

Facility: **North Anna Power Station**Date of Examination: 6/21/2010Examination Level: **Combined (See Below)**Operating Test Number: 1 (FINAL)

Administrative Topic (see Note)	Type Code*	Describe activity to be performed (KA)
1a) Conduct of Operations	M, R G2.1.7	Determine the Quadrant Power Tilt Ratio by hand calculation (1-PT-23) and determine maximum allowable power level based on the calculation. (ALL) (G2.1.7, RO 4.4 / SRO 4.7)
1b) Conduct of Operations	D, R G2.1.25	Determine time to boil (1-GOP-13.1, Att. 1). (ALL) (2.1.25, RO 3.9 / SRO 4.2)
2) Equipment Control	M, R G2.2.37	Evaluate and apply Tech Specs and procedure requirements based on UNSAT condition of a plant component. (SRO) (2.2.37, RO 3.6 / SRO 4.6)
3) Radiation Control	M, R G2.3.7	Given an attached survey, determine entry requirements and stay times associated with a given work activity. (All) (2.3.7, RO 3.5 / SRO 3.6)
4) (SRO) Emergency Plan	M, R G2.4.41	Classify an emergency event (EPIP-1.01) (SRO ONLY) (2.4.41, RO 2.9 / SRO 4.6)
4) (RO) Emergency Plan	M, S, P G2.4.43	Transmit report of emergency to State and local governments. (RO only) (2.4.43, RO 3.2 / SRO 3.8)

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

* Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom
 (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
 (N)ew or (M)odified from bank (≥ 1)
 (P)revious 2 exams (≤ 1 ; randomly selected)

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

INITIAL CONDITIONS

Unit was at 100% power when a control rod dropped into the core

The Unit has been stabilized at 99% 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.

KEY is in
back of JPM

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
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

ADMINISTRATIVE JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

R709

INITIAL CONDITIONS

Unit was at 100% power when a control rod dropped into the core

The Unit has been stabilized at 99% 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 _____
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SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>
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<u>Standards</u>	Data correctly transcribed from the copy of 1-PT-22.4 provided.
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Notes/Comments

2	Calculate the normalized detector currents and averages.	Procedure Step _____
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SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>
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<u>Standards</u>	Normalized detector currents and averages are calculated.
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Notes/Comments

3	Calculate the quadrant power tilt ratios.	Procedure Step _____
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Critical Step	SAT [] UNSAT []
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<u>Standards</u>	<p>Upper and lower quadrant power tilt ratios are calculated.</p> <p>→ Individual QPTRs determined per the acceptance criteria of the attached answer key</p> <p>AND</p> <p>→ Maximum QPTR determined to be 1.0396</p> <p>acceptance criteria: 1.0386 to 1.0406 (+/- 0.001)</p>
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Notes/Comments

4	Record the value and location of the largest quadrant power tilt ratio.	Procedure Step _____
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	SAT [] UNSAT []
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<u>Standards</u>	<p>Value transcribed from previous step.</p> <p>Location recorded is N41L.</p>
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Notes/Comments	<p>The following elements take place one-on-one with the evaluator, after the candidate has completed the QPTR calculation in the classroom.</p>
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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 _____
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SAT <input type="checkbox"/>	UNSAT <input type="checkbox"/>
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<u>Evaluator's Note</u>	Provide candidate with Technical Specifications and Bases for use in completing this element and element 6.
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<u>Demonstration Cues</u>	Ask the applicant to identify whether the acceptance criteria of 1-PT-23 are met.
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<u>Standards</u>	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).
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Notes/Comments

6	Determine maximum allowable power level per TS 3.2.4.	Procedure Step _____
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Critical Step	SAT [] UNSAT []
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<u>Evaluator's Note</u>	<p>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.</p> <p>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.</p>
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<u>Demonstration Cues</u>	Ask the applicant to calculate the maximum power level allowed by Technical Specification 3.2.4, based on the QPTR.
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<u>Standards</u>	<p>Maximum power level determined to be 88.12% (from TS 3.2.4 power must be reduced $\geq 3\%$ from RTP for each 1% of QPTR > 1.00. Therefore $3.96\% \times 3 = 11.88$).</p> <p>For conservatism power may be rounded down to $88\% \pm 1\%$</p>
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Notes/Comments	
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>>>> END OF EVALUATION <<<<

STOP TIME _____

KEY

(Page 3 of 3)

Attachment 2
QPTR Hand Calculation

NOTE: Current Readings may be obtained from the face meters of the Power Range "B" Drawer OR from the test jacks OR from the Unit 1 PCS, if operable.

Description	N-41 Upper	N-42 Upper	N-43 Upper	N-44 Upper	Avg. of Upper Normalized Currents
Current Reading (record to nearest μ a)	154	144	167	200	
Expected Current (record as shown in Reactor Data Book or 1-PT-22.4)	154.2	162.8	170.4	200.3	
Normalized Current (Current Reading / Expected Current) (4 decimal places)	.9987	.8845	.9800	.9985	.9654
QPTR (Normalized Current / Avg. of Norm. Currents) (4 decimal places)	1.0345	.9162	1.0151	1.0343	

Description	N-41 Lower	N-42 Lower	N-43 Lower	N-44 Lower	Avg. of Lower Normalized Currents
Current Reading (record to nearest μ a)	183	147	204	218	
Expected Current (record as shown in Reactor Data Book or 1-PT-22.4)	177.8	162.8	204	212.1	
Normalized Current (Current Reading / Expected Current) (4 decimal places)	1.0292	.9029	1.0000	1.0278	.989975
QPTR (Normalized Current / Avg. of Norm. Currents) (4 decimal places)	1.0396	.9120	1.0101	1.0382	

Maximum QPTR: 1.0396

(Record Maximum Upper or
Lower QPTR Value from above)

Quadrant of Max QPTR: N-41 LOWER

(N41 Upper, N41 Lower
N42 Upper, N42 Lower, etc.)

Completed by: KEY Date: _____

Verified by: _____

Date/Time Verification Completed: _____ (Use this Time for recording
when surveillance is completed)

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

INITIAL CONDITIONS

The unit entered Mode 3 on 4/01/2010 at 0600 for a scheduled refueling outage.

The core has been reloaded and the cavity drain-down is complete.

Current conditions are as follows:

- The Date and time is 4/20/2010, 2000
- RCS level is 74 inches above Mid Loop
- RHR pump discharge temperature is 97°F
- 55 fuel assemblies were exchanged during on-load

INITIATING CUE

The Shift Manager has directed you to determine the estimated time to boil in accordance with 1-GOP-13.1, using the current conditions.
(Record your results in the space provided)

Corrected Time to Boil estimate: _____

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

TASK

Determine estimated time to boil.

TASK STANDARDS

Given a copy of 1-GOP-13.1, determine the estimated time to boil

K/A REFERENCE:

G2.1.25 (3.9/4.2)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 10 minutes

Actual Time = _____ minutes

Start Time = _____

Stop Time = _____

PERFORMANCE EVALUATION

Rating ☐ SATISFACTORY ☐ UNSATISFACTORY

Candidate (Print) _____

Evaluator (Print) _____

Evaluator's Signature /
Date _____

EVALUATOR'S COMMENTS

Dominion
North Anna Power Station

ADMINISTRATIVE JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

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.

INITIAL CONDITIONS

The unit entered Mode 3 on 4/01/2010 at 0600 for a scheduled refueling outage.

The core has been reloaded and the cavity drain-down is complete.

Current conditions are as follows:

- The Date and time is 4/20/2010, 2000
- RCS level is 74 inches above Mid Loop
- RHR pump discharge temperature is 97°F
- 55 fuel assemblies were exchanged during on-load

INITIATING CUE

The Shift Manager has directed you to determine the estimated time to boil in accordance with 1-GOP-13.1, using the current conditions.

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-GOP-13.1.

PERFORMANCE STEPS

START TIME _____

1	Determine time after shutdown for use on attachment 1 or 2.	Procedure Step N/A
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SAT ☐ UNSAT ☐

<u>Standards</u>	Operator determines time after shutdown for use on attachment 1 or 2 is 19 days and 14 hours (470 hours).
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Notes/Comments:

2	Enter Time to Boil from midloop and 100°F from attachment 1 or 2.	Procedure Step: 5.6.1
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Critical Step	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
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<u>Standards</u>	Operator determines 19.25 minutes (based on time of 470 hours from entry into Mode 3). Acceptance criteria of 19.0 – 19.5 (based on half-increment readability).
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Notes/Comments:

3	Enter correction factor for RCS water level from attachment 3.	Procedure Step: 5.6.2
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Critical Step	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
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<u>Standards</u>	Operator determines 1.61 (based on initial condition of 74 inches above midloop). Acceptance criteria of 1.60 – 1.62 (based on half-increment readability).
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Notes/Comments:

4	Enter correction factor for initial RCS temperature from attachment 4.	Procedure Step: 5.6.3
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Critical Step	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
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<u>Standards</u>	Operator determines 1.025 (based on initial condition of 97°F RHR pump discharge temperature). Acceptance criteria of 1.00 – 1.05 (based on half-increment readability).
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Notes/Comments:

5	Enter correction factor for number of fuel assemblies exchanged this fuel cycle on-load attachment 5.	Procedure Step: 5.6.4
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Critical Step	SAT <input type="checkbox"/> UNSAT <input type="checkbox"/>
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<u>Standards</u>	Operator determines 1.1175 (based on initial condition of 55 fuel assemblies were exchanged during on-load). Acceptance criteria of 1.1150 – 1.1200 (based on half-increment readability).
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Notes/Comments:

6	Determine corrected time to boil estimate.	Procedure Step: 5.6.5
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Critical Step	SAT [] UNSAT []
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<u>Standards</u>	<p>Operator determines corrected Time to Boil 35.5 minutes based on above elements. (19.25 x 1.61 x 1.025 x 1.1175)</p> <p>Acceptance criteria:</p> <p>Low calc - 33.9 minutes** (19.0 x 1.60 x 1.00 x 1.1150) High calc - 37.1 minutes (19.5 x 1.62 x 1.05 x 1.1200)</p> <p>** for conservatism a lower limit of acceptance criteria of 33 minutes is acceptable based on rounding down times.</p>
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Notes/Comments:

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

STOP TIME _____

KEY

NOTE: An individual correction factor that does not apply should be entered as 1.0.

5.6 IF in Mode 5 (with RCS vented or soon to be vented) OR in Mode 6 (with Cavity level less than 23 ft above the Reactor pressure vessel flange), THEN calculate estimated time to boiling in the RCS for loss of cooling by doing the following: **(Reference 2.4.1)**

5.6.1 Enter Time to Boil from midloop and 100°F, for desired time after Shutdown, Attachment 1 or Attachment 2: $\frac{19.25}{(19.0 - 19.5)}$ (470 hours)

NOTE: For water levels above 78", a factor of 1.64 should be used.

5.6.2 Enter desired correction factor for RCS water level, K_w , from Attachment 3: $\frac{1.61}{(1.60 - 1.62)}$ 74"

NOTE: RHR pump discharge is the preferred location to obtain RCS temperature when RHR is in service.

5.6.3 Enter desired correction factor for initial RCS temperature, K_t , from Attachment 4: $\frac{1.025}{(1.00 - 1.05)}$ (97°F)

5.6.4 Enter desired correction factor for number of fuel assemblies exchanged this fuel cycle on-load (assemblies NOT used in the just-completed cycle), K_f , from Attachment 5: $\frac{1.1175}{(1.1150 - 1.1200)}$ (55)

NOTE: Times should be rounded down for conservatism.

5.6.5 Multiply values of Steps 5.6.1 * 5.6.2 * 5.6.3 * 5.6.4 to obtain corrected Time to Boil estimation:

5.6.6 Enter the corrected Time to Boil estimate on 1-GOP-13.0.

$$\begin{array}{lcl} \text{ideal} & 19.25 \times 1.61 \times 1.025 \times 1.1175 = & 35.5 \\ \text{low} & 19.00 \times 1.60 \times 1.00 \times 1.1150 = & 33.9 \\ \text{high} & 19.50 \times 1.62 \times 1.05 \times 1.1200 = & 37.15 \end{array}$$

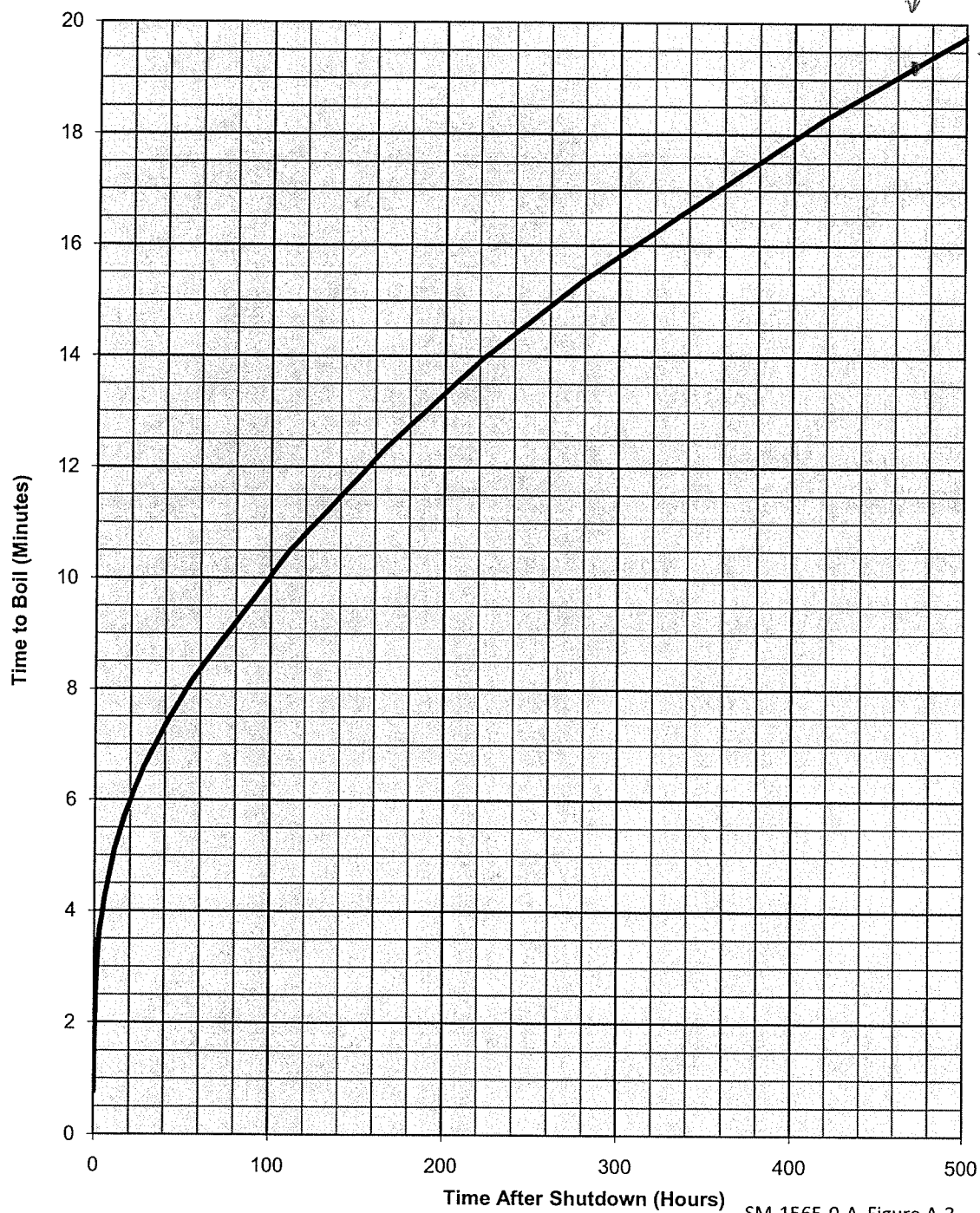
KEY

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Attachment 1

Time to Boil Based on Hours After Shutdown

Time to Boil, Midloop and 100°F



SM-1565-0-A, Figure A-3

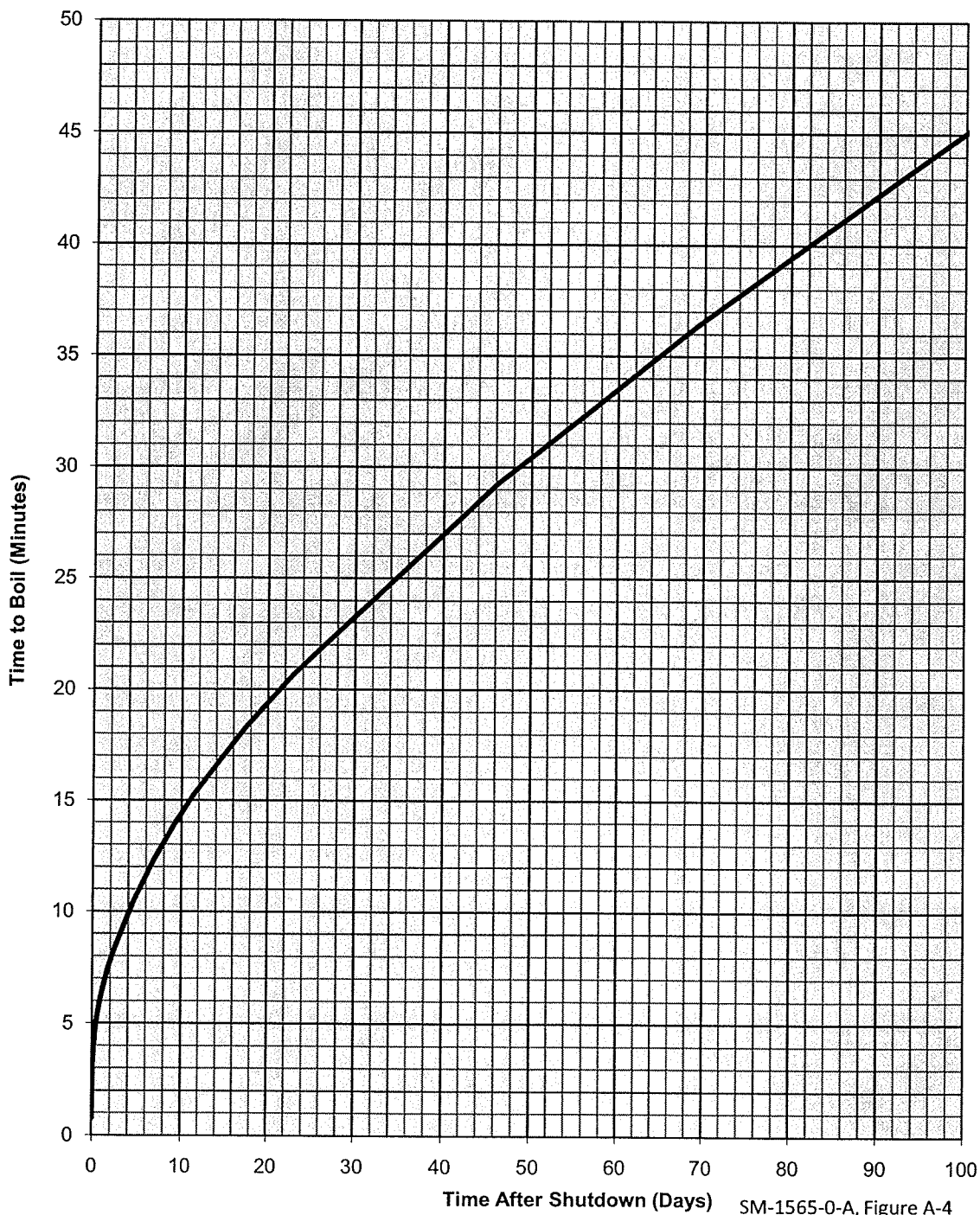
KEY

(Page 1 of 1)

Attachment 2

Time to Boil Based on Days After Shutdown

Time to Boil, Midloop and 100°F



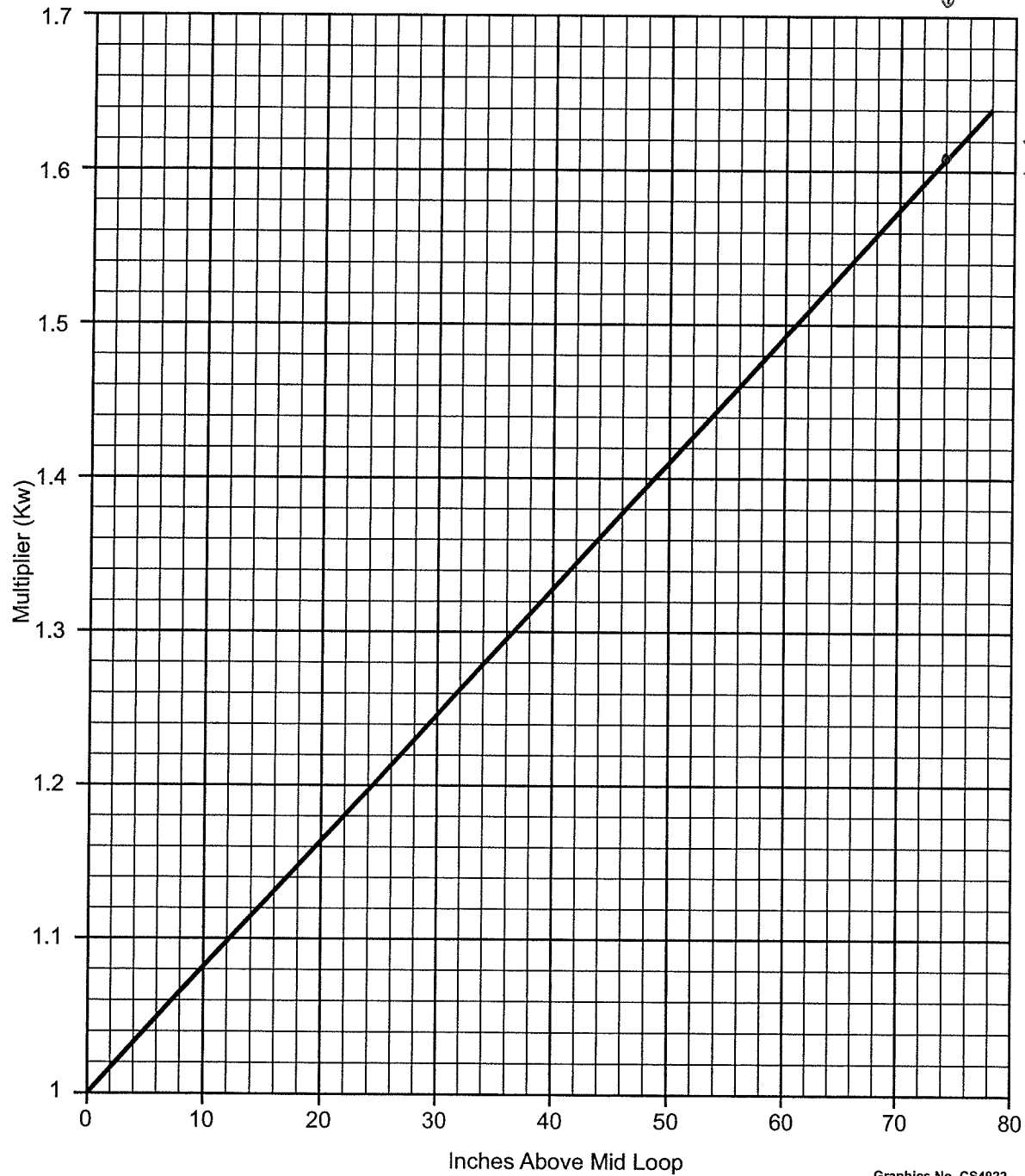
SM-1565-0-A, Figure A-4

KEY

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Attachment 3

RCS Water Level Correction Factor



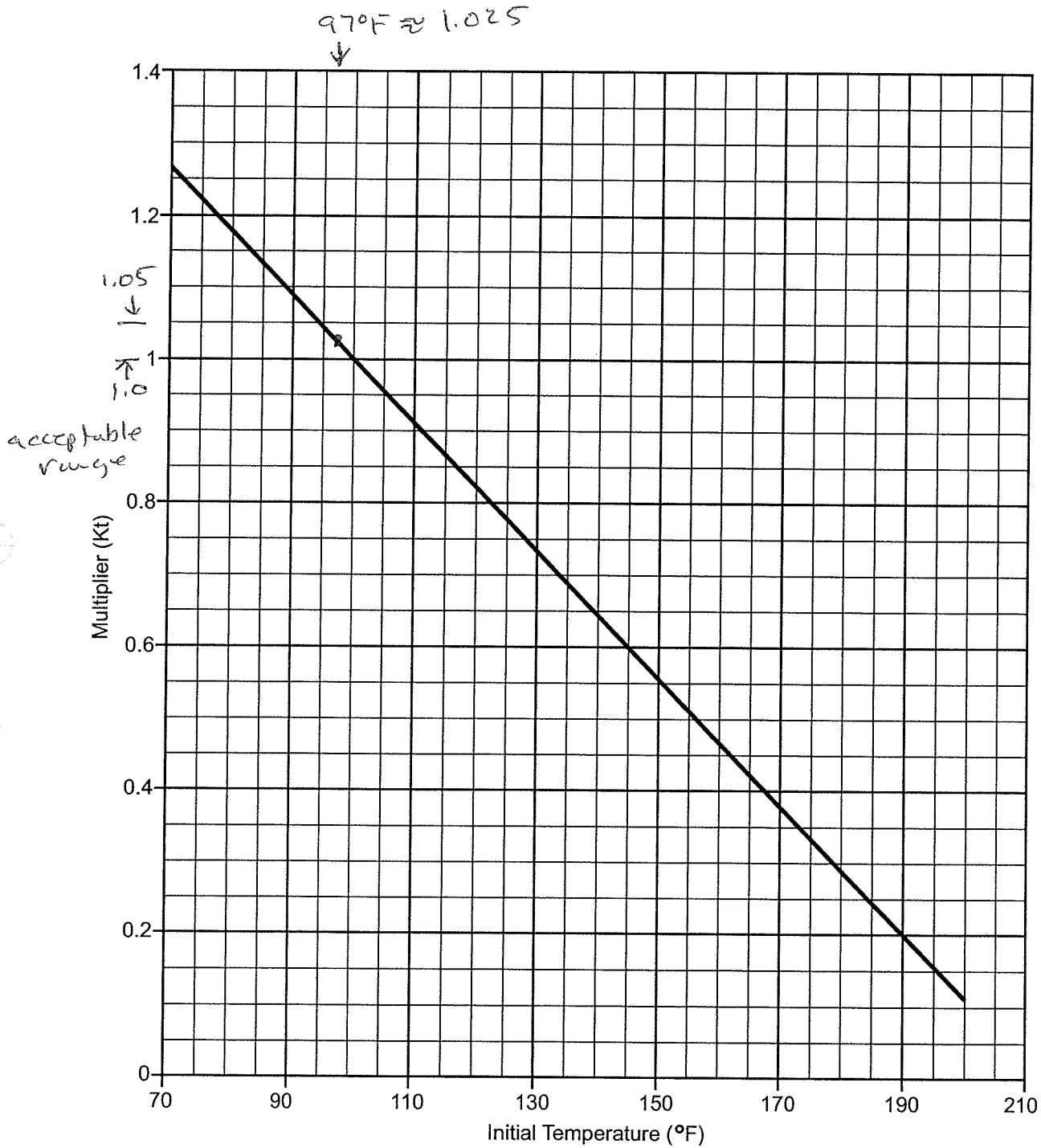
Graphics No. CS4922

KEY

(Page 1 of 1)

Attachment 4

Correction Factor For Initial RCS Temperature

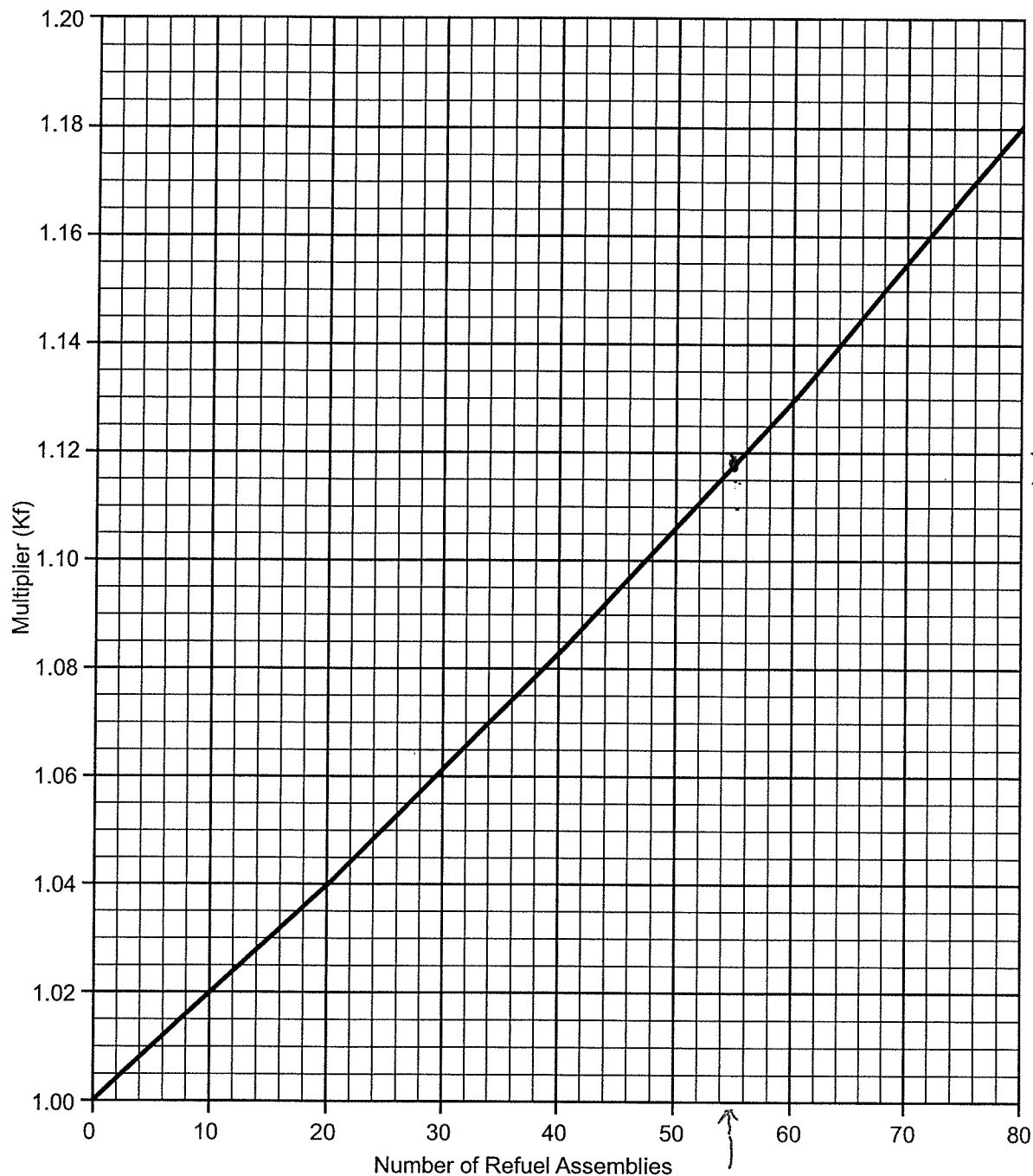


KEY

(Page 1 of 1)

Attachment 5

Correction Factor For Number of Refueled Assemblies



1.120
↓
F
1.115
acceptable
range

55 assemblies
≈ 1.1175

Graphics No. CS4924

**Dominion
North Anna Power Station
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM**

INITIAL CONDITIONS

Unit 1 is operating at 100% when Nuclear Oversight reports that an inspection has identified calculation errors during the previous main steam safety valve (MSSV) testing.

The data was recalculated, and the following lists for the actual setpoints for the affected SG MSSVs:

1-MS-SV-101A – 1125 psig	1-MS-SV-103B – 1070 psig	1-MS-SV-103C – 1150 psig
1-MS-SV-102A – 1090 psig	1-MS-SV-104B – 1103 psig	
1-MS-SV-104A - 1158 psig		

INITIATING CUE

Based on the revised setpoint data provided, you are requested to perform the following:

1. Identify inoperable MSSVs, if any.
2. Evaluate compliance with Technical Specification requirements and determine actions required, if any.

Dominion
North Anna Power Station
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

S35

TASK

Evaluate compliance with technical requirements (Technical Requirements) for Main Steam Safety Valves.

TASK STANDARDS

LCO 3.7.1 was entered

K/A REFERENCE:

GEN-2.2.37 (3.6/4.6)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 20 minutes
Actual Time = _____ minutes

Start Time = _____
Stop Time = _____

PERFORMANCE EVALUATION

Rating ☐ SATISFACTORY ☐ UNSATISFACTORY

Candidate (Print) _____

Evaluator (Print) _____

Evaluator's Signature /
Date _____

EVALUATOR'S COMMENTS

Dominion
North Anna Power Station

JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

S35

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 senior reactor operator level.

INITIAL CONDITIONS

Unit 1 is operating at 100% when Nuclear Oversight reports that an inspection has identified calculation errors during the previous main steam safety valve setpoint.

The data was recalculated, and the following lists for the actual setpoints for the affected SG MSSVs:

1-MS-SV-101A – 1125 psig 1-MS-SV-103B – 1070 psig 1-MS-SV-103C – 1150 psig

1-MS-SV-102A – 1090 psig 1-MS-SV-104B – 1103 psig

1-MS-SV-104A - 1158 psig

INITIATING CUE

Based on the revised setpoint data provided, you are requested to perform the following:

1. Identify inoperable MSSVs, if any.
2. Evaluate compliance with Technical Specification requirements and determine actions required, if any.

EVALUATION METHOD

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

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

TOOLS AND EQUIPMENT

Technical Specifications, Technical Requirements Manual, and Bases Documents.

Calculator

PERFORMANCE STEPS

START TIME _____

1	Identify the applicable technical specification LCO requirement.	Procedure Step _____
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Critical Step	SAT [] UNSAT []
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<u>Standards</u>	Tech Spec 3.7.1 is identified as the applicable LCO
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Notes/Comments

2	Determine operability of affected components using Table 3.7.1-2.	Procedure Step _____
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Critical Step	SAT [] UNSAT []
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<u>Standards</u>	Candidate identifies only 101A, 104A, 103B, and 103C, are inoperable (see table below, valves outside acceptance criteria shown in bold type).
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Valve Number	Lift setpoint provided by JPM	Tech Spec lift setting (Table 3.7.1-2)	Tech Spec acceptable range (+/- 3%)
1-MS-SV-101A	1125 psig	1085 psig	1053 - 1117 psig
1-MS-SV-102A	1090 psig	1095 psig	1063 - 1127 psig
1-MS-SV-104A	1158 psig	1120 psig	1087 – 1153 psig
1-MS-SV-103B	1070 psig	1110 psig	1077 – 1143 psig
1-MS-SV-104B	1103 psig	1120 psig	1087 – 1153 psig
1-MS-SV-103C	1150 psig	1110 psig	1077 – 1143 psig

Notes/Comments

This results in two (2) MSSVs on "A" SG inoperable, one (1) MSSV on "B" SG inoperable, and one (1) MSSV on "C" SG inoperable.

3	Determine the REQUIRED ACTION and COMPLETION TIME for the applicable limiting condition for operation (LCO).	Procedure Step _____
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Critical Step	SAT [] UNSAT []
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<u>Standards</u>	Using Table 3.7.1-1 and the data from element 2 candidate determines the following actions and completion times apply (required power level shown in bold type):	
	Action	Completion time
	B.1, Reduce THERMAL POWER to less than or equal to the Maximum Allowable % RTP (37%) specified in Table 3.7.1-1 for the number of OPERABLE MSSVs.	4 hours
	B.2, Reduce the Power Range Neutron Flux-High reactor trip setpoint to less than or equal to the Maximum Allowable % RTP (37%) specified in Table 3.7.1-1 for the number of OPERABLE MSSVs.	36 hours

<u>Notes/Comments</u> Based on "A" SG having only 3 operable MSSVs. If candidate misreads table 3.7.1-1 they may erroneously select 21% power (table is based on <u>operable</u> number per SG, NOT <u>inoperable</u> number per SG.

END OF EVALUATION

STOP TIME _____

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

INITIAL CONDITIONS

Both Units are operating at 100% power with no abnormal conditions. A drain valve on the west side at the bottom of the fluid waste treating tank (1-DC-TK-2) needs to be cycled several times.

All radiation workers involved in the task have worked at the North Anna site and no other locations.

INITIATING CUE

You are directed to perform the following:

- Select the appropriate RWP for operations personnel
- Determine the required protective clothing for the job.
- Determine the required dosimetry for the job.
- Determine the dose alarm setpoint **AND** the dose rate alarm setpoint in effect under the RWP.
- Determine the maximum stay time based on reaching the dosimeter alarm setpoint (assume that NO dose is accumulated in transit to or from the work location).
- State the action(s) required if a dosimeter alarm setpoint is reached.

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

TASK

Determine Correct RWP, Stay Time, Dosimetry, and Dressout Requirements For A Given Task.

TASK STANDARDS

Correct RWP is selected, protective clothing and dosimetry are selected for the given RWP, dose alarm and dose rate setpoints identified from the RWP, and the maximum stay time calculated based on the alarm setpoints.

K/A REFERENCE:

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 20 minutes
Actual Time = _____ minutes

Start Time = _____
Stop Time = _____

PERFORMANCE EVALUATION

Rating ☐ SATISFACTORY ☐ UNSATISFACTORY

Candidate (Print) _____

Evaluator (Print) _____

Evaluator's Signature /
Date _____

EVALUATOR'S COMMENTS

Dominion
North Anna Power Station

ADMINISTRATIVE JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

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.

INITIAL CONDITIONS

Both Units are operating at 100% power with no abnormal conditions. A drain valve on the west side at the bottom of the fluid waste treating tank (1-DC-TK-2) needs to be cycled several times.

All radiation workers involved in the task have worked at the North Anna site and no other locations.

INITIATING CUE

You are directed to perform the following:

- Select the appropriate RWP for operations personnel
- Determine the required protective clothing for the job.
- Determine the required dosimetry for the job.
- Determine the dose alarm setpoint **AND** the dose rate alarm setpoint in effect under the RWP.
- Determine the maximum stay time based on reaching the dosimeter alarm setpoint (assume that NO dose is accumulated in transit to or from the work location).
- State the action(s) required if a dosimeter alarm setpoint is reached.

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, Survey Map, Calculator

**** Ensure survey map is color copy ****

PERFORMANCE STEPS

START TIME _____

1	From the RWPs provided determine which RWP is applicable for the job.	Procedure Step RWP 10-2229
---	---	-------------------------------

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

<u>Standards</u>	RWP 10-2229 is selected from the four RWPs provided.
------------------	--

Notes/Comments:

RWP 10-0001 is not correct since no HRA entries are allowed under this RWP.
RWP 10-1007 is not correct since it is for maintenance activities.
RWP 10-1203 is not correct since it is for emergency situations
RWP 10-2229 is the correct RWP.

2	From the RWPs provided, determine the protective clothing requirements.	Procedure Step: RWP 10-2229
---	---	--------------------------------

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

<u>Standards</u>	<p>Operator determines that the area is in a contaminated area (CA) and the protective clothing requirements are those listed on the RWP (page 4) for contaminated areas.</p> <p>Protective Clothing Requirements:</p> <p>1.0) Required Protective Clothing</p> <ul style="list-style-type: none"> One Hood One Pair Coveralls Rubber Boots High Top Shoe Covers Cotton Inserts One Pair Rubber Gloves
------------------	---

Notes/Comments: Operator is required to identify from the survey map that the area is a contaminated area (CA).

3	From the RWPs provided, determine the dosimetry required.	Procedure Step: RWP 10-2229
---	---	--------------------------------

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

<u>Standards</u>	Operator identifies that DAD/SRD & TLD are required (page 4 of RWP).
------------------	--

Notes/Comments: Operator is required to identify from the survey map that the area is a high rad area.

4	From the RWPs provided, determine the dose alarm setpoint and dose rate alarm in effect under the RWP.	Procedure Step: RWP 10-2229
---	--	--------------------------------

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

<u>Standards</u>	Operator correctly identifies that the dose alarm is 50 mRem and the dose rate alarm is 500 mRem/hr (RWP page 1 or page 4).
------------------	---

Notes/Comments:	Operator is required to identify from the survey map that task 2 setpoint must be used based on work location.
-----------------	--

5	Determine the maximum stay time in minutes based on reaching the RWP dose alarm setpoint.	Procedure Step: RWP 10-2229
---	---	--------------------------------

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

<u>Standards</u>	Operator uses RWP to determine dose alarm is set at 50 mRem. Operator uses survey map to determine general area dose rate is 125 mr/hr. Operator then divides 50 by 125 to obtain a stay time of 24 minutes after converting to minutes (.4 hrs x 60 minutes).
------------------	--

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

6	State the action(s) required if a dosimeter alarm setpoint is reached.	Procedure Step: RWP 10-2229
---	--	--------------------------------

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

<u>Standards</u>	Operator correctly identifies leave area immediately and report to (notify) the health physics office (RWP page 5, worker instructions 1.1 and 1.2.
------------------	---

Notes/Comments:

END OF EVALUATION

STOP TIME _____

**Dominion
North Anna Power Station
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM**

INITIAL CONDITIONS

Unit 1 is shutdown with RCS temperature at 420°F.

Unit 2 is at 100% power.

1-VG-RM-179 has had a valid reading of $4.22 \text{ E} + 7^{\mu}$ Ci/sec. for 18 minutes.

Dose assessment is available and indicates that doses at or beyond the site boundary are 40 mR TEDE and 120 mR CDE thyroid.

INITIATING CUE

You are requested to classify an emergency event in accordance with EPIP-1.01.

This is a time critical JPM.

Dominion
North Anna Power Station
JOB PERFORMANCE MEASURE EVALUATION
OPERATOR PROGRAM

TASK

Classify an emergency event.

TASK STANDARDS

Event was identified as RA1.2 within 15 minutes.

K/A REFERENCE:

GEN-2.4.41 (2.9/4.6)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 10 minutes
Actual Time = _____ minutes

Start Time = _____
Stop Time = _____

PERFORMANCE EVALUATION

Rating ☐ SATISFACTORY ☐ UNSATISFACTORY

Candidate (Print) _____

Evaluator (Print) _____

Evaluator's Signature /
Date _____

EVALUATOR'S COMMENTS

Dominion
North Anna Power Station

JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

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 1 is shutdown with RCS temperature at 420°F.

Unit 2 is at 100% power.

VG-RM-179 has had a valid reading of $4.22 \text{ E} + 7^{\mu}$ Ci/sec. for 18 minutes.

Dose assessment is available and indicates that doses at or beyond the site boundary are 40 mR TEDE and 120 mR CDE thyroid.

INITIATING CUE

You are requested to classify an emergency event in accordance with EPIP-1.01. This is a time critical JPM.

EVALUATION METHOD

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

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

TOOLS AND EQUIPMENT

Copy of EAL tables and EAL technical basis document

PERFORMANCE STEPS

START TIME _____ (15 minute clock begins once candidate acknowledges that they understand their task)

Note: Candidate should use HOT CONDITIONS (RCS > 200°F) based on initial conditions provided by JPM.

1	Determine the EAL identifier using the emergency action level matrix.	Procedure Step _____
---	---	----------------------

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

<u>Standards</u>	Event is evaluated and identified as Abnormal Rad Release / Rad Effluent (RA1.2).
------------------	---

Notes/Comments
Since dose assessment <u>IS</u> available, candidate must apply Note 1 of the EAL matrix to make the correct classification (if rad monitor reading are used it will result in an inappropriate classification level, RS1.1)

2	Event declaration made within 15 minutes.	Procedure Step _____
---	---	----------------------

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

<u>Standards</u>	Event is declared as RA1.2 within 15 minutes.
------------------	---

Notes/Comments start time _____ - stop time _____ = _____ minutes Acceptance criteria: (time is less than or equal to 15 minutes)

>>>> END OF EVALUATION <<<<

STOP TIME _____ (15 minute clock ends once candidate makes classification)

**Dominion
North Anna Power Station
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM**

INITIAL CONDITIONS

You are the Emergency Communicator.

Unit 2 has experienced a loss of offsite power and the Station Emergency Manager (SEM), the evaluator, has declared an NOUE, EAL identifier SU1.1.

NO release of radioactive material is presently occurring.

There are NO known impediments to site access.

INITIATING CUE

You are requested to make the initial state and local notification in accordance with EPIP 2.01, Notification of State and Local Governments.

This is the initial emergency declaration and the Station Emergency Manager has directed items 5 through 9 of the form be excluded from the message.

The time of the declaration is now.

This JPM is time critical.

Dominion
North Anna Power Station
JOB PERFORMANCE MEASURE EVALUATION
OPERATOR PROGRAM

TASK

Make state and local notifications in accordance with EPIP-2.01.

TASK STANDARDS

Make notification of event (SU1.1).

K/A REFERENCE:

GEN-2.4.43 (3.2/3.8)

ALTERNATE PATH:

N/A

TASK COMPLETION TIMES

Validation Time = 10 minutes
Actual Time = _____ minutes

Start Time = _____
Stop Time = _____

PERFORMANCE EVALUATION

Rating ☐ SATISFACTORY ☐ UNSATISFACTORY

Candidate (Print) _____

Evaluator (Print) _____

Evaluator's Signature /
Date _____

EVALUATOR'S COMMENTS

Dominion
North Anna Power Station

JOB PERFORMANCE MEASURE
(Evaluation)

OPERATOR PROGRAM

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

You are the Emergency Communicator.

Unit 2 has experienced a loss of offsite power and the Station Emergency Manager (SEM), the evaluator, has declared an NOUE, EAL identifier SU1.1.

NO release of radioactive material is presently occurring.

There are NO known impediments to site access.

INITIATING CUE

You are requested to make the initial state and local notification in accordance with EPIP 2.01, Notification of State and Local Governments.

This is the initial emergency declaration and the Station Emergency Manager has directed items 5 through 9 of the form be excluded from the message.

The time of the declaration is now.

This JPM is time critical.

EVALUATION METHOD

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

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

TOOLS AND EQUIPMENT

Emergency Communicator Notebook (Located in Simulator).

PERFORMANCE STEPS

START TIME _____ (15 minute clock begins once candidate acknowledges that they understand their task)

1	Obtain Notification form	Procedure Step EPIP-2.01
---	--------------------------	-----------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator obtains form from Emergency Communicator Notebook.
------------------	---

Notes/Comments

Note: Average wind speed and direction will vary slightly with simulator run time and IC, evaluator should observe that candidate uses the correct indicator (as discussed below in the Notes section) when completing the form.

2	Record information on Report of Emergency to State and Local Governments.	Procedure Step EPIP-2.01
---	---	-----------------------------

Critical Step

SAT ☐ UNSAT ☐

<u>Standards</u>	Information on Report of Emergency to State and Local Governments is filled in as shown on attached key. <ul style="list-style-type: none">• Candidate enters Emergency Classification as NOUE, SU1.1 (provided by initial conditions of JPM)• Candidate obtains Wind Speed from Main Tower lower Level• Candidate obtains Wind Direction from Main Tower lower Level• Candidate uses EPIP-2.01, Attachment 1, page 5 of 9, and determines the Compass Point to, wind direction to, and Compass Point from, based on "wind direction from" which they obtained from PCS or recorders.
------------------	---

Notes/Comments

Main Tower lower Level is required to be used for obtaining wind direction and Wind Speed as this is the FIRST priority given by EPIP-2.01 (see Attachment 1, page 4 of 9).

3	Have SEM/RM approve report.	Procedure Step EPIP-2.01
---	-----------------------------	-----------------------------

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

<u>Standards</u>	SEM/RM approves and signs the approval block.
------------------	---

<u>Performance Cue(s)</u>	Inform operator "I am the SEM and I will approve the report." (sign approval line on top right hand corner of form)
---------------------------	---

Notes/Comments

4	Establish communications.	Procedure Step EPIP-2.01
---	---------------------------	-----------------------------

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

<u>Standards</u>	Operator uses VEOC ARD to establish contact.
------------------	--

Notes/Comments
Booth operator will respond as Virginia EOC and local governments during ring down.

NOTE: Time critical portion of JPM stops when operator makes contact.

5	Operator makes contact with State and local Emergency Operation Centers (EOCs).	Procedure Step EPIP-2.01
---	---	-----------------------------

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

<u>Standards</u>	Time contact made: _____ Start Time _____ - Time contact made _____ = _____ mins. Acceptance Criteria: Operator establishes contact in less than or equal to 15 minutes.
------------------	---

Notes/Comments Booth operator will respond as Virginia EOC

6	Perform initial roll call.	Procedure Step 6.c of EPIP-2.01
---	----------------------------	------------------------------------

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

<u>Standards</u>	Operator checks boxes as EOCs answer.
------------------	---------------------------------------

Notes/Comments Booth operator will respond to roll call as follows: "Louisa County is on the line, Spotsylvania County is on the line, Hanover County is on the line, Orange County is on the line, Caroline County is on the line."

7	Record time initial notification was made on form.	Procedure Step EPIP-2.01
---	--	-----------------------------

SAT ☐ UNSAT ☐

<u>Standards</u>	Operator enters time.
------------------	-----------------------

<u>Performance</u> <u>Cue(s)</u>	Inform operator JPM is complete.
-------------------------------------	----------------------------------

Notes/Comments

END OF EVALUATION

STOP TIME _____

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

Reset to IC #2, 100% power.

DO simspray and check recorders.

→ → Change PCS screens if required such that
MET data screen is NOT displayed.

Do phone check from on simulator floor (VEOC ARD line) (only for first JPM of day)

- | | |
|---|--|
| → | Booth operator respond as Virginia EOC when rung
and for roll call as follows: |
| → | Louisa County is on the line, Spotsylvania County is on the line, Hanover County is on
the line, Orange County is on the line, Caroline County is on the line." |

KEY (See additional remarks)

REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS

KEY

MESSAGE # 1

APPROVAL: (EVALUATOR FOR JPM PURPOSES)
(Station Emergency Manager or Recovery Manager)

This is North Anna Power Station ☒ Control Room ☐ TSC ☐ LEOF ☐ CEOF. Standby for roll-call and following emergency message. Use a Report of Emergency form to copy message. (Conduct a roll-call and check boxes as each party answers.)

☐ Virginia EOC ☐ Louisa County ☐ Spotsylvania County ☐ Hanover County ☐ Orange County ☐ Caroline County

The time is: The emergency message is as follows: (READ SLOWLY)
(24-hr time) TIME CONTACT MADE

Item 1. STATUS: <input checked="" type="checkbox"/> Actual Event <input type="checkbox"/> Actual Event terminated at _____ on _____ <input checked="" type="checkbox"/> Drill <input type="checkbox"/> Drill terminated (24-hr time) (date)	
Item 2. EMERGENCY CLASSIFICATION: <input checked="" type="checkbox"/> NOUE <input type="checkbox"/> Alert <input type="checkbox"/> Site Area Emergency <input type="checkbox"/> General Emergency Category Classification <input type="checkbox"/> R <input checked="" type="checkbox"/> S <input checked="" type="checkbox"/> U <input type="checkbox"/> S <input type="checkbox"/> H <input type="checkbox"/> F <input type="checkbox"/> A <input type="checkbox"/> G <input type="checkbox"/> E <input type="checkbox"/> C 1.1 Declared at _____ on _____ (24-hr time) (date) Fission Product Barriers affected: <input type="checkbox"/> N/A <input type="checkbox"/> Fuel Clad <input type="checkbox"/> Reactor Coolant <input type="checkbox"/> Containment	
Item 3. RELEASE OF RADIOACTIVE MATERIAL: Routine releases ongoing due to plant operations. Additional radiological releases associated with the event: <input type="checkbox"/> A. No radiological release. Will NOT transmit Report of Radiological Conditions to Virginia EOC. <input type="checkbox"/> B. Radiological release in progress. Will transmit Report of Radiological Conditions to Virginia EOC. <input type="checkbox"/> C. Radiological release now terminated. Will transmit Report of Radiological Conditions to Virginia EOC. <input type="checkbox"/> D. Radiological release projected to occur. Will transmit Report of Radiological Conditions to Virginia EOC.	
Item 4. METEOROLOGICAL DATA: Based on: <input checked="" type="checkbox"/> On-site Measurements <input type="checkbox"/> Off-site Measurements <input type="checkbox"/> Not Available Time: _____ AVE Wind Direction from 107 degrees (0° to 360°), Compass Point ESE TIME DATA OBTAINED (24-hr time) to 287 degrees (0° to 360°), Compass Point WNW AVE Wind Speed 25 mph	

NOTE: Items 5 - 9 optional for message reporting initial Emergency Plan entry or emergency classification change and "Excluded from message" may be checked. "Items 5 - 9 are excluded from message" may be read in lieu of reading each item.

Item 5. ASSISTANCE REQUESTED OR BEING PROVIDED: <input type="checkbox"/> None _____ (#) Fire Units from _____ _____ (#) Rescue Units from _____ _____ (#) Police Units from _____ _____ (#) Other _____	<input checked="" type="checkbox"/> Excluded from message
Item 6. EMERGENCY RESPONSE ACTIONS UNDERWAY: <input type="checkbox"/> None <input type="checkbox"/> Station emergency personnel called in <input type="checkbox"/> Station monitoring teams dispatched off-site <input type="checkbox"/> Other _____	<input checked="" type="checkbox"/> Excluded from message
Item 7. EVACUATION OR COMPANY DISMISSAL OF SITE PERSONNEL: <input type="checkbox"/> No <input type="checkbox"/> Evacuation to Primary Remote Assembly Area: <input type="checkbox"/> Planned <input type="checkbox"/> In progress <input type="checkbox"/> Completed <input type="checkbox"/> Released from RAA <input type="checkbox"/> Evacuation to Secondary Remote Assembly Area: <input type="checkbox"/> Planned <input type="checkbox"/> In progress <input type="checkbox"/> Completed <input type="checkbox"/> Released from RAA <input type="checkbox"/> Company Dismissal: <input type="checkbox"/> Planned <input type="checkbox"/> In progress <input type="checkbox"/> Completed <input type="checkbox"/> Other _____	<input checked="" type="checkbox"/> Excluded from message
Item 8. PROGNOSIS OF SITUATION SINCE LAST REPORT: <input type="checkbox"/> Stable <input type="checkbox"/> Worsening <input type="checkbox"/> Improving <input type="checkbox"/> Other _____	<input checked="" type="checkbox"/> Excluded from message
Item 9. ADDITIONAL INFORMATION (Do not use abbreviations, mark numbers or acronyms.): <input checked="" type="checkbox"/> Excluded from message _____ _____ _____	

This is (name) _____/Emergency Communicator

Please acknowledge receipt of this message. (Conduct roll-call and check boxes as each party answers.)

☐ Virginia EOC ☐ Louisa County ☐ Spotsylvania County ☐ Hanover County ☐ Orange County ☐ Caroline County

This is North Anna Power Station ☐ Control Room ☐ TSC ☐ LEOF ☐ CEOF out at _____ on _____
(24-hr time) (date)

CONTINUED ON REVERSE FOR STATE

KEY

Admin JPM 4 (RO only), Additional remarks

Items show in GREEN highlight are completed PRIOR to obtaining approval

Items shown in ORANGE highlight are completed when Emergency Communicator has completed form and obtains approval from SEM to transmit
AND
Makes contact

For item 1: typically "Drill" is checked for anything other than a bona fide ACTUAL emergency. The candidate may check Actual Event since this is an NRC evaluated JPM. Either is acceptable for the JPM, evaluator may discuss with candidate after completion of jpm if desired.

For item 4: data shown is for illustration purposes only, actual values may vary slightly with simulator IC and run time. See JPM for explanation of where data should be obtained from and how compass points are determined.