 is closed
------------------	---

Notes/Comments

3	Locally close the reactor coolant pump seal water return isolation motor-operated valve.	Procedure Step 3 of 1-ECA-0.0 Att. 3
---	--	---

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

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

Notes/Comments

4	Notify the control room operator that the reactor coolant pump seals are isolated.	Procedure Step 4 of 1-ECA-0.0 Att. 3
---	--	---

SAT ☐ UNSAT ☐

<u>Standards</u>	Control room is informed that the unit 1 RCP seals are isolated
------------------	---

<u>Performance cues</u>	Respond as Control room operator that the unit 1 RCP seals are isolated. 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	Rotate the valve actuator's handwheel in the "closed" direction.	Procedure Step 2.1.a of 1-AR-F-D8
---	--	--------------------------------------

Critical Step	SAT [] UNSAT []
----------------------	----------------------

<u>NOTE TO THE EVALUATOR</u>	Latching instructions are located on placard attached to wall. May be used as a reference.
------------------------------	--

<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
------------------	---

Notes/Comments

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

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

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

Notes/Comments

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

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

Notes/Comments

4	Rotate the valve actuator's handwheel counterclockwise until the valve stem is fully up, then back off 1/4 turn.	Procedure Step 2.1.d of 1-AR-F-D8
---	--	--------------------------------------

Critical Step	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>Performance Cue(s)</u>	Steam flow is indicated by rotation of the pump shaft
---------------------------	---

<u>Simulation Cue(s)</u>	Steam flow is indicated by rotation of the pump shaft
--------------------------	---

Notes/Comments

5	Verify that 1-MS-TV-115 is fully latched (open) and that the tappet is fully down.	Procedure Step 2.1.e&f of 1-AR-F-D8
---	--	--

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

<u>Standards</u>	1-MS-TV-115 is latched and the tappet is down
------------------	---

Notes/Comments

END OF EVALUATION

STOP TIME _____

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

None

Facility: <u>North Anna Set B</u>		Date of Examination: <u>6/21/2010</u>
Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test No.: <u>1</u>
Control Room Systems® (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title (KA)	Type Code*	Safety Function
a.) 001 / Respond to a misaligned control rod (1-AP-1.3). (A1.02)	A, E, M, P, S	1
b.) 055 / Manually align condenser air ejector discharge to containment (1-E-3, SG Monitoring Prog.). (A4.01)	D, E, L, S	4 (Sec)
c.) 003 / Respond to a loss of reactor coolant pump seal cooling (1-AP-33.2). (AA1.22)	A, E, M, S	4 (Pri)
d.) 026 / Configure emergency bus loads to prevent emergency diesel overload (0-AP-10). (A2.05)	D, E, S	6
e.) 004 / Charging flow control valve fails closed (1-AP-49). (A4.06)	A, D, E, S	2
f.) 073 / Respond to recirculation spray heat exchanger service water radiation monitor alarm (1/2-AP-5). (A4.01)	C, D, E, P	7
g.) 006 / Transfer the safety injection system to the cold leg recirculation mode (1-ES-1.3). (A4.06)	A, D, EN, S	3
h.) 022 / Reduce containment pressure to subatmospheric (1/2-FR-Z4). (A4.04)	C, A, D, EN	5
In-Plant Systems® (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i.) 004 / Align a charging flowpath locally. (A2.07)	D, R	2
j.) 055 / Prepare the station blackout diesel generator for loading following an automatic start (0-OP-6.4). (EA2.03)	D, E, L	6
k.) 061 / Align both motor driven auxiliary feedwater pumps to feed the steam generator by way of the motor operated valve header (1-AP-22.1). (A2.04)	D, E, L	4 (Sec)
@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.		
* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path	4-6 / 4-6 / 2-3	
(C)ontrol room		
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$	
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$	
(EN)gineered safety feature	- / - / ≥ 1 (control room system)	
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$	
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$	
(P)revious 2 exams (similar topic)	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)	
(R)CA	$\geq 1 / \geq 1 / \geq 1$	
(S)imulator		

Facility: <u>North Anna Set B</u>		Date of Examination: <u>6/21/2010</u>
Exam Level: RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test No.: <u>1</u>
Control Room Systems® (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title (KA)	Type Code*	Safety Function
a.) 001 / Respond to a misaligned control rod (1-AP-1.3). (A1.02)	A, E, M, P, S	1
b.) 055 / Manually align condenser air ejector discharge to containment (1-E-3, SG Monitoring Prog.). (A4.01)	D, E, L, S	4 (Sec)
c.) 003 / Respond to a loss of reactor coolant pump seal cooling (1-AP-33.2). (AA1.22)	A, E, M, S	4 (Pri)
d.) NOT USED FOR SRO-I		
e.) 004 / Charging flow control valve fails closed (1-AP-49). (A4.06)	A, D, E, S	2
f.) 073 / Respond to recirculation spray heat exchanger service water radiation monitor alarm (1/2-AP-5). (A4.01)	C, D, E, P	7
g.) 006 / Transfer the safety injection system to the cold leg recirculation mode (1-ES-1.3). (A4.06)	A, D, EN, S	3
h.) 022 / Reduce containment pressure to subatmospheric (1/2-FR-Z4). (A4.04)	C, A, D, EN	5
In-Plant Systems® (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i.) 004 / Align a charging flowpath locally. (A2.07)	D, R	2
j.) 055 / Prepare the station blackout diesel generator for loading following an automatic start (0-OP-6.4). (EA2.03)	D, E, L	6
k.) 061 / Align both motor driven auxiliary feedwater pumps to feed the steam generator by way of the motor operated valve header (1-AP-22.1). (A2.04)	D, E, L	4 (Sec)
@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.		
* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path	4-6 / 4-6 / 2-3	
(C)ontrol room		
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$	
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$	
(EN)gineered safety feature	- / - / ≥ 1 (control room system)	
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$	
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$	
(P)revious 2 exams (similar topic)	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)	
(R)CA	$\geq 1 / \geq 1 / \geq 1$	
(S)imulator		

Facility: <u>North Anna Set B</u>		Date of Examination: <u>6/21/2010</u>
Exam Level : RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>		Operating Test No.: <u>1</u>
Control Room Systems [®] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title (KA)	Type Code*	Safety Function
a.) NOT USED FOR SRO-U		
b.) NOT USED FOR SRO-U		
c.) 003 / Respond to a loss of reactor coolant pump seal cooling (1-AP-33.2). (AA1.22)	A, E, M, S	4 (Pri)
d.) NOT USED FOR SRO-U		
e.) 004 / Charging flow control valve fails closed (1-AP-49). (A4.06)	A, D, E, S	2
f.) NOT USED FOR SRO-U		
g.) 006 / Transfer the safety injection system to the cold leg recirculation mode (1-ES-1.3). (A4.06)	A, D, EN, S	3
h.) NOT USED FOR SRO-U		
In-Plant Systems [®] (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i.) 004 / Align a charging flowpath locally. (A2.07)	D, R	2
j.) 055 / Prepare the station blackout diesel generator for loading following an automatic start (0-OP-6.4), (EA2.03)	D, E, L	6
k.) NOT USED FOR SRO-U		
@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.		
* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (EN)gineered safety feature (L)ow-Power / Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (similar topic) (R)CA (S)imulator	4-6 / 4-6 / 2-3 $\leq 9 / \leq 8 / \leq 4$ $\geq 1 / \geq 1 / \geq 1$ - / - / ≥ 1 (control room system) $\geq 1 / \geq 1 / \geq 1$ $\geq 2 / \geq 2 / \geq 1$ $\leq 3 / \leq 3 / \leq 2$ (randomly selected) $\geq 1 / \geq 1 / \geq 1$	

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

OPERATOR PROGRAM

INITIAL CONDITIONS

Unit down power was in progress. Ramp was held at 75% 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 completing the "Realigning Control Rod--Rod High" attachment

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 complete the "Realigning Control Rod--Rod High" attachment in 1-AP-1.3. 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 = 12 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

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PREREQUISITES

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

INITIAL CONDITIONS

Unit down power was in progress. Ramp was held at 75% 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 completing the "Realigning Control Rod--Rod High" attachment

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 complete the "Realigning Control Rod--Rod High" attachment in 1-AP-1.3. Maximum rod insertion 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 the point of completing the "Realigning Control Rod--Rod High" attachment.

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).
------------------	--

<u>Simulation Cue(s)</u>	Control bank D group step counters are both reading 195 steps.
--------------------------	--

Notes/Comments

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

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

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

<u>Standards</u>	Operator records the number of steps that the rod is misaligned (H-14, 10).
------------------	---

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

<u>Standards</u>	Rod control selector switch is selected to CONTROL BANK D position
------------------	--

Notes/Comments

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

<u>Standards</u>	UP button is depressed and control bank D group 1 step counter indicates 205 steps.
------------------	---

Notes/Comments

7	Locally record the affected bank pulse-to-analog converter reading.	Procedure Step 7 of 1-AP-1.3 Att.4
---	---	---------------------------------------

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

<u>Standards</u>	Operator requests that extra operator report the affected bank pulse to analog converter reading.
------------------	---

<u>Simulation Cue(s)</u>	Extra operator reports Control bank D pulse-to-analog converter reading is 195.
--------------------------	---

Notes/Comments

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>Simulation Cue(s)</u>	Extra operator reports Pulse-To-Analog converter has been reset to 205 steps for Control Bank D.
--------------------------	--

Notes/Comments

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

<u>Standards</u>	All lift coil disconnect switches (7 total) for control bank D are open except for rod H-14
------------------	---

<u>Simulation Cue(s)</u>	The 7 disconnect switches (except for rod H-14) for control bank D are in the "UP" (disconnect) position.
--------------------------	---

Notes/Comments

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.
---------------------------	--

<u>Simulation 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.
------------------	--

<u>Simulation Cue(s)</u>	WHEN rod is inserted Tave dropped by .1 °F during rod movement.
--------------------------	---

Notes/Comments

12	Manually insert the affected control rod.	Procedure Step 12 of 1-AP-1.3 Att.4
----	---	--

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

<u>Standards</u>	Control rod H-14 is inserted to realign it with the rest of the bank.
------------------	---

<u>Simulation Cue(s)</u>	Control rod H-14 is moving in as seen by IRPI/PCS indication.
--------------------------	---

Notes/Comments

13	Manually insert the affected control rod two steps below the affected bank position. (alternate path step – rod continues to move uncontrolled when In/Hold/Out switch is released.)	Procedure Step 13 of 1-AP-1.3 Att.4
----	--	--

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

<u>Standards</u>	Operator begins inserting Control rod H-14 to 2 steps below the affected bank position (193 steps).
------------------	---

<u>Simulation Cue(s)</u>	When the In/Hold/Out switch is released, continuous inward rod motion is observed.
--------------------------	--

Notes/Comments
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.

12	Perform immediate operator actions of 1-AP-1.1 from memory. (alternate path step, 1-AP-1.1 Step 2 RNO)	Procedure Step 1&2 of 1-AP-1.1
----	---	-----------------------------------

Critical Step	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.
------------------	---

<u>Simulation Cue(s)</u>	When the Control Rod Bank Selector Switch is placed in MANUAL, continuous inward rod motion is observed.
--------------------------	---

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>	JPM is complete once operator states the E-0 immediate operator actions are 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

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) .le. 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.

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
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

R726

READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE

Instructions for Simulator JPMs

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Instructions for In-Plant JPMs

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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.

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 signed off through resetting both trains of safety injection.

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
---	--	-----------------------------

Critical Step	SAT [] UNSAT []
----------------------	---------------------

<u>Standards</u>	Instrument fuses are removed from the condenser air ejector radiation monitor.
------------------	--

Notes/Comments

2	Reset phase "A" isolation.	Procedure Step 9.b of 1-E-3
---	----------------------------	--------------------------------

Critical Step	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
---	--	--------------------------------

Critical Step	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"> • 1-SV-TV-102-1 is verified OPEN • 1-SV-TV-103 is verified OPEN • 1-SV-TV- 102-2 is verified CLOSED
------------------	---

<u>Simulation Cue(s)</u>	1-SV-TV-102-1 is OPEN.
--------------------------	------------------------

<u>Simulation Cue(s)</u>	1-SV-TV-103 is OPEN.
--------------------------	----------------------

<u>Simulation Cue(s)</u>	1-SV-TV- 102-2 is CLOSED.
--------------------------	---------------------------

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

<u>Standards</u>	OPEN push-buttons for the auxiliary steam supply valves to the condenser air ejectors, 1-AS-FCV-100A and 100B, are momentarily depressed.
------------------	---

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 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, and "A" thermal barrier TV verified closed.

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 = 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

R724

READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE

Instructions for Simulator JPMs

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Instructions for In-Plant JPMs

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PREREQUISITES

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

INITIAL CONDITIONS

Unit 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 _____

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.
------------------	---

<u>Simulation Cue(s)</u>	All reactor coolant pumps are currently running.
--------------------------	--

Notes/Comments

2	Trip the reactor.	Procedure Step 1 RNO a of 1-AP-33.2 <u>RNO</u>
---	-------------------	--

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

<u>Standards</u>	Reactor trip switches on benchboard 1-1 and/or 1-2 momentarily placed in the TRIP position
------------------	--

<u>Simulation Cue(s)</u>	Reactor trip breakers have green lights LIT and red lights NOT lit.
--------------------------	---

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 Modified element, step 2 of 1-E-0 has the operator manually close Reheater FCVs when normal reset pushbutton fails.	Procedure Step 2 of 1-E-0
---	---	------------------------------

<u>Standards</u>	Operator verifies turbine stop valves closed, manually closes Reheater FCVs when RESET pushbutton fails, 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"> Checks low head pumps running- NO. Any first out annunciator lit – NO.
------------------	---

<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.
---------------------------	---

<u>Simulation 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
---	--	--

Critical Step	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.
------------------	--

<u>Simulation Cue(s)</u>	Rector coolant pump 1A indicates stopped.
--------------------------	---

Notes/Comments

8	Close the affected reactor coolant pump's spray valve.	Procedure Step 1.RNO c of 1-AP-33.2
---	--	--

Critical Step	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. (alternate path step – valve open and cannot be closed)	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.
------------------	--

<u>Simulation Cue(s)</u>	Reactor coolant pump seal water return valve, 1-CH-MOV-1381, is open.
--------------------------	---

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
----	--	--

Critical Step	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.
------------------	---

<u>Simulation Cue(s)</u>	Reactor coolant pump seal water return valve, 1-CH-MOV-1380, is closed.
--------------------------	--

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.
------------------	--

<u>Simulation Cue(s)</u>	1A reactor coolant pump's seal injection isolation valve, 1-CH-318, is closed.
--------------------------	---

Notes/Comments

12	Close the affected reactor coolant pump's thermal barrier trip valves.	Procedure Step 2.c of 1-AP-33.2
----	--	------------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator verifies that 1-CC-TV-116A, 1A RCP thermal barrier CC return valve, is closed.
------------------	---

<u>Simulation Cue(s)</u>	1A RCP thermal barrier CC return valve, 1-CC-TV-116, is closed.
--------------------------	---

Notes/Comments

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.
------------------	---

<u>Simulation Cue(s)</u>	The Component Cooling Water System is in service.
--------------------------	---

Notes/Comments

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.
---------------------------	---

<u>Simulation Cue(s)</u>	Two reactor coolant pumps are in operation.
--------------------------	---

<u>Simulation 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.

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 the "Unit 1 EDG Load Configuration to Prevent Overloading" attachment in 0-AP-10.

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

Correct equipment was started or stopped 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 = 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

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 that operation is satisfactory as needed.

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 N/A
------------------	---

Notes/Comments

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 ☐

<u>Standards</u>	Operator may state that he would ask unit-2 OATC to stop 2-SW-P-1A; after being cued, 2-SW-P-1A is momentarily placed in STOP.
------------------	--

<u>Performance Cue(s)</u>	The unit supervisor requests that you 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 ☐

<u>Standards</u>	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 []

Standards	Condition is <u>NOT</u> met and operator marks step N/A
-----------	---

Notes/Comments

6	Start charging pump 1-CH-P-1B.	Procedure Step 2.c.3 of 0-AP-10, Att. 21
---	--------------------------------	--

Critical Step SAT [] UNSAT []

Standards	Control switch for 1-CH-P-1B is momentarily placed in START
-----------	---

Notes/Comments
annunciator C-A7 will alarm (expected) as a result of this action. IF mentioned by operator, as SRO acknowledge receipt of alarm.

7	Stop charging pump 1-CH-P-1A.	Procedure Step 2.c.4 of 0-AP-10, Att. 21
---	-------------------------------	--

SAT ☐ UNSAT ☐

<u>Standards</u>	Control switch for 1-CH-P-1A is momentarily placed in STOP
------------------	--

<u>Performance Cue(s)</u>	If asked, then as SRO, direct the operator to place 1-CH-P-1A in auto-after-stop (stop pump and place in standby)
---------------------------	---

Notes/Comments

8	Clear the Lockout Alarm on 1-CH-P-1C.	Procedure Step 2.c.5 of 0-AP-10, Att. 21
---	---------------------------------------	--

SAT ☐ UNSAT ☐

<u>Standards</u>	Lockout Alarm is reset.
------------------	-------------------------

Notes/Comments

9	Determine the 1J emergency diesel generator load limit.	Procedure Step 2.d of 0-AP-10, Att. 21
---	---	--

SAT ☐ UNSAT ☐

<u>Standards</u>	Load limit is determined as follows:	
	Running Equip.	KW
	1-CC-P-1B	311
	1-HV-F-37D	29
	1-HV-F-37E	29
	Total	369 + 1500 = 1869 KW

Notes/Comments

10	Reduce diesel load to \leq the calculated limit.	Procedure Step 2.e of 0-AP-10, Att. 21
----	--	--

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator checks load on 1J diesel and determines it is \leq 1869 KW.
------------------	--

Notes/Comments

11	Make appropriate tech spec entries.	Procedure Step 2.f of 0-AP-10, Att. 21
----	-------------------------------------	---

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator advises SRO of procedure step to address tech specs.
------------------	---

<u>Performance Cue(s)</u>	SRO Acknowledges TS 3.8.1 requirements.
---------------------------	---

Notes/Comments

12	When off-site power has been restored, return the service water and charging pump alignment to normal, as directed by the shift manager.	Procedure Step 3 of 0-AP-10, Att. 21
----	--	---

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator advises SRO of step 3 requirements to restore systems when offsite power is restored.
------------------	--

<u>Performance Cue(s)</u>	As SRO acknowledge step 3 waiting on offsite power restoration. This completes the JPM.
---------------------------	---

Notes/Comments
Since no other actions can be done at this time operator may inform SRO that he has completed the task.

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, "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.

INITIATING CUE

You are requested to establish 40 gpm charging flow from the auxiliary shutdown panel using 1-AP-20, Operation from the Auxiliary Shutdown panel, Step 11 ONLY.

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.

Note to evaluator: a second cue sheet is provided to the applicant with the following cue once the operator reaches 1-AP-49, Step 16.c RNO.

You are requested to establish 40 gpm charging flow from the auxiliary shutdown panel using 1-AP-20, Operation from the Auxiliary Shutdown panel, Step 11 ONLY.

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

AP-20 and AP-49

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>Simulation Cue(s)</u>	Charging discharge header pressure and charging pump motor amps are both stable, charging flow is zero.
--------------------------	---

Notes/Comments

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.
------------------	--

<u>Simulation Cue(s)</u>	No charging pumps have been started or stopped in the past several weeks.
--------------------------	---

Notes/Comments

3	Isolate letdown by closing the letdown orifice isolation valves.	Procedure Step 3 RNO a(1) of 1-AP-49
---	--	---

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

<u>Standards</u>	1-CH-HCV-1200B control switch is placed in CLOSE.
------------------	---

<u>Simulation Cue(s)</u>	1-CH-HCV-1200A, 1200B, and 1200C red lights are NOT lit and green lights are lit.
--------------------------	---

Notes/Comments

4	Isolate letdown by closing the letdown isolation valves.	Procedure Step 3 RNO a (2) of 1-AP-49
---	--	--

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

<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.
------------------	---

<u>Simulation Cue(s)</u>	LCV-1460A and 1460B red lights are NOT lit and green lights are lit.
--------------------------	--

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%.
------------------	---

<u>Simulation Cue(s)</u>	VCT level is 40%.
--------------------------	-------------------

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 and 1115E) are verified open
------------------	--

<u>Simulation Cue(s)</u>	1-CH-MOV-1115C and 1115E red lights are lit and green lights are NOT lit
--------------------------	--

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
------------------	---

<u>Simulation Cue(s)</u>	VCT pressure is 35#
--------------------------	---------------------

Notes/Comments

8	Verify charging pump suction motor-operated valves are open.	Procedure Step 15 of 1-AP-49
---	--	---------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Charging pump suction MOVs (1-CH-MOV-1267A, 1267B, 1269A, 1269B, 1270A and 1270B) are verified open
------------------	---

<u>Simulation Cue(s)</u>	1-CH-MOV-1267A, 1267B, 1269A, 1269B, 1270A and 1270B red lights are lit and green lights are NOT lit
--------------------------	--

Notes/Comments

9	Check charging pump discharge motor-operated valves open.	Procedure Step 16.a of 1-AP-49
---	---	-----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Charging pump discharge MOVs (1-CH-MOV-1286A, 1287A, 1286B, 1287B, 1286C and 1287C) are verified open
------------------	---

<u>Simulation Cue(s)</u>	1-CH-MOV-1286A, 1287A, 1286B, 1287B, 1286C and 1287C red lights are lit and green lights are NOT lit
--------------------------	--

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 and 1289B) are verified open
------------------	---

<u>Simulation Cue(s)</u>	1-CH-MOV-1289A and 1289B red lights are lit and green lights are NOT lit
--------------------------	--

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
------------------	--

<u>Simulation Cue(s)</u>	1-CH-FCV-1122 controller demand indicates zero
--------------------------	--

Notes/Comments

12	Open 1-CH-FCV-1122.	Procedure Step 16.c RNO c bullet 1 of 1-AP-49
----	---------------------	---

SAT ☐ UNSAT ☐

<u>Standards</u>	Tries to place 1-CH-FCV-1122 in manual and attempts to open
------------------	---

<u>Simulation Cue(s)</u>	1-CH-FCV-1122 controller demand indicates zero
--------------------------	--

Notes/Comments

13	Locally throttle 1-CH-289 or use 1-AP-20 to shift 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
----	---	--

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

Note: provide second cue sheet to applicant at this time. IF needed tell operator that for the purposes of this task we will use the auxiliary shutdown panel in the Simulator.

<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>	The unit SRO directs you to establish 40 gpm charging flow from the auxiliary shutdown panel using 1-AP-20, step 11 ONLY If asked: Assume the other unit-1 operator is monitoring the board
---------------------------	--

<u>Simulation Cue(s)</u>	The unit SRO directs you to establish 40 gpm charging flow from the auxiliary shutdown panel using 1-AP-20, step 11 ONLY If asked: Assume the other unit-1 operator is monitoring the board
--------------------------	--

<u>Simulation Cue(s)</u>	40 gpm charging flow is now indicated
--------------------------	---------------------------------------

Notes/Comments

14	Monitor pressurizer level - satisfactory.	Procedure Step 1-Ap-20 step 11.b
----	---	-------------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator reports to SRO that desired flow has been established and/or states that the task is complete
------------------	--

<u>Performance</u> <u>Cue(s)</u>	SRO acknowledges required flow is established. This completes the JPM.
-------------------------------------	---

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.

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.

Control room annunciator 1K-D2, RAD MONITOR SYSTEM HI RAD LEVEL is illuminated.

Control room annunciator K-D4, RAD MONITOR SYSTEM HI-HI RAD LEVEL is illuminated.

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.

02/25/08

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.

Control room annunciator 1K-D2, RAD MONITOR SYSTEM HI RAD LEVEL is illuminated.

Control room annunciator K-D4, RAD MONITOR SYSTEM HI-HI RAD LEVEL is illuminated.

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.

1	Check 1-RM-SW-126 to determine if the alarm is the result of an obvious radiation monitor malfunction.	Page 1 of 4
----------	--	----------------

	SAT [] UNSAT []
--	-----------------

<u>Standards</u>	This Step marked N/A. May Check drawer light indication, meter reading not pegged, trend on recorder, etc. to confirm Radiation Monitor is NOT failed.
------------------	--

<u>Evaluator's Note</u>	Cue may not be necessary; Initial Conditions of the JPM provide information supporting that the monitor is functioning properly, cue is only necessary if candidate re-checks indication to confirm information provided in the Initial Conditions.
-------------------------	---

<u>Simulation Cues</u>	WHEN indications are described by the operator, (drawer light indication, meter reading not pegged, trend on recorder, etc.), THEN confirm the operators observations that the Radiation Monitor is NOT failed.
------------------------	---

Notes/Comments

2a	Secure Service Water Reservoir High Volume Blowdown, if in service.	Page 2 of 4
-----------	---	----------------

SAT ☐ UNSAT ☐

<u>Standards</u>	This Step marked N/A. Operator determines Service Water Reservoir High Volume Blowdown is NOT in service as provided in the Initial Conditions.
------------------	---

Notes/Comments	No cue is needed since information is provided in Initial Conditions.
----------------	---

2b	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.
------------------	--

<u>Simulation Cues</u>	Health Physics reports 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.
------------------------	---

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

2c	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>Simulation Cues</u>	Inform the operator that Station Management directs 1-RS-E-1C, C Recirc Spray Heat Exchanger, be isolated.
------------------------	--

Notes/Comments

3	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>Simulation Cues</u>	Inform the operator that the SRO will perform this action.
------------------------	--

Notes/Comments

4a	Reset both trains of CDA.	Page 3 of 4
-----------	---------------------------	----------------

Critical Step	SAT [] UNSAT []
----------------------	---------------------

<u>Standards</u>	Both SPRAY ACTUATION RESET switches are placed in the RESET position.
------------------	---

<u>Simulation Cues</u>	*IF the operator identifies the expected response (1K-H6, CDA INITIATED annunciator CLEAR), THEN inform him that 1K-H6 appears as they see it now.
------------------------	--

Notes/Comments	*Checking of annunciator status following switch manipulation is not critical; Cue information is only provided in the event the operator states that he would expect the subject annunciator to clear.
----------------	---

4b	To isolate 1-RS-E-1A.	Page 3 of 4
-----------	-----------------------	----------------

SAT [] UNSAT []

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

Notes/Comments	No cue is needed since information is provided in Initial Conditions.
----------------	---

4c	To isolate 1-RS-E-1B.	Page 3 of 4
-----------	-----------------------	----------------

SAT [] UNSAT []

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

Notes/Comments No cue is needed since information is provided in Initial Conditions.

4d1	To isolate 1-RS-E-1C, do the following: 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
------------	--	----------------

Critical Step 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.
------------------	---

<u>Simulation Cues</u>	<p>Safeguards operator has placed the key-lock switches for 1-SW-MOV-103C and 1-SW-MOV-104C in the DEFEAT position.</p> <p>*IF identified by the operator, THEN confirm receipt of the following annunciators:</p> <ul style="list-style-type: none"> 1K-E3, SER WTR SYS LOGIC CABS UNITS 1 AND 2 DOOR OPEN 1J-F8, UNIT 1 SW KEY LOCK SWITCH IN DEFEAT
------------------------	--

Notes/Comments * Identifying expected annunciators is not critical; Cue information is only provided in the event the operator states that he would expect the subject annunciators.

4d2	Stop 1-RS-P-2B.	Page 3 of 4
------------	-----------------	----------------

Critical Step	SAT [] UNSAT []
----------------------	----------------------

<u>Standards</u>	Control switch for 1-RS-P-2B is momentarily placed in STOP.
------------------	---

<u>Simulation Cues</u>	<p>Operator will expect pump to be running (RED light LIT, GREEN light NOT LIT, normal amperage indication) based on initial conditions; IF operator indicates he is checking light indication to determine pump status, THEN confirm RED light LIT, GREEN light NOT LIT, when controls for 1-RS-P-2B are identified.</p> <p>WHEN the operator identifies the expected change in pump status following the simulated control switch manipulation, THEN inform the operator that light indication and amperage meter reading for the pump are as they see them now.</p>
------------------------	--

Notes/Comments

4d3	Stop 1-SW-P-7 (sample pump).	Page 3 of 4
------------	------------------------------	----------------

Critical Step	SAT [] UNSAT []
----------------------	----------------------

<u>Standards</u>	Control switch for 1-SW-P-7 taken to STOP position.
------------------	---

Notes/Comments	There are no light indications for the sample pump.
----------------	---

4d4	Close 1-SW-MOV-103C.	Page 3 of 4
------------	----------------------	----------------

Critical Step	SAT [] UNSAT []
----------------------	----------------------

<u>Standards</u>	CLOSE pushbutton for recirculation spray heat exchanger isolation valve 1-SW-MOV-103C is depressed.
------------------	---

<u>Simulation Cues</u>	<p>Operator will expect valve to be OPEN (RED light LIT, GREEN light NOT LIT) based on initial conditions; IF operator indicates he is checking light indication to determine valve status, THEN confirm RED light LIT, GREEN light NOT LIT, when pushbutton for 1-SW-MOV-103C is identified.</p> <p>WHEN the operator identifies the expected change in valve status following the simulated push-button manipulation, THEN inform the operator that indication lights for the valve is as they see them now.</p>
------------------------	--

Notes/Comments

4d5	Close 1-SW-MOV-104C.	Page 3 of 4
------------	----------------------	----------------

Critical Step	SAT [] UNSAT []
----------------------	-------------------

<u>Standards</u>	CLOSE pushbutton for recirculation spray heat exchanger isolation valve 1-SW-MOV-104C is depressed.
------------------	---

<u>Simulation Cues</u>	<p>Operator will expect valves to be OPEN (RED light LIT, GREEN light NOT LIT) based on initial conditions; IF operator indicates he is checking light indication to determine valve status, THEN confirm RED light LIT, GREEN light NOT LIT, when pushbuttons for 1-SW-MOV-104C is identified.</p> <p>WHEN the operator identifies the expected change in valve status following the simulated push-button manipulation, THEN inform the operator that indication light for the valve is as they see them now.</p>
------------------------	---

Notes/Comments

4e	To isolate 1-RS-E-1D.	Page 4 of 4
-----------	-----------------------	----------------

SAT [] UNSAT []

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

Notes/Comments	No cue is needed since information is provided in Initial Conditions.
----------------	---

5	Submit a Work Request to initiate repairs.	Page 4 of 4
----------	--	----------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator identifies the need to generate a Work Request.
------------------	--

<u>Simulation Cues</u>	Inform the operator that the SRO will perform this action.
------------------------	--

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

6	Return to the procedure in effect.	Page 4 of 4
----------	------------------------------------	----------------

SAT ☐ UNSAT ☐

<u>Simulation Cues</u>	Inform the operator that another operator will complete the procedure.
------------------------	--

Notes/Comments	JPM concludes when operator identifies need to return to procedure step in effect or informs the SRO that he has completed Attachment 10.
----------------	---

>>>> 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

_____ NONE – JPM is intended to be done in the plant but may be done dead simulator by modifying cues from "as they see it now" to "confirm applicants description of status".

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

INITIAL CONDITIONS

1-E-1, "Loss of Reactor or Secondary Coolant," has directed the transition to 1-ES-1.3, "Transfer to Cold Leg Recirculation"

Refueling water storage tank level is less than 23%

INITIATING CUE

You are requested to transfer the Safety Injection System to the cold-leg recirculation mode in accordance with 1-ES-1.3, "Transfer to Cold Leg Recirculation."

Dominion
North Anna Power Station
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R197

TASK

Transfer the Safety Injection System to the cold-leg recirculation mode (1-ES-1.3).

TASK STANDARDS

SI system was manually aligned to the cold-leg recirc mode

K/A REFERENCE:

006-A4.06 (4.4/4.4)

ALTERNATE PATH:

Manual alignment of valves in response to a failure of automatic swap-over

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

R197

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

1-E-1, "Loss of Reactor or Secondary Coolant," has directed the transition to 1-ES-1.3, "Transfer to Cold Leg Recirculation"

Refueling water storage tank level is less than 23%

INITIATING CUE

You are requested to transfer the Safety Injection System to the cold-leg recirculation mode in accordance with 1-ES-1.3, "Transfer to Cold Leg Recirculation."

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	Reset both trains of safety injection.	Procedure Step 1 of 1-ES-1.3
---	--	---------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	P-H1 is verified NOT lit, and/or P-H2 is verified to be LIT.
------------------	--

<u>Simulation Cue(s)</u>	P-H1 is NOT lit, P-H2 is LIT.
--------------------------	-------------------------------

<u>Notes/Comments</u> Candidate may elect to turn reset switches; this is not required since SI would have been previously reset in 1-E-1, and by rules of usage if the condition is already satisfied then the specified action is not REQUIRED to be taken.
--

2	Verify that the recirculation spray pumps are aligned and running.	Procedure Step 2 of 1-ES-1.3
---	--	---------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Inside and outside recirc spray pumps are verified to be aligned and running.
------------------	---

<u>Simulation Cue(s)</u>	1-RS-P-1A and 1-RS-P-2A have green lights LIT and red lights NOT lit 1-RS-P-1B and 1-RS-P-2B have red lights LIT and green lights NOT lit Recirc spray MOVs 155A(B) and 156A(B) all have red lights LIT and green lights NOT lit.
--------------------------	---

Notes/Comments

3	Verify that two service water pumps are running.	Procedure Step 3.a of 1-ES-1.3
---	--	-----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Verifies that at least two service water pumps are running with adequate amps. (all 4 are running)
------------------	--

<u>Simulation Cue(s)</u>	1-SW-P-1A & 1B, and 2-SW-P-1A & 1B have red lights LIT and green lights NOT lit, amps are normal.
--------------------------	---

Notes/Comments

4	Verify that the service water supply valves to the component cooling heat exchangers are closed.	Procedure Step 3.b of 1-ES-1.3
---	--	-----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	1-SW-MOV-108A and 108B are verified to be closed.
------------------	---

<u>Simulation Cue(s)</u>	1-SW-MOB-108A(B) have green lights LIT and red lights NOT lit.
--------------------------	--

Notes/Comments

5	Verify that the service water supply and return header recirculation spray heat exchanger isolation valves are open.	Procedure Step 3.c of 1-ES-1.3
---	--	-----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Service water supply & return header to RSHX valves are verified open.
------------------	--

<u>Simulation Cue(s)</u>	All valves have red lights LIT and green lights NOT lit.
--------------------------	--

Notes/Comments

6	Verify that the service water supply and return header recirculation spray heat exchanger isolation valves for running recirc spray pumps are open.	Procedure Step 3.d of 1-ES-1.3
---	---	-----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Service water supply & return header to RSHX valves for running spray pumps are verified open.
------------------	--

<u>Simulation Cue(s)</u>	All valves have red lights LIT and green lights NOT lit.
--------------------------	--

Notes/Comments

7	Verify that two charging pumps are running.	Procedure Step 4 of 1-ES-1.3
---	---	---------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	1-CH-P-1A and 1-CH-P-1B are verified to be running.
------------------	---

<u>Simulation Cue(s)</u>	1-CH-P-1A and 1-CH-P-1B have red lights LIT and green lights NOT lit Amps are normal on both pumps.
--------------------------	--

Notes/Comments

8	Verify that the low-head safety injection pumps are running.	Procedure Step 5 of 1-ES-1.3
---	--	---------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	1-SI-P-1A and 1B are verified to be running.
------------------	--

<u>Simulation Cue(s)</u>	1-SI-P-1A and 1B have red lights LIT and green lights NOT lit.
--------------------------	--

Notes/Comments

9	Close seal water injection isolation valve 1-CH-MOV-1370.	Procedure Step 6.a of 1-ES-1.3
---	---	-----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Control switch for 1-CH-MOV-1370 momentarily placed in close.
------------------	---

<u>Simulation Cue(s)</u>	After switch manipulation 1-CH-MOV-1370 has green light LIT and red light NOT lit.
--------------------------	--

Notes/Comments

10	Verify that the charging pump recirculation isolation valves are closed.	Procedure Step 6.b of 1-ES-1.3
----	--	-----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	1-CH-MOV-1275A, B, C are verified to be closed.
------------------	---

<u>Simulation Cue(s)</u>	1-CH-MOV-1275A, B, C have green lights LIT and red lights NOT lit.
--------------------------	--

<u>Notes/Comments</u> Valves closed previously by 1-E-0 (and/or 1-E-1)

11	Verify that the refueling water storage tank (RWST) level is less than 15%.	Procedure Step 7 of 1-ES-1.3
----	---	---------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	RWST level indication is checked.
------------------	-----------------------------------

<u>Performance Cue(s)</u>	If needed, assume RWST level is < 15%.
---------------------------	--

<u>Simulation Cue(s)</u>	RWST level is < 15%.
--------------------------	----------------------

<u>Notes/Comments</u>

12	Verify A Low Head SI valves are energized: <ul style="list-style-type: none"> 1-SI-MOV-1860A 1-SI-MOV-1862A 	Procedure Step 8.a of 1-ES-1.3
----	---	-----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	1-SI-MOV-1860A and 1-SI-MOV-1862A are verified to be energized (1860A green light lit, 1862A red light lit, indicates that the MOVs have power).
------------------	--

<u>Simulation Cue(s)</u>	1-SI-MOV-1860A and 1-SI-MOV-1862A are energized.
--------------------------	--

Notes/Comments

13	Verify B Low Head SI valves are energized: <ul style="list-style-type: none"> 1-SI-MOV-1860B 1-SI-MOV-1862B 	Procedure Step 8.b of 1-ES-1.3
----	---	-----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	1-SI-MOV-1860B and 1-SI-MOV-1862B are verified to be energized (1860B green light lit, 1862B red light lit, indicates that the MOVs have power).
------------------	--

<u>Simulation Cue(s)</u>	1-SI-MOV-1860B and 1-SI-MOV-1862B are energized.
--------------------------	--

Notes/Comments

14	Open the low-head safety injection pump discharge valves to charging pumps. (alternate path step)	Procedure Step 9.a.1 of 1-ES-1.3
----	--	-------------------------------------

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

<u>Standards</u>	OPEN push-buttons for 1-SI-MOV-1863A and 1863B are depressed.
------------------	---

<u>Simulation Cue(s)</u>	1-SI-1863A and 1863B have green lights LIT and red lights NOT lit. After OPEN buttons depressed: 1-SI-MOV-1863A and 1863B have red lights LIT and green lights NOT lit.
--------------------------	---

Notes/Comments

15	Verify that the low-head safety injection pump recirculation valves are closed.	Procedure Step 9.a.2 of 1-ES-1.3
----	---	-------------------------------------

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

<u>Standards</u>	At least one valve in each recirc flowpath is closed (1885A/C and 1885B/D).
------------------	---

<u>Simulation Cue(s)</u>	Low-head safety injection pump recirculation valves have red lights LIT and green lights NOT lit. After CLOSE buttons are depressed: 1-SI-MOV-1885A, B, C, D have green lights LIT and red lights NOT lit.
--------------------------	--

Notes/Comments

16	Open low-head safety injection pump suction valves from the containment sump. <ul style="list-style-type: none"> 1-SI-MOV-1860A 1-SI-MOV-1860B 	Procedure Step <u>9.a.3 of 1-ES-1.3</u>
----	--	--

Critical Step	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	OPEN pushbutton for 1-SI-MOV-1860A and 18602B are momentarily depressed.
------------------	--

<u>Simulation Cue(s)</u>	1-SI-MOV-1860A and 1860B have green lights LIT and red lights NOT lit. After OPEN buttons are depressed: 1-SI-MOV-1860A and 1860B have red lights LIT and green lights NOT lit.
--------------------------	---

Notes/Comments

17	Verify that the following low-head safety injection pump suction valves from the refueling water storage tank are fully closed. <ul style="list-style-type: none"> 1-SI-MOV-1862A 1-SI-MOV-1862B 	Procedure Step <u>9.a.4 of 1-ES-1.3</u>
----	--	--

SAT ☐ UNSAT ☐

<u>Standards</u>	1-SI-MOV-1862A and 1862B are verified to be closed.
------------------	---

<u>Simulation Cue(s)</u>	1-SI-MOV-1862A and 1-SI-MOV-1862B have green lights LIT and red lights NOT lit.
--------------------------	---

Notes/Comments

These valves are interlocked with the 860s and will close on interlock once the 860s open.

18	Close the following charging pump suction from refueling water storage tank isolation valves. <ul style="list-style-type: none"> 1-CH-MOV-1115B 1-CH-MOV-1115D 	Procedure Step <u>10.a of 1-ES-1.3</u>
----	--	---

Critical Step SAT ☐ UNSAT ☐

<u>Standards</u>	Control switches for 1-CH-MOV-1115B and 1-CH-MOV-1115D are momentarily placed in CLOSE.
------------------	---

<u>Simulation Cue(s)</u>	1-CH-MOV-1115B and 1115D have green lights LIT and red lights NOT lit.
--------------------------	--

Notes/Comments

19	Verify that continued flow of the charging pumps is indicated on 1-SI-FI-1943 and 1-SI-FI-1943-1.	Procedure Step 10.b of 1-ES-1.3
----	---	------------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator observes flow indicators 1-SI-FI-1943 and 1943-1 and confirms flow is indicated.
------------------	---

<u>Simulation Cue(s)</u>	Flow is indicated on 1-SI-FI-1943 and 1943-1 of 540 gpm.
--------------------------	--

Notes/Comments

18	Verify that the volume control tank level is greater than 12%.	Procedure Step 11 of 1-ES-1.3
----	--	----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	VCT level indication is checked to be greater than 12%.
------------------	---

<u>Simulation Cue(s)</u>	Volume control tank level is 30%.
--------------------------	-----------------------------------

Notes/Comments

19	Verify 1-E-0, Primary Plant Ventilation Alignment, completed.	Procedure Step 12 of 1-ES-1.3
----	---	----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator acknowledges that another operator will perform this step.
------------------	---

<u>Performance Cue(s)</u>	Acknowledge operator and inform them that another operator will complete 1-ES-1.3. This completes the JPM.
---------------------------	--

<u>Simulation Cue(s)</u>	Acknowledge operator and inform them that another operator will complete 1-ES-1.3. This completes the JPM.
--------------------------	--

Notes/Comments

END OF EVALUATION

STOP TIME _____

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

SIMULATOR SETUP

JOB PERFORMANCE MEASURE
R197

TASK

Transfer the Safety Injection System to the cold-leg recirculation mode (1-ES-1.3).

CHECKLIST

- _____ Recall IC #183
- _____ do simspray and check recorders

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

INITIAL CONDITIONS

Containment depressurization actuation has not been actuated.

Containment pressure is approximately 18 psia and increasing due to a small main steam piping break.

1-FR-Z.4 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.

Dominion
North Anna Power Station
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R765

TASK

Reduce containment pressure to subatmospheric (1-FR-Z.4).

TASK STANDARDS

Containment pressure is reduced to less than 13 psia.

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 18 psia and increasing due to a small main steam piping break

1-FR-Z.4 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.

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 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>	1-CC-TV-115A, 115B, and 115C are verified open.
------------------	---

<u>Simulation Cue(s)</u>	1-CC-TV-115A, 115B, and 115C are as you see them now.
--------------------------	---

<u>Notes/Comments</u>

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 valves 1-CC-TV-105A, 105B, 105C, 100A, 100B, and 100C are open.
------------------	---

<u>Simulation Cue(s)</u>	1-CC-TV-105A, 105B, 105C, 100A, 100B, and 100C are as you see them now.
--------------------------	---

Notes/Comments

3	Verify that the containment air recirculation fans are running: <ul style="list-style-type: none"> • 1-HV-F-1A • 1-HV-F-1B • 1-HV-F-1C 	Procedure Step 4.c of 1-FR-Z.4
---	---	-----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator verifies that air recirculation fans 1-HV-F-1A, 1-HV-F-1B, and 1-HV-F-1C are running
------------------	---

<u>Simulation Cue(s)</u>	Containment air recirculation fans are as you see them now (all three running)
--------------------------	--

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
------------------	---

<u>Simulation Cue(s)</u>	Mechanical chiller is in service RED light is as you see it now No alarms on the Mechanical chiller
--------------------------	---

Notes/Comments

5	Check that the control rod drive mechanism cooling fans are running.	Procedure Step 5 of 1-FR-Z.4
---	--	---------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator verifies three control rod drive mechanism cooling fans are running: <ul style="list-style-type: none"> • 1-HV-F-37A or 1-HV-F37D • 1-HV-F-37B or 1-HV-F37E • 1-HV-F-37C or 1-HV-F37F
------------------	---

<u>Simulation Cue(s)</u>	• control rod drive mechanism cooling fans are as you see them now (three running)
--------------------------	--

Notes/Comments

6	Check containment pressure stable or decreasing.	Procedure Step 6 of 1-FR-Z.4
---	--	---------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator checks containment pressure stable or decreasing.- YES, using the following indications: <ul style="list-style-type: none"> • 1-LM-PI-100A • 1-LM-PI-100B • 1-LM-PI-100C • 1-LM-PI-100D • 1-LM-PI-110B
------------------	---

<u>Simulation Cue(s)</u>	Containment pressure is stable at 18 psia
--------------------------	---

Notes/Comments

7	Check containment pressure. (alternate path step)	Procedure Step 7 of 1-FR-Z.4
---	--	---------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator check containment pressure and notes it is <u>NOT</u> less than 14.5 psia AND since pressure is NOT decreasing goes to step 9 per RNO.
------------------	---

<u>Simulation Cue(s)</u>	Containment pressure is stable at 18 psia
--------------------------	---

Notes/Comments

8	Check recirculation spray sump level.	Procedure Step 9 of 1-FR-Z.4
---	---------------------------------------	---------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator checks containment recirculation spray sump level using the following indications and notes it is greater than 4 ft 10 in.- YES <ul style="list-style-type: none"> • 1-RS-LI-151A • 1-RS-LI-151B
------------------	---

<u>Simulation Cue(s)</u>	Sump level is approximately 5 feet 6 inches.
--------------------------	--

Notes/Comments

8	Verify all CRDM fans are stopped. (alternate path step)	Procedure Step 10 of 1-FR-Z.4
---	--	----------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator checks all CRDM fans stopped – NO and goes to RNO.
------------------	---

<u>Simulation Cue(s)</u>	Confirm status change in running fans when operator identifies switch manipulations.
--------------------------	--

Notes/Comments

9	Stop all CRDM fans.	Procedure Step 10 of 1-FR-Z.4 RNO
---	---------------------	--------------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	If running, the operator places control switches for all CRDM fan control switches in OFF
------------------	---

<u>Simulation Cue(s)</u>	Tell operator CRDM fans are stopped after operator describes placing control switches in OFF.
--------------------------	---

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.
------------------	---

<u>Simulation Cue(s)</u>	Confirm indications that pump is in normal standby alignment as it is now. If asked as SRO confirm that pump is not in action statement status log or under maintenance (pump is available).
--------------------------	--

Notes/Comments

11	Align service water to 1-RS-E-1A.	Procedure Step 12.a of 1-FR-Z.4
----	-----------------------------------	------------------------------------

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

<u>Standards</u>	OPEN push-buttons for 1-SW-MOV-101A, 103A, 104A, and 105C are depressed
------------------	---

<u>Simulation Cue(s)</u>	Tell operator 1-SW-MOV-101A, 103A, 104A, and 105C indicate open after he/she describes depressing pushbuttons.
--------------------------	--

Notes/Comments

12	Start inside recirculation spray pump 1-RS-P-1A.	Procedure Step 12.b of 1-FR-Z.4
----	--	------------------------------------

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

<u>Standards</u>	Control switch for 1-RS-P-1A is momentarily placed in START
------------------	---

<u>Simulation Cue(s)</u>	Confirm indications as described by the operator (rotation light).
--------------------------	--

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
---------------------------	--

<u>Simulation 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).

NOTE: JPM is intended for use by simulating in the actual control room – there is no IC currently loaded for this task.

CHECKLIST

- _____ Recall IC #1 (100% power)
- _____ Place the simulator in RUN
- _____ Enter the malfunction for a main steam break such that a safety injection is received and containment pressure is 18 psia
- _____ Close 1-CC-TV-115A/B/C
- _____ Ensure that the sump level > 1 foot 4 inches
- _____ Place the simulator in FREEZE

**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 align charging flow through the boron injection tank locally in accordance with 0-FCA-1, attachment 15, step 6. After establishing BIT flow, isolate normal charging flow locally. Assume you have the following equipment:

- Radio and emergency lantern from the Appendix R locker
- Admin key
- Any required emergency dosimetry

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 align charging flow through the boron injection tank locally in accordance with 0-FCA-1, attachment 15, step 6. After establishing BIT flow, isolate normal charging flow locally. Assume you have the following equipment:

- Radio and emergency lantern from the Appendix R locker
- Admin key
- Any required emergency dosimetry

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

Emergency dosimeter

PERFORMANCE STEPS

START TIME _____

1	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 the unit-1 RO/SRO.	Procedure Step 6.b of 0-FCA-1 Att. 15
---	--	--

SAT ☐ UNSAT ☐

<u>Standards</u>	Unit-1 RO/SRO is contacted.
------------------	-----------------------------

<u>Simulation Cue(s)</u>	Unit-1 RO/SRO acknowledges the message.
--------------------------	---

Notes/Comments

3	Check closed at least one of the BIT outlet recirculation valves. (Alternate path step)	Procedure Step 6.c of 0-FCA-1 Att. 15
---	--	--

SAT ☐ UNSAT ☐

<u>Standards</u>	Both 1-SI-TV-1884A and 1-SI-1884B are checked.
------------------	--

<u>Simulation Cue(s)</u>	1-SI-TV-1884A and 1884B are open.
--------------------------	-----------------------------------

Notes/Comments

4	If at least one BIT outlet recirculation valve is not closed, then close either 1-SI-71 or 1-SI-74.	Procedure Step 6.c of 0-FCA-1 Att. 15
---	---	--

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

<u>Standards</u>	Either 1-SI-71 or 1-SI-74 is closed.
------------------	--------------------------------------

<u>Simulation Cue(s)</u>	After one of the valves has been closed inform the trainee that BIT recirculation flow indicates zero
--------------------------	---

Notes/Comments

5	Locally open one of the boron injection tank outlet valves.	Procedure Step 6.d of 0-FCA-1 Att. 15
---	---	--

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

<u>Standards</u>	Either 1-SI-MOV-1867C or 1-SI-MOV-1867D is opened
------------------	---

<u>Simulation Cue(s)</u>	1-SI-MOV-1867C (or 1-SI-MOV-1867D) stem indicator is now at the top red line
--------------------------	--

Notes/Comments

6	Establish charging flow through the BIT by locally throttling open one of the boron injection tank inlet isolation valves.	Procedure Step 6.e of 0-FCA-1 Att. 15
---	--	--

Critical Step	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	Either 1-SI-MOV-1867A or 1-SI-MOV-1867B is throttled open
------------------	---

<u>Simulation Cue(s)</u>	Flow noise is now heard through the pipe
--------------------------	--

<u>Simulation Cue(s)</u>	IF operator requests guidance from RO, then inform the operator that the RO reports PRZR level is adequate and no additional throttling is required at this time.
--------------------------	--

Notes/Comments

7	Request Unit 1 RO/SRO to close 1-CH-FCV-1122 OR Locally close 1-CH-287 <u>AND</u> 1-CH-289.	Procedure Step 6.f of 0-FCA-1 Att. 15
---	---	--

Critical Step	SAT [] UNSAT []
----------------------	-----------------

<u>Standards</u>	1-CH-287 is closed AND 1-CH-289 is verified closed.
------------------	---

<u>Simulation Cue(s)</u>	IF RO is requested to close 1-CH-FCV-1122, <u>THEN</u> RO reports 1-CH-FCV-1122 is failed open due to fire damage. 1-CH-287 and 289 are closed.
--------------------------	--

Notes/Comments

8	Maintain pressurizer level by adjusting the valve that was opened 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

Station blackout conditions exist

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 following an automatic emergency start 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

Station blackout conditions exist

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 following an automatic emergency start 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	Determine the SBO diesel status.	Procedure Step 5.1.3.a.1 of 0-OP-6.4
---	----------------------------------	---

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator determines station blackout diesel generator is running at 900 rpm.
------------------	--

<u>Simulation Cue(s)</u>	SBO diesel is running at 900 rpm.
--------------------------	-----------------------------------

Notes/Comments

2	Place the SBO diesel fuel oil transfer pump HAND/OFF/AUTO switch in the AUTO position.	Procedure Step 5.1.5 of 0-OP-6.4
---	--	----------------------------------

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

<u>Standards</u>	Station blackout diesel generator fuel oil transfer pump is placed in AUTO.
------------------	---

Notes/Comments

3	Verify proper circuit breaker alignment.	Procedure Step 5.1.6.a of 0-OP-6.4
---	--	------------------------------------

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

<u>Standards</u>	Operator checks the following breaker alignment: <ul style="list-style-type: none"> • 05M1 CLOSED • 05M5 CLOSED • 04M1-1 OPEN • 04M1-2 CLOSED
------------------	---

<u>Simulation Cue(s)</u>	<ul style="list-style-type: none"> • Breaker 05M1 has a RED status light • Breaker 05M5 has a RED status light • Breaker 04M1-1 has a GREEN status light • Breaker 04M1-2 has a RED status light
--------------------------	--

Notes/Comments

4	Match the breaker control switch flags to their position.	Procedure Step 5.1.6.c of 0-OP-6.4
---	---	---------------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	<ul style="list-style-type: none"> • 05M1 is red flagged • 05M5 is red flagged • 04M1-1 is green flagged • 04M1-2 is red flagged
------------------	--

Notes/Comments

5	Request the shift manager to determine which transfer bus will be supplied by the SBO diesel.	Procedure Step 5.1.8 of 0-OP-6.4
---	---	-------------------------------------

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

<u>Standards</u>	"F" is recorded in the blank.
------------------	-------------------------------

<u>Simulation Cue(s)</u>	IF needed cue that SRO directs that "F" transfer bus be aligned.
--------------------------	--

Notes/Comments
Direction to align to "F" transfer bus provided by initiating cue.

6	Ensure interlock defeat 43-15E3 is in NORMAL.	Procedure Step 5.1.9 of 0-OP-6.4
---	---	-------------------------------------

Critical Step	SAT [] UNSAT []
----------------------	-------------------

<u>Standards</u>	Operator checks switch and observes it is in NORMAL.
------------------	--

<u>Simulation Cue(s)</u>	The switch is as you see it now (in normal).
--------------------------	--

Notes/Comments

***** Note: operator will N/A steps 5.1.10 & 5.1.11 and proceed to this step *****

7	Ensure SBO diesel generator is not supplying "D" or "E" transfer busses.	Procedure Step 5.1.12.a-d of 0-OP-6.4
---	--	--

Critical Step	SAT [] UNSAT []
----------------------	-------------------

<u>Standards</u>	05L3, 05L2, 05M3, and 05L1 are verified to be open.
------------------	---

<u>Simulation Cue(s)</u>	<p>Give the following cues:</p> <ul style="list-style-type: none"> • 05L3 has green light LIT and red light NOT lit • 05L2 has green light LIT and red light NOT lit • 05M3 has green light LIT and red light NOT lit • 05L1 has green light LIT and red light NOT lit
--------------------------	--

Notes/Comments

8	Close 0-ACC-BKR-05M2, SBO diesel generator feed breaker to "F" transfer bus.	Procedure Step 5.1.12.e of 0-OP-6.4
---	--	-------------------------------------

Critical Step	SAT [] UNSAT []
----------------------	-------------------

<u>Standards</u>	Operator closes (simulates) breaker 0-ACC-BKR-05M2, Feed to Bus "F" Circuit Breaker, by turning its control switch clockwise.
------------------	---

<u>Simulation Cue(s)</u>	The control switch for breaker 05M2 is red-flagged with the red status light lit and the green status light extinguished.
--------------------------	---

Notes/Comments

9	Insert Synch Switch Key and turn synch switch for breaker 15F5 on.	Procedure Step 5.1.12.f of 0-OP-6.4
---	--	-------------------------------------

Critical Step	SAT [] UNSAT []
----------------------	-------------------

<u>Standards</u>	Operator places synch switch for breaker 0-ACC-BKR-15F5, SBO "F" Bus Tie Circuit Breaker in ON.
------------------	---

<u>Simulation Cue(s)</u>	Synch switch 1SS-15F5 is on.
--------------------------	------------------------------

Notes/Comments

10	Ensure 1H and 2J emergency busses are not being supplied by the "C" Reserve Station Service Transformer.	Procedure Step 5.1.12.g.1&2 of 0-OP- 6.4
----	--	--

SAT ☐ UNSAT ☐

<u>Standards</u>	<p>Operator calls the control room and requests the status of the following breakers.</p> <ul style="list-style-type: none"> • 1-EP-BKR-15F1, "C" RSS Transformer Normal Feed • 1-EP-BKR-15F3, 4160V Trans Bus 1F Feed to Emer Bus 1H • 1-EP-BKR-15F4, 4160V Trans Bus 1F Feed to Emer Bus 2J • 1-EE-BKR-15H11, 4160V Emer Bus 1H Normal Feed • 2-EE-BKR-25J11, 4160V Emer Bus 2J Normal Feed
------------------	--

<u>Simulation Cue(s)</u>	<ul style="list-style-type: none"> • Breaker 15F1 is OPEN • Breaker 15F3 is OPEN • Breaker 15F4 is OPEN • Breaker 15H11 is OPEN • Breaker 25J11 is OPEN
--------------------------	--

<u>Notes/Comments</u>

11	Load SBO diesel generator onto transfer bus "F".	Procedure Step 5.1.12.h of 0-OP-6.4
----	--	--

Critical Step	SAT [] UNSAT []
----------------------	---------------------

<u>Standards</u>	<ul style="list-style-type: none"> Operator closes (simulates) breaker 0-ACC-BKR-15F5 by turning the control switch in the clockwise direction.
------------------	--

<u>Simulation Cue(s)</u>	<ul style="list-style-type: none"> The control switch for breaker 0-ACC-BKR-15F5 is red-flagged with the red status light lit and the green status light extinguished.
--------------------------	---

Notes/Comments

12	Place Synch Switch Key in OFF.	Procedure Step 5.1.12.i of 0-OP-6.4
----	--------------------------------	--

SAT [] UNSAT []

<u>Standards</u>	Operator turns off synch switch 1SS-15F5.
------------------	---

<u>Simulation Cue(s)</u>	Synch switch 1SS-15F5 is OFF.
--------------------------	-------------------------------

Notes/Comments

13	Record the time when the station blackout diesel generator started.	Procedure Step 5.1.13 of 0-OP-6.4
----	---	--------------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator records time in the appropriate space.
------------------	---

Notes/Comments

14	Adjust SBO diesel generator output voltage.	Procedure Step 5.1.14 of 0-OP-6.4
----	---	--------------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator adjusts SBO diesel generator output voltage to between 4250 and 4350 volts.
------------------	--

<u>Simulation Cue(s)</u>	SBO diesel generator output voltage is 4315 volts.
--------------------------	--

Notes/Comments

15	Adjust SBO diesel generator output frequency.	Procedure Step 5.1.15 of 0-OP-6.4
----	---	--------------------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator adjusts SBO diesel generator frequency to between 59.5 and 60.5 hertz.
------------------	---

<u>Simulation Cue(s)</u>	SBO diesel generator output frequency is 60 hertz. 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 the applicable attachment to 1-AP-22.1.

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 the applicable attachment to 1-AP-22.1.

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

Administrative key

3	Locally unlock and open 1-FW-62.	Procedure Step 2 of 1-AP-22.1 Att. 3
---	----------------------------------	---

Critical Step	SAT [] UNSAT []
----------------------	----------------------

<u>Standards</u>	1-FW-MOV-100A outlet valve 1-FW-62 is unlocked and opened
------------------	---

<u>Simulation Cue(s)</u>	1-FW-62 stem is fully extended
--------------------------	--------------------------------

Notes/Comments

4	Locally unlock and open 1-FW-126.	Procedure Step 2 of 1-AP-22.1 Att. 3
---	-----------------------------------	---

Critical Step	SAT [] UNSAT []
----------------------	----------------------

<u>Standards</u>	1-FW-MOV-100C outlet valve 1-FW-126 is unlocked and opened
------------------	--

<u>Simulation Cue(s)</u>	1-FW-62 stem is fully extended
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Notes/Comments

5	Notify the control room operator that the attachment has been completed.	Procedure Step 3 of 1-AP-22.1 Att. 3
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SAT ☐ UNSAT ☐

<u>Standards</u>	Control room is informed that attachment is complete
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<u>Simulation Cue(s)</u>	Acknowledge as control room operator. This completes the JPM.
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Notes/Comments

END OF EVALUATION

STOP TIME _____

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

None