

INITIAL SUBMITTAL

SURRY EXAM 50-280/2000-301

SEPTEMBER 14 - 21, 2000

INITIAL SUBMITTAL JPMS

ADMINISTRATIVE JPMS/QUESTIONS

SIMULATOR JPMS,

IN-PLANT JPMS, AND

INITIAL ADMIN TOPICS OUTLINE

(ES-301-1),

CONTROL ROOM SYSTEMS &

FACILITY WALK-THROUGH OUTLINE

(ES-301-2)

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INITIAL ADMIN TOPICS OUTLINE
(ES-301-1),
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FACILITY WALK-THROUGH OUTLINE
(ES-301-2)**

Facility: Surry Nuclear Plant		Date of Examination: 9/18 - 22/2000
Examination Level (circle one): <u>RO / SRO</u>		Operating Test Number: 1
Administrative Topic/Subject Description	Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions	
A.1	NRC-JPM-01, Evaluate Overtime Eligibility (<u>RO/SROI/SROU</u>)	
	NRC-JPM-01A, Manual calculate reactor power calorimetric using Feed Flow and P-250 Computer. (<u>RO</u>)	
	NRC-JPM A.1, Perform a Shutdown Margin with a Dropped Rod. (Modified from last years exam) (<u>SRO ONLY</u>)	
A.2	NRC-JPM-02, Perform a Review of the Auxiliary Feed Water MOV Test (<u>RO/SROI/SROU</u>)	
A.3	JPM NRC ADMIN A3, Calculate Radiation Exposure When Placing Unit 1 Residual Heat Removal System in Service (<u>ALL</u>)	
A.4	NRC-JPM-04/R, Meteorological and Stability Class Determination (<u>RO</u>)	
	NRC (New) Modified JPM 88.08 (<u>SRO ONLY</u>) Perform EPIP 1.06, Protective Action Recommendation/Emergency Event classification. (<u>SRO ONLY</u>)	

Facility: Surry Nuclear Plant
Exam Level (circle one): RO / SRO(I) / SRO(U)

Date of Examination: 9/18 - 22, 2000
Operating Test No.: ___1___

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. <i>(New) Modified Facility # 40.01 Respond to the loss of the operating RHR pump.</i>	N/A/S (ALL)	IV primary
b. Recover a Dropped ROD.	D/A/S (RO/SROI)	I
c. <i>Facility # 18.06, Restore Offsite Power to 1 H 4160V Emergency Bus IAW Ap 10.08</i>	D/S (ALL)	VI
d. Facility # 36.04 Realign Ventilation for a Fuel Handling Accident in the Fuel Building 034A2.01 (3.6/4.4), APE036AK.101 (3.5/4.1) (Book 2)	D/C or S (RO/SROI)	VIII
e. Facility # 47.02, Align Aux Ventilation System	D/S or C (RO/SROI)	VII
f. <i>Facility # 52.02, Transfer the SI System to Hot Let Recirculation</i>	D/S (ALL)	II
g. NEW, Pressurizer Relief Tank Operations, 1-OP-RC-011,	N/S (RO/SROI)	V

B.2 Facility Walk-Through

a. Facility # 13.04, Locally isolate Service Water to # 3 MER During Flooding.	D/P/A (RO/SROI)	IV Secondary
b. <i>Facility # 36.05, (Used last examination), Align the ACC Diesel to Supply Power to the "D" MCR Chiller.</i>	D/P/A (ALL)	VI
c. <i>Facility # 38.01, Locally isolate Unit 1 RCP seals.</i>	D/P/R (ALL)	IV Primary

* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA, *Italics* and **bold** are SROu JPMs

Developed for the Surry, September 2000, Initial Examination
Examination Report # 2000-301



U. S. Nuclear Regulatory Commission

Region II

A-1 Administrative Section

NRC-JPM-01

Title:

Evaluate Overtime Eligibility

Evaluate Over time Eligibility

SAFETY CONSIDERATIONS:

NONE:

EVALUATOR NOTES:

1. The applicable procedure section will not be provided to the candidate.
 2. If this is the first JPM of the JPM set, read the JPM briefing contained in NUREG-1021, Appendix E, or similar to the candidate.
-

Read the following to the Candidate.

TASK CONDITIONS:

1. A startup is planned for the following shift. One Reactor Operator must be held over two hours for startup.
2. The following is the work history (excluding shift turnover time) of the available reactor operators on shift. A break of at least 8 hours occurred between all work periods. All operators began their shift at the same time each day.

Evaluate Over time Eligibility

TASK CONDITIONS:

1. A startup is planned for the following shift. One Reactor Operator must be held over two hours for startup.
2. The following is the work history (excluding shift turnover time) of the available reactor operators on shift. A break of at least 8 hours occurred between all work periods. All operators began their shift at the same time each day.

DAY	1	2	3	4	5	6	7	8 (Today)
Operator #1	0	0	12	12	12	8	14	10
Operator #2	0	0	12	12	12	12	8	14
Operator #3	0	0	12	12	12	8	8	15
Operator #4	0	8	12	10	10	8	10	12
Operator #5	0	4	12	10	10	14	10	12

INITIATING CUE:

Evaluate the work history for all 5 operators. Determine which operator(s), if any, can be held over for two hours without prior overtime approval, and determine which operators CANNOT be held over for two hours without prior overtime approval.

Evaluate Over time Eligibility

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the Comments.

STEP 1. Obtain a current copy of Technical Specifications or VPAP-0103, Working Hours and Limitations

Current Revision of TS or VPAP-0103, Working Hours and Limitations obtained and verified latest rev_5_ if applicable.

SAT/UNSAT* _____

STEP 2. Determine Operator #1 would exceed 24 hours in a 48 hour period.

Determined that Operator #1 would exceed 24 hours in a 48 hour period. (Day 7 and 8 already have 24 hours, if worked 2 more hours it would be 26 hours in a 48 hour period.)

Critical StepSAT/UNSAT* _____

STEP 3. Determine Operator #2 would not exceed any overtime restrictions.

Determined Operator #2 would not exceed any overtime restrictions.

SAT/UNSAT* _____

STEP 4. Determine Operator #3 would exceed 16 hours straight.

Determined Operator #3 would exceed 16 hours straight and 24 out of a 48 hour perios..

Critical StepSAT/UNSAT* _____

Evaluate Over time Eligibility

STEP 5. Determine Operator #4 would not exceed any overtime restrictions.

Determined Operator #4 would not exceed any overtime restrictions.

SAT/UNSAT* _____

STEP 6. Determine Operator #5 would exceed 72 hours in a 7 day period.

Determined Operator #5 would exceed 72 hours in a 7 day period. (day 2 thru day 8 $72+2=74$)

Critical StepSAT/UNSAT* _____

<p>TERMINATING CUE: When the candidate has evaluated overtime restrictions, this JPM is complete.</p>

* Comments required for any step evaluated as unsat.

Evaluate Over time Eligibility

RELATED TASKS:

Conduct shift turnover and relief

K/A REFERENCE:

GEN 2.1.5

REFERENCES:

VPAP-0103 (Rev. 5), Working Hours and Limitations, p. 9

TOOLS AND EQUIPMENT:

None

SAFETY FUNCTION (from NUREG 1123, Rev. 2.)

A-1 Conduct Of Operations

NEW JPM FOR SURRY 2000 EXAMINATION.

Evaluate Over time Eligibility

Time required for Completion: 10 minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate Actual Unit

Setting: Control Room Simulator (Not applicable to In-Plant JPMS)

Time Critical: Yes No Time Limit NA

Alternate Path: Yes No

EVALUATION

CANDIDATE's NAME: _____

JPM: PASS _____ FAIL: _____

Comments: _____

Examiners Name. _____ Date: _____

Candidate's Handout

Candidate's Name _____

TASK CONDITIONS:

1. A startup is planned for the following shift. One Reactor Operator must be held over two hours for startup.
2. The following is the work history (excluding shift turnover time) of the available reactor operators on shift. A break of at least 8 hours occurred each day between all work periods. All operators began their shift at the same time each day.

DAY	1	2	3	4	5	6	7	8 (Today)
Operator #1	0	0	12	12	12	8	14	10
Operator #2	0	0	12	12	12	12	8	14
Operator #3	0	0	12	12	12	8	8	15
Operator #4	0	8	12	10	10	8	10	12
Operator #5	0	4	12	10	10	14	10	12

INITIATING CUE:

Evaluate the work history for all 5 operators. Determine which operator(s), if any, can be held over for two hours without prior overtime approval, and determine which operators CANNOT be held over for two hours without prior overtime approval.

Developed for the Surry, September 2000, Initial Examination
Examination Report # 2000-301



U. S. Nuclear Regulatory Commission

Region II

A-1 Administrative Section

NRC-JPM-02

Title:

Manual Calculation Reactor Power

Calorimetric using Feed Flow and P-250 Computer

Developed for the Surry, September 2000, Initial Examination
Examination Report # 2000-301

Read the following to the candidate.

Initial Conditions:

1. Unit 1 is in mode 1 at 95% power.
2. The plant is at
3. The pzs heater output is oscillating between XXX and XXX.

Initiating Cues:

Perform 1-OPT-RX-003, Reactor Power Calorimetric using Feed Flow and P-250 Points
(Manual)

Candidate's Name: _____

Reactor Power Calorimetric Using Feed Flow and P-250 Computer	
<p><u>STEP 1:</u> Review the purpose of the procedure (Section 1.0)</p> <p><u>STANDARD:</u></p> <p>_____ Reviews Step 1.1 to provide instructions for performing the daily calibration of Nuclear Power Instruments against a heat balance standard with Technical Specification Table 4.1-1, Item 1.</p> <p>_____ Reviews Step 1.2 to determine that the OPT is not required to be performed while the unit is shutdown. And that 1-OPT-RX-001, 1-OPT-RX-002, 1-OP-RX-003, or 1-OPT-RX-004 must be performed daily after Reactor Power exceeds 15 percent power.</p> <p>_____ Reviews Step 1.3 to determine that the procedure will ensure that Unit 1 will ensure that Unit 1 will not operate above 2546 MW_{th} Reactor Power.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Review the References section (Section 2.0)</p> <p><u>STANDARD:</u></p> <p>_____ Reviews section 2.1, Source Documents, 2.2 Technical Specifications, 2.3 Technical References, and 2.4 Commitment Documents.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

Candidate's Name: _____

Reactor Power Calorimetric Using Feed Flow and P-250 Computer	
<p><u>STEP 3:</u> Verifies the Initial Conditions are met (Section 3.0)</p>	
<p><u>STANDARD:</u></p>	
<p>_____ Verifies Unit 1 is operating at a steady state power level of greater than or equal to 15 percent power. (Step 3.1)</p>	<p>_____ SAT</p>
<p>_____ Verifies that the P-250 computer is operational. (Step 3.2)</p>	<p>_____ UNSAT</p>
<p>_____ Verifies that FLOWCALC Program is operational. (Step 3.3)</p>	
<p><u>COMMENTS:</u></p>	

Candidate's Name: _____

Reactor Power Calorimetric Using Feed Flow and P-250 Computer

STEP 4: Reviews the Precautions and Limitations (Section 4.0)

STANDARD:

_____ Notes that the Shift Supervisor shall be notified immediately if any acceptance criteria is not met or if any malfunction or abnormal condition occurs. (Step 4.1)

_____ SAT

_____ Notes the Unit power shall be reduced immediately if Reactor Power exceeds 100%, as calculated in Attachment 3. (Step 4.2)

_____ UNSAT

_____ Notes changes to the NI Channel indications will be made by a Licensed Reactor Operator under the supervision of a Senior Reactor Operator. (Step 4.3)

_____ Notes that if any computer point has any of the following indications, then the use of that point will make this calculation unreliable. Reactor power must be calculated by using another method, indicator or computer point. (Step 4.4)

- * indicates that the point is unreliable.
- s indicates that the point is out of scan.

_____ Notes that if an adjustment of the power range channels is required, alternate indications of power must be compared before the adjustment. If the difference is greater than 2 percent, the Shift Supervisor must be notified. (Step 4.5)

_____ Notes that Unit 1 shall run at a stable power level for a minimum of 5 minutes before performance of this procedure is initiated. (Step 4.6)

_____ Notes that the Unit SRO is responsible for maintaining supervisory oversight of the performance of this procedure. (Step 4.7)

_____ Notes that this procedure must be performed by a Reactor Operator, Shift Technical Advisor (STA), or Reactor Engineer. (Step 4.8)

_____ Notes that if the Operations Computer Calculation Program is used, verify that the procedure and the calculation have the same revision number. (Step 4.9)

COMMENTS:

Candidate's Name: _____

Reactor Power Calorimetric Using Feed Flow and P-250 Computer

STEP 5: 6.0 Instructions.

STANDARD:

_____ Observes Data Collection Requirements. (Step 6.1)

NOTE: This calorimetric uses the correct Steam Generator Feedwater flow as calculated by the FLOWCALC program to calculate reactor power according to the following equation.

$$\begin{aligned} \text{Reactor Power} = & (h_{\text{steam}} - h_{\text{feed}}) \times \text{Flow}_{\text{feed}} - \text{Added pump Heat} \\ & - \text{Added Pressurizer Heat} \\ & - \text{Blowdown Heat Loss} \\ & + \text{Insulation Losses} \\ & + \text{Letdown, Charging, and Seal Injection Heat Contributions} \end{aligned}$$

Where:

- Pump Heat equals 40.96×10^6
- Blowdown Flow is recorded from Control Room indications.
- Insulation losses equal $1.5 \text{ MW}_{\text{th}}$
- Charging, letdown, and seal water injection heat contributions equal $5.0 \text{ MW}_{\text{th}}$

COMMENTS:

_____ SAT

_____ UNSAT

Candidate's Name: _____

Reactor Power Calorimetric Using Feed Flow and P-250 Computer

STEP 6: DATA COLLECTION (cont.)

STANDARD:

_____ Step 6.1.1 Review Attachment 2 to verify that none of the Pts or Cal procedures are in progress. (IF any of the listed Pts or Cal procedures are in progress, the values calculated in this calorimetric will be unreliable).

_____ SAT

_____ Step 6.1.2 IF Pressurizer Heater output is not stable, THEN enter 900 KW for Q0400A at Step 6.2.2 and Attachment 3, page 2.

_____ UNSAT

_____ Step 6.1.3 IF this procedure is being performed because CALCALC is not operational, THEN initiate 1-OPT-RS-007 to determine the shift average power. Otherwise, enter N/A

NOTE: Feed flow transmitter data will be invalid if feed flow is established through the Reed Reg. Bypass HCVs.

_____ Step 6.1.4 IF Feedwater Flow is not in AUTOMATIC, THEN close the Feed Reg. Reg. Bypass HCVs to obtain FLOWCALC data in Step 6.1.5. Otherwise, enter N/A.

NOTE: Steps 6.1.5 and 6.1.6 are performed to obtain running average values for flow, temperature and pressure. These values will be used in the next sections for calculation of Reactor power.

COMMENTS:

Candidate's Name: _____

Reactor Power Calorimetric Using Feed Flow and P-250 Computer

STEP 7: DATA COLLECTION (cont.)

STANDARD:

_____ Step 6.1.5 IF the FLOWCALC Program is operational wait approximately 5 minutes if Step 6.1.4 was performed, THEN start the FLOWCALC program by performing the following. From the P-250 operator's console, enter [ENTER VALUE]: K7018; [ADDRESS]; 1; [VALUE 1]; and [START/ADD]. This program prints out results every 5 minutes in the computer room. Allow the program to run for 15 minutes. IF the FLOWCALC program is not operational, THEN enter N/A for Steps 6.1.5 and 6.1.6.

_____ Step 6.1.6 Stop the FLOWCALC program from running by performing the following. From the P-250 operator's console, enter [ENTER VALUE]: K7018; [ADDRESS]; 0; [VALUE 1]; and [START/ADD].

_____ Step 6.1.7 IF Step 6.1.4 was performed, THEN return the Feed Reg Bypass HCVs to desired position. Otherwise, enter N/A.

COMMENTS:

_____ SAT

_____ UNSAT

Reactor Power Calorimetric Using Feed Flow and P-250 Computer

STEP 8: Step 6.2 Calculating Reactor Power Using Manual Method

STANDARD:

NOTE: A list of alternative or local indications is available in 1-OPT-RX-004, Reactor Power Calorimetric using Feed flow with P-250 out of service.

_____SAT

_____UNSAT

_____ Step 6.2 Obtain from the FLOWCALC computer program the running average value for SG Pressure, FW Temperature, and Main Feedwater Flow for each loop. IF the FLOWCALC program is NOT operational, THEN obtain SG Pressure, FW Temperature, and Main Feedwater flow for each loop by using one of the computer points listed below for each parameter. If any of the following P-250 points are unreliable or out of service then use an alternative or local indication. Record the running averages or the computer points in the appropriate boxes on Attachment 3, page 1.

- | | | |
|--------|--------------------------------|----------------|
| U9171 | SG A Pressure | _____psia |
| U9172 | SG B Pressure | _____psia |
| U9173 | SG C Pressure | _____psia |
| T0418A | SG A FW Temperature (RTD-111A) | _____°F |
| T0438A | SG B FW Temperature (RTD-111B) | _____°F |
| T0458A | SG C FW Temperature (RTD-111C) | _____°F |
| F0403A | SG A Feed Flow (F476) | _____xE3lbm/hr |
| | OR | |
| F0404A | SG A Feed Flow (F477) | _____xE3lbm/hr |
| | SG A Feed Flow | _____xE3lbm/hr |
| F0423A | SG B Feed Flow (F486) | _____xE3lbm/hr |
| | OR | |
| F0424A | SG B Feed Flow(F487) | _____xE3lbm/hr |
| | SG B Feed Flow | _____xE3lbm/hr |
| F0443A | SG B Feed Flow (F496) | _____xE3lbm/hr |
| | OR | |
| F0444A | SG B Feed Flow(F497) | _____xE3lbm/hr |
| | SG B Feed Flow | _____xE3lbm/hr |

COMMENTS:

Candidate's Name: _____

Reactor Power Calorimetric Using Feed Flow and P-250 Computer	
<p><u>STEP 9:</u> Step 6.2 Calculating Reactor Power Using Manual Method (cont.)</p> <p><u>STANDARD:</u></p> <p>_____ Step 6.2.2 Obtain pressurizer heat input by using the computer point listed below. Record this value in the appropriate box on Attachment 3, Page 2.</p> <ul style="list-style-type: none">• Q0400A Pressurizer Heater Power _____KW <p>Examiner NOTE: In the initial conditions it was given that PZR heaters were operating erratically. The applicant should use a value of 900KW for this value. If the candidate uses actual reading the answer will not be correct.</p> <p><u>COMMENTS:</u></p>	<p>_____SAT</p> <p>_____UNSAT</p>

Reactor Power Calorimetric Using Feed Flow and P-250 Computer	
<p>STEP 10: Steps 6.2.3, 6.2.4 and 6.2.5</p> <p>STANDARD:</p> <p>NOTE: Blowdown flow must be maintained as constant as possible. The most accurate data will be obtained by isolating blowdown, but isolation is not required.</p> <p>_____ Step 6.2.3 Obtain loop blowdown flow by using the indicators listed below. Record these values in the appropriate boxes on Attachment 3, Page 1.</p> <ul style="list-style-type: none"> • FI-BD-103A OR FI-BD-104A SG A Blowdown flow __gpm • FI-BD-103B OR FI-BD-104B SG B Blowdown flow __gpm • FI-BD-103C OR FI-BD-104C SG C Blowdown flow __gpm <p>_____ Step 6.2.4 Find the enthalpy of steam, h_s, for each loop using Corrected Steam Pressure from Attachment 3 and the Enthalpy Steam Table (100% Quality) in 1-DRP-003 or the ASME steam tables. Record values in the appropriate boxes on Attachment 3, Page 1.</p> <p>NOTE: Using FW pressure of 800 psia in the next step will be conservative for all Reactor Power Levels.</p> <p>_____ Step 6.2.5 Find the enthalpy of feedwater, h_f, for each loop using Feedwater temperature from Attachment 3 and the Enthalpy Compressed Liquid Table (800 psia) in 1-DRP-003 or the ASME steam tables. Record values in the appropriate boxes on Attachment 3, Page 1.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

Candidate's Name: _____

Reactor Power Calorimetric Using Feed Flow and P-250 Computer	
<p>STEP 11: Steps 6.2.6, 6.2.7, 6.2.8, 6.2.9, 6.2.10 and 6.2.11</p> <p>STANDARD:</p> <p>_____ Step 6.2.6 Calculate $\Delta h_1 = h_s - h_f$ for each loop and record results in appropriate boxes on Attachment 3, Page 1.</p> <p>_____ Step 6.2.7 Calculate Blowdown Flow M_{bd} (lbm/hr) = BD (gpm) x 61.9195 (lbm/ft³) x 8.021. Record values in the appropriate boxes on Attachment 3, Page 1.</p> <p>_____ Step 6.2.8 Find the enthalpy of the blowdown, h_{bd}, for each loop, using the Corrected Steam Pressure from Attachment 3 and the Enthalpy Saturated Liquid Table in 1-DRP-003 or the ASME steam tables. Record values in the appropriate boxes on Attachment 3, Page 1.</p> <p>_____ Step 6.2.9 Calculate $\Delta h_2 = h_s - h_{bd}$ for each loop and record results in appropriate boxes on Attachment 3, Page 1.</p> <p>_____ Step 6.2.10 Perform the following for each loop.</p> <p>a. Calculate $(M_f \times \Delta h_1)$ and $(M_{bd} \times \Delta h_2)$ for each loop and record results in appropriate boxes on Attachment 3, Page 1.</p> <p>b. Calculate $Q_{loop} = (M_f \times \Delta h_1) - (M_{bd} \times \Delta h_2)$ for each loop and record results in appropriate boxes on Attachment 3, Page 2.</p> <p>_____ Step 6.2.11 Convert Pressurizer Heat Input from KW to BTU/hr by multiplying by 3413.0 BTU/hr/KW, and record results in appropriate boxes on Attachment 3, Page 2.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

Candidate's Name: _____

Reactor Power Calorimetric Using Feed Flow and P-250 Computer	
<p>STEP 12: Steps 6.2.12, 6.2.13, 6.2.14</p> <p>STANDARD:</p> <p>_____ Step 6.2.12 Calculate total Heat from Reactor by using $Q_{TOTAL} = Q_{loop A} + Q_{loop B} + Q_{loop C}$ (BTU/hr) - PRZR HTR Input (BTU/hr) - RCP Heat Input (BTU/hr) + Letdown, Seal Injection, and Charging Heat Loss (BTU/hr) + Insulation Loss (BTU/hr). Record the results in appropriate box on Attachment 3 Page 2.</p> <p>_____ Step 6.2.13 Divide Q_T by $3.413 \times E 6$ to find Reactor output in MW_{th}. Record results in appropriate box on Attachment 3, Page 2</p> <p>_____ Step 6.2.14 Find the percent power level by using $\% Power = (MW_{th} / 2546) \times 100$. Record results in appropriate box on Attachment 3, Page2.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP :</p> <p>STANDARD:</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP :</p> <p>STANDARD:</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

Candidate's Name: _____

Reactor Power Calorimetric Using Feed Flow and P-250 Computer	
<u>STEP :</u>	
<u>STANDARD:</u>	_____ SAT
<u>COMMENTS:</u>	_____ UNSAT

mindview



User: mindview,SPS,,

Request: TRNG_OPS_ADM-5177 from suncux01

Date Printed: Wed May 17 13:17:25 EDT 2000

Procedure: ***1-OPT-RX-003***

Rev: ***008***

PAR: ***0***

Title: ***REACTOR POWER CALORMETRIC USING
FEED FLOW AND P-250 COMPUTER
POINTS (MANUAL)***

Effective Date: ***11/23/1999***

Station: ***Surry***

Docbase: ***SUMIND***

If this procedure is initiated OR re-initiated after the print date shown, then the current revision\PAR numbers must be verified.

This leader page is part of the controlled document and must remain with the procedure as a permanent record.

Approval signatures for electronically distributed procedures are maintained on file.

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VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO:
1-OPT-RX-003

REVISION NO:
8

PROCEDURE TYPE:
OPERATIONS PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**REACTOR POWER CALORIMETRIC USING FEED
FLOW AND P-250 COMPUTER POINTS (MANUAL)**

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revised to incorporate DR S-99-2410, Nis power range gain adjustment

- Added new Step 6.1.2 to enter 900 KW for Pressurizer Heater Power.
- Added Commitment Document Step 2.4.6.
- Added Caution before Step 6.3.2
- Added Step 4.9 in Precautions and Limitations

UNIT ONE



PROCEDURE WRITER: J. Redler / S. Mushenheim

VALIDATOR: D. Wirsching / J. Borden

APPROVAL:
APPROVAL ON FILE

DATE:

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1.0 PURPOSE

- 1.1 To provide instructions for performing the daily calibration of Nuclear Power Range Instruments against a heat balance standard IAW Technical Specification Table 4.1-1, Item 1.
- 1.2 This OPT is not required to be performed while the unit is shutdown. 1-OPT-RX-001, 1-OPT-RX-002, 1-OPT-RX-003, or 1-OPT-RX-004 must be performed daily after Reactor power exceeds 15 percent power. **(Reference 2.4.2)**
- 1.3 This procedure will ensure that Unit 1 will not be operated above 2546 MW_{th} Reactor Power.

2.0 REFERENCES

2.1 Source Documents

- 2.1.1 UFSAR, Section 7.2.1, Reactor Protection System
- 2.1.2 UFSAR, Section 7.4, Nuclear Instrumentation System

2.2 Technical Specifications Surry Power Station Unit 1 & 2

- 2.2.1 Technical Specifications, Section 1.A, Rated Power
- 2.2.2 Technical Specifications, Table 3.7-1, Item 2, Nuclear Flux Power Range
- 2.2.3 Technical Specifications, Table 4.1-1, Item 1, Nuclear Power Range

2.3 Technical References

- 2.3.1 Phase 1 Results of Surry Unit 1 Efficiency Study
- 2.3.2 Phase 2 Results of Surry Unit 1 Efficiency Study
- 2.3.3 Reactor Calorimetric (CALCALC) Program Programmer's Guide for the Execution on the Westinghouse P-250 System
- 2.3.4 Corrected Steam and Feedwater Flow Calculations (FLOWCALC Program)
- 2.3.5 1-DRP-003, Curve Book
- 2.3.6 ASME Steam Tables
- 2.3.7 DCP 94-007-03, Removal of Turbine Runback on Dropped Rod
- 2.3.8 Technical Report NE-1076, A Review of the Secondary Calorimetric Calculation in the P250 CALCALC Computer Program for Surry Power Station, Units 1 and 2
- 2.3.9 Technical Report EE-0108, Basis for the Steam Flow and Feedwater Flow Equations Used in the P250 FLOWCALC Program
- 2.3.10 Technical Report NE-1084, A Standardized Model for Calculating Power Calorimetric Uncertainty, Surry and North Anna Power Stations, Units 1 and 2
- 2.3.11 Technical Report NE-1081, Power Calorimetric Task Team, Project Overview and Results, Summary Report for Surry Power Station, Units 1 and 2
- 2.3.12 Safety Evaluation 96-0102
- 2.3.13 Technical Report NE-1090, Power Calorimetric Input Notebook, Surry Units 1 and 2
- 2.3.14 Engineering Transmittal NAF 98-0122, Rev. 0, Recommendations for Manual Calorimetric Procedures

2.4 Commitment Documents

2.4.1 CTS-1080, Unreliable Computer Points

2.4.2 CTS-1438, Revise procedures to require performance prior to applicable mode change (Technical Specifications Change 228B)

2.4.3 CTS-2753, Core Uprate

2.4.4 CTS 3423, Calorimetric Task Team

2.4.5 Station Deviation S-97-2350

2.4.6 DR S-99-2410, NIS Power Range Gain Adjustment

Init **Verif**

3.0 INITIAL CONDITIONS

_____ 3.1 Unit 1 is operating at a steady state power level of greater than or equal to 15 percent power.

_____ 3.2 P-250 Computer is operational.

_____ 3.3 FLOWCALC Program is operational.

4.0 PRECAUTIONS AND LIMITATIONS

4.1 The Shift Supervisor shall be notified immediately if any acceptance criteria is not met or if any malfunction or abnormal condition occurs.

- 4.2 Unit power shall be reduced immediately if Reactor power exceeds 100%, as calculated in Attachment 3.
- 4.3 Changes to the NI channel indications will be made by a Licensed Reactor Operator under the supervision of a Senior Reactor Operator.
- 4.4 If any computer point has any of the following indications, then the use of that point will make this calculation unreliable. Reactor power must be calculated by using another method, indicator or computer point.
- * indicates that the point is unreliable.
 - s indicates that the point is out of scan.
- 4.5 If an adjustment of the power range channels is required, alternate indications of power must be compared before the adjustment. If the difference is greater than 2 percent, the Shift Supervisor must be notified.
- 4.6 Unit 1 shall run at a stable power level for a minimum of 5 minutes before performance of this procedure is initiated.
- 4.7 The Unit SRO is responsible for maintaining supervisory oversight of the performance of this procedure.
- 4.8 This procedure must be performed by a Reactor Operator, Shift Technical Advisor (STA), or Reactor Engineer.
- 4.9 If the Operations Computer Calculation Program is used, verify that the procedure and the calculation have the same revision number.

5.0 SPECIAL TOOLS AND EQUIPMENT

None

Init Verif

6.0 INSTRUCTIONS

6.1 Data Collection

NOTE: This calorimetric uses the corrected Steam Generator Feedwater flow as calculated by the FLOWCALC program to calculate reactor power according to the following equation.

$$\begin{aligned} \text{Reactor Power} = & (h_{\text{steam}} - h_{\text{feed}}) \times \text{Flow}_{\text{feed}} - \text{Added Pump Heat} \\ & - \text{Added Pressurizer Heat} \\ & - \text{Blowdown Heat Loss} \\ & + \text{Insulation Losses} \\ & + \text{Letdown, Charging, and Seal Injection Heat Contributions} \end{aligned}$$

Where:

- Pump Heat equals 40.96×10^6 BTU/hr.
- Blowdown Flow is recorded from Control Room indications.
- Insulation losses equal $1.5 \text{ MW}_{\text{th}}$.
- Charging, letdown, and seal water injection heat contributions equals $5.0 \text{ MW}_{\text{th}}$.

_____ 6.1.1 Review Attachment 2 to verify that none of the PTs or Cal procedures are in progress. (If any of the listed PTs or Cal procedures are in progress, the values calculated in this calorimetric will be unreliable.)

_____ 6.1.2 IF Pressurizer Heater output is not stable, THEN enter 900 KW for Q0400A at Step 6.2.2 and Attachment 3, page 2.

_____ 6.1.3 IF this procedure is being performed because CALCALC is not operational, THEN initiate 1-OPT-RX-007 to determine the shift average power. Otherwise, enter N/A.

NOTE: Feed flow transmitter data will be invalid if feed flow is established through the Feed Reg Bypass HCVs.

6.1.4 **IF** Feedwater Flow is not in AUTOMATIC, **THEN** close the Feed Reg Bypass HCVs to obtain FLOWCALC data in Step 6.1.5. Otherwise, enter N/A.

NOTE: Steps 6.1.5 and 6.1.6 are performed to obtain running average values for flow, temperature, and pressure. These values will be used in the next sections for calculation of Reactor power.

6.1.5 **IF** the FLOWCALC Program is operational wait approximately 5 minutes if Step 6.1.4 was performed, **THEN** start the FLOWCALC program by performing the following. From the P-250 operator's console, enter ENTER VALUE ; K7018; ADDRESS ; 1; VALUE 1 ; and START/ADD . This program prints out results every 5 minutes in the computer room. Allow the program to run for 15 minutes. **IF** the FLOWCALC program is not operational, **THEN** enter N/A for Steps 6.1.5 and 6.1.6.

6.1.6 Stop the FLOWCALC program from running by performing the following. From the P-250 operator's console, enter ENTER VALUE ; K7018; ADDRESS ; 0; VALUE 1 ; and START/ADD .

6.1.7 **IF** Step 6.1.4 was performed, **THEN** return the Feed Reg Bypass HCVs to desired position. Otherwise, enter N/A.

6.2 Calculating Reactor Power, Using Manual Method

NOTE: A list of alternative or local indications is available in 1-OPT-RX-004, Reactor Power Calorimetric using feed flow with P-250 out of service.

6.2.1 Obtain from the FLOWCALC computer program the running average values for SG Pressure, FW Temperature, and Main Feedwater Flow for each loop. IF the FLOWCALC program is NOT operational, THEN obtain SG Pressure, FW Temperature, and Main Feedwater flow for each loop by using one of the computer points listed below for each parameter. If any of the following P-250 points are unreliable or out of service then use an alternative or local indication Record the running averages or the computer point values in the appropriate boxes on Attachment 3, Page 1.

- U9171 SG A Pressure _____ psia
- U9172 SG B Pressure _____ psia
- U9173 SG C Pressure _____ psia

- T0418A SG A FW Temp (RTD-111A) _____ °F
- T0438A SG B FW Temp (RTD-111B) _____ °F
- T0458A SG C FW Temp (RTD-111C) _____ °F

- F0403A SG A Feed Flow (F476) _____ x 10³ lbm/hr
 OR
 F0404A SG A Feed Flow (F477) _____ x 10³ lbm/hr
 SG A Feed Flow _____ x 10³ lbm/hr

- F0423A SG B Feed Flow (F486) _____ x 10³ lbm/hr
 OR
 F0424A SG B Feed Flow (F487) _____ x 10³ lbm/hr
 SG B Feed Flow _____ x 10³ lbm/hr

- F0443A SG C Feed Flow (F496) _____ x 10³ lbm/hr
 OR
 F0444A SG C Feed Flow (F497) _____ x 10³ lbm/hr
 SG C Feed Flow _____ x 10³ lbm/hr

_____ 6.2.2 Obtain pressurizer heat input by using the computer point listed below. Record this value in the appropriate box on Attachment 3, Page 2.

- Q0400A Pressurizer Heater Power _____ KW

NOTE: Blowdown flow must be maintained as constant as possible. The most accurate data will be obtained by isolating blowdown, but isolation is not required.

_____ 6.2.3 Obtain loop blowdown flow by using the indicators listed below. Record these values in the appropriate boxes on Attachment 3, Page 1.

- FI-BD-103A or FI-BD-104A SG A Blowdown Flow _____ gpm
- FI-BD-103B or FI-BD-104B SG B Blowdown Flow _____ gpm
- FI-BD-103C or FI-BD-104C SG C Blowdown Flow _____ gpm

_____ 6.2.4 Find the enthalpy of steam, h_g , for each loop using Corrected Steam Pressure from Attachment 3 and the Enthalpy Steam Table (100% Quality) in 1-DRP-003 or the ASME steam tables. Record values in the appropriate boxes on Attachment 3, Page 1.

NOTE: Using a FW pressure of 800 psia in the next step will be conservative for all Reactor Power levels.

_____ 6.2.5 Find the enthalpy of feedwater, h_f , for each loop, using Feedwater Temperature from Attachment 3 and the Enthalpy Compressed Liquid Table (800 psia) in 1-DRP-003 or the ASME steam tables. Record values in the appropriate boxes on Attachment 3, Page 1.

_____ 6.2.6 Calculate $\Delta h_1 = h_g - h_f$ for each loop and record results in appropriate boxes on Attachment 3, Page 1.

_____ 6.2.7 Calculate Blowdown Flow M_{bd} (lbm/hr) = BD (gpm) x 61.9195 (lbm/ft³) x 8.021. Record values in the appropriate boxes on Attachment 3, Page 1.

- _____ 6.2.8 Find the enthalpy of the blowdown, h_{bd} , for each loop, using the Corrected Steam Pressure from Attachment 3 and the Enthalpy Saturated Liquid Table in 1-DRP-003 or the ASME steam tables. Record values in the appropriate boxes on Attachment 3, Page 1.
- _____ 6.2.9 Calculate $\Delta h_2 = h_g - h_{bd}$ for each loop and record results in appropriate boxes on Attachment 3, Page 1.
- _____ 6.2.10 Perform the following for each loop:
- _____ a. Calculate $(M_f \times \Delta h_1)$ and $(M_{bd} \times \Delta h_2)$ for each loop and record results in appropriate boxes on Attachment 3, Page 1.
- _____ b. Calculate $Q_{loop} = (M_f \times \Delta h_1) - (M_{bd} \times \Delta h_2)$ for each loop and record results in appropriate boxes on Attachment 3, Page 1.
- _____ 6.2.11 Convert Pressurizer Heat Input from KW to BTU/hr by multiplying by 3413.0 BTU/hr/KW, and record results in appropriate boxes on Attachment 3, Page 2.
- _____ 6.2.12 Calculate total heat from Reactor by using $Q_{Total} = Q_{loop A} + Q_{loop B} + Q_{loop C}$ (BTU/hr) – PRZR HTR Input (BTU/hr) – RCP Heat Input (BTU/hr) + Letdown, Seal Injection, and Charging Heat Loss (BTU/hr) + Insulation Loss (BTU/hr). Record results in appropriate box on Attachment 3, Page 2.
- _____ 6.2.13 Divide Q_T by 3.413×10^6 to find Reactor output in MW_{th} . Record results in appropriate box on Attachment 3, Page 2.
- _____ 6.2.14 Find the percent power level by using $\% Power = (MW_{th}/2546) \times 100$. Record results in appropriate box on Attachment 3, Page 2.

6.3 Adjusting NI Channels

6.3.1 Compare each NI channel percent power indication with the Calorimetric percent power, which is the standard. (Each NI should be within + 2 % and - 0 % of the Calorimetric value if Reactor power is greater than or equal to 90%, OR within + 4 % and - 0 % of the Calorimetric value if Reactor power is less than 90%.)

CAUTION: Gain potentiometer adjustment can cause average flux deviation alarms as well as high flux rod stop alarms. This should be anticipated when adjusting gain potentiometers. (**Reference 2.4.6**)

SS

6.3.2 IF the NI Channel is within tolerance but adjustment will better align it with the calorimetric, THEN obtain Shift Supervisor concurrence and adjust NI Channel IAW Attachment 1 to the Reactor Power value calculated in Attachment 3. Record initials on Attachment 1. IF no NI adjustment is made, OR NI is NOT within tolerance, THEN enter N/A.

SS

6.3.3 IF NI channel is NOT within tolerance, THEN obtain Shift Supervisor concurrence and adjust the gain potentiometer on the front panel of each NI channel IAW Attachment 1 to the Reactor Power value recorded in Attachment 3. Record initials on Attachment 1. IF all NI channels are within tolerance, THEN enter N/A.

6.3.4 IF the front panel gain adjustment can NOT bring power of any channel within the required tolerance in Step 6.3.1, THEN perform all of the following. Otherwise, enter N/A.

- a. Obtain concurrence from the Reactor Engineer to adjust the Power Range NI channel using the coarse level adjustment potentiometer.

- _____
- b. Have a qualified Instrument Technician adjust the coarse level adjust potentiometer, R312, and the potentiometer on the front panel, until the front panel potentiometer is near mid-range and the Power Range NI channels are within + 2 % and - 0 % of the Calorimetric value if Reactor power is greater than or equal to 90%, OR within + 4 % and - 0 % of the Calorimetric value if Reactor power is less than 90%.
- _____
- c. Note in the comment section any Power Range NI channel adjusted using the coarse level adjustment potentiometer.
- _____
- d. IF the out-of-tolerance NI channel can NOT be properly adjusted, THEN declare the out-of-tolerance NI channel inoperable and comply with Tech Spec Table 3.7-1, Item 2.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

_____ 7.1.1 Evaluate the test results by reviewing the Acceptance Criteria for the components tested. (√)

- ___ All power range channels are found to be or are adjusted to be within +2, -0% ($\geq 90\%$ power) OR +4, -0% ($< 90\%$ power) of the power level determined by the calorimetric. Any adjustment shall be noted below.

N-41 required adjustment _____ Yes _____ No

N-42 required adjustment _____ Yes _____ No

N-43 required adjustment _____ Yes _____ No

N-44 required adjustment _____ Yes _____ No

- ___ Reactor Power is at or less than 100 percent.

_____ 7.1.2 Document the test results. (√)

___ Satisfactory

___ Unsatisfactory

7.2 Follow-On Tasks

7.2.1 IF the test was unsatisfactory, THEN perform all of the following. Otherwise, enter N/A.

_____ a. Document the reason for the unsatisfactory test in Subsection 7.3, Operator Comments.

_____ b. Notify the Shift Supervisor and record the name.

Shift Supervisor: _____

_____ c. Declare equipment inoperable.

_____ d. Notify Reactor Engineering and record the name of the person notified.

Reactor Engineer: _____

_____ e. Initiate a Deviation Report and record the number.

DR Number: _____

_____ f. Initiate a Work Request and record the number.

WR Number: _____

_____ 7.2.2 IF a partial operability test was performed, THEN document the reason for the partial test in Subsection 7.3, Operator Comments. Otherwise, enter N/A.

7.3 Notification, Documentation, and Procedure Closeout

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name

Operator Comments: _____

Completed by: _____ Date: _____

7.4 Review

Shift Supervisor Comments: _____

Reviewed by: _____ Date: _____

Shift Supervisor

Forward original procedure to Engineering Testing.

Engineering Comments: _____

Reviewed by: _____ Date: _____

Reactor Engineer

ATTACHMENT 1

(Page 1 of 1)

NI CALIBRATION

CAUTION: High Flux Trip and High Flux Rod Stop setpoint changes required by the following step must be completed before any associated Gain Potentiometer adjustments are performed.

1. IF Reactor power is less than 90% AND the Gain Potentiometer on any NI will be decreased, THEN before adjusting NIs, have I & C lower the High Flux Trip and High Flux Rod Stop setpoints on all NIs based on current Reactor power level. Otherwise, enter N/A. (**Reference 2.4.5**)

Reactor Power Level

High Power Trip/Rod Stop Setpoint

≥ 55% < 90%

≤ 100% / ≤ 96%

≥ 35% < 55%

≤ 85% / ≤ 81%

≥ 25% < 35%

≤ 65% / ≤ 61%

< 25%

≤ 40% / ≤ 36%

	NI-41	NI-42	NI-43	NI-44
2) Place rod control to MANUAL. Enter N/A if NI-44 will <u>NOT</u> be adjusted.				
3) Record As Found NI power level for each channel to be adjusted. Enter N/A for channel(s) not being adjusted.				
4) Adjust the Gain Potentiometer on the front panel of each NI channel to the new Reactor Power value and initial appropriate block(s). Enter N/A for channel(s) not being adjusted.				
5) Record As Left NI power level for each channel adjusted. Enter N/A for channel(s) not adjusted.				
6) Allow at least one minute to pass before placing the rod control back to AUTO. Enter N/A if NI-44 was <u>NOT</u> adjusted.				

ATTACHMENT 2

(Page 1 of 2)

COMPUTER POINTS USED BY FLOWCALC

FLOWCALC Core Resident Constant Value Inputs

<u>Computer Point IDs</u>	<u>Description</u>	<u>Value/Units</u>	<u>PT/CAL</u>
K2051	psig to psia conversion constant	14.7 psi	None
K7018	Run FLOWCALC	=1	None
	Stop FLOWCALC	=0	None

FLOWCALC Core Resident Analog Inputs

<u>Computer Point IDs</u>	<u>Description</u>	<u>Value/Units</u>	<u>PT/CAL</u>
F0403Y	Feedwater Flow Ch 4 (F476)	Volts	1-IPT-FT(CC)-FW-F-476
F0404Y	Feedwater Flow Ch 3 (F477)	Volts	1-IPT-FT(CC)-FW-F-477
F0423Y	Feedwater Flow Ch 4 (F486)	Volts	1-IPT-FT(CC)-FW-F-486
F0424Y	Feedwater Flow Ch 3 (F487)	Volts	1-IPT-FT(CC)-FW-F-487
F0443Y	Feedwater Flow Ch 4 (F496)	Volts	1-IPT-FT(CC)-FW-F-496
F0444Y	Feedwater Flow Ch 3 (F497)	Volts	1-IPT-FT(CC)-FW-F-497
P0400A	SG A Steam Pressure Ch 2 (P474)	psig	1-IPT-FT(CC)-MS-P-474
P0401A	SG A Steam Pressure Ch 3 (P475)	psig	1-IPT-FT(CC)-MS-P-475
P0402A	SG A Steam Pressure Ch 4 (P476)	psig	1-IPT-FT(CC)-MS-P-476
P0420A	SG B Steam Pressure Ch 2 (P484)	psig	1-IPT-FT(CC)-MS-P-484
P0421A	SG B Steam Pressure Ch 3 (P485)	psig	1-IPT-FT(CC)-MS-P-485
P0422A	SG B Steam Pressure Ch 4 (P486)	psig	1-IPT-FT(CC)-MS-P-486
P0440A	SG C Steam Pressure Ch 2 (P494)	psig	1-IPT-FT(CC)-MS-P-494
P0441A	SG C Steam Pressure Ch 3 (P495)	psig	1-IPT-FT(CC)-MS-P-495
P0442A	SG C Steam Pressure Ch 4 (P496)	psig	1-IPT-FT(CC)-MS-P-496

ATTACHMENT 2

(Page 2 of 2)

COMPUTER POINTS USED BY FLOWCALC

FLOWCALC Core Resident Analog Inputs

<u>Computer Point IDs</u>	<u>Description</u>	<u>Value/Units</u>	<u>PT/CAL</u>
P0403A	SG A Feedwater Inlet Pressure (P-100A)	psig	1-IPM-FW-P-100
P0423A	SG B Feedwater Inlet Pressure (P-100B)	psig	1-IPM-FW-P-100
P0443A	SG C Feedwater Inlet Pressure (P-100C)	psig	1-IPM-FW-P-100
T0418A	SG A Feed Water Temperature (RTD-111A)	°F	0-IPM-FW-RTD-001
T0438A	SG B Feed Water Temperature (RTD-111B)	°F	0-IPM-FW-RTD-001
T0458A	SG C Feed Water Temperature (RTD-111C)	°F	0-IPM-FW-RTD-001
Q0400A	Pressurizer Heater Power	KW	None
P0480A	Pressurizer Pressure Ch 1 (P-455)	psig	1-IPT-FT(CC)-RC-P-455
F0128A	Charging Header Flow (F-122)	gpm	1-PT-2.13 (F-1-122)
P0142A	Charging Pump Disch Header Pressure (P-121)	psig	1-CAL-286
T0126A	Regen Hx Charging Outlet Temp (T-123)	°F	1-CAL-238
F0134A	NRHX Letdown Flow (F-150)	gpm	1-CAL-519
T0406A	RC Loop A Cold Leg Temp (T-410)	°F	1-IPT-RC-T-410
T0140A	Volume Control Tank Outlet Temp (T-116)	°F	1-CAL-237
T0145A	NRHX Letdown Line Outlet Temp (T-144)	°F	1-CAL-574
P0135A	Low Pressure Letdown Line Press (P-1-145)	psig	1-CAL-324

Manual Inputs

<u>Computer Point IDs</u>	<u>Description</u>	<u>Value/Units</u>	<u>PT/CAL</u>
K0321	SG A Blowdown Flow (Manual Input)	gpm	1-CAL-224 and 1-CAL-227
K0322	SG B Blowdown Flow (Manual Input)	gpm	1-CAL-225 and 1-CAL-228
K0323	SG C Blowdown Flow (Manual Input)	gpm	1-CAL-226 and 1-CAL-229

ATTACHMENT 3
(Page 1 of 2)
CALORIMETRIC DATA SHEET

	LOOP A	LOOP B	LOOP C
Corrected Steam Pressure (psia)	(Run Avg or U9171)	(Run Avg or U9172)	(Run Avg or U9173)
Enthalpy Steam h_s (BTU/lbm)			
Feedwater Temp ($^{\circ}$ F)	(Run Avg or T0418A)	(Run Avg or T0438A)	(Run Avg or T0458A)
Enthalpy FW h_f (BTU/lbm)			
$\Delta h_1 = (h_s - h_f)$ BTU/lbm			
Blowdown Flow (gpm)	(SG A)	(SG B)	(SG C)
x Density ρ (lbm/ft ³)	x 61.9195	x 61.9195	x 61.9195
x Conversion gpm to ft ³ /hr	x 8.021	x 8.021	x 8.021
Blowdown Flow M_{bd} (lbm/hr)	=	=	=
Enthalpy h_{bd} (BTU/lbm)			
$\Delta h_2 = (h_s - h_{bd})$ BTU/lbm			
$M_{bd} \times \Delta h_2$ (BTU/hr)	=	=	=
Feedwater Flow M_{fw} (lbm/hr)	(Run Avg or SG A Feed Flow)	(Run Avg or SG B Feed Flow)	(Run Avg or SG C Feed Flow)
$M_{fw} \times \Delta h_1$ (BTU/hr)			
$Q_{loop} = (M_{fw} \times \Delta h_1) - (M_{bd} \times \Delta h_2)$	$Q_{loop A} =$	$Q_{loop B} =$	$Q_{loop C} =$

ATTACHMENT 3

(Page 2 of 2)

CALORIMETRIC DATA SHEET

Pressurizer Heater Input (KW)		(Q0400)
x Conversion KW TO BTU/hr	x	3413
Pressurizer Heater Input (BTU/hr)	=	

$Q_{loop A} + Q_{loop B} + Q_{loop C}$ (BTU/hr)	=	
- RCP Input (BTU/hr)	-	40.96×10^6 BTU/hr
- Pressurizer Heater Input (BTU/hr)	-	
+ Letdown, Charging, and Seal Water Injection Losses (BTU/hr) (Ref. 2.3.14)	+	17.06×10^6 BTU/hr
+ Insulation Losses (BTU/hr)	+	5.12×10^6 BTU/hr
= Q_T (BTU/hr)	=	
$MW_{th} = \frac{Q_T}{3413000}$	=	MW_{th}
$\% \text{ POWER} = \frac{MW_{th}}{2546} \times 100$	=	$\% \text{ POWER}$

Completed by: _____

Date: _____

Checked by: _____

**SURRY POWER STATION
INITIAL LICENSE EXAMINATION
ADMINISTRATIVE
JOB PERFORMANCE MEASURE**

JPM A.1
SROI/u

Perform a Shutdown Margin with a Dropped Rod

Tools/Equipment/Procedures Needed:

1-OP-RX-001, "SHUTDOWN MARGIN (CALCULATED AT POWER) Rev. 005
1-DRP-003, "CURVE BOOK" Rev. 041
Calculator

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All steps shall be performed for this JPM. 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 One is stable at ^{90%} 75% power.
RCS temperature is stable at 567°F
A dropped rod occurred 5 minutes ago.
Core age is ~~5998 MWD/MTU~~ — 7521.
"D" bank rod height is currently 191 steps
RCS boron concentration is 900 ppm as measured 2 hours ago, no borations or dilutions have occurred since.

INITIATING CUES:

The Unit One SRO has requested you perform an independent shutdown margin to verify the Shut Down Margin calculated by the shift STA.
Here is a verified current copy of 1-OP-RX-001, SHUTDOWN MARGIN (CALCULATED AT POWER).
You are requested to perform an at-power shutdown margin calculation.

EVALUATOR'S NOTE:

An asterisk (*) within the JPM identifies the critical component(s) of a critical step.

<p>STEP 1: Review the purpose of the procedure (Section 1.0)</p> <p>STANDARD:</p> <p>___ Reviews step 1.1 To verify that a reactor core will be adequately subcritical to meet Technical Specifications and Administrative Limits.</p> <p>___ Reviews step 1.2 This test shall be performed a the following times:</p> <p style="padding-left: 40px;">·At the discretion of the Shift Supervisor whenever an at power shutdown margin (SDM) should be calculated to verify Technical Specification compliance.</p> <p style="padding-left: 40px;">·Within one hour after a control rod has been determined inoperable, and every twelve hours thereafter until the reactor is shutdown or the rod is declared operable.</p> <p style="padding-left: 40px;">·When a Shutdown or Control Bank has been inserted up to 18 steps below its insertion limit and becomes stuck or inoperable during physics testing and control rod assembly surveillance testing</p> <p>___ Identifies the dropped rod is inoperable and the requirements to perform 1-OP-RX-001 apply.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 2: Review the references section (Section 2.0)</p> <p>STANDARD:</p> <p>___ Reviews section 2.1, Source Documents, 2.2 Technical Specification sections, 2.3 Technical References, and 2.4 Commitment Documents</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p>STEP 3: Verifies the Initial Conditions are met (Section 3.0)</p> <p>STANDARD:</p> <p><input type="checkbox"/> Verifies the reactor is still critical and at 75% power. (step 3.1)</p> <p><input type="checkbox"/> Initials Step 3.1</p> <p><input type="checkbox"/> Verifies last boron sample was taken two hours ago. (step 3.2)</p> <p><input type="checkbox"/> Initials Step 3.2</p> <p><input type="checkbox"/> Verifies no large dilutions have performed since the boron sample was taken. (step 3.3)</p> <p><input type="checkbox"/> Initials Step 3.3</p> <p><input type="checkbox"/> Initials, signs, prints name, and dates procedure. (step 3.4)</p> <p>COMMENTS:</p>	<p><input type="checkbox"/> SAT</p> <p><input type="checkbox"/> UNSAT</p>
<p>STEP 4: Reviews Precautions and Limitations (Section 4.0)</p> <p>STANDARD:</p> <p><input type="checkbox"/> Notes RCS temperature is greater than 547 degrees, unit at power, and the need to ensure 1,770 pcm of negative reactivity is required.</p> <p><input type="checkbox"/> Notes the Unit 1 SRO is responsible for maintaining supervisory oversight of the performance of this procedure.</p> <p><input type="checkbox"/> Notes the procedure must be performed by a RO, STA, or Reactor Engineer.</p> <p>EVALUATORS NOTE: If the applicant expresses concern over step 4.3, inform him his qualifications are in excess of those listed in the procedure.</p> <p>COMMENTS:</p>	<p><input type="checkbox"/> SAT</p> <p><input type="checkbox"/> UNSAT</p>

<p>STEP 5.1.1: Record parameters for the SDM calculation (steps 5.1.1.a-5.1.1e)</p> <p>STANDARD:</p> <p><input type="checkbox"/> Enters current time and date for time/date of SDM in step 5.1.1.a.</p> <p><input type="checkbox"/> Enters 5998 MWD/MTU for Core burnup in step 5.1.1.b</p> <p><input type="checkbox"/> Enters 191 steps for "D" bank position in step 5.1.1.c</p> <p><input type="checkbox"/> Enters 900ppm for boron concentration in step 5.1.1.d</p> <p><input type="checkbox"/> Enters 75% for reactor power in step 5.1.1.e</p> <p><input type="checkbox"/> Initials step 5.1.1</p> <p>COMMENTS:</p>	<p><input type="checkbox"/> SAT</p> <p><input type="checkbox"/> UNSAT</p>
<p>STEP 5.1.2: Determine surveillance testing is not in progress and an single bank of control rods is unaffected. (Step 5.1.2)</p> <p>STANDARD:</p> <p><input type="checkbox"/> Enters N/A for and initials step 5.1.2</p> <p><input type="checkbox"/> Enters 0 for step 5.1.5.c</p> <p>COMMENTS:</p>	<p><input type="checkbox"/> SAT</p> <p><input type="checkbox"/> UNSAT</p>

<p>STEP 5.1.3: Calculates the worth of the stuck rods greater than 20 steps in the core. (step 5.1.3)</p> <p>STANDARD:</p> <p><input type="checkbox"/> Determines no stuck rods are present.</p> <p><input type="checkbox"/> Enters "1" in the "Actual No. of Stuck Rods Plus One" blank.</p> <p><input type="checkbox"/> Identifies Reference 2.3.1.f is the "Stuck Rod Worth vs. Burnup" curve.</p> <p><input type="checkbox"/> Locates Attachment 40 "SURREY UNIT 1 - CYCLE 16 STUCK ROD WORTH VS. BURNUP" curve in 1-DRP-003 "Curve Book".</p> <p><input type="checkbox"/> Using 5998 MWD/MTU, determines Stuck rod worth to be 1234 (band 1231.5 to 1236.5).</p> <p><input type="checkbox"/> Enters 1234 (band 1231.5 to 1236.5) in blank labeled (Ref 2.3.1.f).</p> <p><input type="checkbox"/> Enters 1234 (band 1231.5 to 1236.5) in final blank of step 5.1.3.</p> <p><input type="checkbox"/> Initials step 5.1.3</p> <p>COMMENTS:</p>	<p><input type="checkbox"/> SAT</p> <p><input type="checkbox"/> UNSAT</p>
<p>STEP 5.1.4: Calculates the worth of the dropped rods. (step 5.1.4)</p> <p>STANDARD:</p> <p><input type="checkbox"/> Enters "1" for the number of dropped rods.</p> <p><input type="checkbox"/> Enters 1000 in final blank of step 5.1.4.</p> <p><input type="checkbox"/> Initials step 5.1.4</p> <p>COMMENTS:</p>	<p><input type="checkbox"/> SAT</p> <p><input type="checkbox"/> UNSAT</p>

<p>STEP 5.1.5: Observes CAUTION that positive reactivity values must be entered in Substeps 5.1.5.a -5.1.5.f (Caution prior to Step 5.1.5)</p> <p>STANDARD:</p> <p>___ Observes CAUTION.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 5.1.5: Record the values required in step 5.1.1</p> <p>STANDARD:</p> <p>___ Initials step 5.1.5 when all data is entered.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 5.1.5a: Determine Power Defect (step 5.1.5a)</p> <p>STANDARD:</p> <p>___ Identifies Reference 2.3.1.a is the "Power Defect" curve.</p> <p>___ Locates Attachment 31 "SURREY UNIT 1 - CYCLE 16 POWER DEFECT" curve in 1-DRP-003 "Curve Book".</p> <p>___ Using 900 ppm boron, determines Power defect to be 1450 pcm (band 1425 to 1475).</p> <p>___ Enters 1450 (band 1425 to 1475) in step 5.1.5a</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p>STEP 5.1.5.b: Determines Reactivity Redistribution Factor</p> <p>STANDARD:</p> <p>___ Identifies Reference 2.3.1.b is the "Reactivity Redistribution Factor" curve.</p> <p>___ Locates Attachment 41 "SURREY UNIT 1 - CYCLE 16 REACTIVITY REDISTRIBUTION FACTOR VS. BURNUP" curve in 1-DRP-003 "Curve Book".</p> <p>___ Using 5998 MWD/MTU, determines Reactivity Redistribution factor to be 196 pcm (band 191 to 201).</p> <p>___ Enters 196 (band 191 to 201) in step 5.1.5b</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 5.1.5.c: Determines Worth of a Single Bank Inserted Out of Sequence (step 5.1.5.c)</p> <p>STANDARD:</p> <p>___ Enters 0 if not previously inserted.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 5.1.5.d: Determines Stuck Rod Worth (step 5.1.5.d)</p> <p>STANDARD:</p> <p>___ Transcribes value entered in step 5.1.3 (band 1231.5 to 1236.5)</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 5.1.5.e:</u> Determines Dropped Rod Worth (step 5.1.5.e)</p> <p><u>STANDARD:</u></p> <p>___ Transcribes value entered in step 5.1.4 (1000)</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5.1.5.f:</u> Determines the Worth of Control Banks at Rod Position in step 5.1.1.c (Step 5.1.5.f)</p> <p><u>STANDARD:</u></p> <p>___ Determines rod height in step 5.1.1.c is 191 steps.</p> <p>___ Identifies Reference 2.3.1.d is the "At power Integral Worth Table - Control Banks C&D in overlap" Table. (The At-power Integral Worth of C&D banks curve was not generated for the curve book for cycle 16)</p> <p>___ Locates Attachment 29 "SURRY UNIT 1 - CYCLE 16 At Power Integral Worth Table - Control Banks C&D in overlap" table in 1-DRP-003 "Curve Book".</p> <p>___ Using 5998 MWD/MTU, determines Rod worth to be 122.3 pcm.</p> <p>___ Enters 122.3 in step 5.1.5.f</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p>STEP 5.1.5.g: Determines the Total Rod Worth. (step 5.1.5.g)</p> <p>STANDARD:</p> <p>___ Identifies Reference 2.3.1.e is the "Total Rod Worth " curve</p> <p>___ Locates Attachment 38 "SURRY UNIT 1 - CYCLE 16 Total Rod Worth VS. Burnup" curve in 1-DRP-003 "Curve Book".</p> <p>___ Using 5998 MWD/MTU, determines Total Rod Worth to be 6944 pcm (band 6939 to 6949).</p> <p>___ Enters 6944 (band 6939 to 6949) in step 5.1.5.g.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 5.1.6: Calculates the Shutdown Margin by adding all values in step 5.1.5 (step 5.1.6)</p> <p>STANDARD:</p> <p>___ Adds steps 5.1.5a through 5.1.5.h (all values are positive except for 5.1.5.g).</p> <p>___ Calculates SDM to be -2791.7 pcm (band -2829.2 to -2754.2).</p> <p>* ___ Enters -2791.7 pcm in step 5.1.6 (band -2829.2 to -2754.2).</p> <p>___ Initials step 5.1.6.</p> <p>Evaluators Note: Band is generated from using maximum deviations which could be calculated using bands listed within JPM substeps.</p> <p>COMMENTS:</p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 5.1.7:</u> Determine acceptability of the calculated shutdown margin (step 5.1.7)</p> <p><u>STANDARD:</u></p> <p>___ Determines calculated SDM is more negative than -1770 pcm.</p> <p>___ Enters N/A for and initials step 5.1.7.</p> <p>___ Signs in "Completed By:" and Dates.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>
---	---------------------------------

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

INITIAL CONDITIONS:

Unit One is stable at 75% power.

A dropped rod occurred 5 minutes ago.

RCS temperature is stable at 567°F

Core age is 5998 MWD/MTU

"D" bank rod height is currently 191 steps

RCS boron concentration is 900 ppm as measured 2 hours ago, no borations or dilutions have occurred since.

INITIATING CUES:

The Unit One SRO has requested you perform an independent shutdown margin to verify the Shut Down Margin calculated by the shift STA.

Here is a verified current copy of 1-OP-RX-001, SHUTDOWN MARGIN (CALCULATED AT POWER).

You are requested to perform an at-power shutdown margin calculation.

mindview

User: MindView acct,,,

Request: TRNG_OPS_ADM-9162 from sunc10

Date Printed: Thu Mar 4 16:33:09 EST 1999

Procedure: ***1-OP-RX-001***

Rev: ***005*** PAR: ***0***

Title: ***SHUTDOWN MARGIN (CALCULATED AT POWER)***

Effective Date: ***10/16/98***

Station: ***Surry*** Docbase: ***SUMIND***

If this procedure is initiated OR re-initiated after the print date shown, then the current revision\PAR numbers must be verified.

This leader page is part of the controlled document and must remain with the procedure as a permanent record.

Approval signatures for electronically distributed procedures are maintained on file.

CONTROLLED COPY



SURRY POWER STATION

PROCEDURE NO:
1-OP-RX-001

REVISION NO:
5

PROCEDURE TYPE:
OPERATING PROCEDURE

UNIT NO:
1

PROCEDURE TITLE:
**SHUTDOWN MARGIN
(CALCULATED AT POWER)**

EFFECTIVE DATE:
On File

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Minor Revision

- Incorporated E-PAR {P1} PAR 980147 R4 P1

Added Precautions and Limitations 4.2 and 4.3. Added verification and SRO review signatures.

- Incorporated Engineering Markup addressing CTS 4358, RCE S-98-1213, Shutdown Margin Calculation Issues - added Reference 2.4.2, CTS 4358; modified Step 5.1.6 to include Substep 5.1.5.h; modified wording in Initial Condition 3.3 and Step 5.1.2. Added Substep 5.1.5.h, Rod Worth Conservatism.



PROCEDURE WRITER: **A. Swander**

VALIDATOR: **Doug Lawrence**

APPROVAL:

Approval on File

DATE:

PROCEDURE USED: Entirely Partially

Note: If used partially, note reason in remarks.

PROBLEMS ENCOUNTERED: Yes No

Note: If yes, note problems in remarks.

REMARKS: _____

SHIFT SUPERVISOR OR UNIT SRO (SIGNATURE):

DATE:

TABLE OF CONTENTS

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3.0 INITIAL CONDITIONS	5
4.0 PRECAUTIONS AND LIMITATIONS	5
5.0 INSTRUCTIONS	6
5.1 Shutdown Margin Determination	6

1.0 PURPOSE

- 1.1 To verify that a critical reactor core will be adequately subcritical to meet Technical Specifications and Administrative Limits. (Reference 2.2.1)
- 1.2 This test shall be performed at the following times:
- At the descretion of the Shift Supervisor whenever an at power shutdown margin (SDM) should be calculated to verify Technical Specification compliance. (Reference 2.2.1)
 - Within one hour after a control rod has been determined inoperable, and every twelve hours thereafter until the reactor is shutdown or the rod is declared operable. (Reference 2.2.1)
 - When a Shutdown or Control Bank has been inserted up to 18 steps below its insertion limit and becomes stuck or inoperable during physics testing and control rod assembly surveillance testing. (Reference 2.4.1)

2.0 REFERENCES

2.1 Source Documents

2.1.1 UFSAR Section 3.2, 14.2.5

2.1.2 Nuclear Analysis and Fuel Technical Report NE-630, Revision 1

2.2 Technical Specifications Surry Power Station Units 1 and 2

2.2.1 Technical Specifications 1.C.4, 3.12.A.3.c, 3.12.C.3.b.2, 3.12.A.5, 3.12.A.6, 3.12 Basis

2.3 Technical References

2.3.1 1-DRP-003, Curve Book, Section 1 Attachments-Physics Curves

- a. Power Defect
- b. Reactivity Redistribution Factor
- c. At Power Integral Worth of C & D Banks
- d. At Power Integral Worth Table-Control Banks C & D in Overlap
- e. Total Rod Worth
- f. Stuck Rod Worth vs Burnup
- g. Worth of Single Rod Bank Out of Sequence Up to 18 Steps

2.3.2 Engineering Transmittal NAF-980058, Rev. 0, Proposed Operator Response and Shutdown Margin Information for Incomplete Rod Insertion

2.4 Commitment Documents

2.4.1 CTS 2102, Technical Specification Change 269, Control Rod Urgent Failure analysis

2.4.2 CTS 4358, RCE S-98-1213, Shutdown Margin Calculation Issues

Init Verif

3.0 INITIAL CONDITIONS

ED

3.1 The reactor is critical.

ED

3.2 Verify that the RCS boron concentration has been determined in the last 24 hours.

ED

3.3 Verify that no large dilutions (i.e., greater than 10 ppm) to the RCS have been performed since the most recently measured boron concentration.

3.4 Personnel participating in performance of this procedure shall complete the table below.

Initials	Signature	Printed Name	Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 When the RCS average temperature is greater than or equal to 547°F and the unit is at power, there must be sufficient negative reactivity available to ensure that the reactor can be made subcritical by at least 1,770 pcm.

4.2 The Unit 1 SRO is responsible for maintaining supervisory oversight of the performance of this procedure.

4.3 This procedure must be performed by a Reactor Operator, Shift Technical Advisor (STA), or Reactor Engineer.

Init Verif

5.0 INSTRUCTIONS

5.1 Shutdown Margin Determination

ED

5.1.1 Record the following parameters for the SDM calculation.

- a. Time/date of SDM calculation Now / TODAY
- b. Core Burnup 7521 - 5998 MWD/MTU
- c. D Control Bank Position 191 Steps
- d. Estimate of Current Boron Concentration (± 50 ppm) 900 ppm
 (Required for determination of Power Defect)
- e. Reactor Power 90% / 75 %

N/A EA

5.1.2 IF a single bank of control rods has been inserted up to 18 Steps and cannot be returned to the original position during physics or surveillance testing, THEN record the bank worth at Substep 5.1.5.c. Otherwise, enter N/A for this step and zero pcm at Substep 5.1.5.c.

ED

5.1.3 Calculate the worth of the stuck or declared inoperable rods that are above 20 steps in the core. IF there are no stuck or declared inoperable rods left in the core, THEN enter ONE stuck rod. IF there is a known stuck rod, THEN enter TWO stuck rods.

$$\left(\frac{1}{\text{Actual No. of Stuck Rods Plus One}} \right) \times \left(+ \frac{(1231.5 - 1236.5)}{(1231.5 - 1236.5)} \right) = + 1234 \text{ pcm}$$

(Ref 2.3.1.f)

ED

5.1.4 Calculate the worth of the dropped rods (rods that are below 20 steps in the core). IF there are no dropped rods in the core, THEN enter N/A for this step AND zero pcm below and at Substep 5.1.5.e.

$$\left(\frac{1}{\text{No. of Dropped Rods}} \right) \times \left(+ 1,000 \text{ pcm} \right) = + 1000 \text{ pcm}$$

CAUTION: Positive reactivity values must be entered in Substeps 5.1.5.a, 5.1.5.b, 5.1.5.c, 5.1.5.d, 5.1.5.e, and 5.1.5.f.

7A

5.1.5 Record the values required to calculate the Shutdown Margin. (Use data recorded in Step 5.1.1 as reference values for recording data from the curves in the Curve Book, Ref 2.3.1.)

- a. Power Defect from Ref 2.3.1.a $+ \underline{1450 (1425 - 1475)}$ pcm
- b. Reactivity Redistribution Factor $+ \underline{196 (191 - 201)}$ pcm
(Ref 2.3.1.b)
- c. Worth of a Single Bank Inserted Out of $+ \underline{0}$ pcm
Sequence up to 18 Steps (Ref. 2.3.1.g)
(Enter zero if all banks are in proper sequence)
- d. Stuck Rod Worth from Step 5.1.3 $+ \underline{1234 (1231.5 - 1236.5)}$ pcm
- e. Dropped Rod Worth from Step 5.1.4 $+ \underline{1000}$ pcm
- f. Worth of Control Banks at Rod $+ \underline{122.3}$ pcm
Position in Substep 5.1.1.c
(Ref 2.3.1.c or 2.3.1.d)
- g. Total Rod Worth (Ref 2.3.1.e) $- \underline{6944 (6939 - 6949)}$ pcm
- h. Rod Worth Conservatism to account $+ \underline{150}$ pcm
for RPI uncertainty and potential for
incomplete rod insertion
(Ref. 2.3.2)

ED

5.1.6 Calculate the Shutdown Margin by adding the values in Substep 5.1.5.a through Substep 5.1.5.h and recording the value below.

At Power Shutdown Margin -2791.7 (-2829.2 + -254.2) pcm

N/A ED

5.1.7 IF Step 5.1.6 is less negative than Section 4.0 requirements (-1,770 pcm), THEN reduce plant power in accordance with Technical Specification 3.12.C.5 AND satisfy the required SDM (-1,770 pcm). IF Step 5.1.6 is more negative than -1770 pcm, THEN enter N/A for this step.

Completed By: _____ Date: _____

Verified By: _____ Date: _____

Reviewed By: _____ Date: _____

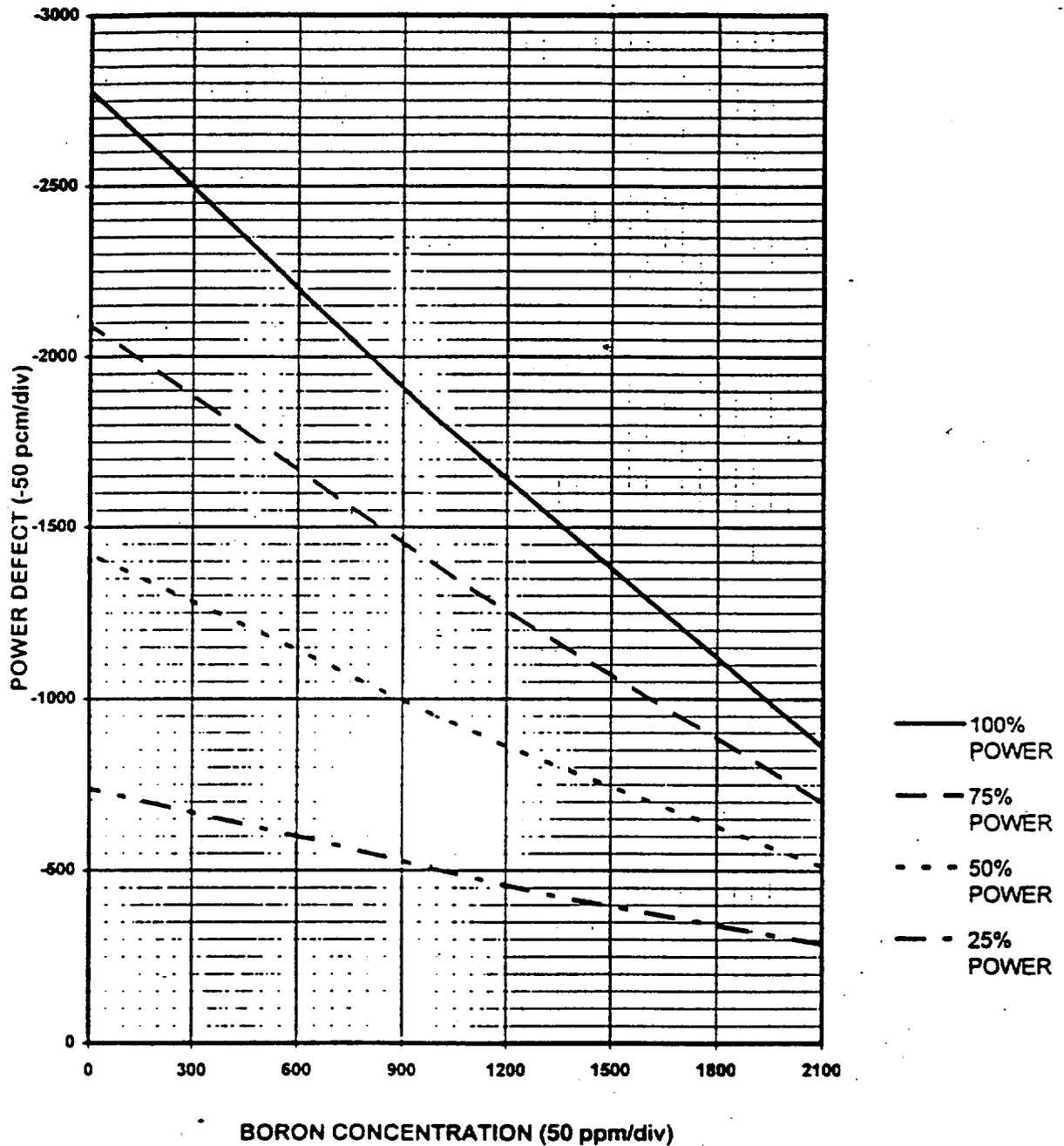
SRO

ATTACHMENT 31

(Page 1 of 1)

SURRY UNIT 1 CYCLE 16
POWER DEFECT

NOTE: FOR USE THROUGH NOMINAL FULL POWER
END OF REACTIVITY

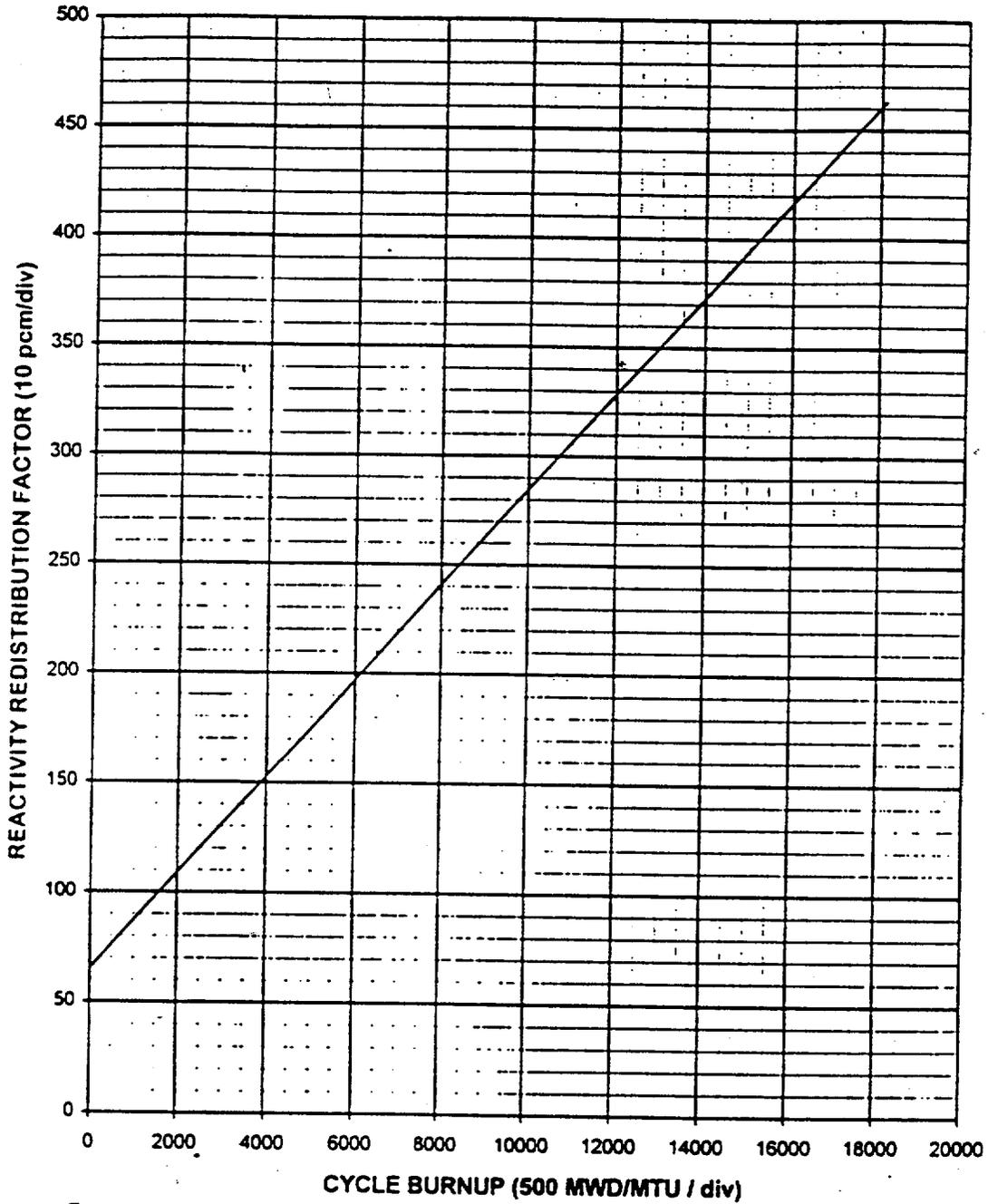


ATTACHMENT 41

(Page 1 of 1)

SURRY UNIT 1 - CYCLE 16
REACTIVITY REDISTRIBUTION FACTOR VS. BURNUP

Note: For Use In Shutdown Margin Calculations Only

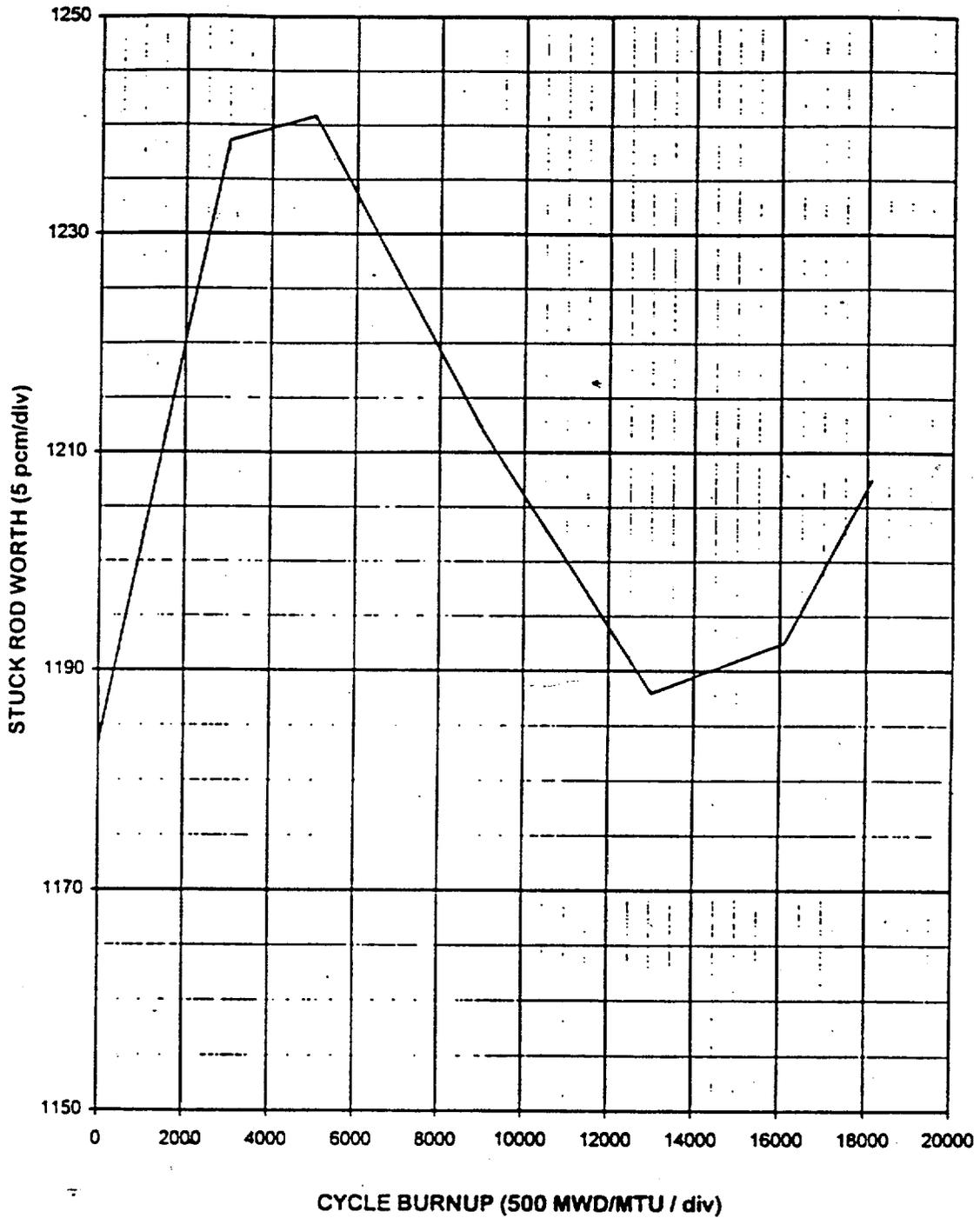


ATTACHMENT 40

(Page 1 of 1)

SURRY UNIT 1 - CYCLE 16
STUCK ROD WORTH VS. BURNUP

Note: For Use In Shutdown Margin Calculations Only



ATTACHMENT 29

(Page 1 of 7)

**SURRY UNIT 1 - CYCLE 16
 AT-POWER INTEGRAL ROD WORTH TABLE FOR
 CONTROL BANKS C AND D IN OVERLAP**

Note: Worth At Nominal HFP Conditions

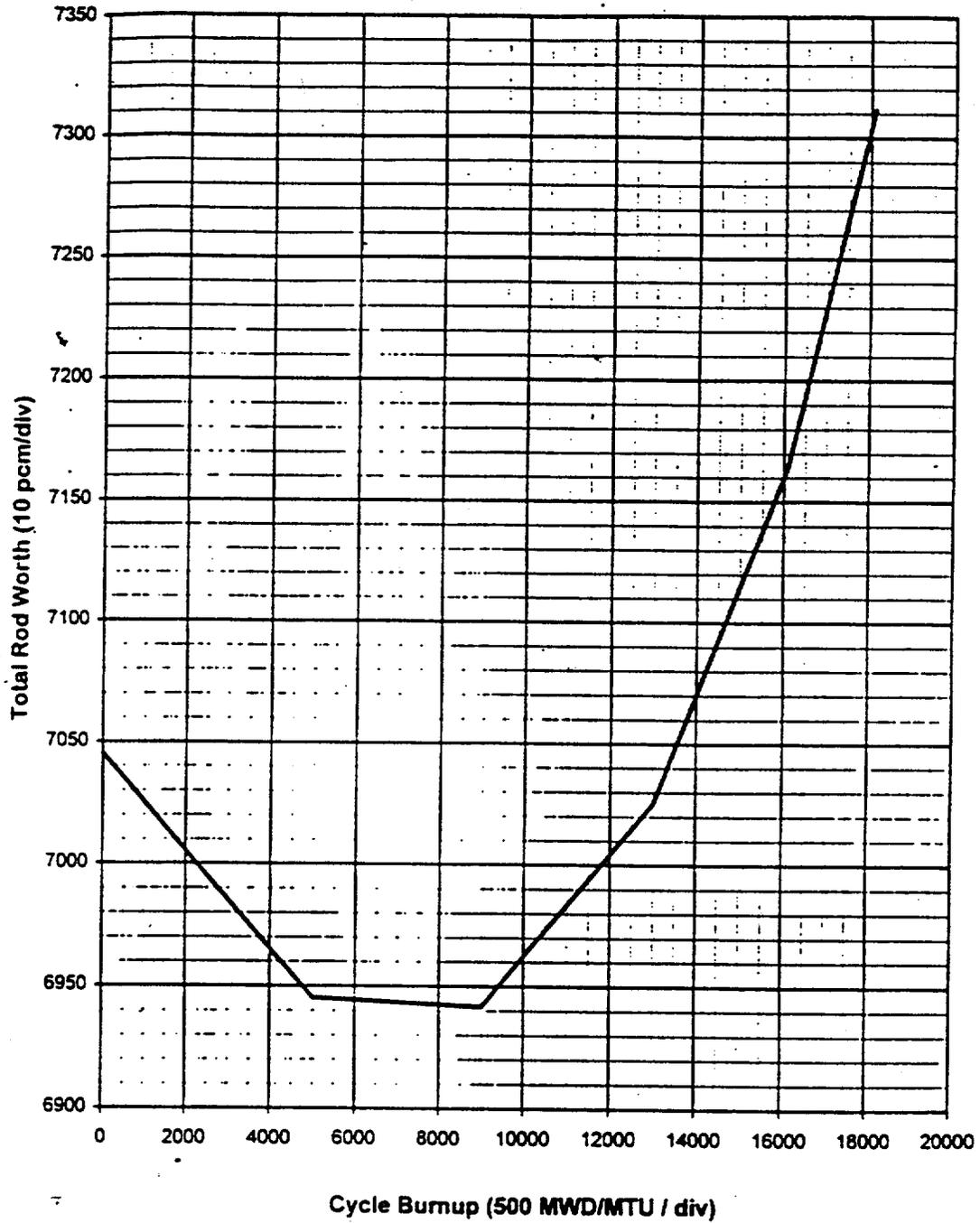
D-BANK POS STEPS	C-BANK POS STEPS	CYCLE BURNUP RANGE (MWD/MTU)					
		0.0 TO 500.0	500.1 TO 2000.0	2000.1 TO 4000.0	4000.1 TO 6000.0	6000.1 TO 8000.0	8000.1 TO 10000.0
		229	229	0.0	0.0	0.0	0.0
225	229	0.0	0.0	0.0	0.0	0.0	0.0
223	229	0.8	0.8	0.8	1.0	1.2	1.6
221	229	2.9	3.0	3.2	3.7	4.1	5.0
219	229	5.7	5.9	6.3	7.2	8.0	9.7
217	229	9.3	9.6	10.3	11.6	12.9	15.3
215	229	13.9	14.3	15.3	17.2	19.1	21.9
213	229	19.0	19.6	21.0	23.5	26.1	29.1
211	229	24.6	25.4	27.1	30.3	33.5	36.8
209	229	30.8	31.9	34.0	37.8	41.8	45.3
207	229	37.6	38.8	41.3	45.9	50.7	54.4
205	229	44.7	46.1	49.0	54.4	60.0	63.8
203	229	52.2	53.8	57.1	63.3	69.6	73.9
201	229	60.1	61.9	65.7	72.5	79.6	85.7
199	229	68.2	70.3	74.5	82.1	89.9	97.8
197	229	76.7	78.8	83.5	91.9	100.5	110.2
195	229	85.3	87.7	92.8	101.8	111.1	122.6
193	229	94.1	96.7	102.1	111.9	122.0	135.2
191	229	103.1	106.0	111.8	122.3	133.0	147.9

ATTACHMENT 38

(Page 1 of 1)

SURRY UNIT 1 - CYCLE 16
TOTAL ROD WORTH VS. BURNUP

Note: For Use In Shutdown Margin Calculations Only



Developed for the Surry, September 2000, Initial Examination
Examination Report # 2000-301



U. S. Nuclear Regulatory Commission

Region II

A-2 Administrative Section

NRC-JPM-02

Title:

AUXILIARY FEED WATER MOV TEST REVIEW

Candidate's Name: _____

Read the following to the candidate.

Initial Conditions:

1. Unit 1 is in mode 1 at 95% power.
2. The plant is at

Initiating Cues:

Review 1-OPT-FW-006, Auxiliary Feedwater MOV Test. For completeness and accuracy.

Auxiliary Feedwater MOV Test.	Page 3 of
<p><u>STEP 1:</u> Review the purpose of the procedure (Section 1.0)</p>	
<p><u>STANDARD:</u></p>	
<p>_____ Reviews Step 1.1 to provide to stroke selected valves to the accident position and measure the stroke time to verify proper valve operation every 92 days as outlined in Section XI ASME code and IAW the Inservice Testing Program Plan for Pumps and Valves.</p>	<p>_____ SAT</p>
<p>_____ Reviews Step 1.2 to determine the OPT is to provide acceptance criteria for the selected valves following maintenance.</p>	<p>_____ UNSAT</p>
<p>_____ Reviews Step 1.3 to determine that the procedure satisfies the requirements of Technical Specifications IAW Reference 2.2.1, Reference. 2.2.2, Reference 2.2.3 and Reference 2.2.4</p>	
<p>_____ Reviews Step 1.4 to determine that performance of this procedure satisfies the requirements of VPAP-2401, Fire Protection Program, Subsection 6.5. This requirement applies only to 1-FW-MOV-160A and 1-FW-MOV-160B, AFE XTIE, valves</p>	
<p>_____ Reviews Step 1.5 to determine that performance of this procedure satisfies the requirements of 10CFR50, Appendix R.</p>	
<p><u>COMMENTS:</u></p>	

* indicates critical step

Candidate's Name: _____

Auxiliary Feedwater MOV Test.	Page 4 of
<p>STEP 2: Review the References section (Section 2.0)</p> <p>STANDARD:</p> <p>_____ Reviews section 2.1, Source Documents, 2.2 Technical Specifications, 2.3 Technical References, and 2.4 Commitment Documents.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 3: Verifies the Initial Conditions are met (Section 3.0)</p> <p>STANDARD:</p> <p>_____ Reviews Step 3.1. This procedure has PSA significance. <u>IF</u> this procedure is being performed on a day other than its POD scheduled date, <u>THEN</u> notify the Shift Supervisor that a PSA evaluation is required for the performance of this procedure. (Reference 2.4.3)</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

* indicates critical step

Auxiliary Feedwater MOV Test.	Page 5 of
<p>STEP 4: Reviews the Precautions and Limitations (Section 4.0)</p> <p>STANDARD:</p> <p>_____ (Step 4.1) Notes that testing more than one MOV at a time is <u>not</u> permitted.</p> <p>_____ (Step 4.2) MCR valve position lights will be used to determine MOV position.</p> <p>_____ (Step 4.3) The MOV test is satisfactory if the valve(s) tested travel(s) full stroke within the acceptable range specified in the step.</p> <p>_____ (Step 4.4) Valves that test satisfactory but have stroke times that depart <u>significantly</u> from the reference value specified in the step will be noted on the Operator Comments sheet.</p> <p>_____ (Step 4.5) The individual identification block in Subsection 7.3 must be completed before the procedure is closed out.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 5: 5.0 SPECIAL TOOL AND EQUIPMENT</p> <p>STANDARD:</p> <p>_____ (Step 5.1) Needs a stopwatch.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

* indicates critical step

Candidate's Name: _____

Auxiliary Feedwater MOV Test.	Page 6 of
<p><u>STEP :</u> 6.0 INSTRUCTIONS</p> <p><u>STANDARD:</u></p> <p>_____ 6.1 Work Preparation</p> <p> NOTE: Full stroke time is the interval from switch actuation until the light that was LIT at switch actuation changes to NOT LIT.</p> <p>_____ 6.1.1 <u>IF</u> this procedure is used to prove operability of equipment after maintenance, <u>THEN</u> record the Work Order Number and dMark Number below, <u>AND</u> enter N/A in the subsections of Section 6.0 that will <u>NOT</u> be done. <u>IF</u> used to prove monthly operability, <u>THEN</u> enter N/A. (Reference 2.4.1)</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

* indicates critical step

Candidate's Name: _____

Auxiliary Feedwater MOV Test.		Page 7 of												
STEP 6 : Step 6.2 Testing 1-FW-MOV-151E, SG A AFW FLOW ISOL														
STANDARD:		_____ SAT												
_____ Step 6.2.1	Cycle 1-FW-MOV-151E and verify full stroke. Record the time required to close and open the MOV.	_____ UNSAT												
	<table border="0"> <thead> <tr> <th></th> <th>Stroke Time</th> <th>Reference</th> <th>Accept Range</th> </tr> </thead> <tbody> <tr> <td>1-FW-MOV-151E</td> <td>Close_23.1_</td> <td>20.1</td> <td>17.1 - 23.1</td> </tr> <tr> <td></td> <td>Open_21.2_</td> <td>20.3</td> <td>17.3 - 23.3</td> </tr> </tbody> </table>		Stroke Time	Reference	Accept Range	1-FW-MOV-151E	Close_23.1_	20.1	17.1 - 23.1		Open_21.2_	20.3	17.3 - 23.3	
	Stroke Time	Reference	Accept Range											
1-FW-MOV-151E	Close_23.1_	20.1	17.1 - 23.1											
	Open_21.2_	20.3	17.3 - 23.3											
_____ Step 6.2.2	Verify open 1-FW-MOV-151E.													
_____ Step 6.2.3	Record the stopwatch SQC No. and Cal Due Date.													
	SQC No. _____ Cal Due Date. _____													
COMMENTS:														

* indicates critical step

Auxiliary Feedwater MOV Test.		Page 8 of												
<u>STEP 7:</u>	Step 6.3 Testing 1-FW-MOV-151F, SG A AFW FLOW ISOL													
<u>STANDARD:</u>		_____ SAT												
_____ *Step 6.3.1	Cycle 1-FW-MOV-151F and verify full stroke. Record the time required to close and open the MOV.	_____ UNSAT												
	<table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Stroke Time</th> <th>Reference</th> <th>Accept Range</th> </tr> </thead> <tbody> <tr> <td>1-FW-MOV-151F</td> <td>Close <u>23.6</u></td> <td>20.5</td> <td>17.5 - 23.5</td> </tr> <tr> <td></td> <td>Open <u>23.3</u></td> <td>21.0</td> <td>17.9 - 23.3</td> </tr> </tbody> </table>		Stroke Time	Reference	Accept Range	1-FW-MOV-151F	Close <u>23.6</u>	20.5	17.5 - 23.5		Open <u>23.3</u>	21.0	17.9 - 23.3	
	Stroke Time	Reference	Accept Range											
1-FW-MOV-151F	Close <u>23.6</u>	20.5	17.5 - 23.5											
	Open <u>23.3</u>	21.0	17.9 - 23.3											
_____ Step 6.3.2	Verify open 1-FW-MOV-151F													
_____ Step 6.3.3	Record the stopwatch SQC No. and Cal Due Date.													
	SQC No. _____ Cal Due Date. _____													
Examiner's NOTE:	Applicant should identify the close time exceeded the accepted range. This requires comment on the Operators Comment Sheet. <u>Facility help, please provide some good words for the comment page.</u>													
Examiner Cue:	If identified that the close time exceeded the accepted range tell the applicant to continue their review of the procedure.													
<u>COMMENTS:</u>														

* indicates critical step

Candidate's Name: _____

Auxiliary Feedwater MOV Test.		Page 9 of												
STEP 8: Step 6.4 Testing 1-FW-MOV-151C, SG B AFW FLOW ISOL														
STANDARD:		_____ SAT												
_____ Step 6.4.1	Cycle 1-FW-MOV-151C and verify full stroke. Record the time required to close and open the MOV.	_____ UNSAT												
	<table border="0"> <thead> <tr> <th></th> <th>Stroke Time</th> <th>Reference</th> <th>Accept Range</th> </tr> </thead> <tbody> <tr> <td>1-FW-MOV-151C</td> <td>Close <u>20.0</u></td> <td>20.0</td> <td>17.0 - 23.0</td> </tr> <tr> <td></td> <td>Open <u>20.6</u></td> <td>20.1</td> <td>17.1 - 23.1</td> </tr> </tbody> </table>		Stroke Time	Reference	Accept Range	1-FW-MOV-151C	Close <u>20.0</u>	20.0	17.0 - 23.0		Open <u>20.6</u>	20.1	17.1 - 23.1	
	Stroke Time	Reference	Accept Range											
1-FW-MOV-151C	Close <u>20.0</u>	20.0	17.0 - 23.0											
	Open <u>20.6</u>	20.1	17.1 - 23.1											
_____ Step 6.4.2	Verify open 1-FW-MOV-151C													
_____ Step 6.4.3	Record the stopwatch SQC No. and Cal Due Date.													
	SQC No. _____ Cal Due Date. _____													
COMMENTS:														

* indicates critical step

Auxiliary Feedwater MOV Test.		Page 10 of												
STEP 9:	Step 6.5 Testing 1-FW-MOV-151D, SG B AFW FLOW ISOL													
STANDARD:		_____ SAT												
_____ *Step 6.5.1	Cycle 1-FW-MOV-151D and verify full stroke. Record the time required to close and open the MOV.	_____ UNSAT												
	<table border="1"> <thead> <tr> <th></th> <th>Stroke Time</th> <th>Reference</th> <th>Accept Range</th> </tr> </thead> <tbody> <tr> <td>1-FW-MOV-151D</td> <td>Close_21.7_</td> <td>18.9</td> <td>16.1 - 21.7</td> </tr> <tr> <td></td> <td>Open_21.9_</td> <td>20.1</td> <td>16.9 - 22.7</td> </tr> </tbody> </table>		Stroke Time	Reference	Accept Range	1-FW-MOV-151D	Close_21.7_	18.9	16.1 - 21.7		Open_21.9_	20.1	16.9 - 22.7	
	Stroke Time	Reference	Accept Range											
1-FW-MOV-151D	Close_21.7_	18.9	16.1 - 21.7											
	Open_21.9_	20.1	16.9 - 22.7											
_____ Step 6.5.2	Verify open 1-FW-MOV-151D													
_____ Step 6.5.3	Record the stopwatch SQC No. and Cal Due Date.													
	SQC No. _____ Cal Due Date. _____													
Examiners NOTE:	The applicant should identify that the open and close stroke times depart <u>significantly</u> from the reference value. There should be a comment in the Comment section of the procedure. <u>But there is NO comment in the appropriate section.</u>													
Examiner Cue:	If identified that the open and close times depart <u>significantly</u> from the reference value tell the applicant to continue their review of the procedure.													
NOTE TO FACILITY:	<u>We need to determine if the values provided in this step will meet the intent of precaution and limitation 4.4. Are these values representative of significant.</u>													
COMMENTS:														

* indicates critical step

Candidate's Name: _____

Auxiliary Feedwater MOV Test.		Page 11 of									
STEP 10: Step 6.6 Testing 1-FW-MOV-151A, SG C AFW FLOW ISOL											
STANDARD:		_____ SAT									
_____ Step 6.6.1	Cycle 1-FW-MOV-151A and verify full stroke. Record the time required to close and open the MOV.	_____ UNSAT									
1-FW-MOV-151A	<table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Stroke Time</th> <th style="text-align: left;">Reference</th> <th style="text-align: left;">Accept Range</th> </tr> </thead> <tbody> <tr> <td>Close_20.6_</td> <td>20.6</td> <td>17.6 - 23.6</td> </tr> <tr> <td>Open_21.3_</td> <td>20.8</td> <td>17.7 - 23.9</td> </tr> </tbody> </table>	Stroke Time	Reference	Accept Range	Close_20.6_	20.6	17.6 - 23.6	Open_21.3_	20.8	17.7 - 23.9	
Stroke Time	Reference	Accept Range									
Close_20.6_	20.6	17.6 - 23.6									
Open_21.3_	20.8	17.7 - 23.9									
_____ Step 6.6.2	Verify open 1-FW-MOV-151A										
_____ Step 6.6.3	Record the stopwatch SQC No. and Cal Due Date.										
	SQC No. _____ Cal Due Date. _____										
COMMENTS:											

* indicates critical step

Auxiliary Feedwater MOV Test.		Page 12 of												
STEP 11: Step 6.7 Testing 1-FW-MOV-151B, SG C AFW FLOW ISOL														
STANDARD:		_____ SAT												
_____ *Step 6.7.1	Cycle 1-FW-MOV-151B and verify full stroke. Record the time required to close and open the MOV.	_____ UNSAT												
	<table border="0"> <thead> <tr> <th></th> <th>Stroke Time</th> <th>Reference</th> <th>Accept Range</th> </tr> </thead> <tbody> <tr> <td>1-FW-MOV-151B</td> <td>Close_23.7_</td> <td>20.7</td> <td>17.6 - 23.8</td> </tr> <tr> <td></td> <td>Open_23.9_</td> <td>20.8</td> <td>17.7 - 23.9</td> </tr> </tbody> </table>		Stroke Time	Reference	Accept Range	1-FW-MOV-151B	Close_23.7_	20.7	17.6 - 23.8		Open_23.9_	20.8	17.7 - 23.9	
	Stroke Time	Reference	Accept Range											
1-FW-MOV-151B	Close_23.7_	20.7	17.6 - 23.8											
	Open_23.9_	20.8	17.7 - 23.9											
_____ Step 6.7.2	Verify open 1-FW-MOV-151B													
_____ Step 6.7.3	Record the stopwatch SQC No. and Cal Due Date.													
	SQC No. _____ Cal Due Date. _____													
Examiners NOTE:	The applicant should identify that the close and open stroke times depart <u>significantly</u> from the reference value and need a comment on the Operator comment sheet. <u>But there is NO comment in the appropriate section.</u>													
COMMENTS:														

* indicates critical step

Auxiliary Feedwater MOV Test.		Page 13 of								
STEP 12: Step 6.8 Testing 1-FW-MOV-160A, AFW XTIE										
STANDARD:		_____ SAT								
_____ Step 6.8.1	Notify the Unit 2 CRO that 1-FW-MOV-160A is to be isolated.	_____ UNSAT								
_____ Step 6.8.2	Before closing 2-FW-270, Aux Feed Cross-Connect Isolation for 1-FW-MOV-160A, in Step 6.8.3, have the SRO review TS-3.6									
_____ Step 6.8.3	In Unit 2 Safeguards, close 2-FW-270.									
_____ *Step 6.8.4	On Unit 2 control board, open 1-FW-MOV-160A and verify full stroke. Record the time required to open the MOV.									
	<table border="0"> <thead> <tr> <th></th> <th>Stroke Time</th> <th>Reference</th> <th>Accept Range</th> </tr> </thead> <tbody> <tr> <td>1-FW-MOV-160A</td> <td>Open <u>53.3</u></td> <td>62.8</td> <td>53.4 - 72.2</td> </tr> </tbody> </table>		Stroke Time	Reference	Accept Range	1-FW-MOV-160A	Open <u>53.3</u>	62.8	53.4 - 72.2	
	Stroke Time	Reference	Accept Range							
1-FW-MOV-160A	Open <u>53.3</u>	62.8	53.4 - 72.2							
_____ Step 6.8.5	Verify open 1-FW-MOV-160A									
_____ Step 6.8.6	Open 2-FW-270.									
_____ *Step 6.8.7	Record the stopwatch SQC No. and Cal Due Date.									
	SQC No. _____ Cal Due Date. <u>9/15/00</u>									
Examiner NOTE:	The applicant should identify that the stroke time for the valve is below the acceptable range. In addition, the applicant should realize that there is a comment on the Operator Comment Sheet. The applicant should also note that the calibration date for the stopwatch is also out of cal.									
COMMENTS:										

* indicates critical step

Auxiliary Feedwater MOV Test.		Page 14 of								
STEP 13: Step 6.9 Testing 1-FW-MOV-160B, AFW XTIE										
STANDARD:		_____ SAT								
_____ Step 6.9.1	Notify the Unit 2 CRO that 1-FW-MOV-160B is to be isolated.	_____ UNSAT								
_____ Step 6.9.2	Before closing 2-FW-271, Aux Feed Cross-Connect Isolation for 1-FW-MOV-160B, in Step 6.8.3, have the SRO review TS-3.6									
_____ Step 6.9.3	In Unit 2 Safeguards, close 2-FW-271.									
_____ Step 6.9.4	On Unit 2 control board, open 1-FW-MOV-160B and verify full stroke. Record the time required to open the MOV.									
	<table border="0"> <thead> <tr> <th></th> <th>Stroke Time</th> <th>Reference</th> <th>Accept Range</th> </tr> </thead> <tbody> <tr> <td>1-FW-MOV-160B</td> <td>Open_58.3_</td> <td>60.7</td> <td>51.6 - 69.8</td> </tr> </tbody> </table>		Stroke Time	Reference	Accept Range	1-FW-MOV-160B	Open_58.3_	60.7	51.6 - 69.8	
	Stroke Time	Reference	Accept Range							
1-FW-MOV-160B	Open_58.3_	60.7	51.6 - 69.8							
_____ Step 6.8.5	Verify open 1-FW-MOV-160B									
_____ Step 6.8.6	Open 2-FW-271.									
_____ *Step 6.8.7	Record the stopwatch SQC No. and Cal Due Date.									
	SQC No. _____ Cal Due Date. ____9/15/00____									
Examiner NOTE:	The applicant should identify that the cal due date is past due.									
COMMENTS:										

* indicates critical step

Candidate's Name: _____

Auxiliary Feedwater MOV Test.	Page 15 of
<p>STEP 13: Step 7.0 FOLLOW-ON</p> <p>STANDARD:</p> <p>_____ Step 7.1 Acceptance Criteria</p> <p>_____ Step 7.7.1 Evaluate the tests results by reviewing the Acceptance Criteria for the components tested.</p> <ul style="list-style-type: none">• The valve(s) tested travel(s) full stroke within the specified acceptable range. <p>_____ Step 7.7.2 Document the test results (✓)</p> <p>_____ SAT <u> X </u> UNSAT</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

* indicates critical step

Auxiliary Feedwater MOV Test.		Page 16 of
STEP 14: Step 7.2 FOLLOW-ON TASKS		
STANDARD:		_____ SAT
_____ *Step 7.2.1	<u>IF</u> the test was satisfactory, <u>THEN</u> enter N/A in the following substeps. <u>IF</u> the test was unsatisfactory, <u>THEN</u> do the following:	_____ UNSAT
	<ul style="list-style-type: none"> a. Document the reason for the unsatisfactory test in the Operator Comments. b. Notify the System Engineer and record the name. c. Notify the ISI Engineer and record the name. d. Initiate a Deviation Report and record the number. e. Initiate a Work request and record 	
_____ Step 7.2.2	<u>IF</u> a partial operability test was done, <u>THEN</u> document the reason for the partial test in Operator Comments. <u>IF</u> a full test was done, <u>THEN</u> enter N/A.	
_____ Step 7.2.3	Verify that an entry has been made or make an entry in the Measuring and Test Equipment Usage Log for each SQC device used in this procedure.	
Examiner NOTE:	The applicant should identify that Step 7.2.1 should not have been N/Aed. And that the indicated people should have been notified.	
COMMENTS:		

* indicates critical step

Auxiliary Feedwater MOV Test.		Page 17 of
<p>STEP 15: 7.2 Follow-on Tasks (continued)</p> <p>STANDARD:</p> <p>_____ Step 7.2.4 <u>IF</u> the 1-FW-MOV-160A test was unsatisfactory, <u>THEN</u> have the Unit 1 Shift Supervisor review VPAP 2401 Subsection 6.5 of Appendix R Compensatory Measures. If 1-FW-MOV-160A test was satisfactory, <u>THEN</u> enter N/A.</p> <p>_____ Step 7.2.5 <u>IF</u> the 1-FW-MOV-160B test was unsatisfactory, <u>THEN</u> have the Unit 1 Shift Supervisor review VPAP 2401 Subsection 6.5 of Appendix R Compensatory Measures. If 1-FW-MOV-160B test was satisfactory, <u>THEN</u> enter N/A.</p> <p>Examiner NOTE: The applicant should identify in STEP 7.2.4 the test was unsatisfactory and have the Unit Supervisor review VPAP 2401 Subsection 6.5 of Appendix R Compensatory Measures.</p> <p>The applicant should identify that Step 7.2.5 was completed satisfactory.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>	
<p>SRO ONLY Have the SRO candidates review VPAP 2401 Subsection 6.5 of Appendix R Compensatory Measures.</p> <p>Facility HELP: Need to get a copy of this procedure and put what the SRO would find in it.</p>		

* indicates critical step

Candidate's Name: _____

Auxiliary Feedwater MOV Test.		Page 18 of
<p>STEP 16: Step 7.3, Notification, Documentation, and Procedure Closeout.</p> <p>STANDARD:</p> <p>_____ *Step 7.3.1 Notify the Unit 1 Shift Supervisor that the test is complete.</p> <p>Examiner NOTE: The candidate should identify that JHB did not put his initials or print his name in the appropriate box after Step 7.3.1</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>	
<p>STEP :</p> <p>STANDARD:</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>	
<p>STEP :</p> <p>STANDARD:</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>	

* indicates critical step

mindview

User: mindview,SPS,,

Request: TRN_HUSKEY-8612 from suncux01

Date Printed: Fri Aug 11 07:44:50 EDT 2000

Procedure: *1-OPT-FW-006*

Rev: *003*

PAR: *0*

Title: *AUXILIARY FEEDWATER MOV
TEST.*

Effective Date: *07/30/1999*

Station: *Surry*

Docbase: *SUMIND*

If this procedure is initiated OR re-initiated after the print date shown, then the current revision\PAR numbers must be verified.

This leader page is part of the controlled document and must remain with the procedure as a permanent record.

Approval signatures for electronically distributed procedures are maintained on file.

CONTROLLED COPY



SURRY POWER

SURRY POWER STATION

PROCEDURE NO:
1-OPT-FW-006

REVISION NO:
3

PROCEDURE TYPE:
OPERATIONS PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
AUXILIARY FEEDWATER MOV TEST

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revised in accordance with CTS 4675. Maintenance activity was performed with no prior PSA evaluation.

- Added PSA stamp to cover page.
- Added Initial Condition 3.1.
- Added Commitment Documents Step 2.4.3.

Appendix **R**

ISI

PSA

PMT

PROCEDURE WRITER: J. L. REDLER

VALIDATOR: J. ARAGER

APPROVAL:

APPROVAL ON FILE

DATE:

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1.0 PURPOSE

- 1.1 To provide instructions to stroke selected valves to the accident position and measure the stroke time to verify proper valve operation every 92 days as outlined in Section XI ASME Code and IAW the Inservice Testing Program Plan for Pumps and Valves.
- 1.2 To provide acceptance criteria for the selected valves following maintenance.
- 1.3 Performance of this procedure satisfies the requirements of Technical Specifications IAW Reference 2.2.1, Reference 2.2.2, Reference 2.2.3, and Reference 2.2.4.
- 1.4 Performance of this procedure satisfies the requirements of VPAP-2401, Fire Protection Program, Subsection 6.5. This requirement applies only to 1-FW-MOV-160A and 1-FW-MOV-160B, AFW XTIE, valves.
- 1.5 Performance of this procedure satisfies the requirements of 10 CFR 50, Appendix R.

2.0 REFERENCES

2.1 Source Documents

None

2.2 Technical Specifications

- 2.2.1 Technical Specifications 4.0.5, ISI Surveillance Requirements
- 2.2.2 Technical Specifications 3.6.D, Turbine Cycle
- 2.2.3 Technical Specifications 4.8.A.2.a, Auxiliary Feedwater System
- 2.2.3 Technical Specifications 4.8.A.5.b, Auxiliary Feedwater System

2.3 Technical References

2.3.1 Procedures needed to support 1-OPT-FW-006:

None

2.3.2 11448-FM-68A, Feedwater System (Sheet 1 of 4)

2.3.3 11548-FM-68A, Feedwater System (Sheet 3 of 4)

2.3.4 11448-ESK-6BY, 480V Circuit Motor Operated Valves (Sheets 1, 2 and 3 of 3)

2.3.5 11548-ESK-6FF, 480V Circuit Motor Operated Valves (Sheet 1 of 4)

2.3.6 QDR-S-3.2, Limitorque Inside Containment MOVs

2.3.7 Equipment Qualification Maintenance Manual, Tab 3.2

2.3.8 VPAP-2401, Fire Protection Program, Subsection 6.5

2.3.9 10 CFR 50, Appendix R

2.3.10 ASME Code, Section XI

2.3.11 Inservice Testing Program Plan for Pumps and Valves

2.3.12 EWR 94-015, IST Valves Stroke Time Acceptance Criteria

2.4 Commitment Documents

2.4.1 QA Audit 87-01, Finding 2, Recording of Work Order and Mark Numbers

2.4.2 CTS 2378, AFW procedures affected by TSCR 255

2.4.3 CTS 4675, Maintenance activity was performed with no prior PSA evaluation

Init Verif

3.0 INITIAL CONDITIONS

MSB
3.1 This procedure has PSA significance. **IF** this procedure is being performed on a day other than its POD scheduled date, **THEN** notify the Shift Supervisor that a PSA evaluation is required for the performance of this procedure. (Reference 2.4.3)

4.0 PRECAUTIONS AND LIMITATIONS

- 4.1 Testing more than one MOV at a time is **not** permitted.
- 4.2 MCR valve position lights will be used to determine MOV positions.
- 4.3 The MOV test is satisfactory if the valve(s) tested travel(s) full stroke within the acceptable range specified in the step.
- 4.4 Valves that test satisfactory but have stroke times that depart **significantly** from the reference value specified in the step will be noted on the Operator Comments sheet.
- 4.5 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Stopwatch

6.0 INSTRUCTIONS

6.1 Work Preparation

NOTE: Full stroke time is the interval from switch actuation until the light that was LIT at switch actuation changes to NOT LIT.

Rst

6.1.1 IF this procedure is used to prove operability of equipment after maintenance, THEN record the Work Order Number and Mark Number below, AND enter N/A in the subsections of Section 6.0 that will NOT be done. IF used to prove monthly operability, THEN enter N/A. (Reference 2.4.1)

Work Order No.: N/A Mark No.: _____

Work Order No.: N/A Mark No.: _____

Work Order No.: N/A Mark No.: _____

6.2 Testing 1-FW-MOV-151E, SG A AFW FLOW ISOL

RSS

6.2.1 Cycle 1-FW-MOV-151E and verify full stroke. Record the time required to close and to open the MOV.

RSS

	Stroke Time	Reference	Acceptable Range
• 1-FW-MOV-151E	Close: <u>23.1</u>	20.1 sec	17.1 - 23.1 sec
	Open: <u>21.2</u>	20.3 sec	17.3 - 23.3 sec

RSS DCP

6.2.2 Verify open 1-FW-MOV-151E.

RSS

6.2.3 Record the stopwatch SQC No. and Cal Due Date.

SQC No.: _____ Cal Due Date: 12/29/00

6.3 Testing 1-FW-MOV-151F, SG A AFW FLOW ISOL

RSS

6.3.1 Cycle 1-FW-MOV-151F and verify full stroke. Record the time required to close and to open the MOV.

RSS

	Stroke Time	Reference	Acceptable Range
• 1-FW-MOV-151F	Close: <u>23.6</u>	20.5 sec	17.5 - 23.5 sec
	Open: <u>23.3</u>	21.0 sec	17.9 - 24.1 sec

RSS DCP

6.3.2 Verify open 1-FW-MOV-151F.

RSS

6.3.3 Record the stopwatch SQC No. and Cal Due Date.

SQC No.: _____ Cal Due Date: 12/29/00

6.4 Testing 1-FW-MOV-151C, SG B AFW FLOW ISOL

RSB

6.4.1 Cycle 1-FW-MOV-151C and verify full stroke. Record the time required to close and to open the MOV.

RSB

	Stroke Time	Reference	Acceptable Range
• 1-FW-MOV-151C	Close: <u>20.0</u>	20.0 sec	17.0 - 23.0 sec
	Open: <u>20.6</u>	20.1 sec	17.1 - 23.1 sec

RSB DCP

6.4.2 Verify open 1-FW-MOV-151C.

RSB

6.4.3 Record the stopwatch SQC No. and Cal Due Date.

SQC No.: _____ Cal Due Date: 12/29/00

6.5 Testing 1-FW-MOV-151D, SG B AFW FLOW ISOL

RSB

6.5.1 Cycle 1-FW-MOV-151D and verify full stroke. Record the time required to close and to open the MOV.

RSB

	Stroke Time	Reference	Acceptable Range
• 1-FW-MOV-151D	Close: <u>21.6</u>	18.9 sec	16.1 - 21.7 sec
	Open: <u>21.9</u>	19.8 sec	16.9 - 22.7 sec

RSB gHH

6.5.2 Verify open 1-FW-MOV-151D.

RSB

6.5.3 Record the stopwatch SQC No. and Cal Due Date.

SQC No.: _____ Cal Due Date: 12/29/00

6.6 Testing 1-FW-MOV-151A, SG C AFW FLOW ISOL

6.6.1 Cycle 1-FW-MOV-151A and verify full stroke. Record the time required to close and to open the MOV.

RSB

	Stroke Time	Reference	Acceptable Range
• 1-FW-MOV-151A	Close: <u>20.0</u>	20.6 sec	17.6 - 23.6 sec
	Open: <u>21.3</u>	20.8 sec	17.7 - 23.9 sec

RSB JHB

6.6.2 Verify open 1-FW-MOV-151A.

RSB

6.6.3 Record the stopwatch SQC No. and Cal Due Date.

SQC No.: _____ Cal Due Date: 12/29/00

6.7 Testing 1-FW-MOV-151B, SG C AFW FLOW ISOL

6.7.1 Cycle 1-FW-MOV-151B and verify full stroke. Record the time required to close and to open the MOV.

RSB

RSB

	Stroke Time	Reference	Acceptable Range
• 1-FW-MOV-151B	Close: <u>23.7</u>	20.7 sec	17.6 - 23.8 sec
	Open: 24.0 <u>23.9</u> <i>RSB 9/20/00</i>	20.8 sec	17.7 - 23.9 sec

RSB JHB

6.7.2 Verify open 1-FW-MOV-151B.

RSB

6.7.3 Record the stopwatch SQC No. and Cal Due Date.

SQC No.: _____ Cal Due Date: 12/29/00

6.8 Testing 1-FW-MOV-160A, AFW XTIE

RSB

6.8.1 Notify the Unit 2 CRO that 1-FW-MOV-160A is to be isolated.

RSB

6.8.2 Before closing 2-FW-270, Aux Feed Cross-Connect Isolation for 1-FW-MOV-160A, in Step 6.8.3, have the SRO review TS-3.6.

RSB

6.8.3 In Unit 2 Safeguards, close 2-FW-270.

RSB

6.8.4 On the Unit 2 control board, open 1-FW-MOV-160A and verify full stroke. Record the time required to open the MOV.

RSB

	Stroke Time	Reference	Acceptable Range
• 1-FW-MOV-160A	Open: <u>53.3</u>	62.8 sec	53.4 - 72.2 sec

RSB SWR

6.8.5 Close 1-FW-MOV-160A.

RSB SWR

6.8.6 Open 2-FW-270.

RSB

6.8.7 Record the stopwatch SQC No. and Cal Due Date.

SQC No.: _____ Cal Due Date: 9/15/00

6.9 Testing 1-FW-MOV-160B, AFW XTIE

NSA

6.9.1 Notify the Unit 2 CRO that 1-FW-MOV-160B is to be isolated.

NSB

6.9.2 Before closing 2-FW-271, Aux Feed Cross-Connect Isolation for 1-FW-MOV-160B, in Step 6.9.3, have the SRO review TS-3.6.

NSB

6.9.3 In Unit 2 Safeguards, close 2-FW-271.

NSB

6.9.4 On the Unit 2 control board, open 1-FW-MOV-160B and verify full stroke. Record the time required to open the MOV.

NSA

	Stroke Time	Reference	Acceptable Range
• 1-FW-MOV-160B	Open: <u>58.3</u>	60.7 sec	51.6 - 69.8 sec

NSA SIR

6.9.5 Close 1-FW-MOV-160B.

NSA SIR

6.9.6 Open 2-FW-271.

NSA

6.9.7 Record the stopwatch SQC No. and Cal Due Date.

SQC No.: _____ Cal Due Date: 9/15/20

7.0 FOLLOW-ON

7.1 Acceptance Criteria

PSB

7.1.1 Evaluate the test results by reviewing the Acceptance Criteria for the components tested.

- The valve(s) tested travel(s) full stroke within the specified acceptable range.

PSB

7.1.2 Document the test results. (√) •

Satisfactory

Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 **IF** the test was satisfactory, **THEN** enter N/A in the following substeps.
IF the test was unsatisfactory, **THEN** do the following:

N/A

a. Document the reason for the unsatisfactory test in Operator Comments.

N/A

b. Notify the System Engineer and record the name.

System Engineer: _____

N/A

c. Notify the ISI Engineer and record the name.

ISI Engineer: _____

N/A

d. Initiate a Deviation Report and record the number.

DR Number: _____

N/A

e. Initiate a Work Request and record the number.

WR Number: _____

N/A

7.2.2 **IF** a partial operability test was done, **THEN** document the reason for the partial test in Operator Comments. **IF** a full test was done, **THEN** enter N/A.

N/A

7.2.3 Verify that an entry has been made or make an entry in the Measuring and Test Equipment Usage Log for each SQC device used in this procedure.

N/A

7.2.4 **IF** the 1-FW-MOV-160A test was unsatisfactory, **THEN** have the Unit 1 Shift Supervisor review VPAP 2401 Subsection 6.5 Appendix R Compensatory Measures. **IF** the 1-FW-MOV-160A test was satisfactory, **THEN** enter N/A.

N/A

7.2.5 **IF** the 1-FW-MOV-160B test was unsatisfactory, **THEN** have the Unit 1 Shift Supervisor review VPAP 2401 Subsection 6.5 Appendix R Compensatory Measures. **IF** the 1-FW-MOV-160B test was satisfactory, **THEN** enter N/A.

7.3 Notification, Documentation, and Procedure Closeout

7.3.1 Notify the Unit 1 Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
<i>RSB</i>	RICHARD S. BALDWIN
<i>DCP</i>	DAVID C. PAYNE
<i>SDR</i>	STEVE D. ROYE

Operator Comments:

(1) STEP 6.3.1 CLOSE TIME EXCEEDED THE MAX ACCEPTABLE RANGE

(2) 6.8.1 OPEN STROKE TIME IS BELOW THE ACCEPTABLE RANGE

Completed by: *Richard S. Baldwin* Date: 9/20/00

7.4 Review

Shift Supervisor Comments: _____

Reviewed by: _____ Date: _____
Shift Supervisor

Forward original procedure to Engineering Testing.

Engineering Comments: _____

Reviewed by: _____ Date: _____
ISI Engineer

Developed for the Surry, September 2000, Initial Examination
Examination Report # 2000-301



U. S. NUCLEAR REGULATORY COMMISSION

REGION II

A-4 ADMINISTRATIVE SECTION RO

NRC-JPM-04/R

Title:

Meteorological and Stability Class Determination

IAW

EPIP-2.01 Notification of State and Local Governments

Read to the Operator

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All steps shall be performed/simulated for this JPM. 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:

Provide information consistent with doing this task. Need to perform a follow-up message using Attachment 2.

The Main tower lower level wind direction recorder is OOS.

Main Tower Delta T recorder OOS

INITIATING CUES:

The Unit 1 SRO has requested that you to perform steps 7- 12 of EPIP 2.01, "Notification of State and Local Governments," to obtain Meteorological Data.

NOTE TO KEVIN: We will have to have Attachment 2 filled out such that this is a continuation of the procedure. This way it will make sense to the RO performing this task.

Meteorological and Stability Class Determination

<p><u>STEP 1:</u> Observes Note prior to Step 7.</p> <p><u>STANDARD:</u></p> <p>_____ Wind direction is always given as the compass point the wind blows from. Example: Wind direction is from East North East (ENE).</p> <p><u>COMMENTS:</u></p>	<p>_____SAT</p> <p>_____UNSAT</p>
<p><u>STEP 2:</u> GET METEOROLOGICAL INFORMATION: (Step 7)</p> <p><u>STANDARD:</u></p> <p>_____ Determines the Main Tower Lower Level Wind Direction recorder is not in service IAW the Initial Conditions and uses an alternate: Backup Tower, Main Tower Upper Level. (Step 7. a)</p> <p><u>COMMENTS:</u></p>	<p>_____SAT</p> <p>_____UNSAT</p>
<p><u>*STEP 3:</u> Obtains approximate average wind direction. (Step 7.b)</p> <p><u>STANDARD:</u></p> <p>_____ Locates and observes the approximate average wind direction (in degrees) for previous 15 minutes.</p> <p>Evaluators Cue: Provide average wind bouncing between 300 to 316.</p> <p><u>COMMENTS:</u></p>	<p>_____SAT</p> <p>_____UNSAT</p>

* - indicates a critical step.

Meteorological and Stability Class Determination

<p>*STEP 4: Determine compass point wind blowing from. (Step 7.c)</p> <p><u>STANDARD:</u></p> <p>_____ Uses the table in step 7 to determine the compass point based on the average wind direction found in step 3. (Should read between WNW and NW.</p> <p>Evaluators Note: Do we need to provide a specific value? Ask Kevin</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 5: Determine wind speed. (Step 7.d)</p> <p><u>STANDARD:</u></p> <p>_____ Uses Main Tower Lower Level Wind Speed recorder. (Alternatives: Backup Tower, Main Tower Upper Level)</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>*STEP 6: Obtains wind speed. (Step 7 e)</p> <p><u>STANDARD:</u></p> <p>_____ Obtains wind speed from an alternate indication.</p> <p>Evaluators Note: The main tower lower level wind speed recorder is OOS IAW the IC.</p> <p>Evaluator Cue: Provide a wind speed of _____?</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

* - indicates a critical step.

Meteorological and Stability Class Determination

<p>STEP 10: Observes Note Prior to step 10.</p> <p><u>STANDARD:</u></p> <p>_____ NOTE: Numerical ranes presented below for Delta T or Sigma Theta are less than the range of the chart recorder and indicator in the Control Room. Indications are not expected to read outside the ranges found on these tables.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 11: Determines Stability Class: (Step 10.a)</p> <p><u>STANDARD:</u></p> <p>_____ Use Main Tower Delta T recorder (Alternate: Backup Tower Sigma Theta Recorder)</p> <p>Evaluator Note: Main Tower Delta T recorder OOS in IC</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>*STEP 12: Determines Stability Class (Step 10b)</p> <p><u>STANDARD:</u></p> <p>_____ Locates the Backup Tower Sigma Theta recorder. Reads recorder and determines Stability class is E.</p> <p>Evaluators Cue: Sigma Theta Temperature is 6.8,</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

* - indicates a critical step.

Meteorological and Stability Class Determination

<p><u>STEP 13:</u> Use value closer to "G" (if unable to distinguish Delta T or Sigma Theta Value) (Step 10.c)</p> <p><u>STANDARD:</u></p> <p>_____ Determines that this step is not applicable.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>*STEP 14:</u> Determine Temperature (Step 11)</p> <p><u>STANDARD:</u></p> <p>_____ Determines Temperature from the Main Tower Temperature Recorder (Step 11.a)</p> <p>_____ Notes the temperature is in °C and has to perform the conversion?</p> <p>Evaluators Cue: Provide the temperature once applicant has located the appropriate meter. The meter reads _____ °C.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>*STEP 15:</u> Give Meteorological information to the requestor.</p> <p><u>STANDARD:</u></p> <p>_____ Provides the filled out Attachment 2 to the evaluator.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

* - indicates a critical step.

Level 2 Distribution

This document should be verified and annotated to a controlled source as required to perform work.

VIRGINIA POWER
SURRY POWER STATION

EMERGENCY PLAN IMPLEMENTING PROCEDURE

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS (With 3 Attachments)	REVISION 26
		PAGE 1 of 20

PURPOSE

To initially notify State and local governments of the declaration of an emergency and to provide status updates related to the event.

ENTRY CONDITIONS

Any of the following:

1. An emergency has been declared.
2. Entry directed by Station Emergency Manager.

SIMULATOR

APPROVAL RECOMMENDED <i>B. Powers</i> CHAIRMAN SNSOC	SNSOC DATE 5/27/99	APPROVAL <i>[Signature]</i> STATION MANAGER	APPROVAL DATE 5/28/99	EFFECTIVE DATE 6/4/99
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CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization. THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 26
		PAGE 2 of 20

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED				
_____ 1	INITIATE PROCEDURE: • By: _____ Date: _____ Time: _____ Location: _____					
_____ 2	CHECK FIRST REPORT OF EMERGENCY FOR EVENT - REQUIRED	IF procedure previously initiated, <u>THEN</u> continue from step in effect identified during relief/turnover.				
<p><u>NOTE:</u> The initial notification of any emergency classification (Attachment 1) must be completed within 15 minutes of declaring the event.</p>						
_____ 3	GET APPROPRIATE MESSAGE FORM:					
	<table border="1"> <tr> <td data-bbox="448 1182 737 1293"> <ul style="list-style-type: none"> • First report of classification • Termination </td> <td data-bbox="756 1182 1403 1251"> Attachment 1, Initial Report of Emergency to State and Local Governments </td> </tr> <tr> <td data-bbox="448 1308 737 1339"> Follow-up message </td> <td data-bbox="756 1308 1403 1377"> Attachment 2, Follow-up Report of Emergency to State and Local Governments </td> </tr> </table>		<ul style="list-style-type: none"> • First report of classification • Termination 	Attachment 1, Initial Report of Emergency to State and Local Governments	Follow-up message	Attachment 2, Follow-up Report of Emergency to State and Local Governments
<ul style="list-style-type: none"> • First report of classification • Termination 	Attachment 1, Initial Report of Emergency to State and Local Governments					
Follow-up message	Attachment 2, Follow-up Report of Emergency to State and Local Governments					
_____ 4	GET INFORMATION TO COMPLETE ITEMS 1 THROUGH 6 FROM SEM/RM (as applicable for message type)					
_____ 5	CHECK MESSAGE FORM - ATTACHMENT 2, FOLLOW-UP REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS IN USE	GO TO Step 8.				

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

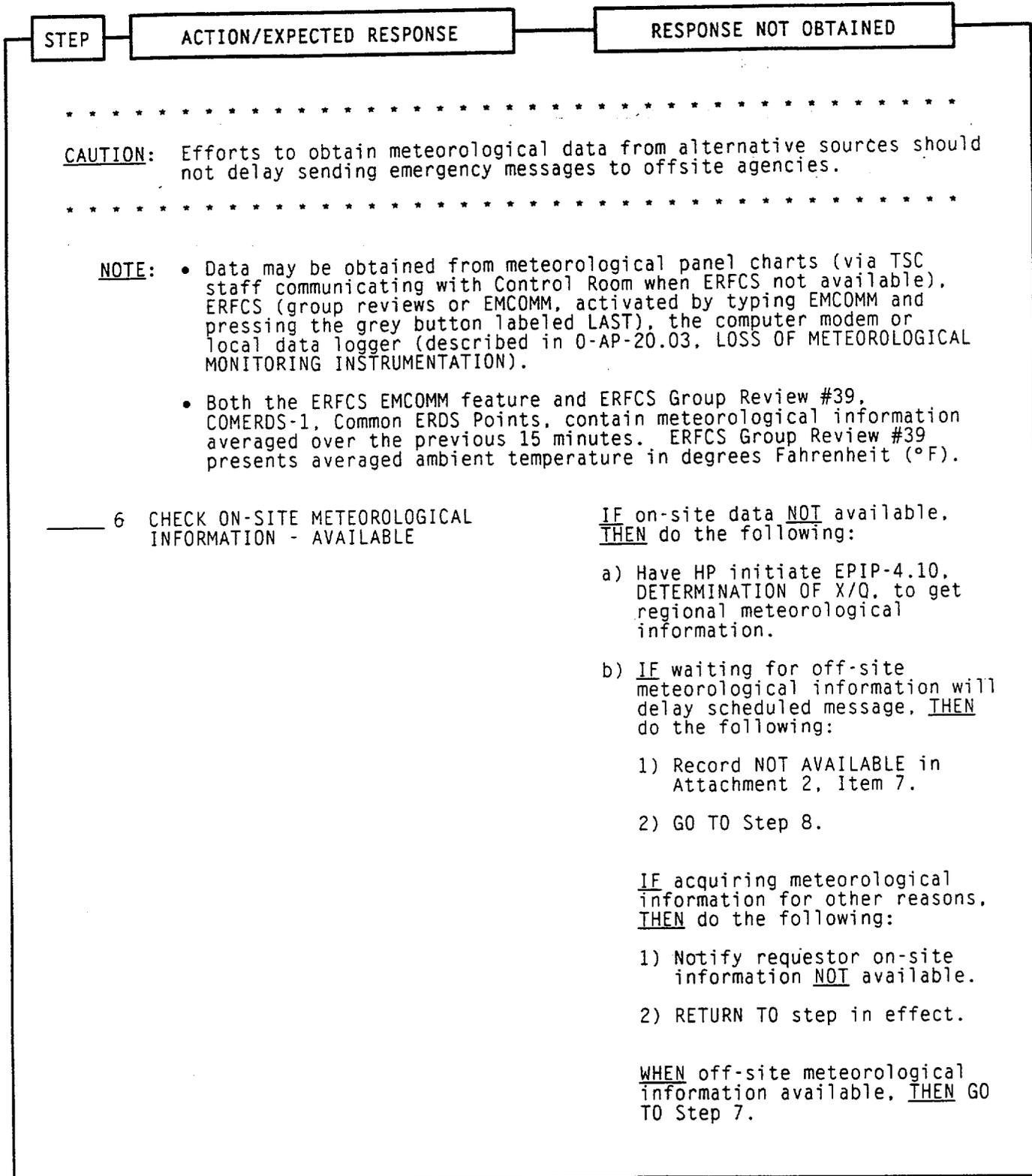
3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 26
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CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 26
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NOTE: Wind direction is always given as the compass point the wind blows from. Example: Wind direction is from East North East (ENE).

7 GET METEOROLOGICAL INFORMATION:

- a) Use Main Tower Lower Level Wind Direction recorder (Alternates: Backup Tower, Main Tower Upper Level)
- b) Get approximate average wind direction (in degrees) for previous 15 minutes
- c) Determine compass point wind blowing from

DEGREES	COMPASS POINT	DEGREES	COMPASS POINT	DEGREES	COMPASS POINT
0-11	N	192-214	SSW	350-371	N
12-34	NNE	215-236	SW	372-394	NNE
35-56	NE	237-259	WSW	395-416	NE
57-79	ENE	260-281	W	417-439	ENE
80-101	E	282-304	WNW	440-461	E
102-124	ESE	305-326	NW	461-484	ESE
125-146	SE	327-349	NNW	485-506	SE
147-169	SSE			507-529	SSE
170-191	S			530-540	S

- d) Use Main Tower Lower Level Wind Speed recorder (Alternates: Backup Tower, Main Tower Upper Level)
- e) Get wind speed
- f) Record the following in Item 7:
 - Source of meteorological data (on-site or regional)
 - Compass point
 - Wind speed

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 26
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

8 CHECK ANY OF THE FOLLOWING INFORMATION NEEDED:

- Downwind sectors
- Stability Class
- Temperature

IF NO other meteorological information needed. THEN GO TO Step 13.

9 DETERMINE DOWNWIND SECTORS:

COMPASS POINT	DOWNWIND SECTORS	COMPASS POINT	DOWNWIND SECTORS
N	H - J - K	S	R - A - B
NNE	J - K - L	SSW	A - B - C
NE	K - L - M	SW	B - C - D
ENE	L - M - N	WSW	C - D - E
E	M - N - P	W	D - E - F
ESE	N - P - Q	WNW	E - F - G
SE	P - Q - R	NW	F - G - H
SSE	Q - R - A	NNW	G - H - J

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Numerical ranges presented below for Delta T and Sigma Theta are less than the range of the chart recorder and indicator in the Control Room. Indications are not expected to read outside the ranges found on these tables.

10 DETERMINE STABILITY CLASS:

- a) Use Main Tower Delta T recorder
(Alternate: Backup Tower Sigma Theta recorder)
- b) Determine Stability Class

MAIN TOWER DELTA T		BACKUP TOWER SIGMA THETA	
DELTA T (°C)	STABILITY CLASS	SIGMA THETA (°)	STABILITY CLASS
≤ -0.67	= A	≥ 22.5	= A
-0.66 to -0.60	= B	22.4 to 17.5	= B
-0.59 to -0.53	= C	17.4 to 12.5	= C
-0.52 to -0.18	= D	12.4 to 7.5	= D
-0.17 to +0.53	= E	7.4 to 3.8	= E
+0.54 to +1.41	= F	3.7 to 2.1	= F
> +1.41	= G	< 2.1	= G

- c) Use value closer to "G" (if unable to distinguish Delta T or Sigma Theta value)

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 26
		PAGE 7 of 20

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 11	DETERMINE TEMPERATURE: a) Get temperature from Main Tower Temperature Recorder b) Check temperature is in °F	b) <u>IF</u> temperature °C, <u>THEN</u> change scale from °F to °C using the following formula: $°F = (°C \times 1.8) + 32$
_____ 12	GIVE METEOROLOGICAL INFORMATION TO REQUESTOR	
	<u>NOTE:</u> Information excluded from the initial report form (Attachment 1) such as offsite assistance requested or evacuation of site personnel, may be entered in Item 8. This will supersede the need to initiate a follow-up report form (Attachment 2) immediately after transmitting an initial report to satisfy condition change message criteria.	
_____ 13	RECORD DESCRIPTION OF EVENT AND ANY ADDITIONAL REMARKS IN ITEM 8	
_____ 14	RECORD YOUR NAME IN ITEM 9	
_____ 15	CHECK EMERGENCY - REMAINS IN EFFECT	<u>IF</u> emergency terminated before message sent, <u>THEN</u> do the following: a) Record that event has been terminated in Item 8. b) Record "N/A" on Page 2 of message attachment. c) GO TO Step 23.

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 26
		PAGE 8 of 20

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16	CHECK GENERAL EMERGENCY CLASS IN EFFECT (offsite Protective Action Recommendations (PARs) required)	Do the following: a) Record "NONE" in Items 10 and 11. b) GO TO Step 20.
	<u>NOTE:</u> The SEM/RM records affected sectors and distances to which evacuation/sheltering is recommended on EPIP-1.06, PROTECTIVE ACTION RECOMMENDATIONS, Attachment 3.	
17	GET PAR FORM FROM SEM/RM	
	<u>NOTE:</u> Affected sectors are recorded using alphabetic designations.	
18	RECORD DOWNWIND PRIMARY AND ADJACENT SECTORS IN ITEM 10	
19	RECORD PAR IN ITEM 11	
20	CHECK STATUS OF RADIOLOGICAL CONDITIONS RECORDED ON ITEM 6: <ul style="list-style-type: none"> • Release has occurred and is now terminated • Release is presently occurring • Release is projected to occur 	Do the following: a) Record on Item 12 that a Report of Radiological Conditions will <u>NOT</u> be sent. b) GO TO Step 23.
21	CHECK FOLLOWING CONDITIONS - MET: <ul style="list-style-type: none"> • LEOF (or CEDF) - RESPONSIBLE FOR STATE NOTIFICATIONS • Department of Emergency Services representative(s) - PRESENT • Department of Health (Radiological Health Programs) representative(s) - PRESENT 	Do the following: a) Indicate on Item 12 that a Report of Radiological Conditions will be sent. b) GO TO Step 23.

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 22	INDICATE ON ITEM 12 THAT REPORT OF RADIOLOGICAL CONDITIONS WILL BE PROVIDED TO STATE REPRESENTATIVES IN LEOF (CEOF)	
<p><u>NOTE:</u> The Station Emergency Manager (SEM) is the approval authority in the Control Room and TSC. The Recovery Manager (RM) is the approval authority in the LEOF or CEOF.</p>		
_____ 23	HAVE SEM/RM APPROVE REPORT (initial at top of attachment)	
<p><u>NOTE:</u> A single numbering sequence should be used for Initial and Follow-up Reports of Emergency to State and Local Governments, Attachments 1 and 2, from initial classification until the Emergency Plan is exited.</p>		
_____ 24	RECORD MESSAGE NUMBER AND TIME NOTIFICATION STARTED AT TOP OF ATTACHMENT	

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p><u>NOTE:</u> Outbound calls through the PBX system are made by dialing 8-1-(area code)-###-####. Direct outbound calls may be made using unrestricted telephones by dialing 9-1-(area code)-###-#### (area code not required for direct outbound calls within local calling area). No prefix is required when using a commercial telephone.</p>	
25	<p>SEND REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS (i.e., Initial or Follow-up Report, as required):</p> <p>a) Check Instaphone - CLEAR OF CONFLICTING MESSAGE TRAFFIC</p> <p>b) Use Instaphone to contact State and local Emergency Operations Centers (EOCs)</p> <p>c) Perform initial roll-call (check boxes as EOC(s) answer)</p> <p>d) Read Items 1 through 9</p> <p>e) Check each EOC answers acknowledgement roll-call (check associated box as EOC(s) answer)</p> <p>f) Repeat any items upon request</p> <p>g) Record date and time transmittal of Items 1 through 9 completed (STEP 25 CONTINUED ON NEXT PAGE)</p>	<p>a) <u>IF</u> Instaphone <u>NOT</u> available, <u>THEN</u> do the following:</p> <p>1) Call State EOC on DES ARD (Alternate: (804) 674-2400).</p> <p>2) Notify State EOC Duty Officer of need to transmit message.</p> <p>3) <u>WHEN</u> Instaphone available for message transmittal, <u>THEN</u> GO TO Step 25.b.</p> <p>b) <u>IF</u> Instaphone <u>NOT</u> operable, <u>THEN</u> GO TO Step 29.</p> <p>e) <u>IF</u> any EOC does <u>NOT</u> respond, <u>THEN</u> circle locality name on Attachment.</p>

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

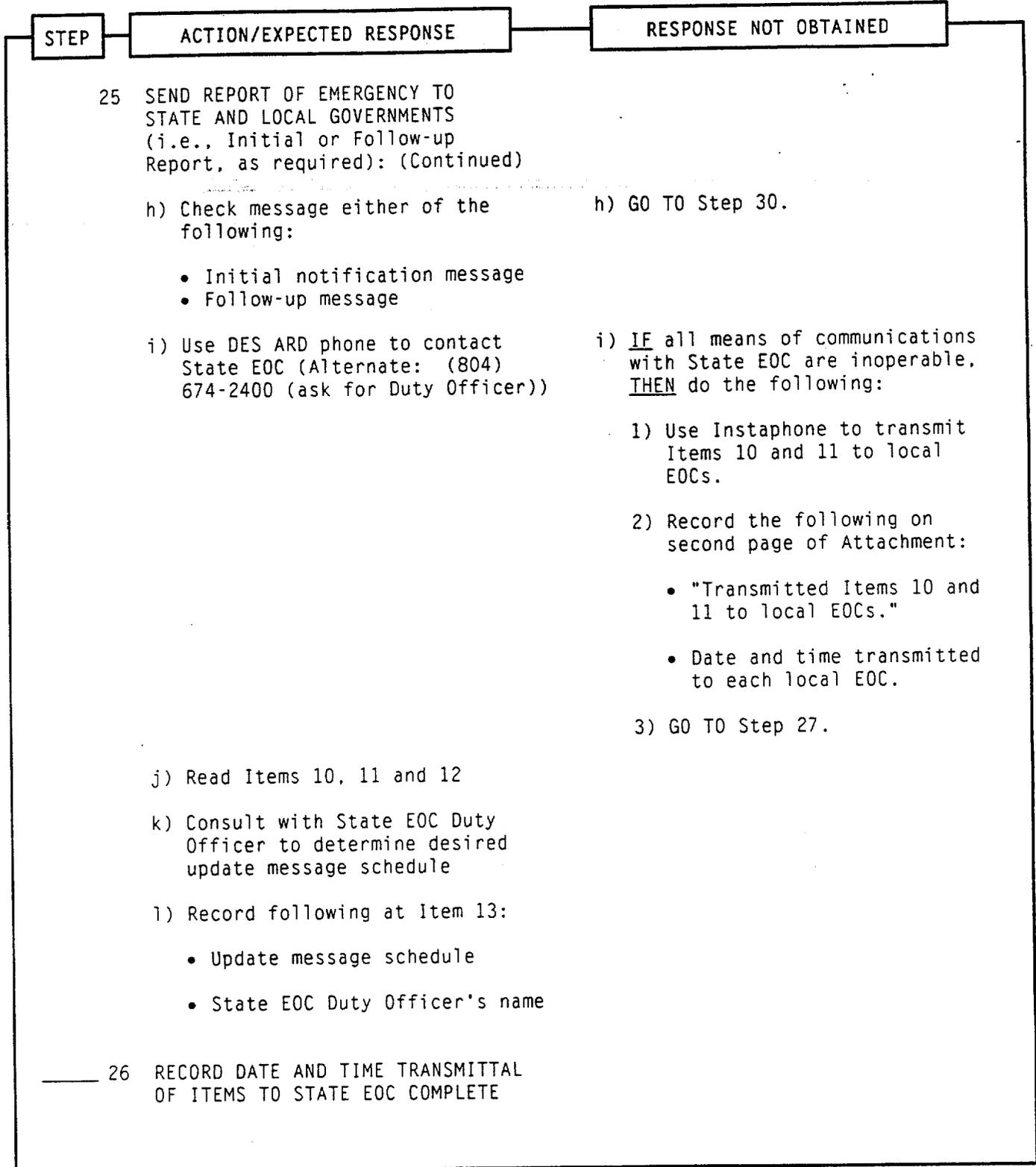
3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

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CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED												
27	VERIFY ALL LOCAL EOCs ANSWERED ACKNOWLEDGEMENT ROLL CALL	<p><u>IF</u> any EOC(s) did <u>NOT</u> answer roll call, <u>THEN</u> do the following:</p> <p>a) Use telephone to call EOC(s) that did not answer.</p> <p>b) Refer to the table below for order of priority and list of local EOC phone numbers:</p> <table border="1" data-bbox="987 800 1565 1199"> <tr> <td>Surry</td> <td>(757) 294-5264</td> </tr> <tr> <td>James City</td> <td>(757) 566-0112</td> </tr> <tr> <td>Isle of Wight</td> <td>(757) 357-2151 (local) (757) 357-3191 (local)</td> </tr> <tr> <td>Williamsburg</td> <td>(757) 220-2331</td> </tr> <tr> <td>Newport News</td> <td>(757) 247-2578</td> </tr> <tr> <td>York</td> <td>(757) 890-3603</td> </tr> </table> <p>c) <u>IF</u> State EOC notified, <u>THEN</u> read Items 1 through 9.</p> <p><u>IF</u> NO communications with State EOC, <u>THEN</u> read Items 1 through 11.</p> <p>d) Record the following on Attachment:</p> <ul style="list-style-type: none"> • Method of contact. • Reason Instaphone failed (if known). • Date and time of contact. 	Surry	(757) 294-5264	James City	(757) 566-0112	Isle of Wight	(757) 357-2151 (local) (757) 357-3191 (local)	Williamsburg	(757) 220-2331	Newport News	(757) 247-2578	York	(757) 890-3603
Surry	(757) 294-5264													
James City	(757) 566-0112													
Isle of Wight	(757) 357-2151 (local) (757) 357-3191 (local)													
Williamsburg	(757) 220-2331													
Newport News	(757) 247-2578													
York	(757) 890-3603													
28	GO TO STEP 30													

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

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NOTE: Other personnel may assist by making notifications simultaneously using other telephones.

____ 29 SEND REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS USING ALTERNATIVE MEANS:

- a) Call State EOC:
 - 1) Use DES ARD (Alternate: (804) 674-2400, ask for EOC Duty Officer)
 - 2) Read entire Attachment
 - 3) Record date/time transmittal to State EOC complete
- b) Call each local EOC and read Items 1 through 9:

Surry	(757) 294-5264
James City	(757) 566-0112
Isle of Wight	(757) 357-2151 (local) (757) 357-3191 (local)
Williamsburg	(757) 220-2331
Newport News	(757) 247-2578
York	(757) 890-3603

- c) Record date/time transmittal of Items 1 through 9 complete

____ 30 NOTIFY SEM/RM TRANSMITTAL WAS SENT

____ 31 KEEP ATTACHMENT WITH THIS PROCEDURE

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
32	<p>CHECK IF ITEM 12 ON REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS (ATTACHMENT 1 or 2) INDICATES REPORT OF RADIOLOGICAL CONDITIONS WILL BE:</p> <ul style="list-style-type: none"> • Transmitted to State EOC • Provided to State representatives in LEOF (CEOF) 	GO TO Step 37.

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

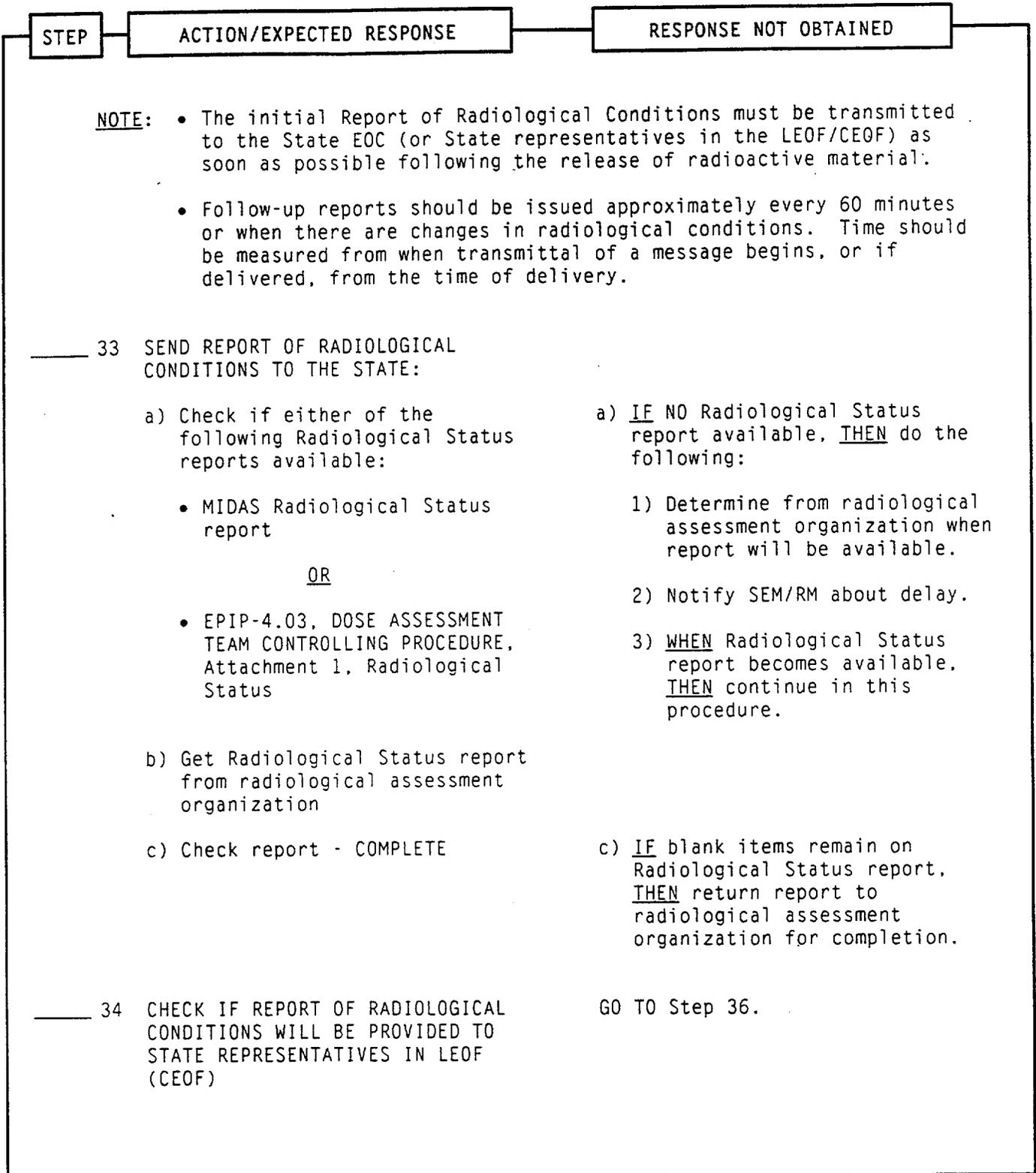
3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

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CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
35	<p>GIVE RADIOLOGICAL STATUS REPORT TO STATE REPRESENTATIVES IN LEOF (CEOF):</p> <ul style="list-style-type: none"> a) Have 3 copies of Radiological Status report made b) Give copy of Radiological Status report to each of the following: <ul style="list-style-type: none"> • Department of Emergency Services representative • Department of Health (Radiological Health Programs) representative c) Record date/time Radiological Status report delivered on third copy d) Notify RM Radiological Status report delivered e) Keep copy of Radiological Status report (with date/time of delivery) with this procedure f) GO TO Step 37 	

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
36	<p>SEND REPORT OF RADIOLOGICAL CONDITIONS TO THE STATE:</p> <ul style="list-style-type: none"> a) Attach Radiological Status report to Attachment 3 b) Follow Attachment 3 Part I, Instructions for Virginia Power/Surry Emergency Communicator c) Check Report of Radiological Conditions to the State - SENT VIA FACSIMILE MACHINE d) Allow 5 minutes for State EOC Duty Officer to verify receipt of message e) Check receipt of message - VERIFIED BY STATE EOC DUTY OFFICER f) Record Date/Time verified on Attachment 3 Part III Item 1 g) Notify SEM/RM transmittal - SENT h) Keep Attachment 3 with this procedure 	<ul style="list-style-type: none"> c) <u>IF</u> Radiological Status report communicated verbally, <u>THEN</u> GO TO Step 36.g. e) <u>IF</u> receipt of message <u>NOT</u> verified, <u>THEN</u> do the following: <ul style="list-style-type: none"> 1) Call State EOC on DES ARD (Alternate: (804) 674-2400). 2) Ask State EOC Duty Officer if message received. 3) <u>IF</u> receipt of message verified, <u>THEN</u> GO TO Step 36.f. <p><u>IF</u> message <u>NOT</u> received, <u>THEN</u> do the following:</p> <ul style="list-style-type: none"> a) Follow Attachment 3 Part I Item 6 instructions. b) GO TO Step 36.g.

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Follow-up reports of emergency conditions (Attachment 2) must be provided to State and local governments approximately every 60 minutes (from previous message notification start time) or when there are changes in emergency conditions, unless otherwise agreed upon with the State.

37 CHECK ANY OF THE FOLLOWING MESSAGE UPDATE CONDITIONS - EXISTS:

- Status of any of the following Report of Emergency items - CHANGED:
 - Emergency class (including event termination)
 - Offsite Assistance Required
 - Site Evacuation
 - Prognosis Worsening

- Radioactive Release
- Protective Action Recommendation

OR

- Updated Radiological Status report provided by radiological assessment organization

OR

- Follow-up report due IAW schedule established with State EOC Duty Officer

38 RETURN TO APPLICABLE STEP AS INDICATED BELOW:

Report of Emergency to State and Local Governments	RETURN TO Step 3
Report of Radiological Conditions to the State	RETURN TO Step 33

WHEN Report of Emergency message update conditions satisfied, THEN RETURN TO Step 3.

WHEN Report of Radiological Conditions message update conditions satisfied, THEN RETURN TO Step 33.

IF termination message has been sent, THEN GO TO Step 40.

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 26
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p><u>NOTE:</u> Responsibilities may be transferred to relief within a facility or to another facility, e.g., Control Room to TSC, Control Room to LEOF or CEOF, or TSC to LEOF or CEOF.</p>	
39	<p>TRANSFER RESPONSIBILITY FOR STATE/LOCAL NOTIFICATIONS:</p> <ul style="list-style-type: none"> a) Notify SEM (or RM if in LEOF/CEO) b) Tell relief Emergency Communicator about current event status c) Review most recently completed Attachments 1, 2 and 3 with relief d) Tell relief Emergency Communicator when next notification is due e) Provide this procedure and all attachments or send copies of attachments to relief f) Have relief/turnover recorded in event log g) Check - INTERFACILITY TURNOVER HAS BEEN COMPLETED 	<p>g) RETURN TO step in effect prior to relief.</p>

CONTINUOUS ACTION PAGE FOR EPIP-2,01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 26
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____ 40 TERMINATE PROCEDURE:

- Give EPIP-2.01, forms and other applicable records to the Control Room STA (TSC Emergency Procedures Coordinator or EOF Services Coordinator)

• Completed by: _____

Date: _____

Time: _____

-END-

CONTINUOUS ACTION PAGE FOR EPIP-2.01

1. REPORT OF EMERGENCY UPDATE/CONDITION CHANGE CRITERIA

WHEN either of the following conditions exist:

- Scheduled Report of Emergency to State and Local Governments - DUE
- Change in emergency conditions (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation)

THEN RETURN TO Step 3 to prepare new emergency message.

2. REPORT OF RADIOLOGICAL STATUS CONDITION CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization, THEN RETURN TO Step 33 to prepare new radiological status message.

3. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information, THEN GO TO Step 6.

4. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs, THEN GO TO Step 39.

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	INITIAL REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	26
ATTACHMENT		PAGE
1		1 of 2

APPROVAL: (SEM or RM): _____; MESSAGE # _____; TIME NOTIFICATION STARTED: _____

This is Surry Power Station Control Room TSC LEOF CEOF. Standby for a roll-call followed by an emergency message. Use a Report of Emergency form to copy this message. (Conduct a roll-call and check boxes as each party answers):

Surry County State EOC Williamsburg York County
 James City County Isle of Wight County Newport News

The emergency message is as follows: (READ SLOWLY)

Item 1: Emergency Class:

<input type="checkbox"/> Notification of Unusual Event	<input type="checkbox"/> Site Area Emergency	Declared at _____ on _____ (24-hr time) (date)
<input type="checkbox"/> Alert	<input type="checkbox"/> General Emergency	

Emergency Terminated

Items 2 through 5 are NOT required for this report.

Item 6: Release of radioactive material:

Has NOT occurred and is NOT projected Is presently occurring
 Has occurred and is now terminated Is projected to occur

Item 7 is NOT required for this report.

Item 8: Remarks / Description of event: _____

Item 9: This is (name) _____/Emergency Communicator.
Please acknowledge receipt of this message. (Conduct roll-call and check boxes):

Surry County State EOC Williamsburg York County
 James City County Isle of Wight County Newport News

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

(ATTACHMENT 1 CONTINUED ON NEXT PAGE)

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	INITIAL REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	26
ATTACHMENT		PAGE
1		2 of 2

MESSAGE # _____

NOTE: The following information is for state use only. Transmit to State EOC using the DES ARD.

Item 10: Downwind sectors are:

- None
- Sectors ____, ____, ____

Item 11: Recommended offsite protective actions are:

- None
- Evacuate:

None

360° from 0 miles to ____ miles.

Downwind sectors from ____ miles to ____ miles.

Shelter:

360° from ____ miles to ____ miles.

Downwind sectors from ____ miles to ____ miles.

Unaffected sectors from ____ miles to ____ miles.

Item 12: We will transmit a Report of Radiological Conditions to the State EOC.

We will provide the Report of Radiological Conditions to the State representatives in the LEOF (CEOF).

We will not issue a Report of Radiological Conditions.

Item 13: Update schedule: 60 minute; Other _____

Name of State EOC Duty Officer: _____

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

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	FOLLOW-UP REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	26
ATTACHMENT		PAGE
2		1 of 2

APPROVAL: (SEM or RM): _____; MESSAGE # _____; TIME NOTIFICATION STARTED: _____

This is Surry Power Station Control Room TSC LEOF CEOF. Standby for a roll-call followed by an emergency message. Use a Report of Emergency form to copy this message. (Conduct a roll-call and check boxes as each party answers)

Surry County State EOC Williamsburg York County
 James City County Isle of Wight County Newport News

The emergency message is as follows: (READ SLOWLY)

Item 1: Emergency Class:

<input type="checkbox"/> Notification of Unusual Event	<input type="checkbox"/> Site Area Emergency	Declared at _____ on _____ (24-hr time) (date)
<input type="checkbox"/> Alert	<input type="checkbox"/> General Emergency	

Item 2: Assistance requested:

None
 _____ (#) Fire Units from _____ (#) Police Units from _____
 _____ (#) Rescue Units from _____ Other _____

Item 3: Emergency response actions underway:

None Station emergency personnel called in
 Station monitoring teams dispatched offsite Other _____

Item 4: Evacuation of onsite personnel: No; Yes, evacuated to:

Primary Remote Assembly Area
 Secondary Remote Assembly Area
 Other _____

Item 5: Prognosis of situation: Improving Stable
 Worsening Other _____

Item 6: Release of radioactive material:

Has NOT occurred and is NOT projected Is presently occurring
 Has occurred and is now terminated Is projected to occur

Item 7: Meteorological data is:

Based on onsite measurements; Based on offsite regional data; Not available
 Wind direction is from the _____; Wind speed is _____ mph

Item 8: Remarks / Description of event: _____

Item 9: This is (name) _____/Emergency Communicator.

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

Surry County State EOC Williamsburg York County
 James City County Isle of Wight County Newport News

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

(ATTACHMENT 2 CONTINUED ON NEXT PAGE)

NUMBER EPIP-2.01 ATTACHMENT 2	ATTACHMENT TITLE FOLLOW-UP REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	REVISION 26 PAGE 2 of 2
--	---	----------------------------------

MESSAGE # _____

NOTE: The following information is for state use only. Transmit to State EOC using the DES ARD.

Item 10: Downwind sectors are:
 None
 Sectors _____, _____, _____

Item 11: Recommended offsite protective actions are:
 None

Evacuate:

None

360° from 0 miles to _____ miles.

Downwind sectors from _____ miles to _____ miles.

Shelter:

360° from _____ miles to _____ miles.

Downwind sectors from _____ miles to _____ miles.

Unaffected sectors from _____ miles to _____ miles.

Item 12: We will transmit a Report of Radiological Conditions to the State EOC.
 We will provide the Report of Radiological Conditions to the State representatives in the LEOF (CEOF).
 We will not issue a Report of Radiological Conditions.

Item 13: Update schedule: 60 minute; Other _____

Name of State EOC Duty Officer: _____

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

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	REPORT OF RADIOLOGICAL CONDITIONS TO THE STATE	26
ATTACHMENT		PAGE
3		1 of 1

PART I. Instructions for Virginia Power/Surry Emergency Communicator:

1. Check name of facility: [] Control Room [] TSC [] Local EOF [] Central EOF
2. Record the following information for verification of transmittal:

Transmittal Number: _____ Name of Emergency Communicator: _____
Commercial call-back number: (_____) _____ (in case of ARD failure)

3. Check which of the following Radiological Status reports is attached and record the report number and run time (as appropriate):

_____ MIDAS Radiological Status computer printout (2 pages) Report # _____ Run Time _____
_____ Radiological Status attachment from EPIP-4.03 (1 page) Report # _____

4. Have Station Emergency Manager (SEM) / Recovery Manager (RM) approve transmittal:

APPROVED FOR TRANSMITTAL: _____ (SEM / RM initials) DATE: ____ / ____ / ____ TIME: ____ : ____

5. Notify State EOC that a Report of Radiological Conditions will be sent by facsimile (Use DES ARD or call (804) 674-2400) and request receipt be verified by return call.
6. Ask facsimile machine operator to transmit this message to State EOC.

IF transmittal of report by facsimile NOT achievable, THEN do the following:

- a. Notify State EOC using DES ARD or call (804) 674-2400
- b. Identify yourself and your location
- c. Ask EOC Duty Officer to use a Report of Radiological Conditions form to copy message
- d. Read the attached report
- e. Record when message transmittal completed: Date/Time Message Completed: ____ / ____ / ____ : ____
- f. Record N/A by Part II and Part III below.

PART II. Instructions for Virginia Power Facsimile Machine Operator:

1. Record transmittal information: _____ Date/Time Sent: ____ / ____ / ____ : ____
Name of Facsimile Operator

2. Transmit this message to State EOC facsimile machine (804) 674-2419.

IF facsimile transmission NOT successful, THEN RETURN message to Emergency Communicator.

3. Return original report to State and Local Emergency Communicator.

PART III. Instructions for State EOC Duty Officer:

1. Notify Surry Emergency Communicator report received. Date/Time Verified: ____ / ____ / ____ : ____
(Use DES ARD or see PART I, Item 2 above for call-back number). Receipt Verification
2. Forward message to EOC Operations Officer for distribution to State Radiological Health Programs and Information & Planning representatives.



NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	INITIAL REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	26
ATTACHMENT		PAGE
1		1 of 2

APPROVAL: (SEM or RM): _____; MESSAGE # _____; TIME NOTIFICATION STARTED: _____

This is Surry Power Station Control Room TSC LEOF CEOF. Standby for a roll-call followed by an emergency message. Use a Report of Emergency form to copy this message. (Conduct a roll-call and check boxes as each party answers):

Surry County State EOC Williamsburg York County
 James City County Isle of Wight County Newport News

The emergency message is as follows: (READ SLOWLY)

Item 1: Emergency Class:

<input type="checkbox"/> Notification of Unusual Event	<input type="checkbox"/> Site Area Emergency	Declared at _____ on _____ (24-hr time) (date)
<input type="checkbox"/> Alert	<input type="checkbox"/> General Emergency	

Emergency Terminated

Items 2 through 5 are NOT required for this report.

Item 6: Release of radioactive material:

Has NOT occurred and is NOT projected Is presently occurring
 Has occurred and is now terminated Is projected to occur

Item 7 is NOT required for this report.

Item 8: Remarks / Description of event: _____

Item 9: This is (name) _____/Emergency Communicator.

Please acknowledge receipt of this message. (Conduct roll-call and check boxes):

Surry County State EOC Williamsburg York County
 James City County Isle of Wight County Newport News

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

(ATTACHMENT 1 CONTINUED ON NEXT PAGE)

NUMBER EPIP-2.01	ATTACHMENT TITLE INITIAL REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	REVISION 26
ATTACHMENT 1		PAGE 2 of 2

MESSAGE # _____

NOTE: The following information is for state use only. Transmit to State EOC using the DES ARC.

Item 10: Downwind sectors are:

- None
- Sectors _____, _____, _____

Item 11: Recommended offsite protective actions are:

- None
- Evacuate:
 - None
 - 360° from 0 miles to _____ miles.
 - Downwind sectors from _____ miles to _____ miles.
- Shelter:
 - 360° from _____ miles to _____ miles.
 - Downwind sectors from _____ miles to _____ miles.
 - unaffected sectors from _____ miles to _____ miles.

Item 12: We will transmit a Report of Radiological Conditions to the State EOC.
 We will provide the Report of Radiological Conditions to the State representatives in the LEOF (CEOF).
 We will not issue a Report of Radiological Conditions.

Item 13: Update schedule: 60 minute; Other _____

Name of State EOC Duty Officer: _____

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

NUMBER EPIP-2.01	ATTACHMENT TITLE FOLLOW-UP REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	REVISION 26
ATTACHMENT 2		PAGE 2 of 2

MESSAGE # _____

NOTE: The following information is for state use only. Transmit to State EOC using the DES ARD.

Item 10: Downwind sectors are:
 None
 Sectors ____, ____, ____

Item 11: Recommended offsite protective actions are:
 None
 Evacuate:
 None
 360° from 0 miles to ____ miles.
 Downwind sectors from ____ miles to ____ miles.

Shelter:
 360° from ____ miles to ____ miles.
 Downwind sectors from ____ miles to ____ miles.
 Unaffected sectors from ____ miles to ____ miles.

Item 12: We will transmit a Report of Radiological Conditions to the State EOC.
We will provide the Report of Radiological Conditions to the State representatives in the LEOF (CEOF).
We will not issue a Report of Radiological Conditions.

Item 13: Update schedule: 60 minute; Other _____

Name of State EOC Duty Officer: _____

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

JPM TITLE: CALCULATE RADIATION EXPOSURE WHEN PLACING UNIT 1
RESIDUAL HEAT REMOVAL SYSTEM IN SERVICE
JPM NUMBER:NRC Admin A3

JPM REV. DATE:8/9/00

TIME VALIDATION:15 MINUTES

AN 'X' BELOW INDICATES THE APPLICABLE METHOD(S) OF
TESTING WHICH MAY BE USED:

PERFORM: X SIMULATE: DISCUSS:

INSTRUCTOR'S INFORMATION

TASK STANDARDS:

Determined there is no success path for opening valve without exceeding dose margin limits.

REQUIRED MATERIALS:

1. Unit 1 containment survey maps with estimated transit times
2. Calculator

REFERENCES:

None

VALIDATION TIME: 25 min.

K/A: 2.3.4 (2.5/3.1)
2.3.10 (2.9/3.3)

TERMINATING CUES:

Determined there is no success path for opening valve.

READ TO THE TRAINEE

If you have any questions, ask them now and I will answer them. During the test, I cannot answer questions. When you complete all the steps correctly, you will pass this Job Performance Measure.

I will describe the general conditions for the task you will perform and provide the initiating cues.

INITIAL CONDITIONS:

1. Unit 1 has experienced a valid safety injection signal.
2. The crew is attempting to place the residual heat removal system in service, but they are unable to open 1-RH-MOV-1701 from the Main Control Room.
3. You have been tasked with entering containment and locally opening 1-RH-MOV-1701.
4. Your allowable dose margin limit is 1850 mr.
5. Survey maps of the unit 1 containment are available, showing dose rates and one way travel time to reach the valve for each of 3 possible routes.
4. Health physics personnel are currently unavailable to provide assistance.

INITIATING CUES:

You have been directed to determine:

- 1) Which roundtrip path would result in the lowest radiation exposure.
- 2) If 1-RH-MOV-1701 can be opened locally by you without exceeding your dose margin limit.

() ELEMENT: 1

Calculate exposure at valve.

STANDARDS:

__1. $(6 \text{ R/HR})(1000 \text{ MR/R})(1 \text{ HR}/60 \text{ MIN})(5 \text{ MIN}) = 500 \text{ MR}$

EVALUATOR'S NOTES:

NOTE: The operator may perform the calculations in any order.

() ELEMENT: 2

Calculate exposure from using elevator.

STANDARDS:

__1. $(3 \text{ R/HR})(1000 \text{ MR/R})(1 \text{ HR}/60 \text{ MIN})(2 \text{ MIN})(2 \text{ TRIPS}) = 200 \text{ MR.}$

__2. $(36 \text{ R/HR})(1000 \text{ MR/R})(1 \text{ HR}/60 \text{ MIN})(2 \text{ MIN})(2 \text{ TRIPS}) = 2400 \text{ MR}$

__3. $(200 \text{ MR})+(2400 \text{ MR})+(500 \text{ MR}) = 3100 \text{ MR TOTAL DOSE.}$

EVALUATOR'S NOTES:

Note: Total exposure via this path including time at the valve: 3100 mr.

() ELEMENT: 3

Calculate exposure from using stairway.

STANDARDS:

- __1. $(4 \text{ R/HR})(1000 \text{ MR/R})(1 \text{ HR}/60 \text{ MIN})(1 \text{ MIN})(2 \text{ TRIPS}) = 133 \text{ MR.}$
- __2. $(12 \text{ R/HR})(1000 \text{ MR/R})(1 \text{ HR}/60 \text{ MIN})(7 \text{ MIN})(2 \text{ TRIPS}) = 2800 \text{ MR}$
- __3. $(133 \text{ MR})+(2800 \text{ MR})+(500 \text{ MR})= 3433 \text{ MR TOTAL DOSE.}$

EVALUATOR'S NOTES:

Note: Total exposure via this path including time at the valve: 3433 mr

() ELEMENT: 4

Calculate exposure from using spiral staircase.

STANDARDS:

- __1. $(1 \text{ R/HR})(1000 \text{ MR/R})(1 \text{ HR}/60 \text{ MIN})(2 \text{ MIN})(2 \text{ TRIPS}) = 67 \text{ MR.}$
- __2. $(16 \text{ R/HR})(1000 \text{ MR/R})(1 \text{ HR}/60 \text{ MIN})(6 \text{ MIN})(2 \text{ TRIPS}) = 3200 \text{ MR.}$
- __3. $(67 \text{ MR})+(3200 \text{ MR})+(500 \text{ MR}) = 3767 \text{ MR.}$

EVALUATOR'S NOTES:

Note: Total exposure via this path including time at the valve: 3667 mr.

(C) ELEMENT: 5

Determine lowest exposure path.

STANDARDS:

- __1. Compared results of three calculations and determined the path using the elevator to be the lowest exposure.

EVALUATOR'S NOTES:

None

(C) ELEMENT: 6

Compare exposure to margin.

STANDARDS:

- __1 Compared exposure to margin and determined alignment could not be made within allowable margin of 1850 mr.

EVALUATOR'S NOTES:

TERMINATE JPM AT THIS POINT

JPM STUDENT IC SHEET

INITIAL CONDITIONS:

2. Unit 1 has experienced a valid safety injection signal.
3. The crew is attempting to place the residual heat removal system in service, but they are unable to open 1-RH-MOV-1701 from the Main Control Room.
6. You have been tasked with entering containment and locally opening 1-RH-MOV-1701.
7. Your allowable dose margin limit is 1850 mr.
8. Survey maps of the unit 1 containment are available, showing dose rates and one way travel time to reach the valve for each of 3 possible routes.
5. Health physics personnel are currently unavailable to provide assistance.

INITIATING CUES:

You have been directed to determine:

- 1) Which roundtrip path would result in the lowest radiation exposure.
- 2) If 1-RH-MOV-1701 can be opened locally by you without exceeding your dose margin limit

SURVEY DATA:

1-RH-MOV-1701 is located at Survey Map Location 'A'.

Estimated time at the valve: 5 minutes.

Dose rate at the valve: 6 R/hr.

Survey Map Area	One Way Travel Time (min.)	Average Dose Rate (R/hr)
B (from personnel hatch to top of spiral staircase)	2	1
C (spiral staircase to 241' & walk to valve)	6	16
D (from personnel hatch to top of stairway)	1	4
E (stairs to 241' & walk to valve)	7	12
F (from personnel hatch to elevator door)	2	3
G (elevator ride to 241' & walk to valve)	2	36

RESULTS:

Identify the Lowest Exposure Path:

ELEVATOR: _____

STAIRWAY: _____

SPIRAL STAIRCASE: _____

Can the Alignment be completed within your Dose Margin Limit?

 YES NO

U. S. Nuclear Regulatory Commission

Region II

A-4 Administrative Section

NRC-JPM-04

Title:

Perform EPIP 1.06, Protective Action Recommendation/
Emergency Event classification.

**PERFORM EPIP-1.06, PROTECTIVE ACTION RECOMMENDATIONS (2)
DOCUMENT REVISION RECORD**

Dist. No.	Rev. No.	Date Issued	Reason for Revision	TIR Number(s)
01	0	09/11/90		
02	1	04/24/91	Add question #3; minor editorial changes.	
03	2	07/12/92	Procedure revision.	
04	3	07/20/93	Reflect new EPIP-1.06; formatting changes.	S93-0928
05	4	08/02/94	EPIP-1.06 revision for Protective Action Recom.	S94-0852
06	5	07/07/95	EPIP-1.06 revision.	S95-0603
07	6	07/25/96	KA #/procedure changes; component label verification.	S96-0285
08	7	07/28/97	Reflect current procedures and JPM templates; enhance guidance & cues.	S97-0604
09	8	03/20/98	Delete JPM # from trainee handouts.	S98-0286
10	9	08/17/98	1998 Op Eval.	S98-0529
11	10	08/19/99	1999 Op Eval	S99-0555
	11	08/09/00	NRC Initial Examination	

Virginia Power
Surry Power Station

Licensed Operator Programs
Job Performance Measure 88.08 NRC (SRO ONLY) (Rev 11)

Operator _____ Evaluator _____
Observer _____ Evaluation Date _____

Task

PERFORM EPIP-1.06, PROTECTIVE ACTION RECOMMENDATIONS (2).

<u>Applicability</u>	<u>Est Completion Time</u>	<u>Actual Time</u>
SRO ONLY	? Minutes (**TC**)	_____
<u>NUREG-1122 Importance Ratings</u>	<u>Surry Importance Rating</u>	
GEN2.4.29 (RO 2.6/SRO 4.0)	SRO 4.22	
GEN2.4.44 (RO 2.1/SRO 4.0)		

Conditions

- Task is to be PERFORMED in the MCR.
- A simulated GENERAL EMERGENCY is in progress.

Standards

- EPIP-1.06, Protective Action Recommendations.

Initiating Cues

- EPIP-1.05, Response to General Emergency, Step 2.

Terminating Cues

- EPIP-1.06, Step 10 Completed.

Procedures

- EPIP-1.06, Protective Action Recommendations.

Tools and Equipment

- None

Safety Considerations

- None

Performance Checklist

Directions to the Operator.

- You are the Shift Supervisor. The plant has experienced a loss of ALL feedwater with RHR inoperable. RCS specific activity has been determined to be 350 $\mu\text{Ci/gm}$ dose equivalent Iodine. CHRRMS (Inside) Containment High Radiation Monitors RM-RMS-227 reads 5.1 X E+4 and RM-RMS-228 reads 4.2 E+4.
- You are to complete the Protective Action Recommendations in its entirety.
- Wind Direction is from 330 degrees.
- When you finish the actions necessary to accomplish this, please inform me.
- **This JPM is TIME CRITICAL.**

Notes to the Evaluator.

- Task critical elements are denoted by an asterisk (*). If substeps of a critical element also have an asterisk (*), then only those asterisked substeps are critical to performance of that task element.
- Critical step sequencing requirements: None
- **TIME CRITICAL REQUIREMENT:**
This PAR must be identified and relayed to S&L communicators within 15 minutes.
- **START TIME:** _____

1. Determines EAL

Standards

- *a. Determine Tab C-4 and/or C-5 a General Emergency should be declared.
- b. Determine that EPIP 1.06, Protective Action Recommendation is to be completed.

Evaluator's Comments

1. INITIATES EPIP-1.06.

Standards

- (a) Fills in Name, Time and Date on Step 1.
- (b) Acknowledges note prior to Step 2 that initial notification and PAR must be made to the State within 15 minutes.
- *(c) Determines a General Emergency has been declared.
- (d) Acknowledges note prior to Step 2 that downwind sectors may be determined from the EC, Attachment 1, or facility maps.

Evaluator's Comments

2. DETERMINE PROTECTIVE ACTION RECOMMENDATION.

Standards

- *(a) Determines EAL Tab C-4 or C-5 used to declare General Emergency.
- *(b) Determines downwind sectors Hotel, Juliet, Gulf.
- (c) Turns to Attachment 2.
- (d) Acknowledges notes prior to PAR Matrix.
- (e) Locates EAL C-4/5 in EAL column.
- (f) Asks evaluator for additional information.
- (g) Determines PAR 1 is the appropriate PAR.

CUES

- **If asked:** Wind direction is from 330 degrees.
- **If asked:** Personnel Hatch Rad Monitors are normal

- **If asked:** All Containment Radiation monitors are as provided in IC.
- **If asked:** Containment Pressure is 9 psia.
- **If asked:** A release path from containment has occurred. See initial conditions.

Evaluator's Comments

- * 3. COMPLETES ATTACHMENT 3.

Standards

- (a) Fills in Gulf, Hotel and Juliet in Step 1.
- * (b) Under Item 2 checks box for PAR 1.
- * (c) Fills in Gulf, Hotel and Juliet in Sheltering section under PAR 1.
- (d) Approves PAR by signing and dating.

Evaluator's Note

Failure to sign and date Attachment 3 would require follow-up question.

Evaluator's Comments

- * 4. DIRECT EMERGENCY COMMUNICATORS TO NOTIFY OFFSITE AUTHORITIES OF PAR.

Standards

- * (a) Directs State and Local EC.
- * (b) Directs NRC EC.

CUES

- Tell SRO: State and Local EC will transmit PAR.
- Tell SRO: NRC EC will notify NRC of PAR.

Evaluator's Note

This step must be complete within 15 minutes of start of task.

Evaluator's Comments

5. DIRECTS RAD TO INITIATE EPIP-4.07.

Standards

Tells Evaluator to Initiate EPIP-4.07.

CUES

- Tell SRO: EPIP-4.07 has been initiated.

Evaluator's Comments

Performance Checklist
(continued)

6. CHECKS IF RADIOLOGICAL PAR IS RECOMMENDED.

Standards

- (a) Consults with RAD to determine if a Radiological PAR is recommended.
- (b) Transitions to Step 10

CUES

- If asked: HP does not recommend a radiological based PAR.

Evaluator's Comments

7. CHECKS IF EMERGENCY TERMINATED.

Standards

- (a) Asks Evaluator if Emergency is terminated.
- (b) Asks Evaluator if conditions have changed.
- (c) Determines Procedure is completed until conditions change.

CUES

- Tell SRO: Emergency classification is still in effect.
- Tell SRO: Conditions are stable at this time.

Evaluator's Comments

STOP TIME: _____

Conditions

- Task is to be PERFORMED in the MCR.

Initiating Cues

- Respond

Directions

- You are the Shift Supervisor. The plant has experienced a loss of ALL feedwater with RHR inoperable. RCS specific activity has been determined to be 350 $\mu\text{Ci/gm}$ dose equivalent Iodine. CHRRMS (Inside) Containment High Radiation Monitors RM-RMS-227 reads 5.1 X E+4 and RM-RMS-228 reads 4.2 E+4.
- You are to complete the Protective Action Recommendations in its entirety.
- Wind Direction is from 330 degrees.
- When you finish the actions necessary to accomplish this, please inform me.
- This JPM is TIME CRITICAL.