Final Submittal
(Blue Paper)

FINAL JPMS

1. ADMINISTRATIVE JPMs
2. IN-PLANT JPMs
3. SIMULATOR JPMs (CONTROL ROOM)

NORTH ANNA JUNE 2008 EXAM
05000338/2008301 & 05000339/2008301

Dominion
North Anna Power Station
ADMINISTRATIVE JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

Power reduction was in progress per 1-PT-34.3, Turbine valve Freedom Test when a dropped rod occurred.

The Unit has been stabilized at 85% power with Tavg and Tref matched.

Unit 1 PCS is unavailable.

All ex-core power-range channels are operable.

The Instrument Shop has obtained power range detector current readings.

A copy of 1-PT-22.4, Attachment 4, Unit 1 Power Range Calibration Data is available.

INITIATING CUE

You are requested to perform a Quadrant Power Tilt Ratio determination by hand calculation in accordance with 1-PT-23, Quadrant Power Tilt Ratio Determination.

Dominion
North Anna Power Station
ADMINISTRATIVE JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R709(M)

TASK

Determine the Quadrant Power Tilt Ratio by hand calculation (1-PT-23) and determine maximum allowed power level based on the calculation.

TASK STANDARDS

Maximum QPTR correctly calculated and maximum power level allowed by TS 3.2.4 correctly determined.

K/A REFERENCE:

G2.1.7 (4.4/4.7)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 24 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

ADMINISTRATIVE JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

R709

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

Power reduction was in progress per 1-PT-34.3, Turbine valve Freedom Test when a dropped rod occurred.

The Unit has been stabilized at 85% power with Tavg and Tref matched.

Unit 1 PCS is unavailable.

All ex-core power-range channels are operable.

The Instrument Shop has obtained power range detector current readings.

A copy of 1-PT-22.4, Attachment 4, Unit 1 Power Range Calibration Data is available.

INITIATING CUE

You are requested to perform a Quadrant Power Tilt Ratio determination by hand calculation in accordance with 1-PT-23, Quadrant Power Tilt Ratio Determination.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

Calculator

Copy of 1-PT-22.4, Attachment 4, Unit 1 Power Range Calibration Data.

Evaluator will need a copy of Technical Specifications and Bases for performance of elements 5 and 6 of this evaluation.

PERFORMANCE STEPS

START TIME _____

1	Record the expected 100% power current readings in attachment 2.	Procedure Step _____
		SAT [ ] UNSAT [ ]

Standards	Data correctly transcribed from the copy of 1-PT-22.4 provided.

Notes/Comments

2	Calculate the normalized detector currents and averages.	Procedure Step _____
		SAT [ ] UNSAT [ ]

Standards	Normalized detector currents and averages are calculated.

Notes/Comments

3	Calculate the quadrant power tilt ratios.	Procedure Step _____
	Critical Step	SAT [ ] UNSAT [ ]

Standards	Upper and lower quadrant power tilt ratios are calculated. → Individual QPTRs determined per the acceptance criteria of the attached answer key AND → Maximum QPTR determined to be 1.03738 acceptance criteria: 1.03638 to 1.03838 (+/- 0.001)

Notes/Comments

4	Record the value and location of the largest quadrant power tilt ratio.	Procedure Step _____
		SAT [ ] UNSAT [ ]

Standards	Value transcribed from previous step. Location recorded is N43L.

Notes/Comments	**The following elements take place one-on-one with the evaluator, after the candidate has completed the QPTR calculation in the classroom.**

EVALUATOR'S NOTE

IF QPTR calculations are correct, THEN continue the JPM, otherwise JPM should be terminated at this point.

5	Identifies QPTR exceeds maximum permissible value of 1.02.	Procedure Step _____
		SAT [ ] UNSAT [ ]

Evaluator's Note	Provide candidate with Technical Specifications and Bases for use in completing this element and element 6.

Demonstration Cues	Ask the applicant to identify whether the acceptance criteria of 1-PT-23 are met.

Standards	Technical Specification 3.2.4 is identified and QPTR determined to exceed the LCO 3.2.4 based on given conditions (thermal power of >50% RTP provided in the IC, so TS 3.2.4 Applicability is met).

Notes/Comments

6	Determine maximum allowable power level per TS 3.2.4.	Procedure Step _____

Critical Step	SAT [ ] UNSAT [ ]

Evaluator's Note	**IF** the candidate calculated a QPTR of ≤ 1.02 and determined that the LCO was met in element 5, **THEN** end the evaluation at this point. **IF** the candidate calculated a QPTR of ≥ 1.02 and determined that the LCO was NOT met in element 5, **THEN** provide the following cue.

Demonstration Cues	Ask the applicant to calculate the maximum power level allowed by Technical Specification 3.2.4, based on the QPTR. .

Standards	Maximum power level determined to be 88.79% (from TS 3.2.4 power must be reduced ≥ 3% from RTP for each 1% of QPTR > 1.00. Therefore 3.738% X 3 = 11.214). For conservatism power may be rounded down to 88%; based on the acceptance criteria of element 3 the upper range is 89.086% (rounding to 89.1 is acceptable).

Notes/Comments

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

QPTR Calculation - Key

DETECTOR	EXPECTED	ACTUAL	NORMALIZED	TILT RATIO	Range (MIN)	Range (MAX)
N41U	156.6	131	0.836526	1.00174	1.00074	1.00274
N41L	184.6	155	0.839653	1.00001	0.99901	1.00101
N42U	165.1	138	0.835857	1.00094	0.99994	1.00194
N42L	167.8	141	0.840286	1.00076	0.99976	1.00176
N43U	167.6	145	0.865155	1.03603	1.03503	1.03703
N43L	207.8	181	0.871030	1.03738	1.03638	1.03838
N44U	204.3	164	0.802741	0.96129	0.96029	0.96229
N44L	220.4	178	0.807623	0.96186	0.96086	0.96286

Maximum power level based on tilt 88.79

(Page 3 of 4)

Attachment 4

Unit 1 Power Range Calibration Data

PCS POINTS

Please enter the following PCS Computer Point values to reflect changes when the Power Range detectors are calibrated AND initial the appropriate spaces. IF the PCS computer is inoperable, THEN mark the corresponding blanks N/A:

1. Expected Current Values:		**PCS Updated**
K0821 N41 Upper 100% Expected Current:	156.6	RK
K0822 N41 Lower 100% Expected Current:	184.6	RK
K0823 N42 Upper 100% Expected Current:	165.1	RK
K0824 N42 Lower 100% Expected Current:	167.8	RK
K0825 N43 Upper 100% Expected Current:	167.6	RK
K0826 N43 Lower 100% Expected Current:	207.8	RK
K0827 N44 Upper 100% Expected Current:	204.3	RK
K0828 N44 Lower 100% Expected Current:	220.4	RK

2. AFD Calibration Constant Values:		**PCS Updated**
K0855 DF Calibration Constant for N41:	18.6320	RK
K0856 DF Calibration Constant for N42:	18.6320	RK
K0857 DF Calibration Constant for N43:	18.6320	RK
K0858 DF Calibration Constant for N44:	18.6320	RK

3. Incore Versus Excore Axial Offset Slope Values:		**PCS Updated**
K0551 In/Excore Offset Ratio (Ch41, Q4):	1.5629	RK
K0552 In/Excore Offset Ratio (Ch42, Q2):	1.5528	RK
K0553 In/Excore Offset Ratio (Ch43, Q1):	1.5702	RK
K0554 In/Excore Offset Ratio (Ch44, Q3):	1.5549	RK

Prepared By	Date	Reviewed By	Date
[signature]	10-18-07	[signature]	10-18-07

Calibration is complete and copy of this page has been placed in Reactor Data Book:

Instrument Department	Date
[signature]	10-18-7

Dominion
North Anna Power Station
ADMINISTRATIVE JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

The unit was shutdown 200 hours ago.

RHR flow is 3600 gpm.

RCS draindown was in progress with the following equipment in operation:

- 1 RHR pump
- 2 RHR Heat exchangers
- 1 Charging pump

The crew has implemented 1-AP-11, Loss of RHR and is at step 4b.

INITIATING CUE

Using 1-AP-11, Loss of RHR, determine the following:

1. Minimum required RHR flow.

   _____

2. Level that RHR pumps are required to be stopped based on minimum required RHR flow.

   _____

Dominion
North Anna Power Station
ADMINISTRATIVE JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

TASK

Determine minimum required RHR flow and RCS level.

TASK STANDARDS

Given a copy of 1-AP-11, Loss of RHR, the examinee will determine:

- Minimum required RHR flow based on time after shutdown.
- Minimum RCS level to support continued RHR pump operation based on minimum flow rate.

K/A REFERENCE:

G2.1.25 (3.9/4.2)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 10 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

ADMINISTRATIVE JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE

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INITIAL CONDITIONS

The unit was shutdown 200 hours ago.

RHR flow is 3600 gpm.

RCS draindown was in progress with the following equipment in operation:

- 1 RHR pump
- 2 RHR Heat exchangers
- 1 Charging pump

The crew has implemented 1-AP-11, Loss of RHR and is at step 4b.

INITIATING CUE

The task you are to perform is:

Using 1-AP-11, Loss of RHR, determine the following:

- Minimum required RHR flow.
- Level that RHR pumps are required to be stopped based on minimum required RHR flow.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

Calculator

Copy of 1-AP-11, Loss of RHR, signed off up to Step 4b.

PERFORMANCE STEPS

START TIME _____

1	Convert hours to days for use on att.3	Procedure Step

SAT [ ] UNSAT [ ]

Standards	Operator determines time after shutdown for use on attachment 3 is 8.33 days (200 hrs/24hrs per day = 8.33 days).

Notes/Comments:

2	Determine minimum required RHR flow	Procedure Step: Att.3

Critical Step	SAT [ ] UNSAT [ ]

Standards	Operator determines minimum flowrate of 2425 gpm. Acceptance criteria of 2400-2500 gpm based on readability and figure minor increments of 200 gpm.

Notes/Comments:	Operator will arrive at a value of approximately 3400 gpm if the incorrect figure in Att. 3 is used.

3	Determine level that RHR pumps are required to be stopped based on minimum required RHR flow.	Procedure Step: Att.2

Critical Step	SAT [ ] UNSAT [ ]

Standards	Operator determines minimum level of 7.05 in. above CL. Acceptance criteria of 7.0 inches to 7.2 inches based on acceptance criteria for flow rate from previous step, and readability and figure minor increments of 0.2".

Notes/Comments:

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

JOB PERFORMANCE MEASURE

TASK

CHECKLIST

_____ Calculator

Dominion
North Anna Power Station
ADMINISTRATIVE JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

The Unit is in MODE 3 at normal operating temperature and pressure with preparations in progress for taking the Reactor Critical.

Pressurizer Pressure Controls are in automatic and all PORVs and Block valves are OPERABLE.

1-PT-44.7, PORV Block Valves has been initiated.

The operator has stopped the procedure at Step 6.11 because the thermal overload on the breaker for 1-RC-MOV-1535 actuated when the control switch for 1-RC-MOV-1535 was taken to close.

The cause of 1-RC-MOV-1535 thermal overload device actuation has not yet been determined.

The Safeguards operator who was dispatched to the breaker has asked the OATC if he should reset the breaker for 1-RC-MOV-1535 at this time.

INITIATING CUE

You are requested to determine the following:

1) Technical Specification action requirements if applicable.

2) Whether or not the Safeguards operator should be directed to reset the breaker for 1-RC-MOV-1535.

3) If Reactor can be taken critical (SRO ONLY).

Dominion
North Anna Power Station
ADMINISTRATIVE JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

NEW

TASK

Apply Tech Specs.

TASK STANDARDS

Applicable Tech Spec Actions are identified, including action that prohibits Mode change (SRO ONLY), and determination is made not to continue testing on opposite train equipment.

K/A REFERENCE:

G-2.2.40 (3.4/4.7)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 20 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

ADMINISTRATIVE JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

NEW

READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE

Instructions for Simulator JPMs

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PREREQUISITES

The trainee has completed the applicable course knowledge training at the Reactor Operator level or Senior Reactor Operator level as applicable.

INITIAL CONDITIONS

The Unit is in MODE 3 at normal operating temperature and pressure with preparations in progress for taking the Reactor Critical.

Pressurizer Pressure Controls are in automatic and all PORVs and Block valves are OPERABLE.

1-PT-44.7, PORV Block Valves has been initiated.

The operator has stopped the procedure at Step 6.11 because the thermal overload on the breaker for 1-RC-MOV-1535 actuated when the control switch for 1-RC-MOV-1535 was taken to close.

The cause of 1-RC-MOV-1535 thermal overload device actuation has not yet been determined.

The Safeguards operator who was dispatched to the breaker has asked the OATC if he should reset the breaker for 1-RC-MOV-1535 at this time.

INITIATING CUE

You are requested to determine the following:

1) Technical Specification action requirements if applicable.

4) Whether or not the Safeguards operator should be directed to reset the breaker for 1-RC-MOV-1535.

2) If Reactor can be taken critical (SRO ONLY).

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

Provide trainee copy of 1-PT-44.7, signed off to step 6.11 for reference.

Technical Specifications and Bases

PERFORMANCE STEPS

START TIME _____

1	Recognizes condition is entry condition for Technical Specifications.	Procedure Step _____

SAT [ ] UNSAT [ ]

Standards	Technical Specifications require BOTH PORV Block Valves operable in Modes 1 thru 3. Actuation of the thermal overload device renders 1-RC-MOV-1535 inoperable.

Notes/Comments

2	Review Tech Specs and determine TS 3.4.11.D. applies.	Procedure Step _____

Critical Step	SAT [ ] UNSAT [ ]

Standards	Determines the following actions apply: 1) Place associated PORV (1-RC-PCV-1456) in manual control → 1 hr. and 2) Restore Block Valve to OPERABLE status → 72 hrs.

Notes/Comments

3	Determine whether or not the Safeguards operator should be directed to reset the breaker for 1-RC-MOV-1535.	Procedure Step _____

Critical Step	SAT [ ] UNSAT [ ]

Standards	Determination is made NOT to reset the breaker at this time. In accordance with OP-AA-100-1000, Shift Operations, During normal operations the Shift Manager (ONLY) may authorize resetting of a tripped circuit breaker, protective relay, or one-time fuse replacement AFTER determining that a fault DOES NOT exist. For the conditions given (cause not yet determined) resetting the breaker at this time would violate the procedure requirement of OP-AA-100-1000.

Notes/Comments	**IF the candidate is an RO candidate THEN the Evaluation ends at this point.**

4	Determines Reactor can not be taken critical (Mode change not permitted) based on information provided.	Procedure Step _____

Critical Step	SAT [ ] UNSAT [ ]

Standards	Determines based on review of Tech Spec LCO 3.0.4 that Reactor can NOT be taken critical at this time since the mode change is prohibited by Tech Specs.

Notes/Comments	**This Step is applicable to and thus ONLY critical for the ISRO or USRO candidates.**

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

None

Dominion
North Anna Power Station
ADMINISTRATIVE JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

Unit shutdown was commenced due to primary to secondary leakage in the B SG.

At 80% power, operators initiated a manual trip due to inability to maintain Pressurizer level and pressure.

Prior to the trip, 1-CH-RI-128, Reactor Coolant Letdown Radiation Monitor, was reading 6×10^4 mR/hr and had been steadily increasing over the last hour.

Operators isolated AFW flow to B SG due to level increasing uncontrollably following the trip.

A Safety valve on the B SG has opened and failed to reseat.

Pressurizer level is off-scale low.

All safeguards equipment is functioning as designed and offsite power is available.

Emergency Response Organization response has been delayed due to icy roads and a severe winter storm.

INITIATING CUE

You are requested to classify the emergency event and determine any Protective Action Recommendation if required.

This is a time critical JPM.

Dominion
North Anna Power Station
ADMINISTRATIVE JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

NEW

TASK

Classify event and determine PAR.

TASK STANDARDS

Event is classified as a General Emergency in accordance with EPIP-1.01, TAB B.2; classification is required to be made within 15 minutes of starting the evaluation.
Protective Action Recommendation determined is PAR A (shelter in place 2 Mile radius and 5 Miles downwind) selected due to known impediments making evacuation dangerous; PAR is selected within 14 minutes from the time the Emergency Classification is made.

K/A REFERENCE:

GEN-2.4.41 (2.9/4.6)
GEN-2.4.44 (2.4/4.4)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 12 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

ADMINISTRATIVE JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

NEW

READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE

Instructions for Simulator JPMs

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PREREQUISITES

The trainee has completed the applicable course knowledge training at the Senior Reactor Operator level.

INITIAL CONDITIONS

Unit shutdown was commenced due to primary to secondary leakage in the B SG.

At 80% power, operators initiated a manual trip due to inability to maintain Pressurizer level and pressure.

Prior to the trip, 1-CH-RI-128, Reactor Coolant Letdown Radiation Monitor, was reading 6×10^4 mR/hr and had been steadily increasing over the last hour.

Operators isolated AFW flow to B SG due to level increasing uncontrollably following the trip.

A Safety valve on the B SG has opened and failed to reseat.

Pressurizer level is off-scale low.

All safeguards equipment is functioning as designed and offsite power is available.

Emergency Response Organization response has been delayed due to icy roads and a severe winter storm.

INITIATING CUE

You are requested to classify the emergency event and determine any Protective Action Recommendation if required.

This is a time critical JPM.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

None

PERFORMANCE STEPS

START TIME _____

START TIME IS CRITICAL: Start time begins the 15 minute clock for event classification (clock stops when classification is made – element 4 of JPM).

1	Determine the event category using the emergency action level table index.	Procedure Step _____

Critical Step	SAT [ ] UNSAT [ ]

Standards	Event is identified as a RCS EVENT, Tab B, Attachment 1 of EPIP-1.01.

Notes/Comments

2	Review the emergency action level tab associated with the event category.	Procedure Step _____

SAT [ ] UNSAT [ ]

Standards	Tab B reviewed to determine highest level of classification.

Notes/Comments

3	Use available resources to obtain indications of emergency conditions.	Procedure Step _____

SAT [ ] UNSAT [ ]

Standards	Tab B indications compared to Initial Conditions provided in JPM.

Notes/Comments

4	Classify event based on emergency action level being exceeded.	Procedure Step _____

Critical Step	SAT [ ] UNSAT [ ]

Standards	Event is classified as a General Emergency IAW TAB B.2 within 15 minutes of the start of the evaluation.

Notes/Comments

Record time of declaration here _____. **This time begins the 14 minute clock for selecting the PAR (element 6 of JPM).**
Record time to make classification:

_____ -- _____ = _____ minutes
Declaration Time Evaluation Start time *Total Time to classify

* Classification is required to be less than or equal to 15 minutes from the start of the evaluation.

5	Identify Protective Action Recommendation (PAR) is applicable based on exceeding action level for General Emergency.	Procedure Step _____

SAT [ ] UNSAT [ ]

Standards	EPIP-1.06 Protective Action Recommendation Matrix compared to Initial Conditions provided in JPM.

Notes/Comments

6	Determine Protective Action Recommendation.	Procedure Step _____

Critical Step	SAT [ ] UNSAT [ ]

Standards	Protective Action Recommendation from EPIP-1.06 is PAR A (based on known impediments make evacuation dangerous), and is selected within 14 minutes of the event classification (element 4 of JPM).

Notes/Comments

Record time of PAR selection here: _____.

Record time to make PAR:

_____	--	_____	=	_____ minutes
PAR selection Time		Declaration Time (element 4 of JPM)		*Time required to select PAR

* PAR selection is required to be less than or equal to 14 minutes from the time of classification (element 4 of JPM).

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

None

Dominion
North Anna Power Station
ADMINISTRATIVE JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

Unit 2 is in Mode 4 exiting a scheduled Refueling Outage.

You have been assigned to assist Craft and Engineering personnel with an emergent work item.

The work will be performed in the vicinity of "A" RHR Heat Exchanger.

Your dose for the year is 300 mrem (all dose has been received at North Anna Site).

No extensions or exemptions have been granted for the entry.

INITIATING CUE

You have been directed to select the appropriate RWP from those provided.

AND

Using the Survey Map provided, calculate your maximum allowable Stay Time in accordance with all HP Administrative Dose Limits and RWP requirements.
(Assume that all work will take place in the highest dose area adjacent to the "A" RHR Heat Exchanger AND that dose received in transit to and from the work location is negligible).

Dominion
North Anna Power Station
ADMINISTRATIVE JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

TASK

Determine appropriate RWP and Stay Time.

TASK STANDARDS

- Given a choice of RWPs, candidate selects the appropriate RWP for Task performance.
- Given a survey map candidate correctly calculates maximum allowable Stay Time.

K/A REFERENCE:

G2.3.7 (3.5/3.6)

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

ADMINISTRATIVE JOB PERFORMANCE MEASURE
(Evaluation)

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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.

INITIAL CONDITIONS

Unit 2 is in Mode 4 exiting a scheduled Refueling Outage.

You have been assigned to assist Craft and Engineering personnel with an emergent work item.

The work will be performed in the vicinity of "A" RHR Heat Exchanger.

Your dose for the year is 300 mrem (all dose has been received at North Anna Site).

No extensions or exemptions have been granted for the entry.

INITIATING CUE

You have been directed to select the appropriate RWP from those provided

AND

Using the Survey Map provided, calculate your maximum allowable Stay Time in accordance with all HP Administrative Dose Limits and RWP requirements.
(Assume that all work will take place in the highest dose area adjacent to the "A" RHR Heat Exchanger AND that dose received in transit to and from the work location is negligible).

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

RWPs to select from
Survey map of work area
Calculator

PERFORMANCE STEPS

START TIME _____

1	Select appropriate RWP	Procedure Step

Critical Step	SAT [ ] UNSAT [ ]

Standards	Operator selects RWP 08-1502-1

Notes/Comments:

2	Calculate maximum allowable Stay Time	Procedure Step

Critical Step	SAT [ ] UNSAT [ ]

Standards	*Operator calculates 4 hours as maximum Stay Time.

Notes/Comments	*Answer may be expressed in equivalent units (e.g. 240 minutes) As given in the instructions using the maximum dose rate in the vicinity of "A" RHR Heat Exchanger the candidate will determine a dose rate of 50 mrem/hr. Per the RWP the dose limit is 200 mrem. Therefore 200/50 = 4 hours. Selecting an incorrect RWP would yield a plausible but incorrect Stay Time.

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TASK

Determine appropriate RWP and Stay Time.

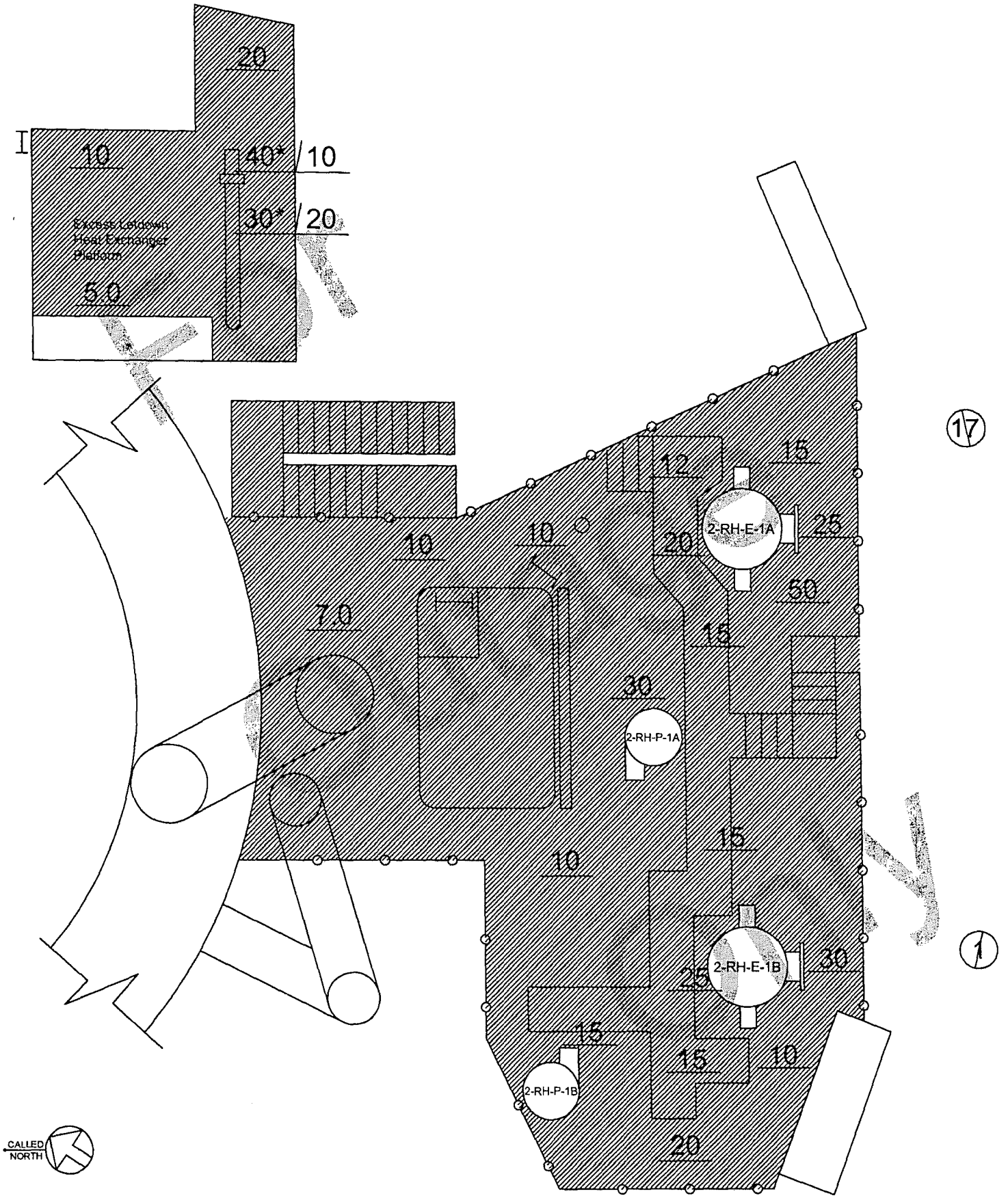
CHECKLIST

_____ Survey Map

_____ Selection of RWPs for the candidate to chose from

_____ Calculator

Unit 2 Containment, 231' Elevation
RHR Flat



VHRA = Very High Radiation Area	HPA = Hot Particle Area	CAM = Continuous Air Monitor
LHRA = Locked High Radiation Area	CA = Contaminated Area	SOP = Step Off Pad
HRA = High Radiation Area	ARA = Airborne Radioactivity Area	LDWA = Low Dose Waiting Area
RA = Radiation Area	RMA = Radioactive Material Area	NEA = Neutron Exposure Area
RCA = Radiological Control Area	~~xxx~~ Radiological Boundary	# N = Neutron Dose Rate
#* / # Contact and 30 cm Gamma Dose Rate Readings		# β = Corrected Beta Dose Rate

VALID FROM	01-JAN-2008 09:26	TO	01-DEC-2008 23:59	RWP	08-1502-1	REV. NO	0

DOSE RATE ALARM:	1000 mrem/Hr	BUDGETED DOSE:	600 mrem
DOSE LIMIT ALARM:	200 mrem	ALARA EVALUATION NO:	

JOB LOCATIONS:
UNIT 1 & UNIT 2 REACTOR CONTAINMENTS.

JOB DESCRIPTION: General entry during subatmospheric conditions for the purpose of walkdowns, inspections, radiological surveys, minor maintenance and adjustments.

THE MAXIMUM POSTED AREA THAT CAN BE ENTERED:
High Radiation Area>15 Rem/hr. and <500 Rem/hr

RADIOLOGICAL CONDITIONS: *Indicates estimated value for RWP Preparation. See survey forms for details

GENERAL AREA RADIATION LEVELS (mrem/hr):
1.0 to 15,000.*

CONTACT/HOT SPOT RADIATION LEVELS (mrem/hr):
1,000 to 20,000.*

CONTAMINATION LEVELS (dpm/100cm2):
1,000 to 100,000.*

AIRBORNE RADIOACTIVITY (DAC):
> 0.30 *

REQUIRED JOB COVERAGE:
CONTINUOUS

DOSIMETRY REQUIREMENTS:
DAD/SRD TLD

DOSIMETRY COMMENTS:

```
1.0)Caution: If PAM(DAD) is utilized, ensure PAM(DAD) is
    secured so that individual can feel the vibration if
    PAM(DAD) alarms.
2.0)An alternate means of DAD alarm recognition is
    required when:
   2.1)A DAD will be utilized to meet the Technical
       Specification requirements for entry into a High
       Radiation Area or Locked High Radiation Area, OR
   2.2)The area to be entered requires hearing
       protection, or the ability to hear DAD alarms may
       be hindered by other circumstances (i.e., headset
       use, hearing loss).
```

PROTECTIVE CLOTHING REQUIREMENTS:

```
1.0)Required Protective Clothing:
    One Hood
    One Pair Coveralls
    Rubber Boots
    High Top Shoe Covers
    Cotton Inserts
    One Pair Rubber Gloves
2.0)Protective Clothing requirements may be modified by HPSS.
```

RESPIRATORY REQUIREMENTS:
SCBA 1.0)SCBA, 35% Oxygen.

A RWP PRE-JOB BRIEFING IS REQUIRED:

BRIEFED BY AN HP SUPERVISOR AND SIGN ATTENDANCE SHEET

WORKER INSTRUCTIONS:

1.0)Upon receiving any Dad alarm, ensure equipment is left in a safe condition and leave the area and report to the Health Physics office.

2.0)A peer check is required upon issuance of DAD to ensure the correct RWP is selected. This should be accomplished at the dosimetry issue point. The peer check may be performed by a co-worker, by Health Physics using the HIS-20 EMSN viewer located in the HP Office, or by the HPCC if a telemetric DAD is used.

3.0)All entries into Containment under this RWP will be IAW VPAP-0106.

4.0)Minimize time in High Dose Rate Areas.

5.0)If telemetric DAD is used then check in with HP after the telemetric DAD has been issued to verify that it is transmitting properly.

6.0)No entry into any overhead area of the RCA will be made unless HP has evaluated the radiological conditions in the area and approved the entry.

HEALTH PHYSICS INSTRUCTIONS:

1.0)CAUTION: Unit 1 and Unit 2 Reactor Containments have posted "Very High Radiation Areas . No entry into "Very High Radiation Areas" are allowed on this RWP.

2.0)Stop work and leave area if whole body dose rates exceed 9000 mrem/hr.

3.0)Radiation survey requirements:

3.1)As determined by HP Supervision.

4.0)Air Sample requirements:

4.1)A full set of air samples (charcoal,particulate,tritium, & noble gas) will be required upon initial entry and upon subsequent entries when air sample data is no longer considered current.

5.0)Contamination Survey requirements:

5.1)As determined by HP Supervision.

6.0)Telemetric DADs and use of RMS (laptop) will be used for all entries into motor cubes or loop rooms, when the unit is at greater than 5 percent power.

7.0)Neutron Dose determination is required for all entries into areas posted as "Neutron Dose Calculations Required for Entry". Calculate each worker's neutron dose utilizing the "Neutron and Noble Gas Dose Calculation Record".

8.0)There will be no entries allowed into the loop rooms under this RWP, when the unit is at greater than 5 percent power, without permission of the Manager of Radiation Protection.

9.0)Stay times required when DAD dose rate alarm is set >1000 mRem/hr or for entry into posted High Radiation Area Exceeding 15 Rem/hr.

10.0)Note: The Health Physics Supervisor Operations shall approve this RWP.

VALID FROM	01-JAN-2008 00:00	TO	31-JAN-2008 23:59	RWP	08-5229-1	REV. NO	0

DOSE RATE ALARM:	500 mrem/Hr	BUDGETED DOSE:	50 mrem
DOSE LIMIT ALARM:	100 mrem	ALARA EVALUATION NO:	~~06-014~~ KB 12/27/07

JOB LOCATIONS:
Station Property excluding Unit 1 Containment.

JOB DESCRIPTION: Dose rates <500mrem/hr: Routine duties, walkdowns and valve line-ups by Operations personnel.

THE MAXIMUM POSTED AREA THAT CAN BE ENTERED:
High Radiation Area>1000 mRem/hr. and <15000 mRem/hr

RADIOLOGICAL CONDITIONS: *Indicates estimated value for RWP Preparation. See survey forms for details

GENERAL AREA RADIATION LEVELS (mrem/hr):
See Radiological Status Boards or specific survey form.

CONTACT/HOT SPOT RADIATION LEVELS (mrem/hr):
See Radiological Status Boards or specific survey form

CONTAMINATION LEVELS (dpm/100cm2):
See Radiological Status Boards or specific survey form

AIRBORNE RADIOACTIVITY (DAC):
< 0.30 *

REQUIRED JOB COVERAGE:
ROUTINE

COVERAGE COMMENTS:

1.0) Continuous Health Physics coverage , a worker with Radiological craft training and a dose rate instrument, or a Digital Alarming Dosimeter with a knowledge of work area dose rates required for entry into "High Radiation Area".

2.0) Continuous HP coverage for activites in areas with general area contamination levels >1,000,000 dpm/100cm2.

DOSIMETRY REQUIREMENTS:
DAD/SRD TLD

DOSIMETRY COMMENTS:

1.0) Caution: If PAM(DAD) is utilized, ensure PAM(DAD) is secured so that individual can feel the vibration if PAM(DAD) alarms.

2.0) An alternate means of DAD alarm recognition is required when:

2.1) A DAD will be utilized to meet the Technical Specification requirements for entry into a High Radiation Area or Locked High Radiation Area, OR

2.2) The area to be entered requires hearing protection, or the ability to hear DAD alarms may be hindered by other circumstances (i.e., headset use, hearing loss).

PROTECTIVE CLOTHING REQUIREMENTS:

1.0)Required Protective clothing:
One Hood
One Pair Coveralls
Rubber Boots
High Top Shoe Covers
Cotton Inserts
One Pair Rubber Gloves

2.0)Protective Clothing requirements may be modified by HPSS.

3.0)Protective Clothing requirements as stated are for entry into "Contaminated Areas" only.

4.0)Lab coat, shoe covers, and gloves may be worn as specified by the Health Physics Shift Supervisor.

5.0)Facial protection for entry under the grating is required if respiratory protection is not required as per the Health Physics Shift Supervisor.

6.0)Protective Clothing requirements for a "Hot Particle Area" (HPA) [in addition to those stated above] are:

6.1)Hood, gloves, coveralls, shoe covers and tape all outer seams.

6.2)Workers interfacing with individuals/equipment in a HPA - Gloves and face shield.

RESPIRATORY REQUIREMENTS:

FFAP

PAPH

1.0)Respiratory Protection requirements will be determined by HPSS.

A RWP PRE-JOB BRIEFING IS REQUIRED:

BRIEFED BY AN HP TECHNICIAN AND SIGN ATTENDANCE SHEET

WORKER INSTRUCTIONS:

1.0)Upon receiving any DAD alarm, ensure equipment is left in a safe condition and leave the area and report to the Health Physics office.

2.0)A peer check is required upon issuance of DAD to ensure the correct RWP is selected. This should be accomplished at the dosimetry issue point. The peer check may be performed by a co-worker, by Health Physics using the HIS-20 EMSN viewer located in the HP Office.

3.0)Workers are responsible for notifying the HPSS prior to venting\draining systems, that may affect Radiological Conditions in an area, to ensure proper Health Physics Monitoring.

4.0)HPA exit instructions:

4.1)Use extreme care in removing PCs and frisking.

4.2)Workers (including those interfacing with workers/equipment in HPA) are to proceed directly to the RCA exit for whole body monitoring.

4.2.1)Workers that will remain in the RCA will be monitored by HP upon exiting the HPA.

5.0)Do not remove any items from a posted "Hot Particle Area" until authorized by HP-Ops.

6.0)Notify Health Physics prior to setting up any ladder.

7.0)No entry into any overhead area of the RCA will be made unless HP has evaluated the radiological conditions in the area and approved the entry.

8.0)Unless continuous Health Physics coverage is provided, workers shall read their SRD/DAD approximately every 15 minutes.

HEALTH PHYSICS INSTRUCTIONS:

1.0)Stop work and leave area if whole body dose rates exceed 500 mRem/hr.

2.0)"Hot Particle Area" (HPA) monitoring requirements:

2.1)Workers exposed skin shall be monitored by HP-Ops every two hours (unless specified by the HPSS) while the workers are in the HPA.

2.2)Personnel monitoring for workers exiting the HPA will consist of a whole body scan within 1/2 inch using:

2.2.1)RM-14 (with an HP-210 and background less than 10,000 cpm); or

2.2.2)RO-2 (open window and background less than 1.0 mRem/hr), and

2.2.3)Worker release criteria: a net reading of less than 18,000 cpm or less

than 2.0 mRem/hr at 1/2 inch.

3.0) Neutron Dose determination is required for all entries into areas posted equivalent to "Neutron Dose Calculation Required for Entry".

3.1) Neutron Bubble Dosimeter should be used for all ISFSI activities.

3.2) Neutron and Noble Gas Dose Calculation Record should be used for containment power entries, equipment hatch PTs, and ISFSI work if bubble dosimetry fails during use or is not available.

4.0) Stay time calculations shall be performed for all activities requiring continuous coverage.

VALID FROM	01-SEP-2007 00:00	TO	31-OCT-2007 23:59	RWP	07-3233-1	REV. NO	0

DOSE RATE ALARM:	1000 mrem/Hr	BUDGETED DOSE:	2680 mrem
DOSE LIMIT ALARM:	100 mrem	ALARA EVALUATION NO:	~~06-034~~ 8-15-07 07-062

JOB LOCATIONS:
U-1 REACTOR CONTAINMENT.

JOB DESCRIPTION: All activities in support of U-1 Containment Close-out.

THE MAXIMUM POSTED AREA THAT CAN BE ENTERED:
High Radiation Area>1000 mRem/hr. and <15000 mRem/hr

RADIOLOGICAL CONDITIONS: *Indicates estimated value for RWP Preparation. See survey forms for details

GENERAL AREA RADIATION LEVELS (mrem/hr):
See Current R.C.A. survey data.

CONTACT/HOT SPOT RADIATION LEVELS (mrem/hr):
See Current R.C.A. survey data.

CONTAMINATION LEVELS (dpm/100cm2):
See Current R.C.A. survey data.. "Hot Particle Area"

AIRBORNE RADIOACTIVITY (DAC):
< .30 Historic Data.*

REQUIRED JOB COVERAGE:
ROUTINE

COVERAGE COMMENTS:

1.0) Continuous Health Physics coverage , a worker with Radiological craft training and a dose rate instrument, or a Digital Alarming Dosimeter with a knowledge of work area dose rates required for entry into "High Radiation Area".

2.0) When the DAD dose rate alarm is set >1000 mRem/hr then stay times and continuous HP coverage is required.

3.0) Continuous HP coverage for activities in areas with general area contamination levels >1,000,000 dpm/100cm2.

DOSIMETRY REQUIREMENTS:
DAD/SRD TLD

DOSIMETRY COMMENTS:

1.0) Caution: If PAM(DAD) is utilized, ensure PAM(DAD) is secured so that individual can feel the vibration if PAM(DAD) alarms.

2.0) An alternate means of DAD alarm recognition is required when:

2.1) A DAD will be utilized to meet the Technical Specification requirements for entry into a High Radiation Area or Locked High Radiation Area, OR

2.2) The area to be entered requires hearing protection, or the ability to hear DAD alarms may be hindered by other circumstances (i.e., headset use, hearing loss).

PROTECTIVE CLOTHING REQUIREMENTS:

1.0)Required Protective clothing:
One Hood
One Pair Coveralls
Rubber Boots
High Top Shoe Covers
Cotton Inserts
One Pair Rubber Gloves

2.0)Protective Clothing requirements may be modified by HPSS.

3.0)Protective Clothing requirements for a "Hot Particle Area" (HPA) [in addition to those stated above] are:

3.1)Hood, gloves, coveralls, shoe covers and tape all outer seams.

3.2)Workers interfacing with individuals/equipment in a HPA - Gloves and face shield.

A RWP PRE-JOB BRIEFING IS REQUIRED:

BRIEFED BY AN HP TECHNICIAN AND SIGN ATTENDANCE SHEET

WORKER INSTRUCTIONS:

1.0)Upon receiving any DAD alarm, ensure equipment is left in a safe condition and leave the area and report to the Health Physics office.

2.0)A peer check is required upon issuance of DAD to ensure the correct RWP is selected. This should be accomplished at the dosimetry issue point. The peer check may be performed by a co-worker, by Health Physics using the HIS-20 EMSN viewer located in the HP Office, or by the HPCC if a telemetric DAD is used.

3.0)Do not handle any foreign objects until surveyed by Health Physics.

3.1)Any foreign object identified shall immediately be brought to the attention of Health Physics for survey and determination of disposition.

4.0)Review current R.C.A. survey data of work area prior to entry.

4.0)HPA exit instructions:

4.1)Use extreme care in removing PCs and frisking.

4.2)Workers(including those interfacing with workers/equipment in HPA) are to proceed directly to the RCA exit for whole body monitoring.

4.2.1)Workers that will remain in the RCA will be monitored by HP upon exiting the HPA.

4.2.1.1)Do not remove any items from HPA until authorized by HP.

5.0)If telemetric DAD is used then check in with HP after the telemetric DAD has been issued to verify that it is transmitting properly.

6.0)No entry into any overhead area of the RCA will be made unless HP has evaluated the radiological conditions in the area and approved the entry.

7.0)Unless continuous Health Physics coverage is provided, workers shall read their SRD/DAD approximately every 15 minutes.

HEALTH PHYSICS INSTRUCTIONS:

1.0)Stop work and leave area if whole body dose rates > 3,000 mrem/hr.

2.0)Recovering a foreign object with radiation levels exceeding 15 rem/hr @ 30 cm is not allowed under this RWP.

3.0)"Hot Particle Area" (HPA) monitoring requirements:

3.1)Workers exposed skin shall be monitored by HP-Ops every two hours (unless specified by the HPSS) while the workers are in the HPA.

3.2)Personnel monitoring for workers exiting the HPA will consist of a whole body scan within 1/2 inch using:

3.2.1)RM-14 (with an HP-210 and background less than 10,000 cpm); or

3.2.2)RO-2 (open window and background less than 1.0 mRem/hr), and

3.2.3)Worker release criteria: a net reading of less than 18,000 cpm or less than 2.0 mRem/hr at 1/2 inch.

4.0)Stay time calculations shall be performed when DAD dose rate alarm is set >1000 mRem/hr and when continuous coverage is required.

VALID FROM 01-JAN-2008 10:08 TO 01-DEC-2008 23:59 RWP 08-1503-1 REV. NO 0

DOSE RATE ALARM:	100 mrem/Hr	BUDGETED DOSE:	12 mrem
DOSE LIMIT ALARM:	10 mrem	ALARA EVALUATION NO:	

JOB LOCATIONS:
UNIT 1 & UNIT 2 PERSONNEL AND EQUIPMENT HATCHES.

JOB DESCRIPTION: General entry by Operations, Health Physics, Security and assorted craft personnel for the performance of routine PT's, surveys, inspections and corrective maintenance as required.

THE MAXIMUM POSTED AREA THAT CAN BE ENTERED:
High Radiation Area>15 Rem/hr. and <500 Rem/hr

RADIOLOGICAL CONDITIONS: *Indicates estimated value for RWP Preparation. See survey forms for details

GENERAL AREA RADIATION LEVELS (mrem/hr):
.02 to 10 (Up to 40 neutron inner wall of equipment hatch) *

CONTACT/HOT SPOT RADIATION LEVELS (mrem/hr):
none

CONTAMINATION LEVELS (dpm/100cm2):
< 1000 *

AIRBORNE RADIOACTIVITY (DAC):
<.30*

REQUIRED JOB COVERAGE:
CONTINUOUS

DOSIMETRY REQUIREMENTS:
DAD/SRD TLD

DOSIMETRY COMMENTS:

1.0) Caution: If PAM(DAD) is utilized, ensure PAM(DAD) is secured so that individual can feel the vibration if PAM(DAD) alarms.
2.0) An alternate means of DAD alarm recognition is required when:
  2.1) A DAD will be utilized to meet the Technical Specification requirements for entry into a High Radiation Area or Locked High Radiation Area, OR
  2.2) The area to be entered requires hearing protection, or the ability to hear DAD alarms may be hindered by other circumstances (i.e., headset use, hearing loss).

PROTECTIVE CLOTHING REQUIREMENTS:

1.0) Required Protective Clothing:
  One Hood
  One Pair Coveralls
  Rubber Boots
  High Top Shoe Covers
  Cotton Inserts
  One Pair Rubber Gloves
2.0) Protective Clothing requirements may be modified by HPSS.
3.0) Protective Clothing requirements as stated are for entry into "Contaminated Areas" only.

A RWP PRE-JOB BRIEFING IS REQUIRED:

BRIEFED BY AN HP SUPERVISOR AND SIGN ATTENDANCE SHEET

WORKER INSTRUCTIONS:

1.0) Upon receiving any Dad alarm, ensure equipment is left in a safe condition and leave the area and report to the Health Physics office.

2.0) A peer check is required upon issuance of DAD to ensure the correct RWP is selected. This should be accomplished at the dosimetry issue point. The peer check may be performed by a co-worker, by Health Physics using the HIS-20 EMSN viewer located in the HP Office, or by the HPCC if a telemetric DAD is used.

3.0) No entry into the Unit 1 or Unit 2 Reactor Containments is allowed on this RWP.

4.0) Minimize time in High Dose Rate Areas.

5.0) No entry into any overhead area of the RCA will be made unless HP has evaluated the radiological conditions in the area and approved the entry.

HEALTH PHYSICS INSTRUCTIONS:

1.0) CAUTION: Unit 1 and Unit 2 Reactor Containments have posted "Very High Radiation Areas". No entry into "Very High Radiation Areas" is allowed on this RWP.

2.0) Stop work and leave area if whole body dose rates exceed 100 mrem/hr.

3.0) Radiation survey requirements:

3.1) Gamma of areas being accessed as per HPSS.

3.2) Neutron of areas being accessed as per HPSS.

4.0) Neutron Dose determination is required for all entries into areas posted as "Neutron Dose Calculations Required for Entry". Calculate each worker's neutron dose utilizing the "Neutron and Noble Gas Dose Calculation Record".

5.0) Stay times are required for entry into posted High Radiation Area Exceeding 15 Rem/hr.

6.0) Anytime the Unit 1 and or Unit 2 Equipment Hatch doors have been opened, a peer check is required to verify that the door is locked.

7.0) Note: The Health Physics Supervisor (Operations) shall approve this RWP.

Dominion
North Anna Power Station
ADMINISTRATIVE JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

Unit shutdown was commenced due to primary to secondary leakage in the B SG.

At 80% power, operators initiated a manual trip due to inability to maintain Pressurizer level and pressure.

Prior to the trip, 1-CH-RI-128, Reactor Coolant Letdown Radiation Monitor, was reading 6×10^4 mR/hr and had been steadily increasing over the last hour.

Operators isolated AFW flow to B SG due to level increasing uncontrollably following the trip.

A Safety valve on the B SG has opened and failed to reseat.

Pressurizer level is off-scale low.

All safeguards equipment is functioning as designed and offsite power is available.

Emergency Response Organization response has been delayed due to icy roads and a severe winter storm.

INITIATING CUE

You are requested to classify the emergency event and determine any Protective Action Recommendation if required.

This is a time critical JPM.

Dominion
North Anna Power Station
ADMINISTRATIVE JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

NEW

TASK

Classify event and determine PAR.

TASK STANDARDS

Event is classified as a General Emergency in accordance with EPIP-1.01, TAB B.2; classification is required to be made within 15 minutes of starting the evaluation.
Protective Action Recommendation determined is PAR A (shelter in place 2 Mile radius and 5 Miles downwind) selected due to known impediments making evacuation dangerous; PAR is selected within 14 minutes from the time the Emergency Classification is made.

K/A REFERENCE:

GEN-2.4.41 (2.9/4.6)
GEN-2.4.44 (2.4/4.4)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 12 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

ADMINISTRATIVE JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

NEW

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 Senior Reactor Operator level.

INITIAL CONDITIONS

Unit shutdown was commenced due to primary to secondary leakage in the B SG.

At 80% power, operators initiated a manual trip due to inability to maintain Pressurizer level and pressure.

Prior to the trip, 1-CH-RI-128, Reactor Coolant Letdown Radiation Monitor, was reading 6×10^4 mR/hr and had been steadily increasing over the last hour.

Operators isolated AFW flow to B SG due to level increasing uncontrollably following the trip.

A Safety valve on the B SG has opened and failed to reseat.

Pressurizer level is off-scale low.

All safeguards equipment is functioning as designed and offsite power is available.

Emergency Response Organization response has been delayed due to icy roads and a severe winter storm.

INITIATING CUE

You are requested to classify the emergency event and determine any Protective Action Recommendation if required.

This is a time critical JPM.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

None

PERFORMANCE STEPS

START TIME _____

START TIME IS CRITICAL: Start time begins the 15 minute clock for event classification (clock stops when classification is made – element 4 of JPM).

1	Determine the event category using the emergency action level table index.	Procedure Step _____

Critical Step	SAT [ ] UNSAT [ ]

Standards	Event is identified as a RCS EVENT, Tab B, Attachment 1 of EPIP-1.01.

Notes/Comments

2	Review the emergency action level tab associated with the event category.	Procedure Step _____

SAT [ ] UNSAT [ ]

Standards	Tab B reviewed to determine highest level of classification.

Notes/Comments

3	Use available resources to obtain indications of emergency conditions.	Procedure Step _____

SAT [ ] UNSAT [ ]

Standards	Tab B indications compared to Initial Conditions provided in JPM.

Notes/Comments

4	Classify event based on emergency action level being exceeded.	Procedure Step _____

Critical Step	SAT [ ] UNSAT [ ]

Standards	Event is classified as a General Emergency IAW TAB B.2 within 15 minutes of the start of the evaluation.

Notes/Comments

Record time of declaration here _____. **This time begins the 14 minute clock for selecting the PAR (element 6 of JPM).**
Record time to make classification:

_____	--	_____	=	_____ minutes
Declaration Time		Evaluation Start time		*Total Time to classify

* Classification is required to be less than or equal to 15 minutes from the start of the evaluation.

5	Identify Protective Action Recommendation (PAR) is applicable based on exceeding action level for General Emergency.	Procedure Step _____

SAT [ ] UNSAT [ ]

Standards	EPIP-1.06 Protective Action Recommendation Matrix compared to Initial Conditions provided in JPM.

Notes/Comments

6	Determine Protective Action Recommendation.	Procedure Step _____

Critical Step	SAT [ ] UNSAT [ ]

Standards	Protective Action Recommendation from EPIP-1.06 is PAR A (based on known impediments make evacuation dangerous), and is selected within 14 minutes of the event classification (element 4 of JPM).

Notes/Comments

Record time of PAR selection here: _____.

Record time to make PAR:

_____	--	_____	=	_____ minutes
PAR selection Time		Declaration Time (element 4 of JPM)		*Time required to select PAR

* PAR selection is required to be less than or equal to 14 minutes from the time of classification (element 4 of JPM).

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

None

A

Dominion
North Anna Power Station
SIMULATOR JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

A Reactor Trip occurred from 100% power.

Reactor Coolant System boron concentration prior to trip was 980 ppm.

Core burnup is approximately 9,000 MWD/MTU.

'A' BAST is the on-service BAST and is at 14,043 ppm.

The crew has transitioned from 1-E-0, Reactor Trip or Safety Injection to 1-ES-0.1, Reactor Trip Response with the plant stable.

INITIATING CUE

You are requested to perform Step 7 of 1-ES-0.1, Reactor Trip Response.

Dominion
North Anna Power Station
SIMULATOR JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R115 (modified)

TASK

Emergency Borate for stuck rods following a Reactor Trip (1-ES-0.1).

TASK STANDARDS

Emergency Boration established using 1-CH-241 manual Emergency Borate Valve. Termination criteria determined to be 30% change in BAST level or SDM verified using 1-PT-10 series procedure.

K/A REFERENCE:

024 - AA2.01, (3.8/4.1)

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

SIMULATOR JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

R115 (modified)

READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE

Instructions for Simulator JPMs

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

Instructions for In-Plant JPMs

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

PREREQUISITES

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

INITIAL CONDITIONS

A Reactor Trip occurred from 100% power.

Reactor Coolant System boron concentration prior to trip was 980 ppm.

Core burnup is approximately 9,000 MWD/MTU.

'A' BAST is the on-service BAST and is at 14,043 ppm.

The crew has transitioned from 1-E-0, Reactor Trip or Safety Injection to 1-ES-0.1, Reactor Trip Response with the plant stable.

INITIATING CUE

You are requested to perform Step 7 of 1-ES-0.1, Reactor Trip Response.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

Copy of 1-ES-0.1, signed off up to step 7 to be provided to applicant.

PERFORMANCE STEPS

START TIME _____

1	Verify All IRPIs – 10 Steps or Less – NO. **Alternate path step.**	Procedure Step 7

Critical Step	SAT [ ] UNSAT [ ]

Standards	Observes IRPIs and determines 3 rods reading >10 steps (operator may use IRPI console indications and/or PCS). Operator transitions to RNO column and carries out RNO actions since TWO or MORE (three total) IRPIs indicate greater than 10 steps.

Notes/Comments	Most RPIs will not read EXACTLY zero; for the purposes of this JPM 3 RPIs have been intentionally offset to read greater than the 10 step requirement to be considered not fully inserted: K-2 reads ~ 50 steps F-12 reads ~ 16 steps D-12 reads ~ 12 steps

2	Place the control switch for the in-service boric acid transfer pump in FAST.	Procedure Step 7a RNO

Critical Step	SAT [ ] UNSAT [ ]

Standards	Control switch for the pump is placed in FAST.

Notes/Comments

3	Open emergency boration valve 1-CH-MOV-1350.	Procedure Step 7b RNO

SAT [ ] UNSAT [ ]

Standards	Control switch for the emergency boration valve is placed in OPEN.

Notes/Comments	Valve will thermal out; this may be diagnosed by operator based on the loss of light indication; operator may elect to dispatch Aux bldg. operator to check valve and possibly another operator to look at breaker.

4	Verify Emergency Boration flow.	Procedure Step 7c RNO

SAT [ ] UNSAT [ ]

Standards	Operator observes FI-1110 indicates < 35 gpm

Notes/Comments

5	Locally open 1-CH-MOV-1350 and verify flow.	Procedure Step 7d RNO

SAT [ ] UNSAT [ ]

Standards	Dispatches Aux Bldg. operator to locally open 1-CH-MOV-1350.

Notes/Comments	The Aux Bldg. operator will call back to inform operator that the handwheel will not engage on 1-CH-MOV-1350 and he is unable to open the valve). Operator may have dispatched the aux. bldg. operator earlier based on the 1-CH-MOV-1350 malfunction and may elect to have 1-CH-241 opened at this time based on the report that 1-CH-MOV-1350 can not be opened; this course of action is acceptable.

6	Establish boration via local emergency borate valve.	Procedure Step 7e RNO

Critical Step	SAT [ ] UNSAT [ ]

Standards	• Places blender mode switch in BORATE. • Places blender control switch in START. • Places 1-CH-FCV-1113A control switch in OPEN. • Places 1-CH-FCV-1113B control switch in CLOSE. • Dispatches Aux Bldg. operator to locally open 1-CH-241.

Notes/Comments	Operator may initiate the action to open 1-CH-241 earlier based on the report that MOV-1350 cannot be opened locally, this course of action is acceptable.

7	Record information.	Procedure Step 7f RNO

SAT [ ] UNSAT [ ]

Standards	The following information is recorded in the procedure: • Start time. • On-service (A) BAST level.

Notes/Comments

8	Determine stopping criteria.	Procedure Step 7g RNO AND Att. 2

Critical Step	SAT [ ] UNSAT [ ]

Standards	• Determines 2 equivalent stuck rods. → 1 rod reading > 20 steps. → 2 rods reading between 11-20 steps. • ***ONE of the following options is determined as stopping criteria:** **Option 1** **30% change in BAST level** (15% for EACH Equivalent Stuck X 2 Equivalent Stuck Rods = 30%). **OR** **Option 2** **Candidate initiates, or directs personnel (STA or Rx Eng.) to initiate a 1-PT-10 series procedure to verify adequate Shutdown Margin.**

Notes/Comments	*There is a third option given in Attachment 2 Step 1C however the note at the top of Attachment 2 clarifies that the other option, (25 minutes for each EQSR), is not used as termination criteria since 1-CH-241 is the flow path. Operator may identify that less acid (less than a 30% change in BAST level) may be required based on performance and results of a PT-10 series procedure to determine shutdown margin.

9	Have the SRO refer to Tech Spec 3.1.1.	Procedure Step 7h RNO

SAT [ ] UNSAT [ ]

Standards	Operator states that he would have the SRO refer to Tech Spec 3.1.1.

Demonstration Cues	• SRO acknowledges the requirement to review Tech Spec 3.1.1. • At this time another operator will complete the Emergency Boration.

Notes/Comments

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

TASK

Emergency Borate for stuck rods following a Reactor Trip (1-ES-0.1).

CHECKLIST

_____ Recall IC #171 (0% power, post-trip)

_____ Do Simspray

_____ Verify that the 3 RPIs indicate as described in notes section of Element 1

Booth Operator Actions:

If called to investigate 1-CH-MOV-1350 due to loss of lights tell the operator you don't see anything obviously wrong with the valve and if asked there is nobody working in the area.

If called to investigate the breaker for 1-CH-MOV-1350 due to loss of lights tell the operator you don't see anything obviously wrong with the breaker and if asked there is nobody working in the area.

When directed to locally open 1-CH-MOV-1350 inform the operator that the handwheel will not engage on 1-CH-MOV-1350 and you are unable to open the valve.

When called to open 1-CH-241 open the valve by actuating trigger 1 and report action when complete (valve is set to open on 30 second ramp).

b

Dominion
North Anna Power Station
SIMULATOR JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

Unit is stable at 100% power.

Quarterly control rod operability test was completed 20 minutes ago.

Control bank A control rod P-10 is at 217 steps, as indicated by individual rod position.

1-AP-1.3, Control Rod Out of Alignment, is complete up to the point of aligning the rod using Attachment 2, Realigning Control Rod--Rod Low.

The SRO desires the affected rod be withdrawn in 3 step increments during realignment.

John Leake has been briefed with Attachment 2 and is standing by to perform any actions required outside the control room.

INITIATING CUE

You are requested to realign rod P-10 by performing Attachment 2, Realigning Control Rod--Rod Low, of 1-AP-1.3.

Dominion
North Anna Power Station
SIMULATOR JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R477 (modified)

TASK

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

TASK STANDARDS

The misaligned rod P-10 is withdrawn at least 1 rod pull (3 steps) per Attachment 2 of 1-AP-1.3;
Upon observing 2 control rods dropped 1-E-0 is entered as required by 1-AP-1.2;
During performance of 1-E-0, the failure of SI to automatically actuate is identified and SI is manually initiated.

K/A REFERENCE:

013-A4.03 (4.5/4.7)

ALTERNATE PATH:

YES

TASK COMPLETION TIMES

Validation Time = 22 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

SIMULATOR JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

R477 (modified)

READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE

Instructions for Simulator JPMs

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

Instructions for In-Plant JPMs

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

PREREQUISITES

The trainee has completed the applicable course knowledge training at the Reactor Operator level.

INITIAL CONDITIONS

Unit is stable at 100% power.

Quarterly control rod operability test was completed 20 minutes ago.

Control bank A control rod P-10 is at 217 steps, as indicated by individual rod position.

1-AP-1.3, Control Rod Out of Alignment, is complete up to the point of aligning the rod using Attachment 2, Realigning Control Rod--Rod Low.

The SRO desires the affected rod be withdrawn in 3 step increments during realignment.

John Leake has been briefed with Attachment 2 and is standing by to perform any actions required outside the control room.

INITIATING CUE

You are requested to realign rod P-10 by performing Attachment 2, Realigning Control Rod--Rod Low, of 1-AP-1.3.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

Copy of 1-AP-1.3 signed off to the point of performing Attachment 2, Realigning Control Rod--Rod Low, to be provided to applicant.

PERFORMANCE STEPS

START TIME _____

Note: Step 1 of Att. 2 is N/A since rod is not in controlling bank.

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

SAT [ ] UNSAT [ ]

Standards	Records CBA 229 steps in procedure.

Notes/Comments	Control bank A group step counters are reading 229 steps (value corresponds to the ARO position).

2	Record the misaligned rod position.	Procedure Step 3 of 1-AP-1.3 Att.2

SAT [ ] UNSAT [ ]

Standards	Records rod P-10 @ 217 steps.

Notes/Comments

3	Record the number of steps that the rod is misaligned.	Procedure Step 4 of 1-AP-1.3 Att.2

SAT [ ] UNSAT [ ]

Standards	Records rod P-10 misaligned by 12 steps.

Notes/Comments

4	Place the control rod bank selector switch in BANK SELECT.	Procedure Step 5 of 1-AP-1.3 Att.2

Critical Step SAT [ ] UNSAT [ ]

Standards	Rod control selector switch positioned to CONTROL BANK A position.

Notes/Comments

5	Manually adjust the group step counter to the actual position of the misaligned rod.	Procedure Step 6 of 1-AP-1.3 Att.2

Critical Step SAT [ ] UNSAT [ ]

Standards	Down button is depressed for control bank A group 2 step counters to manually reset to the actual position of the misaligned rod (217 steps).

Notes/Comments

6	Locally record the pulse-to-analog converter reading for control bank A.	Procedure Step 7 of 1-AP-1.3 Att.2

SAT [ ] UNSAT [ ]

Standards	Calls operator (John Leake) to obtain reading per Step 7 of Att. 2

Notes/Comments	Expected reading of 229 steps provided by booth operator.

7	Locally reset the pulse-to-analog converter for control bank A.	Procedure Step 8 of 1-AP-1.3 Att.2

Critical Step	SAT [ ] UNSAT [ ]

Standards	Directs operator (John Leake) to reset the P/A converter for CBA to 217 by performing Step 8 of attachment 2.

Demonstration Cues	**IF** the operator questions rod bank lo limit alarm, **THEN** tell him as the SRO that it will be evaluated and to continue with the task.

Notes/Comments	The bank A rod bank lo limit alarm will come in when the P/A converter is pulsed down. The operator should acknowledge this as an expected alarm. The recorder on the vertical panel may be checked, this recorder is calibrated in % NOT steps.

8	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.2

Critical Step	SAT [ ] UNSAT [ ]

Standards	All lift coil disconnect switches for control bank A are open EXCEPT for rod P-10.
Demonstration Cues	**IF** the operator states that he will need another operator to take the board **THEN** inform him The balance-of-plant operator has the board.

Notes/Comments

9	Have an extra operator independently verify lift coil disconnects.	Procedure Step 10 of 1-AP-1.3 Att.2

SAT [ ] UNSAT [ ]

Standards	Requests extra operator (e.g. BOP) to perform step 10 of attachment 2.
Demonstration Cues	The balance-of-plant operator has completed step 10 of attachment 2.

Notes/Comments

10	Adjust turbine load as required to maintain Tavg and Tref within 1.5 degrees F during rod withdrawal.	Procedure Step 11 of 1-AP-1.3 Att.2

SAT [ ] UNSAT [ ]

Standards	Operator reviews requirements for maintaining RCS temperature during realignment.

Demonstration Cues	**IF** the operator states that it may be desired to reduce power slightly or borate prior to rod withdrawal, **THEN as the SRO** inform them that Reactor Engineering has determined the worth of the affected rod is only a few pcm and neither power reduction, nor boration is necessary. **Cue may not be required, but is provided since candidate may feel that reducing power or adding negative reactivity prior to rod withdrawal would be a conservative action to take since power is close to 100.00.**

Notes/Comments	The worth of a single CBA rod at 217 steps is negligible, therefore no adjustments are necessary.

11	Manually withdraw the affected control rod.	Procedure Step 12 of 1-AP-1.3 Att.2

Critical Step	SAT [ ] UNSAT [ ]

Standards	Operator begins withdrawal of rod P-10 in 3 step increments.

Notes/Comments	Based on rod height and power level no actions should be necessary for maintaining temperature or Reactor power; Rod Control urgent failure alarm will annunciate as noted in the procedure.

12	Respond to dropped control rods (1-AP-1.2) **Alternate path step, Step 1 of 1-AP-1.2 has the operator verify ONLY ONE CONTROL ROD DROPPED, the RNO is to go to 1-E-0 (i.e. trip the reactor).**	Procedure Step 1 RNO of 1-AP-1.2

Critical Step	SAT [ ] UNSAT [ ]

Standards	Operator identifies more than 1 RCCA dropped and initiates a Reactor Trip per 1-AP-1.2, Dropped Rod, Step 1 RNO.

Notes/Comments	Automatic Reactor Trip signals are blocked to ensure action is required by the operator to trip the reactor. The reactor will trip when the reactor trip switch is placed in trip.

13	Verify reactor tripped – YES.	Procedure Step 1 of 1-E-0

SAT [ ] UNSAT [ ]

Standards	Operator verifies reactor is tripped (RTBs open, rod bottom lights on, flux decreasing).

Notes/Comments

14	Verify turbine trip – NO **Alternate path step, step 2 of 1-E-0 has the operator manually trip turbine (automatic trip signal should have occurred also), the RNO for this step has the operator manually runback the turbine.**	Procedure Step 2 of 1-E-0

SAT [ ] UNSAT [ ]

Standards	Attempts to manually trip turbine; based on failure of turbine to manually trip runs back turbine (places EHC pumps in P-T-L and runs back turbine until stop valves go closed) and resets Reheaters.

Notes/Comments

15	Verify both ac emergency busses energized – yes.	Procedure Step 3 of 1-E-0

SAT [ ] UNSAT [ ]

Standards	Verifies 1H and 1J busses both energized by observing volt meters on 1H and 1J EDG control panels.

Notes/Comments

16	Check if SI is actuated	Procedure Step 4 of 1-E-0

Critical Step	SAT [ ] UNSAT [ ]

Standards	• Checks low head pumps running- NO. • Any first out annunciator lit – YES. • ***Operator manually actuates SI.**

Demonstration Cues	JPM is complete once operator states the E-0 immediate operator actions are complete.

Notes/Comments	Annunciator D-E/3 will be lit due to failure of turbine to trip unless acknowledged prior to performing this step (MSTVs close so condition clears after MSTVs shut). ***The only critical element of this standard is manually actuating SI.**

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

TASK

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

CHECKLIST

_____ Recall IC #168 (100% power).

_____ Do Simspray.

_____ Ensure rod banks and Tave/Tref recorder are correct.

Booth Operator Actions:

Respond as extra operator (John Leake) to perform the following:

Using extreme view report P/A converter reading (229 steps) when directed in Step 7 of Attachment 2.

Using extreme view reset P/A converter for CBA to 217 steps when directed in Step 8 of Attachment 2 and report completion of step to operator (note: adjust to 1 step increments for realism prior to pulsing down).

Dominion
North Anna Power Station
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

Emergency diesel operations have been completed

The diesel did not start on an emergency start signal

Equipment status has been reviewed and supports the performance of this procedure

An operator is available in 1H diesel room

INITIATING CUE

You are requested to transfer the 1H emergency bus from 1H diesel to "C" reserve station service transformer in accordance with 1-OP-6.1. You are not required to unload the 1H diesel.

Dominion
North Anna Power Station
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

N518

TASK

Transfer an emergency bus from an emergency diesel generator to a reserve station service transformer on the backboards watchstation (1-OP-6.1, 1-OP-6.2).

TASK STANDARDS

1H emergency bus has been transferred from 1H diesel to "C" RSST

K/A REFERENCE:

064-A4.07 (3.4/3.4)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 10 minutes Start Time = _____
Actual Time = _____ minutes Stop Time = _____

PERFORMANCE EVALUATION

Rating [ ] SATISFACTORY [ ] UNSATISFACTORY

Candidate (Print) _____

Evaluator (Print) _____

Evaluator's Signature / Date _____

EVALUATOR'S COMMENTS

_____

_____

_____

Dominion
North Anna Power Station

JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

N518

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.

INITIAL CONDITIONS

Emergency diesel operations have been completed

The diesel did not start on an emergency start signal

Equipment status has been reviewed and supports the performance of this procedure

An operator is available in 1H diesel room

INITIATING CUE

You are requested to transfer the 1H emergency bus from 1H diesel to "C" reserve station service transformer in accordance with 1-OP-6.1. You are not required to unload the 1H diesel.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

Sync key
Copy of 1-OP-6.1, Sections 1-4,Subsection 5.3, and Att.1, to be provided to applicant.

PERFORMANCE STEPS

START TIME _____

1	Verify initial conditions are satisfied.	Procedure Step 5.3.1

SAT [ ] UNSAT [ ]

Standards	Operator reviews initial conditions and initials the step

Notes/Comments

2	Review precautions and limitations.	Procedure Step 5.3.2

SAT [ ] UNSAT [ ]

Standards	Operator reviews precautions and limitations and initials step

Notes/Comments

3	Verify the desired electrical supply-breaker alignment.	Procedure Step 5.3.3
		SAT [ ] UNSAT [ ]

Standards	15H11 and 15F3 are verified OPEN

Notes/Comments

4	Ensure transformer normal feeder breaker is closed.	Procedure Step 5.3.4
		SAT [ ] UNSAT [ ]

Standards	Breaker 15F1 is verified CLOSED

Notes/Comments

5	Close the transfer bus supply breaker to the emergency bus.	Procedure Step 5.3.5
	Critical Step	SAT [ ] UNSAT [ ]

Standards	Operator closes breaker 1-EP-BKR-15F3

Notes/Comments

6	Verify that no normal shutdown alarms are locked in if the emergency diesel generator was started due to an emergency start signal.	Procedure Step 5.3.6

SAT [ ] UNSAT [ ]

Standards	Initial conditions of JPM are reviewed and step is N/A'd

Notes/Comments

7	Place the 4160-volt emergency bus normal feed synchronizing switch to ON.	Procedure Step 5.3.7

Critical Step SAT [ ] UNSAT [ ]

Standards	15H11 synchronizer switch is turned to ON

Notes/Comments

8	Verify emergency bus frequency is 60 hertz using the SPEED/LOAD control switch.	Procedure Step 5.3.8

SAT [ ] UNSAT [ ]

Standards	Frequency is adjusted to 60 hertz using the SPEED/LOAD control switch.

Notes/Comments
Operator may determine that frequency is close enough to 60 Hz, due to meter calibration allowances, and choose NOT to adjust.

9	Adjust emergency diesel generator voltage (incoming) slightly higher than the reserve station service bus voltage (running) using the EXCITER VOLTAGE CONTROL switch.	Procedure Step 5.3.9

Critical Step	SAT [ ] UNSAT [ ]

Standards	Incoming voltage is adjusted to 1 to 2 volts higher than the running voltage suing the SPEED/LOAD CONTROL switch.

Notes/Comments

Annunciator F-H5, 480V OR 4KV EMERG BUS VOLTS HI/LO, may alarm at this time.

Cue applicant that the OATC will handle the AR for this alarm.

10	Adjust the speed of the emergency diesel generator until the synchroscope behaves in the following manner. • Moves slowly in the fast direction • Completes one rotation within the required time	Procedure Step 5.3.10

SAT [ ] UNSAT [ ]

Standards	Speed is adjusted so that the synchroscope is moving slowly in the "fast" direction and completes one rotation in ≥ 20 seconds

Notes/Comments
Speed may not require adjustment.

11	When the synchroscope indicates "one minute before 12 o'clock," close the reserve station service supply breaker to the emergency bus.	Procedure Step 5.3.11

Critical Step	SAT [ ] UNSAT [ ]

Standards	15H11 is closed

Notes/Comments

12	Adjust the power factor to 1.0 (kvar=0).	Procedure Step 5.3.12

SAT [ ] UNSAT [ ]

Standards	Power factor is adjusted to 1.0 using the VOLTAGE CONTROL switch.

Notes/Comments

13	Place the synchronizing switch in the OFF position.	Procedure Step 5.3.13

SAT [ ] UNSAT [ ]

Standards	15H11 sync switch is placed in OFF position

Notes/Comments

14	If operable, ensure MOP DEFEAT switch is in AUTO.	Procedure Step 5.3.14

SAT [ ] UNSAT [ ]

Standards	Operator verifies MOP DEFEAT switch is in AUTO

Notes/Comments

15	Go to section 5.5 to unload the emergency diesel generator.	Procedure Step 5.3.15

SAT [ ] UNSAT [ ]

Standards	Operator states that task is complete

Demonstration Cues	Assume another operator will unload the diesel.

Notes/Comments

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

SIMULATOR SETUP

JOB PERFORMANCE MEASURE
N518

TASK

Transfer an emergency bus from an emergency diesel generator to a reserve station service transformer on the backboards watchstation (1-OP-6.1, 1-OP-6.2).

CHECKLIST

_____ Recall 100% power IC

_____ Start 1H diesel in MANUAL LOC

_____ Load F transfer bus onto diesel

_____ Open 15F3 and 15H11

PLACE SYNC KEY IN THE BREAKER FOR 15H2. PUT IT BACK HERE BETWEEN CANDIDATES.

Booth Instructions

If called respond as the operator at the EDG respond that you are ready for them to transfer load from the EDG to the RSST (all conditions normal, personnel clear of area, etc.).

d

Dominion
North Anna Power Station
SIMULATOR JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

Residual Heat Removal System is in service.

Reactor Coolant Pumps "A" and "C" are in operation.

Unit is in Mode 4 and RCS temperature is stable at approximately 301°F.

Charging pumps and LHSI pumps have been aligned per 1-OP-3.3, Unit Shutdown from Mode 4 to Mode 5, in preparation for going below 280°F within the next hour.

The STA will calculate the estimated time to boiling in accordance with 1-GOP-13.1 once the unit enters Mode 5.

Feed flow to SGs is being supplied by Condensate with the B feed pump breakers in test.

RHR SYSTEM LO FLOW, Annunciator E-A8, has just alarmed.

INITIATING CUE

You are requested to respond in accordance with 1-AP-11, Loss of RHR.

Dominion
North Anna Power Station
SIMULATOR JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R514 (Modified)

TASK

Respond to a Loss of RHR (1-AP-11).

TASK STANDARDS

Attempts to restore RHR are made; Steam Dumps are controlled to control RCS temperature.

K/A REFERENCE:

K/A 005A2.03 (2.9/3.1)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 20 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

SIMULATOR JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

R514 (Modified)

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

Residual Heat Removal System is in service.

Reactor Coolant Pumps "A" and "C" are in operation.

Unit is in Mode 4 and RCS temperature is stable at approximately 301°F.

Charging pumps and LHSI pumps have been aligned per 1-OP-3.3, Unit Shutdown from Mode 4 to Mode 5 in preparation for going below 280°F within the next hour.

The STA will calculate the estimated time to boiling in accordance with 1-GOP-13.1 once the unit enters Mode 5.

Feed flow to SGs is being supplied by Condensate with the B feed pump breakers in test.

RHR SYSTEM LO FLOW, Annunciator E-A8, has just alarmed.

INITIATING CUE

You are requested to respond in accordance with 1-AP-11, Loss of RHR.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

Blank copy of 1-AP-11 to be provided to applicant.

PERFORMANCE STEPS

START TIME _____

1	Check RCS Level decreasing – NO. **Alternate Path Step, Candidate transitions to procedure Step 5 per RNO based on no loss of inventory.**	Procedure Step 1 RNO

SAT [ ] UNSAT [ ]

Standards	Pressurizer level, VCT level, RCS makeup rate, Containment Sump and/or PDTT level/pumping frequency are verified unchanged.

Notes/Comments

2	Verify that the Residual Heat Removal System isolation valves are open - YES.	Procedure Step 5a

	SAT [ ] UNSAT [ ]

Standards	RHR inlet valves 1-RH-MOV-1700 and 1701 are verified open.

Notes/Comments

3	Verify that at least one Residual Heat Removal System outlet valve is open -YES.	Procedure Step 5b

SAT [ ] UNSAT [ ]

Standards	RHR outlet valve 1-RH-MOV-1720A is verified open.

Notes/Comments

4	Check One RHR pump running – NO.	Procedure Step 6

SAT [ ] UNSAT [ ]

Standards	• Determines 1-RH-P-1A has a sheared shaft and the other RHR pump is available. • Stops 1-RHR-P-1A.

Notes/Comments	No cue is needed, the Initial Conditions given and control room indications provide adequate information to access System status.

5	If electrical power is available, then attempt to restore RHR flow. **Alternate Path Step: Based on Initial Conditions provided candidate will attempt to restore flow per the RNO of the Step, and once the determination is made that NO RHR pumps are available the candidate will transition forward to Step 11 based on a loss of ALL RHR pumps.**	Procedure Step 6c1 – 6c3 and 6c5

SAT [ ] UNSAT [ ]

Standards	• Places 1-RH-FCV-1605 controller in manual and reduces demand to zero (0). • Adjusts HIC for 1-RH-HCV-1758 demand to zero (0). • Determines venting not required since there are no indications of air entrainment. • Places Control switch for 1-RH-P-1B to start. • Transitions to procedure Step 11 based on RHR pump breaker failing to close.

Notes/Comments	Step 6c4 of the procedure has the operator restore flow by repositioning RHR control valves. Since an RHR pump could not be started this step does not need to be performed since it will not accomplish anything.

6	Record time to boiling from 1-GOP-13.0	Procedure Step 11a

	SAT [ ] UNSAT [ ]

Standards	Step marked N/A **OR** STA notified to determine time to boiling

Demonstration Cues	**If** candidate requests SRO concurrence to mark step N/A, **THEN** concur with candidate. **IF** candidate requests that the STA calculate a time to boil **THEN** acknowledge that the STA will perform that action.

Notes/Comments	Calculating time to boil is not required since the RCS is NOT in Mode 5 with the RCS vented or soon to be vented, however the candidate may feel that it is prudent and initiate the action. 1-AP-11 is written for various plant conditions so the step would apply for those situations such as Mode 5 drained to mid-loop, etc.

7	Evaluate the need to implement EPIP-1.01, Emergency Manager Controlling Procedure.	Procedure Step 11b

	SAT [ ] UNSAT [ ]

Standards	Notifies Annex (WCCS) or other operator to evaluate EPIP-1.01.

Demonstration Cues	Operations shift manager or unit supervisor will perform this step.

Notes/Comments

8	Monitors Containment Radiation.	Procedure Step 11c

SAT [ ] UNSAT [ ]

Standards	Checks recorder and/or monitors 1-RM-RMS-159 and 160.

Notes/Comments	Since a loss of RCS inventory is NOT occurring 1-RM-RMS-159 and 160 will be essentially stable at the pre-event value.

9	Initiate Attachment 11 for Containment closure.	Procedure Step 12

SAT [ ] UNSAT [ ]

Standards	Identifies need to perform Attachment 11.

Demonstration Cues	Inform the operator that an additional operator has been assigned to perform Attachment 11.

Notes/Comments

10	Verifies 1-RC-LI-105 energized.	Procedure Step 13

SAT [ ] UNSAT [ ]

Standards	Directs operator to energize 1-RC-LI-105.

Demonstration Cues	Inform the operator that an additional operator will energize 1-RC-LI-105.

Notes/Comments

11	Start Available Containment Air Recirc Fans.	Procedure Step 14

SAT [ ] UNSAT [ ]

Standards	Checks all 3 CARFs are operating.

Notes/Comments

12	Maintain core-cooling using forced circulation.	Procedure Step 15a – 15c

Critical Step	SAT [ ] UNSAT [ ]

Standards	• Verifies RCP 1A and 1C running. • ***Raises demand on 1-MS-PC-1464B to establish Core Exit TCs STABLE or DECREASING.** • Control feed flow to SGs to maintain 23-75% level.

Verbal-Visual Cues	Once CETs are verified stable or decreasing assume that another operator will complete the procedure.

Notes/Comments	***The only critical step of THIS standards is to increase dumping steam. Steam dumps should be operated (using a bump and wait technique) until Core Exit TCs are stable or decreasing.** Since SG levels are at normal operating level and will swell once Steam Dumps are throttled open level will be high and the operator will not have need to make any adjustments.

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

SIMULATOR SETUP

JOB PERFORMANCE MEASURE
R514 (Modified)

TASK

Respond to a Loss of RHR (1-AP-11).

CHECKLIST

_____ Recall the IC 180 (Mode 4 with temperature ~301° F).

_____ Do Simspray (remember startup 2, since this is a shutdown scenario).

_____ Place TEST magnet on control switches for B feed pump breakers.

_____ Ensure malfunction is entered and simulator is in freeze prior to candidate entering the Simulator.

Booth operator actions

Respond as operator to check breaker for 1B RHR pump if requested; call back in 2 minutes and report that there is nothing obviously wrong with the breaker, but there is an acrid odor coming from it. If asked to locally close the breaker tell him you will get the necessary brief, procedure, and equipment and call him once you are ready. If requested you will get support from electrical maintenance also.

IF asked as ANNEX/SM respond that you will evaluate EPIP-1.01 (and VPAP-2802, and make any required notifications, etc.).

If asked as Annex/HP, respond that you will coordinate evacuation of CNTMT.

Respond as extra operator to energize 1-RC-LI-105.

e

Dominion
North Anna Power Station
SIMULATOR JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

The Unit is operating at 100% power, steady state.

Turbine 1st stage pressure channel 1-MS-PT-1447 has failed low.

Immediate actions of 1-AP-3, Loss of Vital Instrumentation have been performed.

INITIATING CUE

You are requested to continue performance of 1-AP-3 up to and including completion of Step 10.

Dominion
North Anna Power Station
SIMULATOR JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R664 (modified)

TASK

Respond to failure of non-controlling 1st Stage Pressure Channel.

TASK STANDARDS

Steam dumps were transferred to steam-pressure mode IAW 1-AP-3; upon failure, steam dumps were taken to OFF/RESET as required by 1-AP-38.

K/A REFERENCE:

041-A4.04 (2.7/2.7)

ALTERNATE PATH:

YES

TASK COMPLETION TIMES

Validation Time = 12 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

SIMULATOR JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

R664 (modified)

READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE

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PREREQUISITES

The trainee has completed the applicable course knowledge training at the Reactor Operator level.

INITIAL CONDITIONS

The Unit is operating at 100% power, steady state.

Turbine 1st stage pressure channel 1-MS-PT-1447 has failed low.

Immediate actions of 1-AP-3, Loss of Vital Instrumentation have been performed.

INITIATING CUE

You are requested to continue performance of 1-AP-3 up to and including completion of Step 10.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

Copy of 1-AP-3, signed off through Step 3, to be provided to applicant.

PERFORMANCE STEPS

START TIME _____

NOTE: Although not required based on the initial conditions provided, operator may review Steps 1-3 to verify all step performance requirements are met and ascertain pertinent information such as the positions of SGWLC transfer switches, etc.

1	Verify systems affected by pressurizer level channels – NORMAL.	Procedure Step 4a – 4d of 1-AP-3

SAT [ ] UNSAT [ ]

Standards	• Verifies operable pressurizer level channels are selected (all channels 1459, 1460, 1461 indicate normal; switch may be checked in 461/460 position but doesn't matter since all channels are normal). • Verifies letdown in service (flow indicated, 1200B I/S orifice). • Verifies pressurizer level control in auto (1-RC-LC-1459G and 1-CH-FCV-1122 in auto). • Verifies control group heaters not tripped (annunciator NOT lit and white light ON for control group heaters).

Notes/Comments

2	Both 1st stage pressure channels normal –NO; transfer steam dumps to steam pressure mode. **Alternate path Step, operator performs Step 5 RNO based on Initial conditions of 1-MS-PT-1447 failed low.**	Procedure Step 5a–5g RNO of 1-AP-3

Critical Step	SAT [ ] UNSAT [ ]

Standards	• ***Place both STEAM DUMP INTLK switches to OFF/RESET.** • ***Place STEAM DUMP CONTROLLER to MANUAL.** • ***Place MODE SELECTOR switch to Steam PRESS.** • Ensure Steam Dump demand is ZERO (observes controller output and may also check meter on Vertical Panel). • ***Return STEAM DUMP CONTROLLER to AUTO.** • Verify Steam Dump demand is ZERO (observes controller output and may also check meter on Vertical Panel). • ***Place both STEAM DUMP INTLK switches to ON.**

Notes/Comments	* **ONLY THESE SUBSTEPS ARE CRITICAL.** Steam dumps will be at zero demand for these plant conditions, so no actions will be performed beyond looking at the subject indications; thus the steps to ensure demand is at zero, and subsequently verify demand remains at zero are not critical to successful performance of the Task.

3	Verify operable channels selected for SGWLC instruments.	Procedure Step 6 of 1-AP-3

SAT [ ] UNSAT [ ]

Standards	Checks all of the following indicating normal (with the exception of 1-MS-PT-1447): • Turbine 1st Stage Pressure (Blue Channel, 1-MS-PT-1446). • All selected Steam Flow Channels (Blue channel). • All selected Feed Flow cannels (Blue Channel). Note: Since all channels were checked previously operator may just observe the vertical panel and note that there are no other instrument failures.

Notes/Comments	The malfunction that causes 1-MS-TCV-1408A to open is on a set time delay; Operator will most likely not complete the above step since they may notice the failed steam dump and take actions of 1-AP-38.

4	Respond Excessive Load Increase (1-AP-38 immediate actions) **Alternate path step, the malfunction requires the candidate to stop performance of the current procedure, implement IOAs of 1-AP-38 from memory, and in order to terminate the transient, take manual actions per the RNO of 1-AP-38.**	Procedure Step 1-3 RNO of 1-AP-38

Critical Step	SAT [ ] UNSAT [ ]

Standards	• Verify ALL steam dumps closed – NO 1-MS-PCV-1408A is open. • *Place both STEAM DUMP INTLK switches to OFF/RESET. • Verifies steam dumps (1-MS-TCV-1408A) go closed. • Checks SG PORVs closed – YES. • Verify turbine load normal – YES/NO (see note). • Verify Reactor Power ≤ 100% and stable – YES/NO (see note).

Demonstration Cues	JPM is complete once operator states the immediate operator actions of 1-AP-38 are complete.

Notes/Comments	*** The only critical step of this element is Placing ONE of the STEAM DUMP INTLK switches to OFF/RESET since this will terminate the transient and reactor power will eventually return to the pre-event value.** Depending on when the operator identifies the malfunction and completes the required actions power may be high enough to warrant ramping. If Reactor Power is slightly greater than 100% because it has not returned to the pre-event value when checked the operator may elect to ramp.

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

SIMULATOR SETUP

JOB PERFORMANCE MEASURE
R664 (modified)

TASK

Respond to failure of non-controlling 1st Stage Pressure Channel

CHECKLIST

_____ Recall IC 167.

_____ Do Simspray.

_____ Ensure rod banks and Tave/Tref recorder are correct.

_____ Provide copy of 1-AP-3 with immediate action steps signed off.

Note: The malfunction (1-MS-TCV-1408 goes open), is set to trigger on time delay automatically after the operator completes transferring steam dumps to steam pressure mode and will close once the switches are taken to OFF/RESET.

f

Dominion
North Anna Power Station
SIMULATOR JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

The Unit is at 100% power, steady state, with NO equipment out of service.

Pressurizer relief tank pressure is below the 8 psig minimum specified in Operator logs.

Nitrogen System is not supplying the power-operated relief valve nitrogen accumulators.

Equipment Status Log has been reviewed to verify station configuration supports the performance of 1-OP-5.7, Operation of the Pressurizer Relief Tank (PRT).

INITIATING CUE

You are requested to add nitrogen to the Pressurizer Relief Tank in accordance with 1-OP-5.7, Operation of the Pressurizer Relief Tank (PRT), and raise pressure to 10 psig.

Dominion
North Anna Power Station
SIMULATOR JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R640

TASK

Add Nitrogen to the PRT (1-OP-5.7).

TASK STANDARDS

Task was performed as directed by the procedure referenced in the task statement.

K/A REFERENCE:

007 – A1.02, (2.7/2.9)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 13 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

SIMULATOR JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

R640

READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE

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PREREQUISITES

The trainee has completed the applicable course knowledge training at the Reactor Operator level.

INITIAL CONDITIONS

The Unit is at 100% power, steady state, with NO equipment out of service.

Pressurizer Relief Tank pressure is below the 8 psig minimum specified in Operator logs.

Nitrogen System is not supplying the power-operated relief valve nitrogen accumulators.

Equipment Status Log has been reviewed to verify station configuration supports the performance of 1-OP-5.7, Operation of the Pressurizer Relief Tank (PRT).

INITIATING CUE

You are requested to add nitrogen to the Pressurizer Relief Tank in accordance with 1-OP-5.7, Operation of the Pressurizer Relief Tank (PRT) and raise pressure to 10 psig.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

Blank copy of 1-OP-5.7, to be provided to applicant.

PERFORMANCE STEPS

START TIME _____

1	Review precautions and limitations.	Procedure Step 5.4.2

SAT [ ] UNSAT [ ]

Standards	Precautions and limitations have been reviewed.

Notes/Comments

2	Verify that nitrogen is aligned to the supply header.	Procedure Step 5.4.3

SAT [ ] UNSAT [ ]

Standards	Provided by Initial conditions.

Notes/Comments

3	Reduce the demand on Containment Nitrogen Supply Header 1-SI-HIC-100 to 0%.	Procedure Step 5.4.4

SAT [ ] UNSAT [ ]

Standards	1-SI-HIC-100 demand is reduced to 0%.

Notes/Comments

4	Open Nitrogen Supply To CNTMT 1-SI-TV-100.	Procedure Step 5.4.5

Critical Step	SAT [ ] UNSAT [ ]

Standards	OPEN pushbuttons for the solenoids 1-SI-TV-100A **AND** 100B are depressed SIMULTANEOUSLY.

Notes/Comments	The note prior to this step describes the logic (2/2) and explains that in order to open the valve BOTH pushbuttons must be used. If pushbuttons are pushed one-at-a-time, for example, the valve will NOT open.

5	Open Pressurizer Relief Tank Nitrogen Isol. 1-RC-HCV-1550.	Procedure Step 5.4.6

Critical Step	SAT [ ] UNSAT [ ]

Standards	1-RC-HCV-1550 placed in open.

Notes/Comments

6	Open N2 to PRZR Relief Tank Isol. 1-SI-HCV-1898.	Procedure Step 5.4.7

Critical Step	SAT [ ] UNSAT [ ]

Standards	1-SI-HCV-1898 placed in open.

Notes/Comments

7	Stop pressurizing the Pressurizer Relief Tank at the desired pressure.	Procedure Step 5.4.8a and 5.4.8b

Critical Step	SAT [ ] UNSAT [ ]

Standards	Desired pressure of 10 (+/- 1 psig) is reached in the PRT and the following valves are closed: • ***1-SI-HCV-1898 is closed.** • ***1-RC-HCV-1550 is closed.**

Notes/Comments	***It is only critical that ONE of the valves is closed, as closing either one isolates the flow path.**

8	Restore N2 header alignment.	Procedure Step 5.4.8c.1 and 5.4.8c.2

SAT [ ] UNSAT [ ]

Standards	Alignment restored by performing the following: • CLOSE push-buttons for the solenoids 1-SI-TV-100A and/or 100B are depressed. • 1-SI-HIC-100 demand is raised to 100%.

Notes/Comments

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

TASK

Add Nitrogen to the PRT (1-OP-5.7).

CHECKLIST

_____ Recall IC 170.

_____ Do Simspray.

_____ Ensure rod banks and Tave/Tref recorder are correct.

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 on Recirculation Spray Heat Exchanger Service Water Outlet Radiation Monitor 1-RM-SW-126.

Trend recorder 1-RM-RR-100 indicates increasing radiation for radiation monitor 1-RM-SW-126.

High and High-High alarms are illuminated on radiation monitor 1-RM-SW-126.

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 Recirculation Spray Heat Exchanger Service Water Outlet Radiation Monitor, 1-RM-SW-126, in accordance with 1-AP-5, Attachment 10.

Dominion
North Anna Power Station
IN-PLANT JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R775

TASK

Respond to a Recirculation Spray Heat Exchanger Service Water Radiation Monitor alarm (1-AP-5).

TASK STANDARDS

CDA was reset, 1-RS-P-2B was stopped, and SW was isolated to the "C" RSHX.

K/A REFERENCE:

073-A4.01 (3.9/3.9)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 15 minutes Start Time = _____
Actual Time = _____ minutes Stop Time = _____

PERFORMANCE EVALUATION

Rating [ ] SATISFACTORY [ ] UNSATISFACTORY

Candidate (Print) _____

Evaluator (Print) _____

Evaluator's Signature / Date _____

EVALUATOR'S COMMENTS

_____

_____

_____

Dominion
North Anna Power Station

IN-PLANT JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

R775

READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE

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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 on Recirculation Spray Heat Exchanger Service Water Outlet Radiation Monitor 1-RM-SW-126.

Trend recorder 1-RM-RR-100 indicates increasing radiation for radiation monitor 1-RM-SW-126.

High and high-high alarms are illuminated on radiation monitor 1-RM-SW-126.

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

Control room annunciator 1K-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 Recirculation Spray Heat Exchanger Service Water Outlet Radiation Monitor, 1-RM-SW-126, in accordance with 1-AP-5, Attachment 10.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

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 [ ]

Standards	**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.

Evaluator's Note	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.

Verbal-Visual Cues	**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 [ ]

Standards	**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 [ ]

Standards	Operator requests HP to perform sampling and check radiation levels.

Verbal-Visual Cues	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 [ ]

Standards	Operator contacts Shift Manager or SRO (e.g. Operations Supervisor, Operations Manager, Operations Manager ON-Call, etc.) for guidance.

Verbal-Visual Cues	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 [ ]

Standards	Operator identifies the need to refer to Tech Spec 3.6.7.

Verbal-Visual Cues	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 [ ]

Standards	Both SPRAY ACTUATION RESET switches are placed in the RESET position.

Verbal-Visual Cues	***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 [ ]

Standards	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 [ ]

Standards	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 [ ]

Standards	Safeguards operator is requested to place the key-lock switches for 1-SW-MOV-103C and 1-SW-MOV-104C in the DEFEAT position.

Verbal-Visual Cues	Safeguards operator has placed the key-lock switches for 1-SW-MOV-103C and 1-SW-MOV-104C in the DEFEAT position. *__IF__ identified by the operator, **THEN** confirm receipt of the following annunciators: • 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 [ ]

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

Verbal-Visual Cues	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. **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.

Notes/Comments

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

Critical Step	SAT [ ] UNSAT [ ]

Standards	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 [ ]

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

Verbal-Visual Cues	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. **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.

Notes/Comments

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

Critical Step	SAT [ ] UNSAT [ ]

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

Verbal-Visual Cues	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. **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.

Notes/Comments

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

SAT [ ] UNSAT [ ]

Standards	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 [ ]

Standards	Operator identifies the need to generate a Work Request.

Verbal-Visual Cues	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 [ ]

Verbal-Visual Cues	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 intented 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".

h

Dominion
North Anna Power Station
SIMULATOR JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

Unit 1 is operating at 30% power holding for chemistry.

Unit 2 is in Mode 5 for scheduled refueling outage.

Circulating Water Pump 1-CW-P-1A is OOS for oil replacement.

CW PP 1A-1B-1C-1D AUTO TRIP Annunciator 1B-A5, has just been received.

INITIATING CUE

You are requested to respond to plant conditions in accordance with 1-AP-13.

Dominion
North Anna Power Station
SIMULATOR JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

R517 (modified)

TASK

Respond to Annunciator 1B-A5, CW PP 1A-1B-1C-1D AUTO TRIP.

TASK STANDARDS

Immediate Operator Action (Step 1) performed without reference to procedure. Liquid waste releases secured in accordance with 1-AP-13.

K/A REFERENCE:

075-A2.02 (2.5/2.7)

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

SIMULATOR JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

R517 (Modified)

READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE

Instructions for Simulator JPMs

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

Instructions for In-Plant JPMs

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

PREREQUISITES

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

INITIAL CONDITIONS

Unit 1 is operating at 30% power holding for chemistry.

Unit 2 is in Mode 5 for scheduled refueling outage.

Circulating Water Pump 1-CW-P-1A is OOS for oil replacement.

CW PP 1A-1B-1C-1D AUTO TRIP Annunciator 1B-A5, has just been received.

INITIATING CUE

You are requested to respond to plant conditions in accordance with 1-AP-13.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

Blank copy of 1-AP-13 to be provided to applicant (AFTER PERFORMANCE OF STEP 1).

PERFORMANCE STEPS

START TIME _____

1	Verify that at least two circulating water pumps are running - YES.	Procedure Step 1

SAT [ ] UNSAT [ ]

Evaluator's Note	**Provide blank copy of 1-AP-13 to candidate after completion of Step 1, or at the discretion of the Evaluator candidate may use the copy that is normally available in the book or spare copy file.**

Standards	Candidate checks panel and determines Two (2) Circulating Water Pump are running, (observes breaker indication, motor amps, discharge valve position, etc.).

Notes/Comments

2	Check Turbine Load Control.	Procedure Step 2a and 2b

SAT [ ] UNSAT [ ]

Standards	Checks EHC Panel and verifies the following: • Turbine Valve Position Limiter Light – NOT LIT. • Turbine Load Control, IMP-IN Light – LIT.

Notes/Comments

3	Verify Condenser Vacuum < 3.5" Hg and stable - YES.	Procedure Step 3

SAT [ ] UNSAT [ ]

Standards	Verifies that Condenser vacuum stable at < 3.5 " Hg using recorder on vertical panel and/or PCS.

Demonstration Cues	**IF** candidate states that vacuum is degrading and 1-AP-14 should be implemented based on the RNO, **THEN** tell the candidate that another operator will implement 1-AP-14, continue with 1-AP-13.

Notes/Comments	Vacuum may be lowering on the order of thousands of an inch if viewed on the PCS screen, this is for all intensive purposes stable. If the candidate considered vacuum degrading based on the plant conditions it may be desirable to follow-up at the conclusion of the JPM (using the same PCS screen it will show that although several minutes have elapsed since the time the JPM started, vacuum is essentially unchanged).

4	Check operating CWP amps less than 340 amps - YES.	Procedure Step 4

SAT [ ] UNSAT [ ]

Standards	Verifies operating CWP (1B and 1D) amps less than 340 amps.

Notes/Comments

5	Check bearing cooling system support.	Procedure Step 5

SAT [ ] UNSAT [ ]

Standards	Verifies the following: • Circ Water Intake Tunnel Full Light – LIT. • At least one CWP operating (1B and 1D CWPs running).

Notes/Comments

6	Determine if securing liquid waste releases required – YES.	Procedure Step 6

Critical Step	SAT [ ] UNSAT [ ]

Standards	Contacts HP and informs them of CWP status and requests determination as to if releases need to be secured.

Notes/Comments	HP will advise the operator that the Liquid Release Permit in effect requires a minimum of 3 CWPs running on Unit 1. If the operator asks HP to clarify if liquid releases need to be secured HP will concur. The permit is not normally available in the Control Room; the operator must obtain the information from HP and based on that information the operator implements Step 7 of the procedure, otherwise the operator would go to Step 8 per the RNO and bypass the actions to secure releases.

7	Verify SG Blowdown Trip Valves closed. **Alternate Path Step, operator will manually close Unit 1 blowdown trip valves per Step 7a RNO.**	Procedure Step __7a__

Critical Step	SAT [ ] UNSAT [ ]

Standards	• ***Closes SG Blowdown Trip Vavles on H Safeguards Panel (per RNO). → 1-BD-TV-100A, 100C, and 100E.** • ***Closes SG Blowdown Trip Vavles on J Safeguards Panel (per RNO). → 1-BD-TV-100B, 100D, and 100F.** • Verifies with Unit 2 OATC that Unit 2 Blowdown Trip Valves are closed.

Notes/Comments	***It is only critical to close ONE set of SG Blowdown Trip Valves (H panel or J panel) as closing either of the valves, which are in series isolates the flow path.** Blowdown trip valve pushbuttons are located in the lower left hand corner of the Safeguards panels. Closing of the valves will actuate the Blowdown system trouble annunciator; thus this is an expected annunciator.

8	Locally close BD tank isolation valves.	Procedure Step __7b__

SAT [ ] UNSAT [ ]

Standards	Operator dispatched to close the following valves: • 1-BD-1005 • 2-BD-182

Notes/Comments

9	Stop the following pumps to prevent clarifier overflow.	Procedure Step 7c

Critical Step	SAT [ ] UNSAT [ ]

Standards	• ***1-LW-P-6A and 1-LW-P-6B are stopped.** • 1-LW-P-1A and 1-LW-P-1B are verified stopped. • 1-BR-P-5A and 1-BR-P-5B are verified stopped.

Notes/Comments	***It is only critical to stop 1-LW-P-6A and 1-LW-P-6B as the other pumps are not running.**

10	Locally secure Containment Matt Sump Pumps.	Procedure Step 7d1 and 7d2

SAT [ ] UNSAT [ ]

Standards	Operator dispatched to perform the following: • Open SOV breakers 1-EP-DB-2 bkr 6 & 7 **AND** 2-EP-DB-5 bkr 6 & 7. • Verify Pumps are stopped.

Notes/Comments

11	Verify Liquid waste release secured. **Alternate Path Step, operator will place valve in HAND CONTROL per Step 7e RNO based on Initial Condition of valve in auto.**	Procedure Step 7e

Critical Step	SAT [ ] UNSAT [ ]

Standards	Operator places 1-LW-PCV-115 control switch in HAND and verifies valve closed (per RNO).

Demonstration Cues	At this time another operator will complete the rest of the procedure.

Notes/Comments	JPM is complete once operator moves forward past Step 7.

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

SIMULATOR SETUP

JOB PERFORMANCE MEASURE
R517 (Modified)

TASK

You are requested to respond to plant conditions in accordance with 1-AP-13

CHECKLIST

_____ Recall IC #172 (30% power)

_____ Place clearance info stickers on 1-CW-P-1A control switch **AND** discharge MOV.

_____ Ensure Tave/Tref recorder on proper range and check rod bank update.

Booth Operator Actions:

If dispatched to investigate trip of 1-CW-P-1C then wait approximately 3 minutes and respond that you see nothing obviously wrong with the pump but the breaker does have an over-current target dropped.

At Step 6 respond as HP that the Liquid Release Permit in effect requires a minimum of 3 CWPs running on Unit 1. If asked to confirm that releases need to be secured concur with the operator.

If called at Step 7 respond as Unit 2 and confirm that all SG Blowdown Trip Valves on Unit 2 are closed.

Respond as operator to perform Step 7b of the procedure to close valves 1-BD-1005 and 2-BD-182 (no manipulations are necessary since these actions are invisible to the OATC) – call back in ~ 5 minutes with actions complete.

Respond as operator to perform Step 7d of the procedure to secure Matt Sump Pumps by opening SOV breakers 1-EP-DB-2 BKR 6 & 7 **AND** 2-EP-DB-5 BKR 6 & 7 **AND** verifying Pumps are stopped (no manipulations are necessary) – call back in ~ 5 minutes with actions complete if JPM is still in progress.

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Dominion
North Anna Power Station
IN-PLANT JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

Instrument air has been lost.

INITIATING CUE

You are requested to open the Residual Heat Removal Heat Exchanger Cooling Water Return Valves 1-CC-TV-103A and 1-CC-TV-103B locally in accordance with 1-AP-28, Loss of Instrument Air, Attachment 3.

Dominion
North Anna Power Station
IN-PLANT JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

N925

TASK

Open the residual heat removal heat exchanger cooling water return valves using a jumper (1-AP-28).

TASK STANDARDS

1-CC-TV-103A and 1-CC-TC-103B have been jumpered open.

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:

008-A2.05 (3.3/3.5)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Critical Time = NO

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

IN-PLANT JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

N925

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

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

INITIATING CUE

You are requested to open the Residual Heat Removal Heat Exchanger Cooling Water Return Valves 1-CC-TV-103A and 1-CC-TV-103B locally in accordance with 1-AP-28, Loss of Instrument Air, Attachment 3.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

Key to Appendix R storage cabinet (simulate)

Adjustable wrench (simulate)

Nitrogen jumper rig (training rig staged at valves)

Nitrogen or air bottle (simulate)

Copy of 1-AP-28, Attachment 3, to be provided to applicant.

PERFORMANCE STEPS

START TIME _____

Note: JPM has been formatted for ease of use. Steps in left column correspond to step numbers of Attachment 3, page number of the attachment is given in the right hand column.

steps 1&2	Obtain a jumper rig, nitrogen or air bottle, and adjustable wrench.	Attachment 3 Page 1 of 3

Critical Step	SAT [ ] UNSAT [ ]

Standards	Operator explains where to obtain the following: • key to unlock appendix R locker • jumper rig • nitrogen/air bottle • adjustable wrench.

Verbal-Visual Cues	• Tell me where you would get the required key. • Show me where you would obtain the jumper rig. • Explain to me how you would obtain a nitrogen/air bottle. • Tell me where you would go to obtain an adjustable wrench. After the above have been done, give the following cue: You may assume that you have obtained they key, the jumper rig, nitrogen/air bottle, and adjustable wrench.

Notes/Comments

Step 3a	Isolate the instrument air supply to the trip valves.	Attachment 3 Page 2 of 3

SAT [ ] UNSAT [ ]

Standards	Local air supply valves for 1-CC-TV-103A and 103B are closed.

Verbal-Visual Cues	Confirm actions once operator identifies components and describes action of closing valves.

Notes/Comments

Step 3b	Connect the regulator to the nitrogen bottle.	Attachment 3 Page 2 of 3

Critical Step	SAT [ ] UNSAT [ ]

Evaluator's Note	The training jumper rig is stored in a box under the desk next to the valves. The jumper rig should be used to aid in describing the task from this point forward.

Standards	Jumper rig is connected to the nitrogen bottle as follows: • Remove cap from nitrogen bottle • Thread the brass bottle connection on the jumper rig into the bottle stop connection and tighten.

Verbal-Visual Cues	Tell trainee to use training jumper rig to facilitate Task explanation. SEE NOTES Have operator describe using attachment 3 and the training jumper rig Once operator has described how to connect the regulator to the bottle then confirm that rig is connected as described.

Notes/Comments	Bottle should be located in the vicinity of the CC valves such that jumper rig can reach both valves. **The hoses on the training rig are slightly shorter than the actual rig since it is not intended to be used in plant, thus the exact location the trainee simulates placing the bottle is not critical.** If the candidate notes the shorter hoses, acknowledge and have them continue with task simulation.

NOTE: Steps 3c and 3d may be performed in any order as long as BOTH are performed; although order is specified procedurally to follow rules of usage, doing them out of order would have no consequence as it relates to the Task of opening the valves.

Step 3c	Connect the jumper rig to 1-CC-TV-103A by performing the following:	Attachment 3 Page 2 of 3

Critical Step	SAT [ ] UNSAT [ ]

Standard	Using the adjustable wrench, disconnect copper tubing from the end of 1-CC-TV-103A actuator by turning **counter-clockwise**.	SAT [ ] UNSAT [ ]
Standard	Using the adjustable wrench, removes the 90° elbow (tubing-to-pipe thread adapter) from the bushing of 1-CC-TV-103A actuator by turning **counter-clockwise**.	SAT [ ] UNSAT [ ]
Standard	Remove the quick disconnect adapter from the jumper rig and thread into1-CC-TV-103A actuator bushing by turning **clockwise**.	SAT [ ] UNSAT [ ]
Standard	Connect one jumper rig hose to 1-CC-TV-103A actuator by mating quick disconnect.	SAT [ ] UNSAT [ ]

Verbal-Visual Cues	Have operator describe using attachment 3 and the training jumper rig then confirm that rig is connected as described.

Notes/Comments

Step 3d	Connect the jumper rig to 1-CC-TV-103B by performing the following:	Attachment 3 Page 2 of 3

Critical Step	SAT [ ] UNSAT [ ]

Standard	Using the adjustable wrench, disconnect copper tubing from the end of 1-CC-TV-103B actuator by turning **counter-clockwise**.	SAT [ ] UNSAT [ ]
Standard	Using the adjustable wrench, removes the 90° elbow (tubing-to-pipe thread adapter) from the bushing of 1-CC-TV-103B actuator by turning **counter-clockwise**.	SAT [ ] UNSAT [ ]
Standard	Remove the quick disconnect adapter from the jumper rig and thread into1-CC-TV-103B actuator bushing by turning **clockwise**.	SAT [ ] UNSAT [ ]
Standard	Connect one jumper rig hose to 1-CC-TV-103B actuator by mating quick disconnect.	SAT [ ] UNSAT [ ]

Verbal-Visual Cues	Have operator describe using attachment 3 and the training jumper rig then confirm that rig is connected as described.

Notes/Comments

Step 3e	Adjust regulator to full counterclockwise direction.	Attachment 3 Page 2 of 3

Critical Step	SAT [ ] UNSAT [ ]

Standards	Backs regulator off by adjust regulator to full counter-clockwise direction.

Verbal-Visual Cues	Have operator demonstrate using training jumper rig then confirm action.

Notes/Comments	Failure to perform this action could over-pressurize the valve actuators causing damage to the actuator and possible failure of the valves, thus this step has been deemed critical.

Step 3f	Open Nitrogen/air bottle isolation valve.	Attachment 3 Page 2 of 3

Critical Step	SAT [ ] UNSAT [ ]

Standards	Open bottle stop by turning in the **counter-clockwise** direction.

Verbal-Visual Cues	Have operator describe using attachment 3 then confirm action. **IF** operator expresses a pressure observed on the high-pressure gauge of the jumper rig, **THEN** confirm that pressure is as expressed.

Notes/Comments

Step 3g	Open BOTH Nitrogen/air jumper rig shut-off valves.	Attachment 3 Page 2 of 3

Critical Step	SAT [ ] UNSAT [ ]

Standards	Opens BOTH Nitrogen/air jumper rig shut-off valves by turning in the counter-clockwise direction.

Verbal-Visual Cues	Have operator demonstrate using training jumper rig then confirm action.

Notes/Comments

Step 3h	Slowly increase the regulator setpoint until the RHR Heat Exchanger CC Outlet valves (1-CC-TV-103A and 103B) are open.	Attachment 3 Page 2 of 3

Critical Step	SAT [ ] UNSAT [ ]

Evaluator's Note	**Valve position indicators for these valves are located on the underside of the actuator – USE CAUTION if going underneath valves to have a good visual of the indicators.** Trainee may contact control room to confirm valve position change (indication lights on Vertical panel) and may also choose to observe valve stem for 90° rotation any of these means is adequate to confirm that valves opened.

Standards	Increases regulator output by turning in the clockwise direction until valves are observed to be open.

Verbal-Visual Cues	Have operator demonstrate regulator operation using training jumper rig **AND** describe how he would tell that the valves are open, then confirm that the valves are open (may be done by pointing to position indicator of valves if desired, or as noted above, if operator chooses to contact the control room then confirmation from the control room that red lights are LIT and green lights are NOT LIT for the subject valves).

Notes/Comments	Multiple means may be used to confirm valve position change, any of which satisfy the critical step requirement for opening the valves – see evaluators note above.

steps 4 & 5	Notify the control room operator of the trip valves' status and to make a jumper log entry.	Attachment 3 Page 2 of 3

SAT [ ] UNSAT [ ]

Standards	Operator states they would notify control room that jumper installation was complete and request jumper log entry.

Verbal-Visual Cues	The control room acknowledges that 1-CC-TV-103A and 103B have been jumpered open. A jumper log entry will be made. Control room directs you to resume normal duties (JPM is complete at this point or when candidate expresses they have completed attachment 3)

Notes/Comments

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

Rig staged in box underneath desk next to valves

Dominion
North Anna Power Station
IN-PLANT JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

The Unit is in Mode 1 and Power to 1-I vital bus has been lost.

1-I vital bus and inverter have been inspected and approved for use by Electrical Department.

The 1-I inverter and regulating transformer were recently untagged and are available for use.

Equipment status has been reviewed and station configuration will support placing the inverter in service.

Loaded testing is not required.

No circuit breakers were found trip.

Inverter Trouble annunciator was not defeated.

There are 3 circulating water pumps in operation.

INITIATING CUE

You are requested to re-energize vital bus 1-I from inverter 1-I and to energize the bypass transformer in accordance with 1-MOP-26.60, Vital Bus 1-I, Subsection 5.4, Reenergizing Vital Bus 1-I from Inverter 1-I.

Dominion
North Anna Power Station
IN-PLANT JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

N30

TASK

Re-energize a 120-volt vital bus from its inverter (1-MOP-26.60).

TASK STANDARDS

Vital bus 1-I has been energized from inverter 1-I and its bypass transformer is energized.

K/A REFERENCE:

057-AA1.01 (3.7/3.7)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 25 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

N30

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

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

INITIAL CONDITIONS

The Unit is in Mode 1 and power to 1-I vital bus has been lost.

1-I vital bus and inverter have been inspected and approved for use by Electrical Department.

The 1-I inverter and regulating transformer were recently untagged and are available for use.

Equipment status has been reviewed and station configuration will support placing the inverter in service.

Loaded testing is not required.

No circuit breakers were found trip.

Inverter Trouble annunciator was not defeated.

There are 3 circulating water pumps in operation.

INITIATING CUE

You are requested to re-energize vital bus 1-I from inverter 1-I and to energize the bypass transformer in accordance with 1-MOP-26.60, Vital Bus 1-I, Subsection 5.4, Reenergizing Vital Bus 1-I from Inverter 1-I.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

Copy of 1-MOP-26.60, Section 1-4, Subsection 5.4, and Att. 4 to be provided to applicant.

PERFORMANCE STEPS

START TIME _____

1	Initial conditions are satisfied.	Procedure Step 5.4.1

SAT [ ] UNSAT [ ]

Standards	Initial Conditions of JPM are checked.

Notes/Comments This information is specified in the JPM IC sheet so no cue is needed.

2	Review Precautions and Limitations.	Procedure Step 5.4.2

SAT [ ] UNSAT [ ]

Standards	Procedure precautions and limitations are reviewed.

Notes/Comments

3	Verify that the Electrical Department has approved the bus to be re-energized.	Procedure Step 5.4.3a – 5.4.3d

SAT [ ] UNSAT [ ]

Standards	Initial conditions of JPM are checked to verify bus can be re-energized.

Notes/Comments

3 (cont'd)	Ensure that the AUTO RE-TRANSFER switch is in OFF.	Procedure Step 5.4.3e (see notes)

SAT [ ] UNSAT [ ]

NOTE TO THE EVALUATOR	Have operator explain where switch is located and how it would be checked. DO NOT open cabinet. (Refer to Attachment 4 of procedure)

Standards	Operator explains that switch is located inside top, right cabinet and that the switch would be down if it was OFF.

Verbal-Visual Cues	Explain how you would perform this step. Assume another operator has verified that the auto re-transfer switch is OFF.

Notes/Comments	Step 5.4.3f is N/A per the Initial Conditions (loaded testing is NOT required)

4	Open breaker #19 on SOV panel 1-EP-CB-19A if the following conditions exist. • One or two circulating water pumps are running and Vital SOV panel 1-EP-CB-19A is de-energized.	Procedure Step 5.4.4

SAT [ ] UNSAT [ ]

Standards	Operator N/As step based on Initial Conditions (3 CWPs running).

Notes/Comments

NOTE: It is not necessary for the candidate to open door for 1-EP-CB-12A panel. The breaker and position (ON) is well labeled; trainee should describe actions.

5	Ensure that the DC vital bus 1-I (1-EP-CB-12A) breaker #13 is closed.	Procedure Step 5.4.5

SAT [ ] UNSAT [ ]

Standards	1-EP-CB-12A, breaker #13 is verified to be ON (closed).
Verbal-Visual Cues	Once described by the operator confirm that the breaker is ON.

Notes/Comments

6	Enable annunciators if required.	Procedure Step 5.4.6

SAT [ ] UNSAT [ ]

Standards	Operator N/As step based on Initial Conditions.

Notes/Comments

7	Clear associated danger tags, if required.	Procedure Step 5.4.7

SAT [ ] UNSAT [ ]

Standards	Operator N/As step based on Initial Conditions.

Notes/Comments

8	Energize and align the inverter for normal operation.	Procedure Step 5.4.8a - 5.4.8f

Critical Step	SAT [ ] UNSAT [ ]

Standards Note 1	The following actions are performed in sequence: **5.4.8a → Depress the PRECHARGE push-button**	SAT [ ] UNSAT [ ]
	5.4.8b → When the precharge light is lit, then release the PRECHARGE push-button.	SAT [ ] UNSAT [ ]
	5.4.8c → Close the DC input breaker.	SAT [ ] UNSAT [ ]
	5.4.8d → Close the inverter output breaker.	SAT [ ] UNSAT [ ]
	*5.4.8e and 5.4.8f → allow inverter to warm-up	SAT [ ] UNSAT [ ]

Verbal-Visual Cues	5.4.8a&b → After about 5 seconds tell operator Precharge light is lit. 5.4.8c → When manipulation is described by the Operator confirm that the DC input breaker is as it appears now. 5.4.8d → When manipulation is described by the Operator confirm that the Inverter Output breaker is as it appears now. 5.4.8e → When operator describes that they would expect output voltage to slowly ramp up and stabilize, then tell them Output voltage is as it appears now. 5.4.8f → When operator describes that they would expect frequency to ramp up and stabilize, then tell them frequency is as it appears now.

Notes/Comments	*** Steps 5.4.8e and 5.4.8f are not critical as they will occur without any action needed.**

Note 1: The precharge light being illuminated when the DC input breaker was closed was not critical for this JPM. BJC 8/18/08

NOTE: IF desired by the evaluator, the second bullet may be performed out of order (following completion of the JPM) for convenience – see cues and comments below.

9	Close the vital bus panel's isolation breaker, the main feeder breaker from the transformer switch, and re-install the tamper seal.	Procedure Step 5.4.9a - 5.4.9b

Critical Step	SAT [ ] UNSAT [ ]

Standards	Close the following: • 1-EP-CB-001 breaker taken to CLOSE (ON).	SAT [ ] UNSAT [ ]
	• *1-EP-CB-4A breaker 35 taken to CLOSE (ON).	SAT [ ] UNSAT [ ]

Verbal-Visual Cues	Assume that another operator has provided SVs. • When identified by the operator tell them 1-EP-CB-001 **(knife switch located adjacent to inverter)** breaker is as they see it now. • ***IF** desired for efficiency, **THEN** tell the operator they may assume 1-EP-CB-4A breaker 35 is closed and continue with the task (after the inverter & transformer is energized have the trainee identify the panel). **OR if desired to perform at this time, THEN** • ***When** identified by the operator, **THEN** confirm 1-EP-CB-4A **(panel located behind control room)** breaker 35 is closed. #5.4.9.b → When identified by the operator: Tell Operator that another operator will install the tamper seal.

Notes/Comments	***This substep may be verified after inverter is & transformer have been energized at the discretion of the evaluator.** **#Substep 5.4.9.b is not critical to this element as installing the tamper seal is administrative and nature and does not affect the outcome of the Task.**

10	Transfer the vital bus load to the inverter by performing the following action: • Place the manual bypass switch in the INVERTER TO LOAD position.	Procedure Step 5.4.10

Critical Step	SAT [ ] UNSAT [ ]

Standards	5.4.10 → Vital bus 1-1 manual bypass switch is rotated to the INVERTER TO LOAD position.	SAT [ ] UNSAT [ ]

Verbal-Visual Cues	Assume that another operator has provided SVs. 5.4.10 → When identified by the operator: Tell Operator that the manual bypass switch is as it appears now.

Notes/Comments

11	Transfer the vital bus load to the inverter by performing the following action: • Depress the INVERTER to LOAD pushbutton.	Procedure Step 5.4.11

Critical Step	SAT [ ] UNSAT [ ]

Standards	5.4.11 → Inverter to LOAD pushbutton depressed.	SAT [ ] UNSAT [ ]

Verbal-Visual Cues	Assume that another operator has provided SVs. 5.4.11 → When identified by the operator: Tell Operator that the Inverter Supplying Load Light is as it appears now.

Notes/Comments

12	Verify that the vital bus is energized and is indicating about 120 volts.	Procedure Step 5.4.12

SAT [ ] UNSAT [ ]

Standards	Operator checks vital bus voltage is approximately 120 volts.

Verbal-Visual Cues	Tell Operator Vital bus voltage is as it appears now.

Notes/Comments

13	If the vital bus bypass transformer was also de-energized, perform the following actions:	Procedure Step 5.4.13a – 5.4.13d

Critical Step	SAT [ ] UNSAT [ ]

Standards	**5.4.13a → 1-EE-BKR-1H1-4 C3L, Vital Bus 1-I Bypass transformer circuit breaker is closed.**	SAT [ ] UNSAT [ ]
	5.4.13b → 1-VB-INV-01, AC input to regulator is ON.	SAT [ ] UNSAT [ ]
	*5.4.13c → Allow Voltage regulating transformer to warm-up until output voltage is 114-125 volts.	SAT [ ] UNSAT [ ]
	5.4.13d → 1-VB-INV-01, Bypass source AC input breaker is ON.	SAT [ ] UNSAT [ ]

Verbal-Visual Cues	Assume that another operator has provided SVs. 5.4.13a → When identified by Operator confirm that breaker is as it appears now. 5.4.13b → When identified by Operator confirm that breaker is as it appears now. 5.4.13c → When operator identifies requirement tell them the Transformer has warmed up and desired output voltage is indicated. 5.4.13d → When identified by Operator confirm that breaker is as it appears now. **Tell the Operator that another operator will complete the procedure.** **IF** not previously done, **THEN** have candidate identify 1-EP-CB-4A **(panel located behind control room)** breaker 35.

Notes/Comments	*5.4.13c → Allow Voltage regulating transformer to warm-up until output voltage is 114-125 volts is NOT critical to this element as this will occur without any action by the operator.

>>>>> END OF EVALUATION <<<<<

STOP TIME _____

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

None

K

Dominion
North Anna Power Station
IN-PLANT JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

INITIAL CONDITIONS

The OATC attempted to trip UNIT 2 and the reactor DID NOT trip.

INITIATING CUE

You are requested to trip the UNIT 2 reactor locally in accordance with Attachment 4, Remote Reactor Trip, of 2-FR-S.1, Response to Nuclear Power Generation/ATWS.

Dominion
North Anna Power Station
IN-PLANT JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

N1047

TASK

Trip the reactor by opening the reactor trip breakers or the rod-drive motor generator breakers locally (2-FR-S.1, 2-AP-20).

TASK STANDARDS

The reactor was tripped by locally tripping MG set supply breakers in 307 Switchgear.

K/A REFERENCE:

029-EA1.12 (4.1/4.0) (Note: This task is categorized as Safety Function 1 per ES-401-2)

ALTERNATE PATH:

YES

TASK COMPLETION TIMES

Validation Time = 10 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

N1047

READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE

Instructions for Simulator JPMs

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

Instructions for In-Plant JPMs

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

PREREQUISITES

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

INITIAL CONDITIONS

The OATC attempted to trip UNIT 2 and the reactor did not trip.

INITIATING CUE

You are requested to trip the UNIT 2 reactor locally in accordance with Attachment 4, Remote Reactor Trip, of 2-FR-S.1, Response to Nuclear Power Generation/ATWS.

EVALUATION METHOD

Demonstration if conducted in the simulator or in a laboratory (use DEMONSTRATION cues)

Verbal-visual if conducted in the station or on a dead simulator (use VERBAL-VISUAL cues)

TOOLS AND EQUIPMENT

Copy of 2-FR-S.1, Att.4, to be provided to applicant.

PERFORMANCE STEPS

START TIME _____

Note: The operator may perform actions 1-4, checking for a response after each individual action is performed, or may elect to perform all of the actions (1-4) then check the responses afterwards, either method is acceptable.

1	Locally trip the reactor from the rod drive room.	Procedure Step 1a of Att.4

SAT [ ] UNSAT [ ]

Standards	TRIP pushbuttons for the Reactor Trip and Reactor Trip Bypass breakers are depressed.

Verbal-Visual Cues	Inform the operator that breaker indication is as he/she sees them now.

Notes/Comments	Bypass breakers are normally racked in and open. Operator may state this and based on this condition may express that there is no need to depress the pushbutton on the bypass breakers provided they are in the expected (OPEN) condition as indicated by the green OPEN mechanical flag.

2	Put both M-G Set Generator Output Breakers control switches to TRIP.	Procedure Step 1a of Att.4 (con't)

SAT [ ] UNSAT [ ]

Standards	Control switches for both motor generator sets are placed in TRIP.
Verbal-Visual Cues	Inform the operator that breaker indication is as he/she sees them now.

Notes/Comments

3	Press the TRIP buttons for both M-G Set Generator Output Breakers.	Procedure Step 1a of Att.4 (con't)

SAT [ ] UNSAT [ ]

Standards	Depresses the TRIP push-button for each motor generator output breakers.
Verbal-Visual Cues	Inform the operator that breaker indication is as he/she sees them now.

Notes/Comments

4	Put both M-G Set Motor Supply Breakers control switches to TRIP.	Procedure Step 1a of Att.4 (con't)

SAT [ ] UNSAT [ ]

Standards	Control switches for both motor generator set supply breakers are placed in TRIP.
Verbal-Visual Cues	Inform the operator that breaker indication is as he/she sees them now.

Notes/Comments

5	Verify at least one of the following conditions satisfied: • All reactor trip and bypass breakers are open - NO • Both M-G set output breakers are open -NO • Both M-G set supply breakers are open – NO **Alternate path step, operator transitions to Step 3 to trip the reactor locally per the RNO of this step.**	Procedure Step 1b of Att.4 (con't)

SAT [ ] UNSAT [ ]

Standards	Operator proceeds to Step 3 based on the Response Not Obtained.
Verbal-Visual Cues	Inform the operator that all breaker indications are as he/she sees them now (cue may not be necessary if information was provided previously as the individual actions were performed).

Notes/Comments

6	Locally trip the reactor from the 307 Switchgear room.	Procedure Step 3a of Att.4

Critical Step	SAT [ ] UNSAT [ ]

Standards	*__LEFT__ Mechanical TRIP pushbutton for **BOTH** M-G set motor supply breakers are depressed: • 2-EP-BKR-24A1-3, 2-ED-MG-1A Rod Drive M-G Set Motor Supply Breaker. • 2-EP-BKR-24C2-12, 2-ED-MG-1B Rod Drive M-G Set Motor Supply Breaker.

Verbal-Visual Cues	**SEE NOTES BELOW** When the operator describes the expected response for the actions (breaker changes state as indicated by the green OPEN mechanical flag) inform the operator that the breaker shows a green OPEN flag.

Notes/Comments	*Each of these breakers have two TRIP pushbuttons. The right pushbutton only works with the breaker in test. IF the candidate pushes ONLY the RIGHT pushbutton they should be cued that the breaker appears as they see it now (i.e. no change of state occurs so the breaker remains closed).

7	Notify the control room operator of status of the rod power supply breakers.	Procedure Step 3b of Att.4

SAT [ ] UNSAT [ ]

Standards	Notifies Control Room of Rod Drive MG Set power supply breaker status.

Verbal-Visual Cues	Operator acknowledges report and directs you to return to your normal duties.

Notes/Comments	JPM is complete at this point.

>>>>> END OF EVALUATION <<<<<

STOP TIME _____