

**Northeast
Utilities System**

Millstone Nuclear Power Station

Unit 3

Y2K NRC License Exam

April 14 - 21, 2000

OPERATING EXAM

**ADMINISTRATIVE, JPM & SIMULATOR
EXAMS**

Contents:

Administrative Set SRO One

Administrative Set SRO Two

Administrative Set RO One

Simulator / In-Plant JPMS Set One

Simulator / In-Plant JPMS Set Two

Simulator / In-Plant JPMS Set Upgrade

Simulator Exams 1, 2, 3 & 4(spare)

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: Use the Plant Process Computer to Perform a Calorimetric

JPM ID Number: RO1-A1

Revision: 0
Change1
3/31/00

II. Initiated:

J. William Côté
Developer

2/26/00
Date

III. Reviewed:

CMartin
Technical Reviewer

3/31/00
Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

MLK
Nuclear Training Supervisor

4/4/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

JPM ID Number: RO1-A1

Revision: 0 Change1 3/31/00

Task Title: Use the Plant Process Computer to Perform a Calorimetric

System: PPC/Admin

Time Critical Task: () YES (X) NO

Validated Time (minutes): 15

Task Number(s): 341-01-787, Perform a plant calorimetric

Applicable To: SRO X RO X PEO

K/A Number: Gen.2.1.19, Use the plant computer K/A Rating: 3.0/3.0

Method of Testing: Simulated Performance: Actual Performance: X

Location: Classroom: Simulator: X In-Plant:

Task Standards: Using plant process computer, perform SP31002 to obtain data for daily calorimetric

Required Materials: SP31002, Plant process computer, Ops Form 3670.1-1

General References: SP31002, Ops Form 3670.1-1

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: RO1-A1

Revision: 0
Change1
3/31/00

- Simulator Requirements:
1. Any stable 100% power IC with calorimetric on steam flow
 2. Reset calorimetric at the instructor station by pushing the shift left key and the #6 on the numeric keypad at the same time.
 3. Adjust the gain on any NI and adjust such that it is out low by .5 - .65 from the other NIs.
 4. Verify this by At the ModComp, Select <BOP>, F9, F5, Page forward to page 2 and verify that the adjusted NI difference is >.5.
 5. Once verified, <NSSS>, F4, 1 & <ENTER> to display At Power screen.
 6. Once the JPM is complete, readjust the NI mismatch to within 0.5% of the other NIs

Initial Conditions: You are the Reactor Operator on shift taking your midnight logs on Ops Form 3670.1-1. The plant is steady state at 100% power.

Initiating Cues: Perform the required reactor heat balance (item 21 on the logsheet).

NOTE: Obtaining a printout of the data is not required. Utilizing the computer screen, explain to the evaluator what the data is and your conclusions of the data.

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. The students performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: RO1-A1

Revision: 0
Change1 3/31/00

Task Title: Use the Plant Process Computer to Perform a Calorimetric

Start Time: _____

STEP 1 _____

Performance Step: Review the Front matter of SP31002.
Discussion, Prerequisites &
Precautions

GRADE _____

Standards: Reads through the discussion,
Prerequisites and Precautions
associated with taking the calorimetric.

Grade: SAT _____ UNSAT _____

Cue: All precautions and prerequisites are met

Comments: The initial conditions have the plant at steady state 100% power. Prompt the examinee if needed to review the initial conditions.

STEP 2 _____

Performance Step: Verify the plant is not in a transient condition

GRADE _____

Standards: Verify Tave constant with power constant or ask the examiner for a status turnover.

Grade: SAT _____ UNSAT _____

Cue: The plant has been steady state 100% for two days

Comments:

PERFORMANCE INFORMATION

JPM Number: RO1-A1

Revision: 0
Change1 3/31/00

Task Title: Use the Plant Process Computer to Perform a Calorimetric

STEP 3

Performance Step: If desired and allowed by chemistry, ISOLATE Blowdown and ALLOW 15 minutes to establish equilibrium

GRADE

Standards: Asks the US if it is desired to isolate blowdown

Grade: SAT UNSAT

Cue: It is not desired to isolate blowdown

Comments:

STEP 4 X

Performance Step: Verify plant process computer constants are set as follows:
• SCPWRSWTCH = 90.0
• SCPWRBAND = 2.0

GRADE X

Standards: Selects <BOP menu>, <F-9>, <F-5>, pages <FWD> or <BACK> to reach page 7. Then searches for
• SCPWRSWTCH = 90.0
• SCPWRBAND = 2.0
and verifies setpoints

Grade: SAT UNSAT

Cue:

Comments:

PERFORMANCE INFORMATION

JPM Number: RO1-A1

Revision: 0
Change1 3/31/00

Task Title: Use the Plant Process Computer to Perform a Calorimetric

STEP 5 **Performance Step:** If calorimetric is not being performed in conjunction with plant rounds, obtain a release for performance on attachment 5

GRADE **Standards:** Moves on to next step as initial conditions stated this was being done as part of the rounds

Grade: **SAT** **UNSAT**

Cue: Calorimetric is being performed as part of the rounds

Comments: BOP need not reselect <BOP>, F9, as it is up on the screen. The critical nature of the task is to get into the Program for the calorimetric.

STEP 6 **Performance Step:** From the BOP menu, select plant calorimetric program 3P3

GRADE **Standards:** Selects <BOP menu>, <F-9>,

Grade: **SAT** **UNSAT**

Cue:

Comments:

STEP 7 X **Performance Step:** Review calorimetric report and ensure the flow source desired is selected

GRADE X **Standards:** Reviews data and verifies steam flow is selected

Grade: **SAT** **UNSAT**

Cue: Steam flow is desired source

PERFORMANCE INFORMATION

JPM Number: RO1-A1

Revision: 0
Change1 3/31/00

Task Title: Use the Plant Process Computer to Perform a Calorimetric

Comments:

If the examinee elects to printout a report by selecting <F-6>, Inform the examinee that we will verify the data using the computer screens.

STEP 8 _____

Performance Step: Review calorimetric results and ensure the reactor power determination source (CDRXPWRSRC) is calculated for a full update (four minutes) of the reactor power calculation (CVQRPA).

GRADE _____ _____

Standards: Reviews the report on the and verifies (CDRXPWRSRC) is calculated for a full update (four minutes) of the reactor power calculation (CVQRPA).

Grade: **SAT** _____ **UNSAT** _____

Cue: Report that calorimetric has been on steam flow for two weeks.

STEP 9 _____

Performance Step: Review Printouts (computer screens) for:

GRADE _____ _____

Step: Reasonability of data

Standards: Reviews data to verify most items agree

GRADE _____ _____

Step: Reactor power (CVQPRA) is not X-tagged. (does not have a bad quality)

Standards: Verifies that an X-tag is not to the right of the number

PERFORMANCE INFORMATION

JPM Number: RO1-A1

Revision: 0
Change1 3/31/00

Task Title: Use the Plant Process Computer to Perform a Calorimetric

GRADE	<u> </u>	<u> </u>	Step:	Reactor power determination source, as indicated on calorimetric printout is calc determined.
			Standards:	Verifies the steam flow is selected on data
			Grade:	SAT <u> </u> UNSAT <u> </u>
			Cue:	
STEP	<u>10</u>	<u> </u>	Performance Step:	Reviews 4.2.6
GRADE	<u> </u>	<u> </u>	Standards:	Reviews 4.2.6 does not apply and moves on to step 4.2.7
			Grade:	SAT <u> </u> UNSAT <u> </u>
			Cue:	
STEP	<u>11</u>	<u> </u>	Performance Step:	A power range channel adjustment is required for a NI channel if the thermal power- NI power mismatch is greater than $\pm 2\%$.
GRADE	<u> </u>	<u> </u>	Standards:	Reviews data and concludes a power range channels agree within 2%
			Grade:	SAT <u> </u> UNSAT <u> </u>
			Cue:	

PERFORMANCE INFORMATION

JPM Number: RO1-A1

Revision: 0

Change1 3/31/00

Task Title: Use the Plant Process Computer to Perform a Calorimetric

STEP 12 X **Performance Step:** A power range channel adjustment should be performed for an NI channel to maintain thermal Power- NI Power mismatch between $\pm 0.5\%$ to prevent adverse effects of plant calorimetric shifting from calculated to NIs

GRADE X **Standards:** Reviews data and concludes that there is an adjustment to be made on one of the NI channels to return the difference to within $\pm 0.5\%$.

Comments: Examinee needs to communicate to the evaluator their conclusion that the NI requires adjustment

Termination Cue: The evaluation for this JPM is complete

Stop Time:

NOTE to Booth Operator:

Once the JPM is complete, readjust the NI mismatch to within 0.5% of the other NIs

VERIFICATION OF JPM COMPLETION

JPM Number: RO1-A1

Revision: 0
Change 1
3/31/00

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO X

Validated Time (minutes): 15

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

Result of oral questions (if applicable):

Number of Questions: _____

Number of Correct Responses: _____

Score: _____

Areas for Improvement:

STUDENT HANDOUT

JPM Number:

RO1-A1

Initial Conditions:

You are the Reactor Operator on shift taking your midnight logs on Ops Form 3670.1-1. The plant is steady state at 100% power.

Initiating Cues:

Perform the required reactor heat balance (item 21 on the log sheet).

NOTE:

Obtaining a printout of the data is not required. Utilizing the computer screen, explain to the evaluator what the data is and your conclusions of the data.

Form Approval

Approval

Approval Date

4/20/98

Effective Date

APR 22 1998

PORC Mtg. No.

NA

Form Cover Sheet

Generic Information

Form Title

MODE 1-4 Daily and Shiftly Control Room Rounds

Rev. No.

21

Reference Procedure
SP 3670.1Applicable Tech. Spec.
As specified in Attachment 2Frequency
S,D**This form is being used for the following:**

- ☒ Tech Spec Surveillance ☐ System Alignment ☐ Other: _____
☐ Maintenance Restoration (Retest) ☐ Non-Tech Spec Surveillance (PM) _____

Specific Information

Schedule Date	Applicable Mode 1, 2, 3, and 4	Partial Surveillance <input type="checkbox"/>
Test Authorized By	Date	
Prerequisites Completed (Initials)	Precautions Noted (Initials)	
Performed By	Date	
Accepted By	Date	Acceptance Criteria Satisfied <input type="checkbox"/> Yes <input type="checkbox"/> No
Approved By (Department Head or Designee)	Date	
Shift Manager Notified of Failed Test	Date	

Surveillance Information

Test Equipment Type	QA Number	Cal Due Date
N/A	N/A	N/A

MODE 1–4 Daily and Shiftly Control Room Rounds

T/S ACCEPTANCE CRITERIA

The data collected on pages 3 through 17 fall within the Acceptance Criteria listed and as defined on page 2. If a parameter is discovered out of the range of the Acceptance Criteria and this is the initial identification, log the affected LCO and initiate a Condition Report. For any parameter that has been previously identified out of the range of the Acceptance Criteria, the LCO action taken will be listed. A new Condition Report is not necessary.



ACCEPTANCE CRITERIA

1. All channel checks, availability requirements, and parameter limits are recorded and verified on the corresponding data sheets as specified.
2. The data sheets have been completed with any exceptions noted in the comment section.

MODE 1-4 Daily and Shiftly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
1.	MB1 Annunciator Alarms	Lamps all light		X		Test			
2.	Spent Fuel Pool Temp	Temp <110F			X	SFC*TI 27A	*	*	*
					X	SFC*TI 27B	*	*	*
1.	MB2 Annunciator Alarms	Lamps all light		X		Test			
3.	Stm Gen 1 NR Level	CC Required in MODEs 1-3 Channel Check SAT MODEs 1&2: 4 Loops in Operation	X		X	FWS*LI 518	*	*	*
			X		X	FWS*LI 517	*	*	*
			X		X	FWS-LI 551	*	*	*
			X		X	FWS*LI 519	*	*	*
	Stm Gen 2 NR Level	MODE 3: At least 3 loops operable. (SG Lvl \geq 17%) and • with Reactor Trip Breakers closed, 3 RCPs in Operation • with Reactor Trip Breakers open, 1 RCP in Operation	X		X	FWS*LI 528	*	*	*
			X		X	FWS*LI 527	*	*	*
			X		X	FWS*LI 529	*	*	*
			X		X	FWS-LI 552	*	*	*
	Stm Gen 3 NR Level	MODE 4: • Reactor Trip Breakers Open: 2 loops (RHR or RCS) operable with 1 in operation using an RHR or RCS loop (SG \geq 17%). For an RCS loop to be operable, at least one RCP must be in operation	X		X	FWS*LI 538	*	*	*
			X		X	FWS*LI 537	*	*	*
			X		X	FWS*LI 539	*	*	*
			X		X	FWS-LI 553	*	*	*
	Stm Gen 4 NR Level	• Reactor Trip Breakers Closed: 2 RCS loops OPERABLE and in operation (SG \geq 17%) MADL: 5.8%	X		X	FWS*LI 548	*	*	*
			X		X	FWS*LI 547	*	*	*
			X		X	FWS-LI 554	*	*	*
			X		X	FWS*LI 549	*	*	*

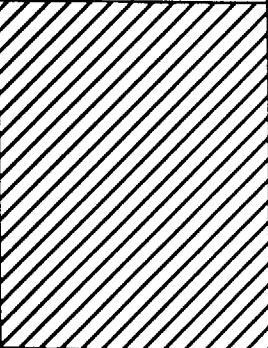
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MODE 1-4 Daily and Shiftly Control Room Rounds


Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
4.	Steam Line 1 Pressure	CC Required in MODEs 1-3 Channel Check Sat MADL: 86.6 psia	X			MSS*PI 515A			
			X			MSS*PI 514A			
			X			MSS*PI 516A			
	Steam Line 2 Pressure		X			MSS*PI 525A			
			X			MSS*PI 524A			
			X			MSS*PI 526A			
	Steam Line 3 Pressure		X			MSS*PI 535A			
			X			MSS*PI 534A			
			X			MSS*PI 536A			
	Steam Line 4 Pressure		X			MSS*PI 545A			
			X			MSS*PI 544A			
			X			MSS*PI 546A			
4.	Containment Press	Channel Check Sat MADL: 3.69 psia	X			LMS*PI 935			
			X			LMS*PI 937			
			X			LMS*PI 934			
			X			LMS*PI 936			
5.	Containment Press	10.7≤Press≤13.9 psia (Note 1.)			X	LMS*PI 24A	*	*	*
					X	LMS*PI 24B	*	*	*
6.	Containment H ₂ Level	CC Required in MODEs 1 – 3 Channel Check Sat	X			SSP*AI 58A			
			X			SSP*AI 58B			
7.	RWST Temperature	40°F to 50°F			X	QSS-TI 23	*		

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MODE 1-4 Daily and Shiftly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
8.	RWST Level	1.166E+6 < RWST level < 1.207E+6 (MB2 or computer)			X	LI 930	*		
					X	LI931	*		
					X	LI932	*		
					X	LI933	*		
					X	L930	*		
					X	L931	*		
					X	L932	*		
10.	SI Accum Tk 1 Press	N/A with Pzr Press < 1015 psia If Pzr Press > 1015 psia then: 636 < Accum Press < 694 psia			X	SIL-PI 960	*	*	*
	SI Accum Tk 2 Press				X	SIL-PI 961	*	*	*
	SI Accum Tk 3 Press				X	SIL-PI 962	*	*	*
	SI Accum Tk 4 Press				X	SIL-PI 963	*	*	*
					X	SIL-PI 964	*	*	*
					X	SIL-PI 965	*	*	*
					X	SIL-PI 966	*	*	*
9.	SI Accum Tk 1 Level	N/A with Pzr Press < 1015 psia If Pzr Press > 1015 psia then: 6618 < level < 7030 gal			X	SIL-LI 950	*	*	*
	SI Accum Tk 2 Level				X	SIL-LI 951	*	*	*
	SI Accum Tk 3 Level				X	SIL-LI 952	*	*	*
	SI Accum Tk 4 Level	REVIEW Shift Tech daily trend data from previous 31 days for volume change of 100 gal. ATTACH copy of data. (Note 2.)			X	SIL-LI 953	*	*	*
					X	SIL-LI 954	*	*	*
					X	SIL-LI 955	*	*	*
					X	SIL-LI 956	*	*	*
					X	SIL-LI 957	*	*	*

MODE 1-4 Daily and Shiftly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
10.	SI Accum 1 Isol Valve	Open indication N/A with Pzr press < 1015 psia		X		SIL*MV8808A			
	SI Accum 3 Isol Valve			X		SIL*MV8808C			
	SI Accum 2 Isol Valve			X		SIL*MV8808B			
	SI Accum 4 Isol Valve			X		SIL*MV8808D			
11.	RWST Supply to SI Pumps	Open Indication and White Power Lockout Light Out by Performing Lamp Test		X		SIH*MV8806			
	SI Pump Master Miniflow			X		SIH*MV8813			
	SI Cold Leg Master Isol	Open Indication and Power Lockout Switch in OFF		X		SIH*MV8835			
	RHR Pump A to CL Isol			X		SIL*MV8809A			
	RHR Pump B to CL Isol			X		SIL*MV8809B			
	SI Pump A to HL Inj	Closed Indication and Power Lockout Switch in OFF		X		SIH*MV8802A			
	SI Pump B to HL Inj			X		SIH*MV8802B			
	RHR to Hot Leg Inj			X		SIL*MV8840			
1.	MB3 Annunciator Alarms	All Lamps Light		X		Test			
	MB4 Annunciator Alarms			X		Test			
12.	PZR Narrow Range Press	Channel Check Sat Ind. Press \geq 2218 psia N/A in MODE 4 MADL: 46.6 psia (Note 3.)	X		X	RCS-PI 455A	*	*	*
			X		X	RCS-PI 456A	*	*	*
			X		X	RCS-PI 457	*	*	*
			X		X	RCS-PI 458	*	*	*
61.	PZR Program Level	MODES 1 and 2 (Note 25.)	N/A	N/A	N/A	RCS-LR459	*	*	*
13.	PZR Level	CC Required in MODE 1 Channel Check Sat MODES 1 and 2 \pm 6% of Program Level MODE 3 \leq 89% N/A in MODE 4 MADL: 5.8%	X		X	RCS*LI 459A	*	*	*
			X		X	RCS*LI 460A	*	*	*
			X		X	RCS*LI 461	*	*	*

MODE 1-4 Daily and Shiftly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
62.	"A" PORV	Closed Indication and Switch in AUTO		X		3RCS*PCV455A			
	"B" PORV			X		3RCS*PCV456			
14.	RV Head Flange L/O Temp	Channel Check Sat No Alarm/Ambient Temp	X		X	DGS-TI 401	*		
15.	Loop 1 ΔT	Channel Check Sat N/A in MODEs 3 & 4 MADL: 11.0%	X			RCS-TI 411A			
	Loop 2 ΔT		X			RCS-TI 421A			
	Loop 3 ΔT		X			RCS-TI 431A			
	Loop 4 ΔT		X			RCS-TI 441A			
	Loop 1 OTΔT	Channel Check Sat N/A in MODEs 3 & 4 MADL: 15.44%	X			RCS-TI 411C			
	Loop 2 OTΔT		X			RCS-TI 421C			
	Loop 3 OTΔT		X			RCS-TI 431C			
	Loop 4 OTΔT		X			RCS-TI 441C			
	Loop 1 OPΔT	Channel Check Sat N/A in MODEs 3 & 4 MADL: 8.07%	X			RCS-TI 411B			
	Loop 2 OPΔT		X			RCS-TI 421B			
	Loop 3 OPΔT		X			RCS-TI 431B			
	Loop 4 OPΔT		X			RCS-TI 441B			

MODE 1-4 Daily and Shiftly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
16.	Loop 1 RCP Operating	Breaker Closed/Pump Running MODEs 1 & 2: 4 pumps in Operation MODEs 3&4: (Note 4.)		X		RCS-P1A			
	Loop 2 RCP Operating			X		RCS-P1B			
	Loop 3 RCP Operating			X		RCS-P1C			
	Loop 4 RCP Operating			X		RCS-P1D			
	Loop 1 Flow	Channel Check Sat For <75% RTP: Flow > 93% For ≥75% RTP: Flow ≥ 95% MADL: 4.08%	X		X	RCS-FI 414	*	*	*
			X		X	RCS-FI 415	*	*	*
			X		X	RCS-FI 416	*	*	*
	Loop 2 Flow		X		X	RCS-FI 424	*	*	*
			X		X	RCS-FI 425	*	*	*
			X		X	RCS-FI 426	*	*	*
	Loop 3 Flow		X		X	RCS-FI 434	*	*	*
			X		X	RCS-FI 435	*	*	*
			X		X	RCS-FI 436	*	*	*
	Loop 4 Flow		X		X	RCS-FI 444	*	*	*
			X		X	RCS-FI 445	*	*	*
			X		X	RCS-FI 446	*	*	*
18.	Axial Flux Deviation Monitor	Mode 1 >50%; If Inop, Perform SP 3602A.3 (Note 5.)		X					
19.	Tave-Tref Deviation Alarm	Check status of "Tref/Auct Tave Deviation," annunciator (MB4C 6-5) If annunciator is inop or not reset, and reactor is critical, then Perform SP 3601G.3 N/A MODEs 3 & 4		X					

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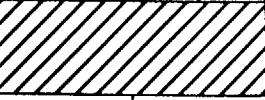
MODE 1-4 Daily and Shiftly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
20.	Loop 1 Tave	All Tave $\geq 551^{\circ}\text{F}$ N/A MODEs 3 & 4			X	RCS-TI 412	*	*	*
	Loop 2 Tave				X	RCS-TI 422	*	*	*
	Loop 3 Tave	All Tave $\leq 591.1^{\circ}\text{F}$			X	RCS-TI 432	*	*	*
	Loop 4 Tave				X	RCS-TI 442	*	*	*
21.	Source Range Count Rate	Channel Check Sat Count Rate < 10E+5 CPS; N/A Above P-6	X		X	NMS-NI 31B	*	*	*
			X		X	NMS-NI 32B	*	*	*
	Intermediate Range Amps	Channel Check Sat Power $\geq 10\text{E}-11$ amps; N/A MODEs 3 & 4 and MODE 1 above P-10	X		X	NMI-NI 35B	*	*	*
			X		X	NMI-NI 36B	*	*	*
	Power Range Power	Channel Check Sat Power $\leq 25\%$ when below P-10 Power $\leq 109\%$ N/A MODEs 3 & 4	X		X	NMP-NI 41B	*	*	*
			X		X	NMP-NI 42B	*	*	*
			X		X	NMP-NI 43B	*	*	*
			X		X	NMP-NI 44B	*	*	*

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MODE 1-4 Daily and Shiftly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
22.	Shutdown Rods	Fully Withdrawn N/A MODEs 3 & 4		X		N/A			
	DRPI	If Rod Posit Dev Monitor is inop, perform at least once every 4 hours N/A MODEs 3 & 4	X	X		N/A			
		Rods \pm 12 Steps of Demand (MB4) Channel Check SAT	X	X		N/A			
	Rod Supervision Plant Process Computer	Individual Rods \pm 12 Steps of Demand (MB4) Channel Check SAT	X	X		N/A			
		If DPRI (MB4) is inop, perform at least once every 4 hours N/A MODEs 3 & 4	X	X		N/A			
	Rod Insertion Limit	N/A MODEs 3 & 4, Within Limit of 3TRM-3.1.3.6		X		N/A			
		If RIL Monitor is inop, perform every 4 hours.		X		N/A			
	1.	MB 5 Annunciator Alarms		X		Test			
		MB 6 Annunciator Alarms		X		Test			
58.	Main Steam Relieving Isolation Valves	Valve Open in MODEs 1, 2, and 3. Valve Open in MODE 4 when steam generator is relied upon for decay heat removal.		X		MSS*MOV18A			
				X		MSS*MOV18B			
				X		MSS*MOV18C			
				X		MSS*MOV18D			
23.	DWST Level	Level \geq 334,000 Gal. N/A MODE 4 (Note 6.)			X	FWA-L20A	*	*	*
					X	FWA-L20B	*	*	*

MODE 1-4 Daily and Weekly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
24.	CST Level	DWST & CST Level ≥ 384,000 Gal. N/A MODE 4 (Note 6.)			X	CNS-LI 15	*	*	*
					X	FWA*LI 20A1	*	*	*
					X	FWA*LI 20B1	*	*	*
					X	Total of DWST & CST levels	*	*	*
52.	Circ Water Pumps	Channel Check Sat For running pumps – Red light on and pump amperage steady and consistent with other running circ water pumps.	X	X		CWS-P1A			
			X	X		CWS-P1B			
			X	X		CWS-P1C			
			X	X		CWS-P1D			
			X	X		CWS-P1E			
			X	X		CWS-P1F			
1.	MB 7 Annunciator Alarms	Lamps all Light		X		Test			
	MB 8 Annunciator Alarms			X		Test			
	VP 1 Annunciator Alarms			X		Test			
25.	Control Room Temperature	Temp ≤ 95°F			X	HVC*TIC 166A	*	*	*
					X	HVC-TIC 179	*	*	*
					X	HVC-TIC 29A	*	*	*
					X	HVC-TIC 29B	*	*	*
					X	HVC*TIC 166B	*	*	*
27.	Fuel Bldg Exhaust Filter	Fan On/Heater Energ. (Note 7.)		X		HVR*FN10A/B			
51.	Spent Fuel Pool Boron Concentration	C _b ≥ 1750 ppm (Note 8.)			X	CHEM Form 3866-1		* at Date: Time:	

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MODE 1-4 Daily and Shiftly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
26.	Containment Temperature (Computer Prgm Util J14) (or NSSS, F4, 44)	Temperature $\leq 120^{\circ}\text{F}$ (EEQ limit)			X	LMS-T20D	*		
					X	LMS-T20F	*		
					X	LMS-T20G	*		
					X	LMS-T20H	*		
					X	LMS-T20L	*		
	Average of five Containment Temperature Points	$80^{\circ}\text{F} \leq \text{Ave} \leq 120^{\circ}\text{F}$			X	Average	*		
56.	Area Temperature Monitor	No error message displayed and computer in "scan" (Note 9.)		X		Data Logger PC			
28.	Wind Speed 33' El	Channel Check Sat (Note 10.)	X			33' Level			
	Wind Direction 33' El		X			33' Level			
	Wind Speed 142' El		X			142' Level			
	Wind Direction 142' El		X			142' Level			
	Air Temp ΔT 33'-142' El		X			142' Level			
	Wind Speed 374' El		X			374' Level			
	Wind Direction 374' El		X			374' Level			
	Air Temp ΔT 33'-374' El		X			374' Level			
21.	Reactor Heat Balance	NIs Within 2%; N/A < 15% (Attach Printout)			X	SP 31002	*		
29.	RCS Leakage Cal	Unidentified ≤ 1 gpm; Identified ≤ 10 gpm; (Attach Printout)			X	SP 3601F.6	Unident * Ident *		
30.	Containment Drain Sump	No Significant Increase (Note 11.)			X	(Circle PP(s)) \rightarrow DAS*P2A/B	A/B *	A/B *	A/B *
32.	Long Island Sound Temp	Temperature limit < 75°F If > 70°F , requires 6 Hr Verif.			X	(Notes 12. & 13.)	*		
					X	(Notes 12. & 13.)	* *	* *	* *

MODE 1-4 Daily and Nightly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
33.	Fuel Storage Pool Area	Channel Check: - Normal Status on Status Grid Display	X			RMS36-1			
			X			RMS08-1			
34.	Control Room Intake Air	- No Abnormal Alarms on Database Display	X			HVC16A-1			
			X			HVC16B-1			
37.	Waste Neut Sump Monitor	Channel Check:	X			CND07-1			
	Liquid Waste Monitor	- Monitor on line	X			LWS70-1			
	Turb Bldg Floor Drain	- No Unexpected Alarms on Database Display	X			DAS50-1			
36.	SG Blowdown	LWC65-1 N/A IF CPF Regen	X			SSR08-1			
37.	Regenerative Evaporator	Evap <u>not</u> in Service	X			LWC65-1			
37.	SG Blowdown Flowrates	Channel Check Sat (Note 14.)	X			FI46A/47A at BDG-HIC20A			
			X			FI46B/47B at BDG-HIC20B			
			X			FI46C/47C at BDG-HIC20C			
			X			FI46D/47D at BDG-HIC20D			
38.	Unit 3 Vent Stack Monitor - Process Flow - Sampler Flow - 1 Hr Trend Over 30 Hrs	Channel Check Sat	X			HVR10B-1			
		3.0E+4 to 2.8E+5 (Note 15.)	X		X	HVR10B-1	*		
		Pump On/5.0E-2 to 2.6 (Note 16.)	X		X	HVR10B-1	*		
35.		< 50% Increase IF > 50% Contact Chemistry		X		HVR10B-1			

MODE 1-4 Daily and Shiftly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
38.	ESF Bldg Monitor - Sampler Flow	Channel Check Sat (Note 17.)	X			HVQ49-1			
		No Flow Alarms (Note 17.)		X		HVQ49-1			
39.	RCS Leak Detection Mon 1 Hr Trend Over 30 Hours	Channel Check Sat	X			CMS22-1			
		No abnormal Increase	X			CMS22-2			
55.	Gammametrics CH-1	Channel Check Sat	X			3NME*NR1			
	Gammametrics CH-2	N/A in MODES 1 & 2	X			3NME*NR2			
	Shutdown Monitor	≥ 1.0 cps (Note 26.)			X	3NME*SMM1		*	
	Shutdown Monitor	N/A in MODES 1 & 2			X	3NME*SMM2		*	
40.	Shutdown Margin	OP 3209B completed sat N/A in MODES 1 & 2		X		N/A			
41.	RHR Pump A	N/A in MODES 1, 2 & 3 (Note 4.)		X		RHS*P1A			
	RHR Pump B			X		RHS*P1B			
53.	Quadrant Power Tilt Ratio	$QPTR \leq 1.02$ (Note 18.) MODE 1 > 50% only with alarm inoperable; NA if operable		X	X	SP 31012	*	*	*

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MODE 1-4 Daily and Shiftly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
COLD OVERPRESSURE PROTECTION									
Required when one or both PORV(s) providing protection									
N/A in MODEs 1 & 2 and 3, and N/A in MODE 4 when all Cold Leg Temperature channels > 275°F (Note 22.)									
PORV(s) Train providing protection (circle one): A B Both									
42.	PORV BLOCK	Open Indication (MB4 or Computer)		X		RCS*MV8000A			
				X		RCS*MV8000B			
	COPPS ARM/BLOCK	TR A in ARM		X		MB4			
		TR B in ARM		X		MB4			
	General Warning	Tr A light off		X		RPS*RAKLOGA			
		Tr B light off		X		RPS*RAKLOGB			
	RCS-T413B/423B on RCS-TR413B or Process Plant Computer, (COLD LEG WR TEMP LOOP 1/2)	Channel Check Sat MADL 42.3°F by MB indicators 31.8°F by plant process computer (Note 19.)	X			RCS-T413B			
			X			RCS-T423B			
	X				RCS*T433B or RCS-T433B				
	X				RCS*T443B or RCS-T443B				
	X				RCS-T413A				
	X				RCS-T423A				
	X				RCS*T433A or RCS-T433A				
	X				RCS*T443A or RCS-T443A				
	PRES LOW RANGE	Pressure < COPPS setpoint Channel Check SAT (Note 20.)	X			RCS-PI 403A			
			X			RCS-PI 405A			

MODE 1-4 Daily and Shiftly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
COLD OVERPRESSURE PROTECTION Required when one or both PORV(s) providing protection N/A in MODEs 1 & 2 and 3, and N/A in MODE 4 when all Cold Leg Temperature channels > 275°F (Note 22.)									
42.	HOT LEG ISOL	Open Indication (Note 21.)		X		RCS-MV8001A			
	COLD LEG ISOL			X		RCS-MV8002A			
	HOT LEG ISOL			X		RCS-MV8001B			
	COLD LEG ISOL			X		RCS-MV8002B			
	HOT LEG ISOL			X		RCS-MV8001C			
	COLD LEG ISOL			X		RCS-MV8002C			
	HOT LEG ISOL			X		RCS-MV8001D			
	COLD LEG ISOL			X		RCS-MV8002D			
COLD OVERPRESSURE PROTECTION Required when one or both RHR Suction Relief(s) providing protection N/A in MODES 1 & 2 and 3, and N/A in MODE 4 when all Cold Leg Temperature Channels > 275°F (Note 22.) RHR Suction Relief(s) Train providing protection (circle one): A B Both									
43.	Train A RHR suction reliefs	Open Indication (Note 22.)		X		RHS*MV8701A			
			X		RHS*MV8701C				
	Train B RHR suction reliefs			X		RHS*MV8702B			
			X		RHS*MV8702C				
MASS INJECTION PROTECTION (Note 24.)									
17.	Charging/SI Pump Inoperability Verification	SP 3604A.6 Complete		X					

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MODE 1-4 Daily and Shiftly Control Room Rounds

Item No.	Title	Acceptance Criteria	CC	AR	PL	Channel	00-04	08-12	16-20
54.	Fire Door Inspection Control Bldg. 47'6" (SP 3670.1 Attachment 1)	Door Closed		X		C-47-4			
				X		C-47-5			
				X		C-47-6			
				X		C-47-7			
				X		C-47-8			
				X		C-47-9			
				X		C-47-10			
				X		C-47-11			
				X		C-47-12			
31.	Loose Parts Monitoring	Channel Check Sat (Note 23.)	X			CES*PNL LPM			
						Operator's Initials			
						Unit Supervisor Signature			
All Acceptance Criteria Or LCO Actions Met						Shift Manager Signature			

Comments:

MODE 1-4 Daily and Daily Control Room Rounds

Note 1.: $10.7 \leq \text{Press} \leq 13.9$ psia differs from T.S. LCO due to Main Board meter inaccuracy. 13.7 to 13.9 psia is the pressure band for normal operation. If a mainboard indicator is out of service or out of specification, its respective computer point, LMS-P43A and/or LMS-P43B, may be used.

The acceptance criteria when using computer points is: $10.6 \leq \text{Press} \leq 14$ psia.

Note 2.: If level increases > 100 gal., Refer To T/S 4.5.1.b and perform required actions. NOTIFY Chemistry to Refer To SP 3858, "Accumulator Boron Concentration" and initiate sampling.

Note 3.: Limit not applicable during either a THERMAL POWER ramp in excess of 5% of RATED THERMAL POWER per minute or a THERMAL POWER step in excess of 10% of RATED THERMAL POWER per T/S 4.2.5.

Note 4.: Loop OPERABILITY MODEs 3 & 4.
 MODE 3: 3 RCS loops OPERABLE (with SG $\geq 17\%$; RCP OPERABILITY check per SP 3601D.1)
 - 1 in operation with trip bkrs open
 - 3 in operation with trip bkrs closed

MODE 4: Reactor Trip Breakers Open:
 2 loops (RHR or RCS) OPERABLE with 1 in operation using an RHR or RCS loop (SG $\geq 17\%$; RCP OPERABILITY check per SP 3601D.1).
 For an RCS loop to be OPERABLE, at least one RCP must be in operation.

Reactor Trip Breakers Closed:
 2 RCS loops OPERABLE and in operation (SG $\geq 17\%$)

Note 5.: Verify Plant Process Computer and R5 (Tilting Factors, NSSS, page forward, F9, F3) program is in operation. Verify these points update approximately every minute (must recall screens to update points).

Note 6.: DWST volume is based on the accuracy of the process plant computer. Combined volume of the DWST and CST is based on DWST Main Board indicators "FWA*LI 20A1" and "FWA*LI 20B1", and CST Main Board indicator "CNS-LI 15."

Note 7.: Fuel Bldg Filter Sys shall be verified to be operating within 2 hours of and during operations, in or over the Spent Fuel Pool, with irradiated fuel with less than 60 days decay time in the storage pool.

Note 8.: At least once per 72 hours.

Note 9.: If an error message is received, reset the computer modem and reboot EEQ. If a Data Logger or Control Room personal computer is not available, perform OPS Form 3670.2-3, "Manual Area Temperature Monitoring."

Note 10.: North is the "fail" value of wind direction indicator. Consecutive readings of 360° may indicate failed instrumentation. Notify SM of problem so Middletown I&C and/or CONVEX can be notified.

MODE 1-4 Daily and Daily Control Room Rounds

Note 11.: Containment Sump Flowrate = $(P2A + P2B \text{ Run Time}) \times 25 \text{ GPM}$

time between pump starts

If sump flow increases significantly, verify RCS unidentified leakage < 1 gpm. Alternating from one pump to another may result in a change in the calculated flow, due to different pump capacities.

Note 12.: If six circ pumps are operating, USE computer point "CVCWSAVG." Otherwise OBTAIN computer point values for operating waterboxes, CWS-T24A, CWS-T24B, CWS-T24C, CWS-T24D, CWS-T24E, and CWS-T24F (Circ. water inlet temps). Obtain the average. Ensure a minimum of three computer points are available.

Note 13.: When performing thermal backwashes, MONITOR ultimate heat sink temperatures at 3SWP-TI47A and 3SWP-TI47B.

Note 14.: Channel check shall consist of verifying indication of flow during periods of release. Channel check shall be made at least once per 24 hours on days on which continuous, periodic, or batch releases are made.

Note 15.: If the process flow monitor is out of service, calculate HVR10A and B stack flow with OPS Form 3670.1-3 every four hours.

Note 16.: If sampler flow monitoring is out of service, have Chemistry connect a temporary sample pump and flow device. Perform OPS Form 3670.2-4, "Temporary Sampling Surveillance."

Note 17.: If sampler flow monitoring is out of service, have Chemistry connect a temporary sample pump and flow device. Perform OPS Form 3670.2-13. Perform OPS Form 3670.2-9 when 3HVQ*RE49 is out of service.

Note 18.: Verify Plant Process Computer and R5 (Tilting Factors, NSSS, page forward, F9, F2) program is in operation. Verify these points update approximately every minute (must recall screens to update points).

Note 19.: For each unisolated loop, the associated Tc and Th wide range temperature channels are channel checked.

Note 20.: Refer T/S figure 3.4-4.a and 3.4-4.b

Note 21.: There must be at least one loop stop valve OPEN in each RCS loop.

Note 22.: In Mode 4 when any Cold Leg Temperature Channel is less than or equal to 275°F, cold overpressure protection is required to be provided by one of the following: Both PORVs, Both RHR suction reliefs, or One PORV and One RHR suction relief.

Note 23.: Perform Channel Check IAW OP 3301H.

Note 24.: Required when Cold Overpressure Protection is in service.

Note 25.: This value is being taken to support the parameter limit check for item 13.
Refer to T/S Figure 3.4-5 if RCS-LR459 is unavailable.

Note 26.: If < 1.0 cps, Refer to COLR Section 2.12 to determine the required minimum count rate for the current LCO (3.3.5.a, 3.3.5.b.1 or 3.5.5.b.2) and Refer To the RE Curve and Data Book, "Miscellaneous Core Data," to determine the current Alarm Ratio Setting.

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: Calculate a dilution using nomographs

JPM ID Number: 141-2

Revision: 0

II. Initiated:

J. William Côté
Developer

2/08/00
Date

III. Reviewed:

J. Martin
Technical Reviewer

2/27/00
Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

M. B.
Nuclear Training Supervisor

2/27/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

JPM ID Number: 141-2

Revision: 0

Task Title: Admin- Calculate a dilution using nomographs

System: PMU

Time Critical Task: () YES (**X**) NO

Validated Time (minutes): 4 mins

Task Number(s): 009-01-006, Aligning for a Dilution

Applicable To: SRO **X** RO **X** PEO

K/A Number: GEN-2.1.25, Interpret Station tables K/A Rating: 2.8/3.1

Method of Testing: Simulated Performance: Actual Performance: **X**

Location: Classroom: **X** Simulator: **X** In-Plant: **X**

Task Standards: (1) Calculate the required amount of Dilution to lower RCS Boron 400 ppm

Required Materials: OP3304C

General References: OP3304C

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs unless stated otherwise. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: 141-2

Revision: 0

Simulator Requirements: 1. None.

Initial Conditions: Plant is at 100% Power,
Middle of Life conditions, 10,000 MWD/MTU
RCS Boron concentration is 1000 ppm
Boric Acid Storage Tank concentrations are:
BAST "A" concentration: 6850 ppm
BAST "B" concentration: 6850 ppm
The plant computer is unavailable.

Initiating Cues: The Unit Supervisor has requested that you calculate the required amount of PGS needed to lower RCS Boron concentration from 1000 ppm to 600ppm using OP3304C.

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. The student's performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: 141-2

Revision: 0

Task Title: Admin- Calculate a dilution using nomographs

Start Time: _____

STEP 1 _____

Performance Step: Obtain OP3304C nomograph attachment 5

GRADE _____

Standards: Obtains OP3304C. The examinee may review section pertaining to aligning for dilution to get referred to Attachment 5 or may go directly to attachment 5

Grade: SAT _____ UNSAT _____

Cue: _____

Comments:

STEP 2 X

Performance Step: Identifies the RCS initial boron concentration of the RCS

GRADE _____

Standards: Identifies the RCS initial boron concentration of the RCS on the Left hand scale 1000 ppm

Grade: SAT _____ UNSAT _____

Cue: _____

Comments:

PERFORMANCE INFORMATION

JPM Number: 141-2

Revision: 0

Task Title: Admin- Calculate a dilution using nomographs

STEP 3 X

Performance Step: Identifies the amount of dilution desired.

GRADE _____

Standards: Identifies the amount of dilution desired on the center scale. 400 ppm

Grade: **SAT** _____ **UNSAT** _____

Cue: _____

Comments:

STEP 4 X

Performance Step: Identifies the amount of water required to perform the dilution.

GRADE _____

Standards: Aligns the current value of RCS Boron with the amount of Dilution in RCS desired and tracks over to the right hand scale to obtain a value of 30,000 gallons

Grade: **SAT** _____ **UNSAT** _____

Cue: _____

Comments: A direct value of 30,000 gallons is not required to fulfill the critical nature of this task. The value should be close to this value. A value of 25,000 to 40,000 gallons is acceptable.

PERFORMANCE INFORMATION

JPM Number: 141-2

Revision: 0

Task Title: Admin- Calculate a dilution using nomographs

STEP 5 _____

Performance Step: Refers to Attachment 1 to verify the correction factor

GRADE _____

Standards: Refer to attachment 1 and based on conditions given verifies that a correction value of 1.0 should be applied.

Grade: **SAT** _____ **UNSAT** _____

Cue: _____

Comments:

THE EVALUATION PORTION OF THIS JPM IS COMPLETE.

Stop Time: _____

VERIFICATION OF JPM COMPLETION

JPM Number: 141-2

Revision: 0

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO X

Validated Time (minutes): 4 min

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

Result of oral questions (if applicable):

Number of Questions: _____

Number of Correct Responses: _____

Score: _____

Areas for Improvement:

STUDENT HANDOUT

JPM Number: 141-2

Initial Conditions:

Plant is at 100% Power,
Middle of Life conditions, 10,000 MWD/MTU
RCS Boron concentration is 1000 ppm
Boric Acid Storage Tank concentrations are:
BAST "A" concentration: 6850 ppm
BAST "B" concentration: 6850 ppm
The plant computer is unavailable.

Initiating Cues:

The Unit Supervisor has requested that you calculate the required amount of PGS needed to lower RCS Boron concentration from 1000 ppm to 600ppm using OP3304C.

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

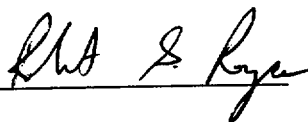
I. JPM Title: Tagout Recommendation

JPM ID Number: RO-1A.2

Revision: 0

II. Initiated:

Robert Royce
Developer



3/31/00
Date

III. Reviewed:

Martin
Technical Reviewer



3/31/00
Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

Nuclear Training Supervisor



4/4/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

Student: _____

JPM ID Number: RO-1A.2

Revision: 0

Task Title: Tagout Recommendation

System: Admin- Tagging Procedures

Time Critical Task: () YES (X) NO

Validated Time (minutes): 10

Task Number(s): MP3*341*279*01*04, Perform duties of the Tagging Control Coordinator

Applicable To: SRO X RO X PEO X

K/A Number: GEN.2.2.13

K/A Rating: 3.6/3.8

Method of Testing: Simulated Performance: X Actual Performance: _____

Location: Classroom: X Simulator: _____ In-Plant: _____

Task Standards: Recommend a tagout.

Required Materials: P&IDs, EEs, WC-2

General References: WC-2 Station Tagging Procedure
P&IDs
EEs

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: RO-1A.2

Revision: 0

Simulator Requirements: None

Initial Conditions: You are a member of the mid shift crew. The "A" Spent Fuel Pool Cooling pump 3SFC*P1A has developed a significant seal leak. The crew has shifted spent fuel pool cooling to the "B" Train. The SM desires to place SM/US tags on 3SFC*P1A to allow venting and draining the pump while awaiting the AWO to be written.

Initiating Cues: The US directs you to investigate and recommend tags for "A" Spent Fuel Pool Cooling pump seal replacement.

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. The students performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: RO-1A.2

Revision: 0

Task Title: Tagout Recommendation

Start Time: _____

NOTE: It is acceptable to perform JPM steps 1-5 in any sequence.

STEP	<u>1</u>	_____	Performance Step:	References correct P&ID.
GRADE	_____	_____	Standards:	Locates P&ID sheet 111A.
			Grade:	SAT _____ UNSAT _____
			Comments:	
STEP	<u>2</u>	<u>X</u>	Performance Step:	Determine pump isolation boundaries.
GRADE	_____	<u>X</u>	Standards:	Determines inlet and outlet boundary tags should be on 3SFC*V982 and 3SFC*V980.
			Grade:	SAT _____ UNSAT _____
STEP	<u>3</u>	<u>X</u>	Performance Step:	Determine vent and drain paths.
GRADE	_____	<u>X</u>	Standards:	Determines tags should be on vent valve 3SFC*V66 and drain valve 3SFC*V64.
			Comments:	Acceptable substitutes for V66 are V63, V835, or V836. Acceptable substitutes for V64 are V878 or V895.
			Grade:	SAT _____ UNSAT _____

PERFORMANCE INFORMATION

JPM Number: RO-1A.2

Revision: 0

Task Title: Tagout Recommendation

STEP 4 X **Performance Step:** Determine pump power supply.

GRADE X **Standards:** Determines pump power supply is 32Y5-2. This may be determined by the power supply book, OP 3305 Fuel Pool Cooling and Purification procedure, or by electrical drawing EE-1EF. If the power supply book is used, it must be backed up by an approved procedure or EE drawing.

Grade: **SAT** **UNSAT**

STEP 5 **Performance Step:** Determine that a tag should be hung on Main Board switch.

GRADE **Standards:** Determines tag should be hung on Main Board 1 Control Switch.

Grade: **SAT** **UNSAT**

STEP 6 **Performance Step:** Inform US that tag recommendation is ready.

GRADE **Standards:** Reports to the examiner that the tag recommendation is ready.

Grade: **SAT** **UNSAT**

The Evaluation for this JPM is completed.

Stop Time:

VERIFICATION OF JPM COMPLETION

JPM Number: RO-1A.2

Revision: 0

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO X

Validated Time (minutes): 10

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

STUDENT HANDOUT

JPM Number:

RO-1A.2

Initial Conditions:

You are a member of the mid shift crew. The "A" Spent Fuel Pool Cooling pump 3SFC*P1A has developed a significant seal leak. The crew has shifted spent fuel pool cooling to the "B" Train. The SM desires to place SM/US tags on 3SFC*P1A to allow venting and draining the pump while awaiting the AWO to be written.

Initiating Cues:

The US directs you to investigate and recommend tags for "A" Spent Fuel Pool Cooling pump seal replacement.

Component I.D. / Power Supply / ESK

Equip. I.D.	Power Supply	ESK
-----	-----	-----
SFC*P1A	32Y5-2	AG
SFC*P1A MTR HTR	SCV*PNL9Q CKT-8	6AG
SFC*P1B	32X5-2	6AH
SFC*P1B MTR HTR	SCV*PNL9P CKT-8	6AH
SFC-LV44	BYS-PNL6F CKT-17	7DP
SFC-P2A	32G7-2	6AMV
SFC-P2B	32H7-2	6AMU
SFC-P4	32-4G-3F	6AHU
SFC-PNLFP	SCA-PNL28N CKT-14	
	SCA-PNL28N CKT-15	

 Count: 9

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: Review an RWP prior to entry into an RCA

JPM ID Number: RO1-A3

Revision: 0

II. Initiated:

J. William Côté
Developer

2/25/00
Date

III. Reviewed:

CMartin
Technical Reviewer

2/27/00
Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

Nuclear Training Supervisor

2/27/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

JPM ID Number: RO1-A3

Revision: 0

Task Title: Review an RWP Prior to Entry into an RCA

System: Rad worker

Time Critical Task: () YES (X) NO

Validated Time (minutes): 5 min

Task Number(s): 119-03-010, Perform an RWP entry via the Electronic Access Control System

Applicable To: SRO X RO X PEO X

K/A Number: GEN.2.3.2, Knowledge of the Facility ALARA Program K/A Rating: 2.5/2.9

Method of Testing: Simulated Performance: _____ Actual Performance: X

Location: Classroom: X Simulator: _____ In-Plant: X

Task Standards: Reviews RWP per RPM 5.2.2 to support the ALARA Program

Required Materials: Ops Blanket RWP

General References: RPM 5.2.2, Basic Radiation Worker Responsibilities

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: RO1-A3

Revision: 0

Simulator Requirements: NONE

Initial Conditions: Your Plant NRC Exam Walkthrough is in Progress. You are about to perform a JPM in the Millstone 3 RCA. You are escorting an NRC Examiner.

Initiating Cues: Review the applicable RWP with your NRC Examiner to ensure that both of you understand the entry requirements and any associated restrictions.

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. The student's performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: RO1-A3

Revision: 0

Task Title: Review an RWP prior to entry into an RCA

Start Time: _____

Comments: RPM 5.2.2, Basic Rad worker Responsibilities, level of use is informational and need not be present.

Comments: If this is being done in the classroom, provide the examinee with the RWP.

Comments: If an RWP was provided to the examinee, step 1 is not considered a critical step.

STEP 1 X

Performance Step: Refers to the Proper RWP (Ops Blanket) at the AUX building Control Point

GRADE _____

Standards: Locates the Ops Blanket RWP (currently #5) in the RWP Rack

Grade: **SAT** _____ **UNSAT** _____

Cue: _____

STEP 2 X

Performance Step: Locates task to be performed under control of the RWP

GRADE _____

Standards: Locates Task 1, General rounds and tours, covered under RWP 5

Grade: **SAT** _____ **UNSAT** _____

Cue: _____

PERFORMANCE INFORMATION

JPM Number: RO1-A3

Revision: 0

Task Title: Review an RWP prior to entry into an RCA

Comments:

If HP is at the Control Point, It is acceptable and expected to have HP explain any dress requirements or specific restrictions associated with entry

STEP 3

Performance Step: Reviews RWP for specific dress requirements associated with entry under this task

GRADE

Standards:	Locates dress requirements and reviews. For general touring, no specific dress requirements exist.
-------------------	--

Grade:	SAT	UNSAT
--------	-----	-------

Cue:

STEP 4 X

Performance Step: Reviews RWP for specific dosimetry requirements associated with entry under this task

GRADE **X**

Standards: Reviews to find required dosimetry is a Digidose and a TLD

Grade:	SAT	UNSAT
--------	-----	-------

Cue: _____

STEP 5

Performance Step: Reviews the survey sheets for specific areas to be entered

GRADE

Standards: Locates the appropriate survey forms located on the wall and verifies contamination and radiation levels require no special restrictions to enter.

Grade:	SAT	UNSAT
--------	-----	-------

PERFORMANCE INFORMATION

JPM Number: RO1-A3

Revision: 0

Task Title: Review an RWP prior to entry into an RCA

STEP 6 X **Performance Step:** Worker discusses RWP requirements with any personnel they are responsible for.

GRADE X **Standards:** Ensures the NRC Examiner has the required dosimetry and the examiner understands the requirements for entry.

Grade: **SAT** **UNSAT**

Cue: 

Termination Cue: The Evaluation For This JPM is Complete.

Stop Time:

VERIFICATION OF JPM COMPLETION

JPM Number: RO1-A3

Revision: 0

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO X

Validated Time (minutes): 4

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

Result of oral questions (if applicable):

Number of Questions: _____

Number of Correct Responses: _____

Score: _____

Areas for Improvement:

STUDENT HANDOUT

JPM Number:

RO1-A3

Initial Conditions:

Your Plant NRC Exam Walkthrough is in Progress. You are about to perform a JPM in the Millstone 3 RCA. You are escorting an NRC Examiner.

Initiating Cues:

Review the applicable RWP with your NRC Examiner to ensure that both of you understand the entry requirements and any associated restrictions.

WHOLE BODY COUNTER (WBC) – This device is used to detect the presence of radionuclides inside the body which can result in internal dose. A WBC is done when hiring in, terminating, whenever internal contamination is suspected, and at the direction of Health Physics. Health Physics personnel operate this instrument and will instruct you.

1.12 Radiation Work Permit (RWP) [♣ Comm. 3.4]

An RWP is required for entry into RCAs, with very few exceptions. The RWP has three major functions:

- Authorizes entry into, and activities within, RCAs.
- Details the radiological requirements necessary for the work being performed including dosimetry, protective clothing, and precautions.
- Provides information concerning the radiological conditions in the work area.

There are two types of RWPs, general and specific. A general RWP, also called a blanket or routine, may be issued for control of routine or repetitive work under stable or predictable radiological conditions. Specific RWPs are used for work that requires more stringent controls or involvement. If you are responsible for requesting an RWP, provide the following information to HP as accurately as possible.

- work location and the job description.
- estimated number of man-hours to complete the job.
- contact phone number.
- any specialized equipment or tools needed.
- support needed, e.g., scaffolding, breathing air, firewatch, operations, etc.

An RWP consists of a cover sheet and job step sheets.

- *Cover sheet:* The cover sheet describes the job or jobs to be performed on the RWP in general terms.
- *Job Step sheets:* The Job Step sheets, also known as “tasks,” specify exactly which type(s) of dosimetry and pieces of protective clothing are required and any special instructions for each individual task or area.

RWP Compliance – Compliance with all RWP requirements is expected. Failure to comply may result in disciplinary action. Regulatory actions, including fines to the individual and NU, may also result.



The RWP is your permission to work in an RCA. Perform only the work that is specified on the RWP and only in specified areas. Read your RWP prior to each entry so that you are always aware of any changes that may have been made to the RWP requirements.

Protective Requirements – Protective requirements are based on observed or expected radiological conditions. Performing activities that are not specified in the job descriptions, such as moving components, opening contaminated systems, or removing shielding, will change radiological conditions. If you believe, or discover, that radiological conditions are different than expected, or if the conditions change unexpectedly, inform others in the area, exit the area, and contact HP. The RWP provides information on radiological protection. Review the RWP and note the requirements such as the following:

- Job scope and allowable work activities
- Radiological conditions
- Protective clothing requirements
- Dosimetry requirements
- Restricted activities or areas
- Hold points and stay times
- Radiological conditions in area
- Frequency of reading dosimeter
- ALARA instructions
- Electronic dosimeter setpoints
- Respiratory protection
- Ventilation requirements
- Level of HP coverage

Signing In On An RWP – All workers entering the RCA are required to sign in on the appropriate RWP. By signing in, you are stating that you have read and understand your RWP, will comply with the requirements and are cognizant of the radiological conditions of your work area. The sign in process is done electronically with an electronic dosimeter.



When using electronic dosimetry, workers sign in and out of the RWP by typing information on a computer keyboard or by scanning a bar code. Every worker is assigned an Employee Identification (EID) number. This number is encoded into a bar code which is read by a scanner. Perform the following to sign on to an RWP:

- Ensure that you have read and will comply with your RWP.
- Select a Digidose and insert it into the reader.
- Use the bar code on your badge and scan in, or manually enter your EID number.
- Enter the RWP number and press enter.
- Enter the Job Step number and press enter.
- Insure that the information on the reader display is correct, then remove your Digidose after the "Entry Granted" message.

You are now signed in on the RWP and the Digidose is turned on. If a printer is provided at the reader, the same information will be printed on a slip of paper called a Trip Ticket. Remove and review the Trip Ticket to ensure the EID, RWP, Job Step and dose and dose rate alarms are correct. The HP Technician responsible for the area may request your trip ticket when you enter.

Signing Out On An RWP – Signing out ensures that exposure received by the worker is recorded. Please note that you should not attempt to sign out with an actively alarming dosimeter, or one that you think is not functioning correctly; exit the area, and contact HP prior to logging out. To sign off an RWP (RCA exit):

- Insert the dosimeter into the reader.
- Scan the EID number, or manually enter your EID number.
- Remove your Digidose after the "Exit Granted" message.

You are signed out. Exposure information is automatically updated. Signing out turns off the Digidose. If the display does not become blank, contact HP. If a printer is attached to the exit reader, a ticket will be printed showing your exposure information. This is for your information only.



I. JPM Title: Reactor Operator E-Plan Responsibilities

JPM ID Number: RO1-A.4

Revision: 0

II. Initiated:

J. William Côté
Developer

2/24/00
Date

III. Reviewed:

Martin
Technical Reviewer

2/26/00
Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

Nuclear Training Supervisor

2/27/00
Date

ANSWER KEY

Questions for Admin RO set 1 A.4

Topic: RO responsibilities during an E-Plan

GEN. 2.4. 39 K/A: 3.3/3.1

Question 1:

You are a qualified on shift control operator. You are eating lunch in the building 475 cafeteria when you hear the evacuation alarm sound. The message following the siren states that an ALERT C-1 has been declared and all non essential personnel evacuate the sight via the North Access Point. Where do you go?

Answer: In accordance with EPAP 1.15, attachment 5, SERO Qualifications and Reporting Location, a Qualified Unit 3 Control Operator is in the Category of On Shift personnel and reports to the Control Room during all SERO activation's.

Question 2:

You are a qualified on shift control operator. You receive a call at home from the Manager of Resources. He states that a SERO activation has occurred, site access has been restricted and you are requested to provide relief shift coverage. Please report. Where do you report when called in under these circumstances?

Answer: Since site access has been restricted, the operator should report to the EOF and the Manager of Resources. The Manager of Resources then will contact the requesting party and arrange access to the site for the individual.

Questions for Admin RO set 1 A.4
Topic: RO responsibilities during an E-Plan
GEN. 2.4. 39 K/A: 3.3/3.1

Question 1:

You are a qualified on shift control operator. You are eating lunch in the building 475 cafeteria when you hear the evacuation alarm sound. The message following the siren states that an ALERT C-1 has been declared and all non essential personnel evacuate the sight via the North Access Point. Where do you go?

Question 2:

You are a qualified on shift control operator. You receive a call at home from the Manager of Resources. He states that a SERO activation has occurred, site access has been restricted and you are requested to provide relief shift coverage. Please report. Where do you report when called in under these circumstances?

1.7 On-Shift Positions

1.7.1 Refer To Attachment 5 and IDENTIFY reporting location.

1.7.2 WHEN notified of an Alert, Site Area Emergency, or General Emergency, REPORT to the designated reporting location.

– End of Section 1.7 –

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: Review a Turnover Sheet

JPM ID Number: SRO1-A.1

Revision: 0

II. Initiated:

J. William Côté
Developer

3/31/00

Date

III. Reviewed:

Martin
Technical Reviewer

3/31/00

Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

MLB
Nuclear Training Supervisor

4/4/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

JPM ID Number: SRO1-A.1

Revision: 0

Task Title: Review a shift turnover sheet

System: ADMIN

Time Critical Task: () YES (X) NO

Validated Time (minutes): 10 min

Task Number(s): 341-03-016, Maintain Proper Logs

Applicable To: SRO X RO X PEO

K/A Number: GEN.2.1.18, Accurate, Clear, Concise, Logs K/A Rating: 2.9/3.0

Method of Testing: Simulated Performance: Actual Performance: X

Location: Classroom: X Simulator: X In-Plant: X

Task Standards: Reviews the turnover sheet and discovers required log entry & Tech Spec applicability not made for safety related piece of equipment.

Required Materials: attached turnover sheet

General References: None, Unit 3 Tech Specs and TRM

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: SRO1-A.1

Revision: 0

Simulator Requirements: NO IC required.

Initial Conditions: The Plant is at 100% power. You are the oncoming shift Manager.

Initiating Cues: Review and assess the Shift Log for the shift prior to yours.

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. The students performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: SRO1-A.1

Revision: 0

Task Title: Review a Shift Turnover Log

Start Time: _____

STEP 1 _____

Performance Step: Obtains the Shift Log for the shift that is being relieved

GRADE _____

Standards: Request the turnover log from the evaluator.

Grade: SAT _____ UNSAT _____

Cue: Hand the shift turnover log to the examinee

Comments:

STEP 2 X

Performance Step: Reviews the data contained within the turnover log.

GRADE _____ X

Standards: Concludes that at 0105 the 3SWP*P1D pump is Inop due to the seal leak and the control switch in PTL. A log entry stating entry into Tech Specs 3.7.4, Service Water System, needs to be made.

Grade: SAT _____ UNSAT _____

Cue:

Comments:

Evaluation for this JPM is complete

Stop Time: _____

VERIFICATION OF JPM COMPLETION

JPM Number: SRO1-A.1

Revision: 0

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO X

Validated Time (minutes): 10

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

Result of oral questions (if applicable):

Number of Questions: _____

Number of Correct Responses: _____

Score: _____

Areas for Improvement:

VERIFICATION OF JPM COMPLETION

ANSWER KEY

3.6.2.2		04/01/00 06:11	04/04/00 06:11	3SWP*MOV54B breaker is off for heat exchanger Service Water side drain and flush
3.6.2.2		04/01/00 06:10	04/01/00 06:10	3RSS*P1B in PTL for lube PM and SP3606.2
3.6.3	c	03/28/00 13:58	03/28/00 17:58	3SSR*CTV26 is inoperable due to failed biennial position indication surveillance. 3SSR*CTV27 is tagged closed.
3TRM-3.7.7	1	03/28/00 04:07	04/27/00 05:07	3HVC*ACU1B oss for AWOs
3TRM-3.7.7	1	03/28/00 04:05	04/27/00 05:05	3HVK*CHLR1B oss for AWOs
3TRM-3.7.7	1	03/28/00 04:08	04/27/00 05:08	3HVC*ACU2B oss for AWOs
3TRM-7.4 Section D	1	01/15/99 20:57	01/15/99 20:57	Cable Spreading room CO2 locked out due to discharge
3TRM-7.4 Section D	2a	03/04/00 23:12	03/05/00 00:12	West Swgr, lapsed CO2 puff test surveillance
3TRM-7.4 Section I	3a	03/27/00 11:29	04/10/00 12:29	Battery checks for 3 LAP-3AB1AB71

MISSING

3.7.4		04/01/00 01:05	04/04/00 01:05	3SWP*P1D is inop due to seal leak and in PTL
-------	--	----------------	----------------	--

Handout

JPM Number:

SRO1-A.1

Initial Conditions:

The Plant is at 100% power. You are the oncoming shift Manager.

Initiating Cues:

Review and assess the Shift Log for the shift prior to yours.

Millstone Unit 3 Shift Log

Date/Time	Entry
04/01/00 00:00	Shift Hours: 2315-0715 Mode: 1 Reactor Power: 100% MWE: 1209 RCS Pressure: 2250 PSIA RCS Tave: 587 Degrees Shift Manager: Steve Lawhead STA: Doug Scott Shift Tech: Gordon Knight Unit Supervisor: Mark Miner Control Operator: Jack Vernotzy Control Operator: Dean Rowe Plant Equipment Operator: Rick Kauffman Plant Equipment Operator: Don Morgan Plant Equipment Operator: Todd Stringfellow Plant Equipment Operator: Mike Fortner
04/01/00 00:05	Performed RCS dilution, 18 gallons @80 GPM
04/01/00 00:15	3CVS-P1B CONTAINMENT VACUUM PUMP, Started
04/01/00 01:05	3SWP*P1B B Service Water Pump, started
04/01/00 01:05	3SWP*P1D D Service Water Pump, stopped due to PEO reporting excessive seal leakage with water spraying on non vital switchgear. Pump placed in PTL.
04/01/00 01:26	Accepted procedure 3623.1-1 Daily Turbine Generator Test - MSR Leak Detection satisfactorily.
04/01/00 01:27	Accepted procedure 3680.1-1 Main Generator Hydrogen Use Rate satisfactorily
04/01/00 02:05	Ionics filling the Condensate Surge Tank
04/01/00 02:33	Performed RCS dilution, 18 gallons @ 80 GPM
04/01/00 03:58	Performed RCS dilution, 18 gallons @ 80 GPM
04/01/00 04:41	Performed RCS dilution, 8 gallons @ 80 GPM
04/01/00 04:59	Security reports all SLCRS doors are closed
04/01/00 05:20	3CVS-P1B CONTAINMENT VACUUM PUMP, stopped
04/01/00 05:50	Chemistry placing TK 11 on recirc for discharge
04/01/00 06:04	3CNS-P3A, COMPONENT COOLING WATER MAKEUP PUMP, started for CPF operations
04/01/00 06:09	Performed RCS dilution, 12 gallons @ 80 GPM
04/01/00 06:10	Entered LCO for Tech Spec 3.6.2.2, 3RSS*P1B out of service for PMs
04/01/00 06:11	Entered LCO for Tech Spec 3.6.2.2, 3SWP*MOV54B out of service for AWO
04/01/00 06:11	Started discharge of A WTT, permit #3664
04/01/00 06:46	Ionics shutdown

Millstone Unit 3 Shift Log

Date/Time		Entry		
3.6.2.2		04/01/00 06:11	04/04/00 07:11	3SWP*MOV54B breaker is off for heat exchanger Service Water side drain and flush
3.6.2.2		04/01/00 06:12	04/04/00 07:12	3RSS*P1B in PTL for lube PM and SP 3606.2
3.6.3	c	03/28/00 13:58	03/28/00 17:58	3SSR*CTV26 is inoperable due to failed biennial position indication surveillance. 3SSR*CTV27 is tagged closed.
3TRM-3.7.7	1	03/28/00 04:07	04/27/00 05:07	3HVC*ACU1B oss for AWOs
3TRM-3.7.7	1	03/28/00 04:05	04/27/00 05:05	3HVK*CHLR1B oss for AWOs
3TRM-3.7.7	1	03/28/00 04:08	04/27/00 05:08	3HVC*ACU2B oss for AWOs
3TRM-7.4 Section D	1	01/15/99 20:57	01/15/99 20:57	Cable Spreading room CO2 locked out due to discharge
3TRM-7.4 Section D	2a	03/04/00 23:12	03/05/00 00:12	West Swgr, lapsed CO2 puff test surveillance
3TRM-7.4 Section I	3a	03/27/00 11:29	04/10/00 12:29	Battery checks for 3 LAP-3AB1AB71

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: Respond to an oil spill using COP 200.5

JPM ID Number: SRO1-A1.2

Revision: 0

II. Initiated:

J. William Côté

Developer

2/26/00

Date

III. Reviewed:

C. Martin

Technical Reviewer

2/27/00

Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

M. B. J.
Nuclear Training Supervisor

2/27/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

JPM ID Number: SRO1-A1.2

Revision: 0

Task Title: Respond to an oil spill using COP 200.5

System: Admin

Time Critical Task: () YES (X) NO

Validated Time (minutes): 15

Task Number(s): 119-03-338, Respond to Hazardous material spill

Applicable To: SRO X RO PEO

K/A Number: GEN.2.1.26, Non-Nuclear Safety Procedures K/A Rating: 2.6

Method of Testing: Simulated Performance: X Actual Performance:

Location: Classroom: X Simulator: In-Plant: X

Task Standards: Implements COP 200.5 to determine and contain spill. Also makes any reports per EPIP 4400/4400A

Required Materials: COP 200.5, EPIP 4400 and 4400A

General References: COP 200.5, EPIP 4400/4400A

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: SRO1-A1.2

Revision: 0

Simulator Requirements: none

Initial Conditions: You are the Shift Manager on duty. The Plant is at 100% power steady state. A Fire Watch calls and reports the following to the control room: A large Marino crane, near MP3 Turbine Building (West Side) is leaking oil.

Initiating Cues: Perform the procedural actions associated with this oil spill.

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. The students performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: SRO1-A1.2

Revision: 0

Task Title: Respond to an oil spill using COP 200.5

Start Time: _____

STEP 1 _____

Performance Step: When notified that a spill has occurred on station , Request the person reporting spill to provide the following information :

- what spilled
- how much
- is spill contained
- anyone injured
- spill location

GRADE _____

Standards: Ask if the person is still on the line and request information

Grade: **SAT** _____ **UNSAT** _____

Cue: The Fire Watch has hung up the phone

Comments:

GRADE _____

Standards: Dispatch a PEO to investigate the leak and continue on

Grade: **SAT** _____ **UNSAT** _____

Cue: PEO: Acknowledge the request

Comments:

PERFORMANCE INFORMATION

JPM Number: SRO1-A1.2

Revision: 0

Task Title: Respond to an oil spill using COP 200.5

STEP 2 **Performance Step:** Request site fire protection investigate spill

GRADE **Standards:** Calls ext 4745 and gives the caller the information from the initial conditions and request they investigate

Grade: **SAT** **UNSAT**

Cue: Acknowledge the request as site fire protection.

Comments:

Cue: Report from the field: PEO. An oil spill of 4-5 gallons has occurred. It is leaking from underneath the Marine crane. It appears to be a cracked oil pan of some kind. It does not appear to be heading towards any drains

Cue: Site fire protection reports: This is an "incidental" spill volume. We are contacting Waste Services to help with the clean-up

STEP 3 X **Performance Step:** Refer to EPIP 4400 and determine classification and reportability

GRADE **Standards:** Refers to EPIP 4400 and commences assessment. Reviews EAL classification table and decides the event is not on the tables

Grade: **SAT** **UNSAT**

Cue:

Comments:

PERFORMANCE INFORMATION

JPM Number: SRO1-A1.2

Revision: 0

Task Title: Respond to an oil spill using COP 200.5

GRADE **X**

Standards: Transitions to EPIP 4400A, Non-Emergency Station Events

Grade: SAT _____ UNSAT _____

Cue: _____

Comments:

STEP 4 X

Performance Step: Commences 4400A step 4.1

GRADE _____ **X**

Standards: Directs shift Technician go to section 4.6 and perform notifications associated with attachment 1

Grade: **SAT** _____ **UNSAT**

Cue: Acknowledge request

Comments:**GRADE**

Standards: Reviews 4.1.1 B, C, D and determines all are in progress

Grade: SAT _____ UNSAT _____

Cue: _____

Comments:

GRADE

Standards:	Reviews 4.1.1.e and determines the event is not an unplanned release
-------------------	--

Grade: SAT _____ UNSAT _____

Cue: _____

PERFORMANCE INFORMATION

JPM Number: SRO1-A1.2

Revision: 0

Task Title: Respond to an oil spill using COP 200.5

GRADE X

Standards: Determines event is an oil spill and
Goes to Section 4.3

Grade: SAT UNSAT

Cue:

Comments:

STEP 5

Performance Step: If an oil spill has occurred notify the
following as applicable:

- Unit Chemistry
- Unit Environmental Coordinator
- Health Physics Supervision
- Regulatory affairs

GRADE

Standards: Retrieves phone numbers from SM
office and notifies various departments

Grade: SAT UNSAT

Cue: Acknowledge information

Comments:

PERFORMANCE INFORMATION

JPM Number: SRO1-A1.2

Revision: 0

Task Title: Respond to an oil spill using COP 200.5

STEP 6 X **Performance Step:** Refer to COP 200.5 and determine if any of the following conditions are met:

- Spill into Long Island sound or any receiving water that feeds into the sound.
- Spill greater than 10 gallons
- Leak from an underground storage tank

GRADE X **Standards:** Request the information from personnel on the scene and determines based on the cue that none of these conditions have occurred

Grade: **SAT** **UNSAT**

Cue: Report from the scene: The spill is approximately 4-5 gallons of crankcase oil. The spill has been contained and has not flowed into any drainage areas.

Comments:

STEP 7 **Performance Step:** Return to COP 200.5 and assess the following:

- If necessary request SERO AMRDA
- If incident is suspected of containing asbestos

GRADE **Standards:** Assesses that he does not need SERO assistance and that the oil does not contain asbestos

PERFORMANCE INFORMATION

JPM Number: SRO1-A1.2

Revision: 0

Task Title: Respond to an oil spill using COP 200.5

Grade: SAT _____ UNSAT _____

Cue: _____

Comments: During the next step, the examinee may review the definitions section of the procedure to aid in determining, Insignificant.

STEP 8 X

Performance Step: If the spill is an insignificant spill, PERFORM the following

GRADE _____ X

Standards: Determines that the spill is NOT insignificant, and moves on to the next step

Grade: SAT _____ UNSAT _____

Cue: _____

Comments:

STEP 9 X

Performance Step: If spill is an oil spill, Go To section 4.2

GRADE _____ _____

Standards: Transitions to section 4.2

Grade: SAT _____ UNSAT _____

Cue: _____

Comments:

STEP 10 _____

Performance Step: If spill is from an unknown source...

GRADE _____ _____

Standards: Determines step does not apply and continues on

Grade: SAT _____ UNSAT _____

PERFORMANCE INFORMATION

JPM Number: SRO1-A1.2

Revision: 0

Task Title: Respond to an oil spill using COP 200.5

Cue:

Comments:

STEP 11 X

Performance Step: If spill is on-site only (not to receiving waters) Perform the following:

GRADE X

Standards: Determines that the step applies and initiates actions associated with the step

Grade: SAT UNSAT

Cue: Report from the field. The spill is contained. No oil was lost down any drains. We are putting speedy dry down and will have everything cleaned up in 20-30 minutes

Comments:

GRADE X

Standards: Evaluates the need for and determines No offsite assistance is needed.

Grade: SAT UNSAT

Cue: From Site services. We will supervise the rest of the cleanup

Termination cue: The evaluation for this JPM is complete.

Stop Time:

VERIFICATION OF JPM COMPLETION

JPM Number: SRO1-A1.2

Revision: 0

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO X

Validated Time (minutes): 15

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

Result of oral questions (if applicable):

Number of Questions: _____

Number of Correct Responses: _____

Score: _____

Areas for Improvement:

STUDENT HANDOUT

JPM Number:

SRO1-A1.2

Initial Conditions:

You are the Shift Manager on duty. The Plant is at 100% power steady state. A Fire Watch calls and reports the following to the control room: A large Marino crane, near MP3 Turbine Building (West Side) is leaking oil.

Initiating Cues:

Perform the procedural actions associated with this oil spill.

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: Review a Surveillance form for RCS Leakage-Controlled Leakage to RCP Seals

JPM ID Number: SRO1-A.2

Revision: 0

II. Initiated:

J. William Côté
Developer

2/26/00
Date

III. Reviewed:

Martin
Technical Reviewer

2/27/00
Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

MBJ
Nuclear Training Supervisor

2/27/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

JPM ID Number: SRO1-A.2

Revision: 0

Task Title: Review a Surveillance form for RCS Leakage-Controlled Leakage to RCP Seals

System: ADMIN

Time Critical Task: () YES (X) NO

Validated Time (minutes): 5 min

Task Number(s): 119-03-003, Determine if plant operation is outside of T.S. administrative control Limits

Applicable To: SRO X RO PEO

K/A Number: GEN.2.2.12, surveillance Procedures K/A Rating: 3.4

Method of Testing: Simulated Performance: Actual Performance: X

Location: Classroom: X Simulator: In-Plant: X

Task Standards: Review and disposition surveillance form for Controlled leakage to the RCP Seals

Required Materials: Completed OPS form 3601F.3, RCS Leakage- controlled Leakage to RCP Seals,

General References: OPS form 3601F.3, RCS Leakage- controlled Leakage to RCP Seals, Unit 3 Technical Specifications

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: SRO1-A.2

Revision: 0

Simulator Requirements: none

Initial Conditions: The plant is at 100% power, steady state. You are the Unit Supervisor on shift. Charging Pumps have just been shifted from the "A" CHS Pump running to the "B" CHS Pump running. The Reactor Operator has just completed SP 3601F.3, RCS Leakage- Controlled Leakage to RCP Seals, as part of the Charging Pump shift.

Initiating Cues: Review and disposition the completed SP 3601F.3, RCS Leakage- Controlled Leakage to RCP Seals, surveillance.

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. The students performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: SRO1-A.2

Revision: 0

Task Title: Review a Surveillance form for RCS Leakage-Controlled Leakage to RCP Seals

Start Time: _____

STEP 1 _____

Performance Step: SRO reviews data associated with the surveillance

GRADE _____

Standards: SRO reviews the data associated with the surveillance

Grade: SAT _____ UNSAT _____

Cue: _____

STEP 2 X

Performance Step: Assesses Combined seal injection flow is > than the acceptable limit.

GRADE _____ X

Standards: Compares the data taken in column 4 (data) to the T/S acceptance criteria column in column 5 and notes actual supply is > than acceptable flows. (There is a math error in the seal flow rate addition.)

Grade: SAT _____ UNSAT _____

Cue: _____

Comments: The signing of the coversheet is not required to satisfy the critical nature of this step.

STEP 3 X

Performance Step: If data is not acceptable, Refer to the applicable T.S (s) and PERFORM applicable action.

GRADE _____ X

Standards: Refers to 3.4.6.2e and enters ACTION STATEMENT "B"

Grade: SAT _____ UNSAT _____

Comments:

Termination Cue: The Evaluation of this JPM is Complete. Stop Time: _____

VERIFICATION OF JPM COMPLETION

JPM Number: SRO1-A.2

Revision: 0

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO X

Validated Time (minutes): 4 min

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

Result of oral questions (if applicable):

Number of Questions: _____

Number of Correct Responses: _____

Score: _____

Areas for Improvement:

STUDENT HANDOUT

JPM Number:

SRO1-A.2

Initial Conditions:

The plant is at 100% power, steady state. You are the Unit Supervisor on shift. Charging Pumps have just been shifted from the "A" CHS Pump running to the "B" CHS Pump running. The Reactor Operator has just completed SP 3601F.3, RCS Leakage- Controlled Leakage to RCP Seals, as part of the Charging Pump shift.

Initiating Cues:

Review and disposition the completed SP 3601F.3, RCS Leakage- Controlled Leakage to RCP Seals, surveillance.

Form Approval

Approval <i>H. K. Hesterman</i>	Approval Date 7/28/97	Effective Date AUG 11 1997	PORC Mtg. No. NA
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Form Cover Sheet

**Generic Information**

Form Title RCS Leakage – Controlled Leakage to RCP Seals			Rev. No. 3
Reference Procedure SP 3601F.3	Applicable Tech. Spec. T/S 4.4.6.2.1.c	Frequency M*	
This form is being used for the following:			
<input checked="" type="checkbox"/> Tech Spec Surveillance <input type="checkbox"/> System Alignment <input type="checkbox"/> Other: _____			
<input type="checkbox"/> Maintenance Restoration (Retest) <input type="checkbox"/> Non-Tech Spec Surveillance (PM) _____			

Specific Information

Schedule Date	Applicable Mode 1, 2, 3**, 4**	Partial Surveillance <input type="checkbox"/>
Test Authorized By <i>Shift Manager</i>	Date	
Prerequisites Completed (Initials) cc	Precautions Noted (Initials) cc	
Performed By <i>Control Room Operator</i>	Date	
Accepted By	Date	Acceptance Criteria Satisfied <input type="checkbox"/> Yes <input type="checkbox"/> No
Approved By (Department Head or Designee)	Date	
Shift Manager Notified of Failed Test	Date	

Surveillance Information

Test Equipment Type	QA Number	Cal Due Date
N/A	N/A	N/A

*Required when system flow characteristics are changed (i.e. replaced seal injection filter).

**The provisions of T/S 4.0.4 are not applicable for entry into MODE 3 or 4.

RCS LEAKAGE – CONTROLLED LEAKAGE TO RCP SEALS

Procedure Step	Parameter	Instrument	Data	T/S Acceptance Criteria
4.2	Initial position of Seal Injection Modulating Valve, 3CHS*HCV182	CHS-HC182	100% open	
4.3	Test position of Seal Injection Modulating Valve, 3CHS*HCV182	CHS-HC182	100% open	Full Open (100%)
4.4	RCS pressure	RCS-PI 455A or RCS-PI 457 (Circle instrument used)	2250	2,230 to 2,270 psia
4.5	Flow data:			
	Loop 1 RCP Seal Injection	CHS-FI 145A	9.8	
	Loop 2 RCP Seal Injection	CHS-FI 144A	10.3	
	Loop 3 RCP Seal Injection	CHS-FI 143A	9.9	
	Loop 4 RCP Seal Injection	CHS-FI 142A	10.1	
4.6	Combined Seal Injection Flow (sum of loops 1, 2, 3, and 4)		39.1	≤ 40 gpm

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: Emergency Breaking of CTMT Vacuum, CTMT Purge Process

JPM ID Number: SRO1-A3

Revision: 0
change 1

II. Initiated:

J. William Côté
Developer

2/26/00
Date

III. Reviewed:

Martin
Technical Reviewer

3/31/00
Date

IV. Approved:

N/A
Cognizant Plant Supervisor (optional)

Date

N/A
Nuclear Training Supervisor

4/4/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

Student: _____

JPM ID Number: _____

Revision: _____

Task Title: Emergency Breaking of CTMT Vacuum, CTMT Purge Process

System: Admin/ HVC

Time Critical Task: () YES (X) NO

Validated Time (minutes): _____

Task Number(s): 344-05-086, Respond to an emergency Breaking of CTMT Vacuum

Applicable To: SRO _____ RO _____ PEO _____

K/A Number: GEN.2.3.9, CTMT Purge Process K/A Rating: 3.4

Method of Testing: Simulated Performance: X Actual Performance: _____

Location: Classroom: _____ Simulator: _____ In-Plant: X

Task Standards: Performs AOP 3568 and initiates the breaking of CTMT Vacuum

Required Materials: AOP 3568, Emergency Breaking of CTMT Vacuum

General References: AOP 3568, Emergency Breaking of CTMT Vacuum

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: SRO1-A3

Revision: 0
change 1

Simulator Requirements: Any 100% power IC with CTMT Vacuum between 13.7 and 13.9 psia

Initial Conditions: You are Unit Supervisor on Shift. The plant is at 100% power, 500 days on line. A containment entry is in progress to verify some required outage information. An HP tech and the Work Control Shift Manager are currently in containment. The on shift, Shift Manager is at the Containment Access point. A call has been received from the Shift Manager at the CTMT Access point and he states the following: The Work Control Shift Manager has fallen down the stairs from the 24' to the 4' level inside containment. He is unconscious and has a compound leg fracture that is bleeding profusely. The SM will handle the injured man aspect of the situation.

Initiating Cues: The SM requests you emergency break CTMT vacuum, to aid in removing the SM from CTMT.

Note: Perform all control room actions as both the RO and Unit Supervisor for this evolution.

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, ALL critical steps must be completed correctly. The students performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: SRO1-A3

Revision: 0
change 1

Task Title: Emergency Breaking of CTMT Vacuum, CTMT Purge Process

Start Time: _____

STEP 1 _____

Performance Step: Stops the CTMT Vacuum System

GRADE _____

Standards: Locates the Ctmt vacuum pump controls on MB2 and verifies no pumps running

Grade: SAT _____ UNSAT _____

Cue: Green Light LIT and Red Light OFF for both the "A" & "B" pumps

Comments:

Note: Simulator keys 30 & 31 will operate the valves. You may need to cue the examinee to this fact.

STEP 2 _____

Performance Step: Align Ctmt Purge system

GRADE _____

Standards: Retrieves key #33 from the Control Room Operator's key locker

Grade: SAT _____ UNSAT _____

Cue: You have key #33

Comments:

GRADE _____ X

Standards: Locates and opens Ctmt Purge isolation valves on VP1, 3HVU*CTV33A and 3HVU*CTV33B

Grade: SAT _____ UNSAT _____

Cue: Key is inserted and turned. CTV33A and CTV33B lights change to Red light LIT and Green light OFF.

PERFORMANCE INFORMATION

JPM Number: SRO1-A3

Revision: 0
change 1

Task Title: Emergency Breaking of CTMT Vacuum, CTMT Purge Process

Comments:

STEP 3 X

Performance Step: Locally align Ctmt atmospheric Isolation valve

GRADE X

Standards: Contacts PEO and request he unlock and open the CTMT pressure test line isolation valve (3HVU*V5) on the aux building 66' level

Grade: SAT UNSAT

Cue: Acknowledge request to open 3HVU*V5

STEP 4

Performance Step: Notify personnel in CTMT that Vacuum is being broken

GRADE

Standards: Either uses the plant page system or contacts the SM at the control point to notify personnel that CTMT vacuum is being broken

Grade: SAT UNSAT

Cue: Acknowledge the announcement that Ctmt vacuum is being broken

Comments:

Cue: Report as the PEO that 3HVU*V5 is OPEN

PERFORMANCE INFORMATION

JPM Number: SRO1-A3

Revision: 0
change 1

Task Title: Emergency Breaking of CTMT Vacuum, CTMT Purge Process

STEP	<u>5</u>	<u>X</u>	Performance Step:	Commence breaking CTMT vacuum
GRADE	_____	_____	Standards:	Request PEO Open Ctmt atmospheric isolation valve 3HVU-V6 on the aux building roof
			Grade:	SAT _____ UNSAT _____
			Cue:	Acknowledge request to open 3HVU-V6
			BOOTH:	Insert MALF. CH04, Loss of Ctmt Vacuum, @ 100% severity to simulate the opening of V-6
			Comments:	In the next step, No details of the actual plant shutdown steps are require for this JPM
STEP	<u>6</u>	_____	Performance Step:	Commence an orderly plant Shutdown
GRADE	_____	_____	Standards:	Acknowledge the fact that a plant shutdown will need to be commenced
			Grade:	SAT _____ UNSAT _____
			Cue:	The actions of a plant shutdown are not required for this exercise. Continue with the procedure.
			Comments:	Assessment and usage of EPIP 4400, Event classification and notifications are not required for the critical nature of this step.
STEP	<u>7</u>	<u>X</u>	Performance Step:	Declare an Unusual Event Delta 1
GRADE	_____	_____	Standards:	Contacts the shift tech and request he prepare an IRF for this event.
			Grade:	SAT _____ UNSAT _____

PERFORMANCE INFORMATION

JPM Number: SRO1-A3

Revision: 0
change 1

Task Title: Emergency Breaking of CTMT Vacuum, CTMT Purge Process

STEP 8 _____

Performance Step: Allow Ctmt pressure to equalize with atmospheric pressure

GRADE _____

Standards: Monitors Ctmt pressure trend

Grade: SAT _____ UNSAT _____

Termination Cue: The evaluation for this JPM is complete.

Stop Time: _____

VERIFICATION OF JPM COMPLETION

JPM Number: SRO1-A3

Revision: 0
change 1

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO _____

Validated Time (minutes): _____

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

Result of oral questions (if applicable):

Number of Questions: _____

Number of Correct Responses: _____

Score: _____

Areas for Improvement:

STUDENT HANDOUT

JPM Number:

SRO1-A3

Initial Conditions:

You are Unit Supervisor on Shift. The plant is at 100% power, 500 days on line. A containment entry is in progress to verify some required outage information. An HP tech and the Work Control Shift Manager are currently in containment. The on shift, Shift Manager is at the Containment Access point. A call has been received from the Shift Manager at the CTMT Access point and he states the following: "The Work Control Shift Manager has fallen down the stairs from the 24' to the 4' level inside containment. He is unconscious and has a compound leg fracture that is bleeding profusely." The SM will handle the injured man aspect of the situation.

Initiating Cues:

The SM requests you emergency break CTMT vacuum, to aid in removing the SM from CTMT.

Note: Perform all control room actions as both the RO and Unit Supervisor for this evolution.

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

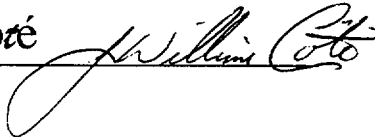
I. JPM Title: Provide the State a Protective Action Recommendation

JPM ID Number: SRO1-A4

Revision: 0

II. Initiated:

J. William Côté
Developer



2/25/00

Date

III. Reviewed:

Martin
Technical Reviewer

2/27/00

Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

Nuclear Training Supervisor

2/27/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

JPM ID Number: SRO1-A4

Revision: 0

Task Title: Provide the State a Protective Action Recommendation

System: Admin, SERO

Time Critical Task: (☒) YES (☐) NO

Validated Time (minutes): 10

Task Number(s): 345-05-006, Provide the State a Protective Action Recommendation

Applicable To: SRO ☒ RO ☐ PEO ☐

K/A Number: GEN.2.4.44 K/A Rating: 4.0

Method of Testing: Simulated Performance: ☐ Actual Performance: ☒

Location: Classroom: ☒ Simulator: ☒ In-Plant: ☒

Task Standards: Provide the State a Protective Action Recommendation

Required Materials: EPOP 4428G and attachments

General References: EPOP 4428G and attachments

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: SRO1-A4

Revision: 0

Simulator Requirements: none

Initial Conditions: The Initial Conditions are covered in the Event Description.

Initiating Cues: You are the On-Duty Shift Manager. You have assumed the Control Room DSEO role. You are commencing EPOP4411, Director of Station Emergency Operations. You have classified the event as a GE-Alpha based on events in progress. Your Task is to determine the State Protective Action Recommendation of the following event. Report to the examiner the conditions that led you to your recommendation, and inform him when you have completed the task.

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, ALL critical steps must be completed correctly. The student's performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: SRO1-A4

Revision: 0

Task Title: Provide the State a Protective Action Recommendation

Start Time: _____

STEP 1 _____

Performance Step: Recognize that EPOP4428G is applicable

GRADE _____

Standards: Reviews EPOP 4411 step 4.2.1 for applicability

Grade: SAT _____ UNSAT _____

Cue: _____

Comments: Examinee may transition directly to EPOP 4428G based on knowledge of the event

STEP 2 X

Performance Step: Refer to attachment 5, Process flowchart, as necessary

GRADE _____ X

Standards: Reviews flowchart and diagnoses that all 3 barriers are lost and transitions down to "EVACUATE 5 MILE RADIUS and 10 MILE DOWNWIND, SHELTER REMAINING EPZ." Protective action recommendation

Grade: SAT _____ UNSAT _____

PERFORMANCE INFORMATION

JPM Number: SRO1-A4

Revision: 0

Task Title: Provide the State a Protective Action Recommendation

Comments: The evaluator should note the time. The examinee has 15 minutes from the next step to notify the State of the PAR recommendation

STEP 3 X

Performance Step: If a decision is made to issue a PAR, Notify the State within 15 mins

GRADE X

Standards: Starts a 15 min timer for state notification

Grade: **SAT** **UNSAT**

Comments: It is acceptable to start a timer or make a mental note

STEP 4

Performance Step: Refer to and Review attachment7, MP-PAR Zone description

GRADE

Standards: Reviews attachment 7

Grade: **SAT** **UNSAT**

Cue: Met Tower- All levels of the Met Tower indicate the wind is from the South (180) at 5 mph

STEP 5 X

Performance Step: Obtain wind direction from the shift Tech

GRADE X

Standards: Either reviews the initial conditions data sheet given or asks for Wind Direction

Grade: **SAT** **UNSAT**

Cue: Met Tower- All levels of the Met Tower indicate the wind is from the South (180) at 5 mph

PERFORMANCE INFORMATION

JPM Number: SRO1-A4

Revision: 0

Task Title: Provide the State a Protective Action Recommendation

STEP	<u>6</u>	<u> </u>	Performance Step:	If any of the following has occurred, Refer to and Complete attachment 1 and GO TO step 4.1.8	
				<ul style="list-style-type: none"> • Loss of 3 fission barriers • TEDE \geq 1 rem at 5 miles • CEDE \geq 5 rem at 5 miles 	
GRADE	<u> </u>	<u>X</u>	Standards:	recognize that a loss of 3 barriers has occurred	
			Grade:	SAT <u> </u>	UNSAT <u> </u>
	<u> </u>	<u>X</u>	Performance Step:	Completes attachment 1	
GRADE	<u> </u>	<u>X</u>	Standards:	Record current wind direction in degrees as 180 degrees	
			Grade:	SAT <u> </u>	UNSAT <u> </u>
GRADE	<u> </u>	<u>X</u>	Standards:	Circle the appropriate PA Zone affected as 155-186 (middle of page)	
			Grade:	SAT <u> </u>	UNSAT <u> </u>
GRADE	<u> </u>	<u> </u>	Standards:	Signs prepared by/ date/ and time	
			Grade:	SAT <u> </u>	UNSAT <u> </u>

PERFORMANCE INFORMATION

JPM Number: SRO1-A4

Revision: 0

Task Title: Provide the State a Protective Action Recommendation

STEP 7 X

Performance Step: Verbally transmit a completed Attachment1 to DEP

GRADE X

Standards: Obtains telephone number from attachment1 and attempts to call

Grade: SAT UNSAT

Cue: Acknowledge all information given by examinee

Comments: Mark Time. Time should be less than 15 minutes

Termination Cue: The evaluation for this JPM is complete

Stop Time:

VERIFICATION OF JPM COMPLETION

JPM Number: _____

Revision: _____

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO _____

Validated Time (minutes): _____

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

Result of oral questions (if applicable):

Number of Questions: _____

Number of Correct Responses: _____

Score: _____

Areas for Improvement:

STUDENT HANDOUT

JPM Number:

SRO1-A4

Initial Conditions:

The Initial Conditions are covered in the Event Description.

Initiating Cues:

You are the On-Duty Shift Manager. You have assumed the Control Room DSEO role. You are commencing EPOP4411, Director of Station Emergency Operations. You have classified the event as a GE-Alpha based on events in progress. Your Task is to determine the State Protective Action Recommendation of the following event. Report to the examiner the conditions that led you to your recommendation, and inform him when you have completed the task.

STUDENT HANDOUT

INITIATING CUE:

A Design Basis SGTR has occurred in the A SG. The A SI pump is out of service for vibration testing and the B charging pump tripped 2 minutes after it auto started on the SI actuation. The Crew has transitioned from E-0 to E-3 . Pressure in the A SG increases and causes the low setpoint safety valve to open. The safety then fails to close when pressure decreases below the lift setpoint.

POST TRIP CRITICAL PARAMETERS			
TIME	INFORMATION		SOURCE
0	Safety valve on the A SG open and fails to reseal.		MB indications
15	The following parameters exist:		MB indications
	RCS pressure	1275 psia	
	PZR level	offscale low	
	SG A NR level	96%	
	SG A pressure	400 psig, decreasing	
	SG B, C, D pressure	975 psig, stable	
	CETs	720°F	
	Ctmt Histogram Trend	Increasing	
	Ctmt temperature	110°F and stable	
	Ctmt radiation	15 R/hr and rising	
	Met Tower- All levels of the Met Tower indicate the wind is from the South (180) at 5 mph		

Classification: NRC: GENERAL EMERGENCY State Posture Code: ALPHA

EAL Table Designation: CNB4 (Loss Ctmt), RCB4 (Loss RCS), FCB3 (Loss of fuel Clad)

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: Respond to steam Leak per COP 200.4

JPM ID Number: SRO2-A1.1

Revision: 0

II. Initiated:

J. William Côté
Developer

2/26/00

Date

III. Reviewed:

C. Martin
Technical Reviewer

2/27/00

Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

M. B.
Nuclear Training Supervisor

2/27/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

JPM ID Number: SRO2-A1.1

Revision: 0

Task Title: Respond to steam Leak per COP 200.4

System: Admin

Time Critical Task: () YES (X) NO

Validated Time (minutes): 10

Task Number(s): 341-03-062, Respond to significant plant leaks

Applicable To: SRO X RO PEO

K/A Number: GEN.2.1.26 K/A Rating: 2.6

Method of Testing: Simulated Performance: X Actual Performance:

Location: Classroom: X Simulator: In-Plant:: X

Task Standards: Implements COP 200.4 to maintain personnel safety

Required Materials: COP 200.4

General References: COP 200.4

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: SRO2-A1.1

Revision: 0

Simulator Requirements: none

Initial Conditions: Plant is at 100% power, steady state conditions. No systems are out of service. You are the Unit Supervisor. The Shift Manager is on a plant tour.

Initiating Cues: A security guard calls and reports a loud hissing sound near 3DSM-P1A, Moisture Separator Drain Pump. He says it may be a steam leak of some kind in the area. A check of Reactor Power and Tave indicate normal 100% values.

Initiating Cues: Perform the procedural actions associated with this steam leak.

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. The students performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: SRO2-A1.1

Revision: 0

Task Title: Respond to steam Leak per COP 200.4

Start Time: _____

Comments: Step 1 will apply later in the JPM and become a critical step as the leak worsens

STEP 1 X

Performance Step: If at any time during the performance of this procedure, conditions exist that are entry conditions into AOP or EOP procedures, Go To the appropriate document.

GRADE _____ X

Standards: Reviews step 4.1.1 and implements when leak worsens

Grade: **SAT** _____ **UNSAT** _____

Cue:

Comments: A brief of the warnings prior to step 4.1 for any personnel sent to the area is appropriate

STEP 2 _____

Performance Step: Send an operator to determine

- Significance of leak
- Source of the leak
- Impact on plant equipment

GRADE _____ _____

Standards: Brief the requested operator on the plant conditions and location of the security guard's report.

Grade: **SAT** _____ **UNSAT** _____

Cue: Acknowledge the order to investigate

PERFORMANCE INFORMATION

JPM Number: SRO2-A1.1

Revision: 0

Task Title: Respond to steam Leak per COP 200.4

STEP 3 X

Performance Step: If the leak is small and a simple adjustment will correct, Submit a trouble report and terminate from this procedure.

GRADE X

Standards: Based on the following cue from the PEO decide to stay in C-OP 200.4 and continue with the procedure

Grade: SAT UNSAT

Cue: PEO reports a significant (sizable) steam leak from underneath the lagged portion of the discharge piping on pump 3DSM-P1A. The steam plume is barely visible, approximately 3-4 feet long and extends into the walkway.

Comments:

STEP 4

Performance Step: If the system may be radioactive contact HP to determine radiological impact

GRADE

Standards: Evaluates data and assesses that the system is not radioactive

Grade: SAT UNSAT

Cue:

Comments:

PERFORMANCE INFORMATION

JPM Number: SRO2-A1.1

Revision: 0

Task Title: Respond to steam Leak per COP 200.4

STEP 5

Performance Step: Request Maintenance and Engineering Department assist in the evaluation of the leak significance

GRADE

Standards: Contacts representatives from each department and briefs them on the situation

Grade: SAT UNSAT

Cue: Acknowledge report given by the US

Comments:

STEP 6

Performance Step: Notify Duty Officer and give current status

GRADE

Standards: Makes contact with the Duty Officer and briefs him on the situation.

Grade: SAT UNSAT

Cue: Acknowledge the report given

Comments:

STEP 7

Performance Step: Refers to the NOTE concerning non-isolable significant plant leaks

GRADE

Standards: Reviews the attachment for applicability while continuing on with the procedure

Grade: SAT UNSAT

Cue:

Comments:

PERFORMANCE INFORMATION

JPM Number: SRO2-A1.1

Revision: 0

Task Title: Respond to steam Leak per COP 200.4

STEP 8

Performance Step: If leak is significant Perform the following

GRADE

Standards: If necessary, Evacuate personnel from the area.

Grade:	SAT	UNSAT
--------	-----	-------

Cue: _____

Comments:**GRADE**

Standards: Evaluate the dangers associated with the possibility of a rupture. Request board operators maintain a heightened awareness of plant parameters.

Grade:	SAT	UNSAT
--------	-----	-------

Cue: _____

Comments:**GRADE**

Standards: Direct the establishment of an exclusion area around the affected area

Grade:	SAT	UNSAT
--------	-----	-------

Cue: Acknowledge the request to set up an exclusion area

Comments:

PERFORMANCE INFORMATION

JPM Number: SRO2-A1.1

Revision: 0

Task Title: Respond to steam Leak per COP 200.4

GRADE

Standards: Request Security to ensure unnecessary personnel are clear of the turbine building and to restrict access

Grade: SAT UNSAT

Cue: Acknowledge the request and report guards are on their way to minimize access

Comments:

GRADE

Standards: Request Duty Officer assist in leak mitigation and isolation strategy.

Grade: SAT UNSAT

Cue: Acknowledge and report you are on your way to asses the area

Comments:

PERFORMANCE INFORMATION

JPM Number: SRO2-A1.1

Revision: 0

Task Title: Respond to steam Leak per COP 200.4

Cue: Report to the control room team that you had heard a loud bang and the turbine building is rapidly filling with steam and that you had barely evacuated in time. You are unsure of the status of the rest of the personnel in the building

STEP 9 X

Performance Step: Implements step 1 of the procedure and assesses the need to implement an AOP or EOP procedure.

GRADE X

Standards: Orders a Manual Reactor Trip and Main Steam isolation and entry into E-0, Reactor Trip or Safety Injection based on guidance given in step 1 of C-OP200.4, Conduct of Ops, and OP3272, EOP Users Guide.

Grade: **SAT** **UNSAT**

Cue:

Comments:

Termination Cue: The evaluation associated with this JPM is complete.

Stop Time:

VERIFICATION OF JPM COMPLETION

JPM Number: SRO2-A1.1

Revision: 0

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO _____

Validated Time (minutes): 10

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

Result of oral questions (if applicable):

Number of Questions: _____

Number of Correct Responses: _____

Score: _____

Areas for Improvement:

STUDENT HANDOUT

JPM Number:

SRO2-A1.1

Initial Conditions:

Plant is at 100% power, steady state conditions. No systems are out of service. You are the Unit Supervisor. The Shift Manager is on a plant tour.

Initiating Cues:

A security guard calls and reports a loud hissing sound near 3DSM-P1A, Moisture Separator Drain Pump . He says it may be a steam leak of some kind in the area. A check of Reactor Power and Tave indicate normal 100% values.

Initiating Cues:

Perform the procedural actions associated with this steam leak.

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: Perform SHUTDOWN MARGIN Calculation with a Dropped Rod

JPM ID Number: SRO2-A1.2

Revision: 0

II. Initiated:

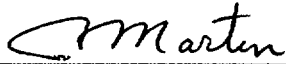
Robert Royce
Developer



3/30/00
Date

III. Reviewed:

Technical Reviewer



3/31/00
Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

Nuclear Training Supervisor



4/4/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

JPM ID Number: SRO2-A1.2

Revision: 0

Task Title: Perform SHUTDOWN MARGIN Calculation with a Dropped Rod

System: ADMIN

Time Critical Task: () YES (X) NO

Validated Time (minutes): 12

Task Number(s): _____

Applicable To: SRO X RO _____ PEO _____

K/A Number: 192002.K1.13, Calculate shutdown margin using procedures and given plant parameters K/A Rating: 3.7*

Method of Testing: Simulated Performance: _____ Actual Performance: X

Location: Classroom: X Simulator: _____ In-Plant:: _____

Task Standards: Correctly determines SHUTDOWN MARGIN

Required Materials: OP 3209B Shutdown Margin, Middle of Life RE Curve Book

General References: Unit 3 Technical Specifications

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: SRO2-A1.2

Revision: 0

Simulator Requirements: None

Initial Conditions: The plant is at 94% power, 12,000 MWD/MTU, when Control Bank D rod D12 drops. Current RCS boron is 900 ppm. Tave is on program, and Control Bank D rods are at 220 steps.

Initiating Cues: Calculate SHUTDOWN MARGIN for current plant conditions.

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, ALL critical steps must be completed correctly. The students performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: SROA2-1.2

Revision: 0

Task Title: Perform SHUTDOWN MARGIN Calculation with a Dropped Rod

Start Time: _____

STEP 1 _____

Performance Step: Obtains copy of OP 3209B "Shutdown Margin".

GRADE _____

Standards: Identifies proper procedure.

Grade: SAT _____ UNSAT _____

CUE: When candidate identifies that the proper form is OP 3209B-1, provide a copy of the form.

STEP 2 _____

Performance Step: VERIFY "General Prerequisites" completed.
OP 3209B, step 4.1.1

GRADE _____

Standards: Verifies "Test Authorized By" block is signed on FORM 3209B-1.

Reviews OP 3209B Section 3
PRECAUTIONS

Grade: SAT _____ UNSAT _____

STEP 3 _____

Performance Step: Refer to 3TRM-3.1.3.6 and CHECK control bank position greater than the RIL (TRM will reference the COLR, located in the curve book, Tab H).
OP 3209B, step 4.1.2

GRADE _____

Standards: Verifies rod height given (bank D at 220 steps) is above RIL (bank D at approximately 150 steps). Allow band of 140 to 160 steps for satisfactory completion of the step.

STEP 4 _____

Performance Step: Refer to OPS Form 3209B-1 and RECORD calculation time and date.
OP 3209B, step 4.1.4

GRADE _____

Standards: Records time and date on Form 3209B-1.

Grade: SAT _____ UNSAT _____

PERFORMANCE INFORMATION

JPM Number: SROA2-1.2

Revision: 0

Task Title: Perform SHUTDOWN MARGIN Calculation with a Dropped Rod

STEP	<u>5</u>	<u>X</u>	Performance Step: OP 3209B, step 4.1.5.a	Refer to "Integral Rod Worth vs. Steps Withdrawn" curves and select the integral rod worth curve based on plant power level and xenon conditions.
GRADE	<u> </u>	<u>X</u>	Standards:	Select HFP, Eq Xe curve RE-D-02.
			Grade:	SAT <u> </u> UNSAT <u> </u>
STEP	<u>6</u>	<u> </u>	Performance Step: OP 3209B, step 4.1.5.b	Refer to OPS Form 3209B-1 and INDICATE the integral rod worth curve selected.
GRADE	<u> </u>	<u> </u>	Standards:	Writes "HFP, Eq Xe" on Form 3209B-1. Also acceptable is "RE-D-02".
			Grade:	SAT <u> </u> UNSAT <u> </u>
STEP	<u>7</u>	<u>X</u>	Performance Step: OP 3209B, step 4.1.5.c	Refer to RE Curve and Data Book and DETERMINE inserted rod worth based on bank position and ENTER as a negative value on OPS Form 3209B-1.
GRADE	<u> </u>	<u>X</u>	Standards:	Enters "- 5" on OPS Form 3209B-1. Number is approximate. Allow for minor curve interpolation error.
			Grade:	SAT <u> </u> UNSAT <u> </u>
STEP	<u>8</u>	<u>X</u>	Performance Step: OP 3209B, step 4.1.6.a	Refer to "Miscellaneous Core Data" in the RE Curve and Data Book and DETERMINE the maximum worth of a dropped control rod and ENTER as a negative value on OPS Form 3209B-1.
GRADE	<u> </u>	<u>X</u>	Standards:	Refer to table RE-G-03 and writes "-150 pcm" on OPS Form 3209B-1.

PERFORMANCE INFORMATION

JPM Number: SROA2-1.2

Revision: 0

Task Title: Perform SHUTDOWN MARGIN Calculation with a Dropped Rod

			Grade:	SAT _____	UNSAT _____
STEP	<u>9</u>		Performance Step: OP 3209B, step 4.1.6.b	Multiply dropped rod worth by the number of dropped rods and RECORD value and sign on OPS Form 3209B-1.	
GRADE			Standards:	Writes "-150 pcm" on OPS Form 3209B-1.	
			Grade:	SAT _____	UNSAT _____
STEP	<u>10</u>	<u>X</u>	Performance Step: OP 3209B, step 4.1.8	Refer to "Total Power Defect vs Percent Power" in the RE Curve and Data Book and DETERMINE power defect for current conditions and RECORD as a negative value on OPS Form 3209B-1.	
GRADE		<u>X</u>	Standards:	Refers to curve RE-E-01 and enters "-1900 pcm". Number is approximate. Allow for minor curve interpolation error.	
			Grade:	SAT _____	UNSAT _____
STEP	<u>11</u>	<u>X</u>	Performance Step: OP 3209B, step 4.1.10	ADD the reactivity adjustments and ENTER value and sign (+) as <i>total p adjustments</i> on OPS Form 3209B-1.	
GRADE		<u>X</u>	Standards:	Writes "-4055" on OPS Form 3209B-1. Number is approximate. Allow for minor curve interpolation error.	
			Grade:	SAT _____	UNSAT _____

PERFORMANCE INFORMATION

JPM Number: SROA2-1.2

Revision: 0

Task Title: Perform SHUTDOWN MARGIN Calculation with a Dropped Rod

STEP	<u>12</u>	<u>X</u>	Performance Step: OP 3209B, step 4.1.11.a	DETERMINE the SHUTDOWN MARGIN as follows: Refer to "Miscellaneous Core Data" in the RE Curve and Data Book and DETERMINE the Cycle Minimum Total Control Rod Worth at Hot Zero Power and ENTER as a positive value on OPS Form 3209B-1.
GRADE	<u> </u>	<u>X</u>	Standards:	Refers to table RE-G-03 and enters "6409 pcm" on OPS Form 3209B-1.
			Grade:	SAT <u> </u> UNSAT <u> </u>
STEP	<u>13</u>	<u>X</u>	Performance Step: OP 3209B, step 4.1.11.b	ADD the total p adjustments and the Cycle Minimum Total Control Rod Worth and ENTER value and sign (+) as SHUTDOWN MARGIN on OPS Form 3209B-1.
GRADE	<u> </u>	<u>X</u>	Standards:	Enters "-4055" pcm and "6409" pcm on OPS Form 3209B-1. Adds the numbers together and writes + "2354" on OPS Form 3209B-1. Number is approximate. Allow for minor curve interpolation error.
			Grade:	SAT <u> </u> UNSAT <u> </u>
STEP	<u>14</u>	<u>X</u>	Performance Step: OP 3209B, step 4.1.12	CHECK SHUTDOWN MARGIN > +1300 pcm (1.3% ΔK/K).
GRADE	<u> </u>	<u>X</u>	Standards:	Chooses not to "Immediate Borate" per step 4.1.13.
			Grade:	SAT <u> </u> UNSAT <u> </u>

PERFORMANCE INFORMATION

JPM Number: SROA2-1.2

Revision: 0

Task Title: Perform SHUTDOWN MARGIN Calculation with a Dropped Rod

STEP 15 _____

Performance Step:
OP 3209B, step
4.1.14

PERFORM the following:

Person performing calculation SIGN the
"Performed by" block on the OPS Form
Cover Sheet.

Unit Supervisor REVIEW calculation and
SIGN OPS Form 3209B-1.

GRADE _____

Standards:

Signs cover sheet and informs examiner
that SHUTDOWN MARGIN is ready for
review.

Grade:

SAT _____

UNSAT _____

Termination Cue: **The evaluation for this JPM is complete**

Stop Time: _____

VERIFICATION OF JPM COMPLETION

JPM Number: SRO2-A1.2

Revision: 0

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO X

Validated Time (minutes): 10

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

Result of oral questions (if applicable):

Number of Questions: _____

Number of Correct Responses: _____

Score: _____

Areas for Improvement:

STUDENT HANDOUT

JPM Number: SRO2-A.1.2

Initial Conditions: The plant is at 94% power, 12,000 MWD/MTU, when Control Bank D rod D12 drops. Current RCS boron is 900 ppm. Tave is on program, and Control Bank D rods are at 220 steps.

Initiating Cues: Calculate SHUTDOWN MARGIN for current plant conditions.

Key

Shutdown Margin Determination in MODES 1 and 2 With a Stuck, Dropped or Misaligned Rod

Calculation Time: Current Time

Date: Current Date

Reactivity Adjustments

Step No.	Parameter and/or Calculation	Value
4.1.5	Inserted Rod Worth (Indicate curve used <u>RE-D-02</u>) =	(-) <u>5</u> pcm Inserted RW
4.1.6	$[(-) \underline{150} \text{ pcm}] \times [\underline{1}] =$ Max Dropped Rod Worth # Dropped and Misaligned Rods	(-) <u>150</u> pcm Dropped/Misaligned Rod p
4.1.7	$[() \text{ pcm}] \times [\text{ }] =$ Worst Case Stuck Rod Worth # Stuck Rods	() <u> </u> pcm Stuck Rod p
4.1.8	Total Power Defect =	(-) <u>1900</u> pcm Power Defect
4.1.9	$[() \text{ pcm/}^{\circ}\text{F}] \times [() \text{ }^{\circ}\text{F}] =$ ITC (T _{ref} - T _{avg})	() <u> </u> pcm Temp Defect
	Conservatism =	(-) <u>2000</u> pcm
4.1.10	Total Reactivity Adjustments =	(-) <u>4055</u> pcm Total p Adjustments

SHUTDOWN MARGIN

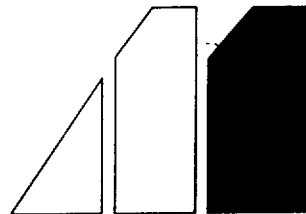
Step No.	Parameter and/or Calculation	Value
4.1.11.a.	Total Control Rod Worth =	(+) <u>6409</u> pcm Total Control RW
4.1.11.b.	$(-) \underline{4055} \text{ pcm} + (+) \underline{6409} \text{ pcm} =$ Total p Adjustments Total Rod Worth	(+) <u>2354</u> pcm SHUTDOWN MARGIN

T/S ACCEPTANCE CRITERIA

SHUTDOWN MARGIN is a positive value greater than or equal to 1,300 pcm (1.3% ΔK/K).

Calculations Reviewed By: _____ Date: _____
Unit Supervisor

MILLSTONE NUCLEAR POWER STATION
GENERAL OPERATING PROCEDURE



Shutdown Margin

OP 3209B

Rev. 8

S_{TOP}

T_{HINK}

A_{CT}

R_{EVIEW}

Approval Date: APR 29 1999

Effective Date: APR 30 1999

Level of Use
Continuous

**Millstone Unit 3
General Operating Procedure**

Shutdown Margin

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ATTACHMENTS AND FORMS

OPS Form 3209B-1, "Shutdown Margin Determination in MODES 1 and 2 With a Stuck, Dropped or Misaligned Rod"

OPS Form 3209B-2, "Shutdown Margin Determination for MODE 3, 4, or 5"

1. PURPOSE

1.1 Objective

This procedure provides instructions to determine the following:

- SHUTDOWN MARGIN in MODEs 1 and 2
- Required boron concentration to ensure adequate SHUTDOWN MARGIN in MODEs 3, 4, and 5
- Required boron concentration to ensure K_{eff} is less than 0.99 when in MODE 3 with shutdown banks withdrawn
- Required boron concentration to ensure adequate SHUTDOWN MARGIN for anticipated plant conditions

1.2 Discussion

This procedure is performed in MODEs 1 and 2 if a control rod is stuck, misaligned or dropped. Otherwise, maintaining the rods above the RIL assures SHUTDOWN MARGIN. This procedure is performed for MODEs 3, 4 or 5 by determining current or anticipated plant conditions and verifying, for the condition analyzed, that adequate RCS boron concentration is, or will be, available. If adequate RCS boron concentration is not available for current conditions, the Operator is directed to either perform a xenon correction if in MODE 3 or immediate borate. If adequate RCS boron concentration will not be available for anticipated conditions, the Operator is directed to perform normal boration or perform a xenon correction if anticipating MODE 3. Credit for samarium concentration is not taken when performing a shutdown margin or reactivity determination for MODEs 3, 4 and 5.

For convenience, the MODE 3 shutdown banks out curve is included on the MODE 3 "Shutdown Margin" graph and directions for the curves use is included in this procedure. The curve ensures the MODE 3 Technical Specification for K_{eff} less than 0.99 with the shutdown banks out is met. When referred to this procedure by another procedure to perform a "SHUTDOWN MARGIN determination" and the shutdown banks are withdrawn, this curve should be used and treated the same as a "Shutdown Margin" curve.

When determining the value of a parameter's reactivity or worth, visual interpolation between curves on a graph may be employed. If interpolation is not used, ensure the most conservative curve is utilized for the application. Do not interpolate between curves on separate pages, instead use the most conservative value for the given condition. Do not interpolate between required boron concentration curves on the Shutdown Margin graphs.

1.3 Applicability

This procedure may be performed in any MODE to determine SHUTDOWN MARGIN requirements met.

1.4 Frequency

This procedure is performed at the normal surveillance frequency or as directed by other procedures which may require determination of adequate SHUTDOWN MARGIN in response to degraded equipment or plant conditions.

2. PREREQUISITES

2.1 General

2.1.1 The SM/US has signed the "Test Authorized By" block on the appropriate OPS Form.

2.1.2 Person performing calculation has reviewed the precautions.

2.2 Documents

2.2.1 AOP 3566, "Immediate Boration"

2.2.2 RE Curve and Data Book

2.2.3 TRM

2.2.4 T/S 3/4.3.5, "Shutdown Margin Monitor"

2.3 Definitions

- 2.3.1 Stuck rod – a rod not fully inserted following a reactor trip or one which is immovable and has been declared untrippable during performance of AOP 3552, "Malfunction of the Rod Drive System."
- 2.3.2 Misaligned rod – In MODEs 1 and 2, a rod which is not positioned within ± 12 steps (indicated DRPI position) of its group step counter demand position, or a shutdown rod inserted beyond the shutdown rod insertion limit.
- 2.3.3 DRPI – Digital Rod Position Indication
- 2.3.4 Loops filled – In MODE 5, pressurizer level above 40% (Cold Cal.) and a RHR pump in operation. (The RHR pump may be deenergized for up to 1 hour provided no operations are permitted that would cause a dilution of the RCS.)
- 2.3.5 Loops not filled – In MODE 5, pressurizer level below 40% (Cold Cal.).
- 2.3.6 RIL – Rod Insertion Limit.
- 2.3.7 ITC – Isothermal Temperature Coefficient
- 2.3.8 SMM – Shutdown Margin Monitor
- 2.3.9 RW – Rod Worth
- 2.3.10 BW – Boron Worth
- 2.3.11 DBW – Differential Boron Worth

3. PRECAUTIONS

- 3.1 SHUTDOWN MARGIN must be determined for each MODE through which the plant will pass during a cooldown or heatup. The lowest MODE is not necessarily the most conservative in terms of SHUTDOWN MARGIN requirements.
- 3.2 Shutdown Banks may remain withdrawn only in MODES 1, 2, and 3. Curves are not available for determination of boron requirements to maintain Keff less than 0.99 in MODEs 4 and 5 with Shutdown Banks withdrawn.

4. INSTRUCTIONS

4.1 Shutdown Margin Determination in MODES 1 and 2

- 4.1.1 VERIFY "General Prerequisites" completed.
- 4.1.2 Refer To 3TRM-3.1.3.6, "Reactivity Control Systems, Control Rod Insertion Limits," and CHECK control bank position greater than the RIL.
- 4.1.3 IF the control banks are inserted below the RIL PERFORM the following:
 - a. IF low power physics testing in progress as specified in T/S 3.10.1, "Special Test Exceptions, Shutdown Margin," Go To step 4.1.4.
 - b. Refer To AOP 3566, "Immediate Boration," and PERFORM immediate boration to restore SDM.
- 4.1.4 Refer To OPS Form 3209B-1 and RECORD calculation time and date.
- 4.1.5 Refer To "Integral Rod Worth vs. Steps Withdrawn" curves in the RE Curve and Data Book, and PERFORM the following:
 - a. SELECT the integral rod worth curve based on plant power level and xenon condition.
 - b. Refer To OPS Form 3209B-1 and INDICATE the integral rod worth curve selected:
 - HFP, Eq Xe
 - HZP, No Xe
 - HZP, Pk Xe
 - c. Using the selected curve, DETERMINE inserted rod worth based on bank position and ENTER as a negative value on OPS Form 3209B-1.

4.1.6 IF performing calculation due to a dropped or misaligned rod, **PERFORM** the following:

- a. Refer To "Miscellaneous Core Data" in the RE Curve and Data Book and **DETERMINE** the maximum worth of a dropped rod and **ENTER** as a negative value on OPS Form 3209B-1.
- b. **MULTIPLY** dropped rod worth by the number of dropped and misaligned rods and **RECORD** value and sign as *dropped/misaligned rod* ρ on OPS Form 3209B-1.

4.1.7 IF performing calculation due to a stuck rod, **PERFORM** the following:

- a. Refer To "Miscellaneous Core Data" in the RE Curve and Data Book and **DETERMINE** the worst case stuck control rod worth and **ENTER** as a negative value on OPS Form 3209B-1.
- b. **MULTIPLY** the stuck control rod worth by the number of stuck rods and **RECORD** value and sign as *stuck rod* ρ on OPS Form 3209B-1.

4.1.8 Refer To "Total Power Defect vs Percent Power" curve in the RE Curve and Data Book and **DETERMINE** power defect for current conditions and **RECORD** as a negative value on OPS Form 3209B-1.

4.1.9 IF T_{avg} differs from T_{ref} by more than 2°F , **PERFORM** the following:

- a. Refer To "Isothermal Temperature Coefficient vs Average Temperature" graph in the RE Curve and Data Book and **DETERMINE** the ITC for current temperature and burnup and **RECORD** as a negative value on OPS Form 3209B-1.
- b. **DETERMINE** the quantity $(T_{ref} - T_{avg})$ and **RECORD** value and sign (\pm) on OPS Form 3209B-1.
- c. **MULTIPLY** the ITC by the $(T_{ref} - T_{avg})$ difference and **RECORD** value and sign (\pm) as the *temperature defect* on OPS Form 3209B-1.

4.1.10 ADD the following reactivity adjustments (taking sign into account) and ENTER value and sign (\pm) as *total ρ adjustments* on OPS Form 3209B-1:

- Inserted rod worth
- Dropped and misaligned ρ
- Stuck rod ρ
- Power defect
- Temperature defect
- Conservatism

4.1.11 DETERMINE the SHUTDOWN MARGIN as follows:

- a. Refer To "Miscellaneous Core Data" in the RE Curve and Data Book and DETERMINE the Cycle Minimum Total Control Rod Worth at Hot Zero Power and ENTER as a positive value on OPS Form 3209B-1.
- b. ADD the total ρ adjustments and the Cycle Minimum Total Control Rod Worth and ENTER value and sign (\pm) as SHUTDOWN MARGIN on OPS Form 3209B-1.

4.1.12 CHECK SHUTDOWN MARGIN $\geq +1300$ pcm (1.3% $\Delta K/K$).

4.1.13 IF SHUTDOWN MARGIN is less than +1300 pcm (1.3% $\Delta K/K$), Refer To AOP 3566, "Immediate Boration," and PERFORM immediate boration to restore SDM.

4.1.14 PERFORM the following:

- a. Person performing calculation SIGN the "Performed By" block on the OPS Form Cover Sheet.
- b. Unit Supervisor REVIEW calculation and SIGN OPS Form 3209B-1.
- c. SEND completed OPS Form 3209B-1 to the Shift Manager.

— End of Section 4.1 —

4.2 Shutdown Margin Determination for MODES 3, 4, and 5

4.2.1 VERIFY "General Prerequisites" completed.

4.2.2 Refer To OPS Form 3209B-2 and RECORD time and date.

NOTE

With DRPI deenergized, verification of rod position is based upon the rod position prior to deenergizing the Digital Rod Position Indication System.

4.2.3 IF determining SHUTDOWN MARGIN for current plant conditions, Refer To OPS Form 3209B-2 and PERFORM the following in the Current Conditions section:

- a. CIRCLE the current MODE, and if applicable, the RCS loops' condition (Refer To Definitions 2.3.4 and 2.3.5).
- b. Enter the present core burnup value obtained from the plant process computer.
- c. PERFORM the following to determine temperature condition:
 - 1) IF in MODE 3, AND maintaining no load Tav_g, CIRCLE 557°F.
 - 2) IF in MODE 3, AND not maintaining no load Tav_g, CIRCLE 350°F.
 - 3) IF in MODE 4 or 5, CIRCLE the applicable MODE.
- d. IF performing SHUTDOWN MARGIN determination at increased surveillance frequency due to an inoperable control rod or an inoperable SMM, PERFORM the following:
 - 1) REQUEST Chemistry sample the RCS for boron concentration and every 8 hours thereafter.
 - 2) ENTER the most current 8 hour RCS boron concentration sample result.
 - 3) Go To step 4.2.3.f.

- e. IF performing the daily SHUTDOWN MARGIN Surveillance, ENTER the most current RCS boron concentration sample result.
- f. ENTER the boron sample time and date.
- g. CIRCLE the shutdown banks' status (shutdown banks may be withdrawn in MODE 3 only).
- h. ENTER the number of rods indicated stuck by the DRPI System.
- i. MARK the Anticipated Conditions section N/A.

NOTE

With DRPI deenergized, verification of rod position is based upon the rod position prior to deenergizing the Digital Rod Position Indication System.

4.2.4 IF determining SHUTDOWN MARGIN for anticipated plant conditions, Refer To OPS Form 3209B-2 and PERFORM the following for each MODE to be entered on a separate form in the Anticipated Conditions section:

- a. CIRCLE the anticipated MODE, and if applicable, the RCS loops' condition (Refer To Definitions 2.3.4 and 2.3.5).
- b. Enter the core burnup value for the anticipated condition.
- c. PERFORM the following to determine temperature condition:
 - 1) IF MODE 3 AND no load Tavg anticipated, CIRCLE 557°F.
 - 2) IF MODE 3 AND less than no load Tavg anticipated, CIRCLE 350°F.
 - 3) IF MODE 4 or 5 anticipated, CIRCLE the applicable MODE.
- d. CIRCLE the shutdown banks' anticipated status (shutdown banks may be withdrawn in MODE 3 only).

- e. ENTER the number of rods indicated stuck by the DRPI System.
- f. ENTER the anticipated RCS boron concentration.
- g. MARK the Current Conditions section N/A.

4.2.5 IF a control rod is known to be stuck, DETERMINE the stuck rod boron equivalent as follows:

- a. Refer To "Boron Worth vs Boron Concentration And Temperature" graph in the RE Curve and Data Book and PERFORM the following:
 - 1) SELECT the DBW curve based on the condition circled in step 4.2.3.c. or 4.2.4.c. and INDICATE on OPS Form 3209B-2 the DBW curve selected:
 - IF 557°F circled, USE the 557°F curve
 - IF 350°F circled, USE the 350°F curve
 - IF MODE 4 circled, USE the 200°F curve
 - IF MODE 5 circled, USE the 68°F curve
 - 2) Using the selected curve, DETERMINE differential boron worth for the boron concentration recorded in step 4.2.3 or 4.2.4 and ENTER as a negative value on OPS Form 3209B-2.
- b. Refer To "Miscellaneous Core Data" in the RE Curve and Data Book and DETERMINE the worst case stuck control rod worth and ENTER as a negative value on OPS Form 3209B-2.
- c. DIVIDE the stuck rod worth by the differential boron worth and RECORD the *boron equivalent RW* on OPS Form 3209B-2 as a positive value.
- d. MULTIPLY boron equivalent rod worth by the number of known stuck rods and ENTER value as the *stuck rod boron equivalent* on OPS Form 3209B-2.

- 4.2.6 IF either SMM channel is OPERABLE based on T/S LCO 3.3.5.b.1 or 3.3.5.b.2, PERFORM the following to determine the additional boron requirement:
- a. IF MODE 3 was circled in step 4.2.3.a. or 4.2.4.a., PERFORM the following:
 - 1) Refer To OPS Form 3209B-2 and INDICATE that TS LCO 3.3.5.b.1 is in effect.
 - 2) Refer To OPS Form 3209B-2 and ENTER 150 ppm as the *SMM required additional boron*.
 - 3) Go To step 4.2.7.
 - b. IF MODE 4 OR 5 (loops filled or not filled) was circled in step 4.2.3.a. or 4.2.4.a., PERFORM the following:
 - 1) Refer To OPS Form 3209B-2 and INDICATE that TS LCO 3.3.5.b.2 is in effect.
 - 2) Refer To OPS Form 3209B-2 and ENTER 350 ppm as the *SMM required additional boron*.

- 4.2.7 Refer To "Shutdown Margin" graphs in the RE Curve and Data Book and DETERMINE the required xenon free boron concentration as follows:
- a. SELECT the "Shutdown Margin" graph based on MODE and RCS loop operating condition for which the calculation is being performed.
 - b. Refer To OPS Form 3209B-2 and INDICATE the SHUTDOWN MARGIN graph selected:
 - MODE 3 - 4 Loop Operation
 - MODE 4 - Loops Filled
 - MODE 5 - Loops Filled
 - MODE 5 - Loops Not Filled

- c. IF MODE 3 graph selected, LOCATE the intersection of core burnup and the curve representing the temperature and shutdown bank condition recorded in step 4.2.3 or 4.2.4 and DETERMINE the required xenon free boron concentration.
- d. IF a MODE 4 or 5 graph selected, using the applicable curve DETERMINE the required xenon free boron concentration.
- e. Refer To OPS Form 3209B-2 and ENTER the required xenon free boron concentration.

4.2.8 ADD the following values and ENTER as *total required Xe free C_B* on OPS Form 3209B-2.

- Required Xenon Free Boron Concentration
- Stuck Rod Boron Equivalent
- SMM Additional Boron

4.2.9 SUBTRACT total required Xe free boron concentration from actual boron concentration and RECORD value and sign (\pm) on OPS Form 3209B-2.

4.2.10 IF actual boron concentration is less than the total required Xe free boron concentration for current plant condition, PERFORM one of the following:

- IF time after shutdown is less than 72 hours AND in MODE 3, Refer To Section 4.3 and PERFORM xenon correction. [♣ Ref. 6.2.3]
- Refer To AOP 3566, "Immediate Boration," and PERFORM immediate boration to establish actual boron concentration greater than total required boron concentration.

4.2.11 IF actual boron concentration is less than total required Xe free boron concentration for the anticipated plant condition, **PERFORM** one of the following:

- IF time after shutdown is less than 72 hours AND MODE 3 is anticipated, Refer To Section 4.3 and **PERFORM** xenon correction. [♣ Ref. 6.2.3]
- Refer To OP 3304C, "Primary Makeup and Chemical Addition," and **PERFORM** aligning for boration prior to establishing anticipated plant condition.

4.2.12 **PERFORM** the following:

- a. Person performing calculation **SIGN** in the "Performed By" block on the OPS Form Cover Sheet.
- b. Unit Supervisor **REVIEW** calculation and **SIGN** on OPS Form 3209B-2.
- c. **SEND** completed OPS Form 3209B-2 to the Shift Manager.

– End of Section 4.2 –

4.3 Xenon Correction



CAUTION



Xenon may not be credited when calculating SHUTDOWN MARGIN for MODEs 4 or 5. [♣ Ref. 6.2.3]

NOTE

Performing a xenon correction for the next 24 hour period versus hourly corrections is usually the preferred method.

4.3.1 To determine the xenon reactivity, PERFORM the following:

- a. Refer To one of the following:
 - RE Curve and Data Book, "Xenon Reactivity After Trip 30% to 60%"
 - RE Curve and Data Book, "Xenon Reactivity After Trip 70% to 100%"
 - Special Program R7/R9
- b. Refer To OPS Form 3209B-2 and INDICATE the xenon reactivity source selected:
 - 30% to 60% graph
 - 70% to 100% graph
 - Program R7/R9
- c. IF performing xenon correction for the next 24 hour period, PERFORM the following:
 - 1) OBTAIN the xenon reactivity expected at the end of the 24 hour period and RECORD as a negative value on OPS Form 3209B-2.
 - 2) CHECK box indicating calculation provided for the next 24 hours.

- d. IF performing hourly xenon corrections, **PERFORM** the following:
- 1) IF xenon is peaking, **OBTAIN** the present xenon reactivity and **RECORD** as a negative value on OPS Form 3209B-2.
 - 2) IF xenon is decreasing, **OBTAIN** the xenon reactivity expected in one hour and **RECORD** as a negative value on OPS Form 3209B-2.
 - 3) **CHECK** box indicating calculation being performed on an hourly basis.

4.3.2 Refer To "Boron Worth vs Boron Concentration And Temperature" graph in the RE Curve and Data Book and **PERFORM** the following:

- a. IF maintaining no load T_{avg} , using the 557°F curve, **DETERMINE** differential boron worth for the boron concentration recorded in step 4.2.3 or 4.2.4 and **ENTER** as a negative value on OPS Form 3209B-2.
- b. IF not maintaining no load T_{avg} , using the 350°F curve, **DETERMINE** differential boron worth for the boron concentration recorded in step 4.2.3 or 4.2.4 and **ENTER** as a negative value on OPS Form 3209B-2.

4.3.3 **DIVIDE** xenon reactivity by differential boron worth and **RECORD** *boron equivalent Xe* as a positive value on OPS Form 3209B-2.

4.3.4 Refer To OPS Form 3209B-2 and **RECORD** the total required xenon free boron concentration determined in step 4.2.8.

4.3.5 **DETERMINE** the required boron concentration as follows:

- a. **SUBTRACT** boron equivalent xenon from total required xenon free boron concentration.
- b. **ADD** 60 ppm.
- c. Refer To OPS Form 3209B-2 and **RECORD** resulting value as the *total required Xe corrected C_B* .

- 4.3.6 SUBTRACT total required xenon corrected boron concentration from actual boron concentration and RECORD value and sign (\pm) on OPS Form 3209B-2.
- 4.3.7 IF actual boron concentration is less than total required xenon corrected boron concentration, PERFORM the following:
- a. IF xenon correction being performed for Current Condition, Refer To AOP 3566, "Immediate Boration," and PERFORM immediate boration until actual boron concentration is greater than total required xenon corrected boron concentration.
 - b. IF xenon correction being performed for Anticipated Condition, Refer To OP 3304C, "Primary Makeup and Chemical Addition," and prior to establishing anticipated plant condition, PERFORM aligning for boration until actual boron concentration is greater than total required xenon corrected boron concentration.
- 4.3.8 Refer To the "Xenon Correction Log" of OPS Form 3209B-2 and RECORD the following:
- Date
 - Time for which xenon reactivity was determined
 - Total required xenon corrected boron concentration
 - Actual boron concentration
 - Initials of person performing calculation
- 4.3.9 IF performing hourly xenon corrections, Go To step 4.3.1 and PERFORM xenon correction at least once each hour until actual boron concentration is greater than total required xenon free boron concentration.

– End of Section 4.3 –

5. REVIEW AND SIGNOFF

5.1 The review and signoff for this procedure is on the following OPS Forms:

5.1.1 OPS Form 3209B-1

5.1.2 OPS Form 3209B-2

6. REFERENCES

6.1 Procedures

6.1.1 AOP 3552, "Malfunction of the Rod Drive System"

6.1.2 AOP 3566, "Immediate Boration"

6.2 Other

6.2.1 RE Curve and Data Book

6.2.2 TRM

6.2.3 Commitment to T/S Amendment 157, "Procedures will be revised to eliminate a xenon credit currently allowed when calculating shutdown margin for Modes 4 or 5."

6.2.4 T/S 3.3.5, "Shutdown Margin Monitor"

6.2.5 T/S 3.1.1, "Reactivity Control Systems, Boration Control, Shutdown Margin—Modes 3, 4, and 5 Loops Filled" and "Shutdown Margin – Cold Shutdown – Loops Not Filled"

7. SUMMARY OF CHANGES

7.1 Revision 8, performed the following:

- Biennial Review
- Added previously approved Rev. 7, Change 7, correcting "NO TAG" in step 4.3.4.
- Added Basis: "For the Xenon Correction, the boron worth determined using the procedure is conservative. No Correction necessary. For the Stuck Rod compensation, the procedure directs the user to use the boron worth at the lowest of the anticipated Mode (e.g. 350 deg F versus 557 deg F for Mode 3). It is true that doing this will result in a smaller boron compensation for the stuck rod. However, the procedure is correct since the Boron penalty is added to the 350 Deg F shutdown Margin Curve and not the 557 deg F curve. The boron difference between the temperature curve more than compensates for a smaller boron penalty due to the different boron worths as a function of temperature. Therefore, the procedure treats this appropriately. In discussion with the CR author, he recommends that a discussion be added to the "basis document" stating the above."

7.2 Performed Biennial Review and updated cover sheet on the following OPS Forms:

- OPS Form 3209B-1, Rev. 7
- OPS Form 3209B-2, Rev. 8

Form Approval

Approval Date

APR 29 1999

Effective Date

APR 30 1999

Form Cover Sheet

**Generic Information**

Form Title Shutdown Margin Determination in MODES 1 and 2 With a Stuck, Dropped or Misaligned Rod		Rev. No. 7
Reference Procedure SP 3209B	Applicable Tech. Spec. 4.1.1.1.1 a	Frequency AR*
This form is being used for the following: <input checked="" type="checkbox"/> Tech Spec Surveillance <input type="checkbox"/> System Alignment <input type="checkbox"/> Other: _____ <input type="checkbox"/> Maintenance Restoration (Retest) <input type="checkbox"/> Non-Tech Spec Surveillance (PM) _____		

Specific Information

Schedule Date N/A	Applicable Mode 1, 2		Partial Surveillance <input type="checkbox"/>
Test Authorized By <i>Shift Manager</i>	Date		Baseline Test <input type="checkbox"/>
Prerequisites Completed (Initials)		Precautions Noted (Initials)	
Performed By	Date		Time
Accepted By	Date	Time	Acceptance Criteria Satisfied <input type="checkbox"/> Yes <input type="checkbox"/> No
Approved By (Department Head or Designee)	Date		
Shift Manager Notified of Failed Test	Date		
Surveillance Information			
Test Equipment Type	QA Number	Cal Due Date	
N/A	N/A	N/A	
 * Within 1 hour of detecting an inoperable control rod and every 12 hours thereafter while the rod(s) is inoperable			

Shutdown Margin Determination in MODES 1 and 2 With a Stuck, Dropped or Misaligned Rod

Calculation Time: _____

Date: _____

Reactivity Adjustments

Step No.	Parameter and/or Calculation	Value
4.1.5	Inserted Rod Worth (Indicate curve used _____) =	() _____ pcm Inserted RW
4.1.6	$[() \text{ pcm}] \times [\text{ }] =$ Max Dropped Rod Worth # Dropped and Misaligned Rods	() _____ pcm Dropped/Misaligned Rod ρ
4.1.7	$[() \text{ pcm}] \times [\text{ }] =$ Worst Case Stuck Rod Worth # Stuck Rods	() _____ pcm Stuck Rod ρ
4.1.8	Total Power Defect =	() _____ pcm Power Defect
4.1.9	$[() \text{ pcm/}^\circ\text{F}] \times [() \text{ }^\circ\text{F}] =$ ITC (Tref - Tavg)	() _____ pcm Temp Defect
	Conservatism =	(-) 2000 pcm
4.1.10	Total Reactivity Adjustments =	() _____ pcm Total ρ Adjustments

SHUTDOWN MARGIN

Step No.	Parameter and/or Calculation	Value
4.1.11.a.	Total Control Rod Worth =	() _____ pcm Total Control RW
4.1.11.b.	$() \text{ pcm} + () \text{ pcm} =$ Total ρ Adjustments Total Rod Worth	() _____ pcm SHUTDOWN MARGIN

T/S ACCEPTANCE CRITERIA

SHUTDOWN MARGIN is a positive value greater than or equal to 1,300 pcm (1.3% $\Delta K/K$).



Calculations Reviewed By: _____ Date: _____
Unit Supervisor

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: Fuel Handling SRO actions during a Fuel Handling Accident

JPM ID Number: SRO2-A2

Revision: 0

II. Initiated:

J. William Côté
Developer

2/26/00

Date

III. Reviewed:

Martin
Technical Reviewer

2/27/00

Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

Nuclear Training Supervisor

2/27/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

JPM ID Number: SRO2-A2

Revision: 0

Task Title: Fuel Handling SRO during a Fuel Handling Accident

System: FHS Admin

Time Critical Task: () YES () NO

Validated Time (minutes): _____

Task Number(s): 344-05-035, respond to a failure of the refueling cavity seal.

Applicable To: SRO X RO _____ PEO _____

K/A Number: GEN.2.2.29 K/A Rating: 3.8

Method of Testing: Simulated Performance: X Actual Performance: _____

Location: Classroom: X Simulator: _____ In-Plant: X

Task Standards: Place fuel in a safe position for the given event

Required Materials: AOP 3572, Fuel Handling accident

General References: AOP 3572, Fuel Handling accident, and associated handouts

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: SRO2-A2

Revision: 0

Simulator Requirements: none

Initial Conditions: The plant is in mode 6 with you supervising the core offload from the control room as the Unit Supervisor.

Initiating Cues: You receive a call from the Fuel Handling SRO that the refueling cavity level is slightly lower (about 2 in) than it was a minute ago. The sigma machine has just raised a fuel assembly from the core and started to traverse towards the upender. The RO has confirmed CTMT Sump level increasing on Plant Process Computer. Perform the appropriate procedure to address the loss of cavity level.

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, ALL critical steps must be completed correctly. The students performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: SRO2-A2

Revision: 0

Task Title: Fuel Handling SRO actions during a Fuel Handling Accident

Start Time: _____

STEP 1 _____

Performance Step: Review Cautions prior to step 1

- Do not attempt to close the transfer tube isolation valve until the transfer carriage is in the SFP
- Do not unlatch a spent fuel assembly from any machine until directed by the refueling SRO

GRADE _____

Standards: Reviews the cautions

Grade: SAT _____ UNSAT _____

Cue: If asked: the only fuel assembly attached to a machine is the one in the Sigma Machine

STEP 2 _____

Performance Step: Reviews the notes prior to step 1

GRADE _____

Standards: Reviews the notes

Grade: SAT _____ UNSAT _____

Cue: If asked: Report as the RO, Current Refueling cavity level is at the bottom of the Refueling Cavity Skimmer and dropping at about 2" a min.

PERFORMANCE INFORMATION

JPM Number: SRO2-A2

Revision: 0

Task Title: Fuel Handling SRO actions during a Fuel Handling Accident

STEP	3	X	Performance Step: Alert station Personnel to the event
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GRADE	_____	X	Standards:	Announces Twice: A loss of level in the Unit 3 refueling cavity is occurring. All personnel except fuel handling personnel, evacuate the ctmt and spent fuel area."
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Grade:	SAT	UNSAT
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Cue: _____

Comments: It is acceptable to announce once and inform you they would announce twice

STEP	4	Performance Step: Dispatch an operator to the spent fuel pool
-------------	----------	--

GRADE	_____	Standards:	Either dispatches an operator or contacts the operators currently at the spent fuel pool
--------------	-------	-------------------	--

Grade:	SAT	UNSAT
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Cue:	If asked. Report as the Spent Fuel Pool operator that there is no fuel being moved. All fuel is properly stored and SFP level is dropping slowly.
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PERFORMANCE INFORMATION

JPM Number: SRO2-A2

Revision: 0

Task Title: Fuel Handling SRO actions during a Fuel Handling Accident

STEP	<u>5</u>	<u>X</u>	Performance Step:	Establish communications with the Refueling SRO
GRADE	<u> </u>	<u>X</u>	Standards:	Verify communications are established with the refueling SRO in Ctmt.
			Grade:	SAT <u> </u> UNSAT <u> </u>
			Cue:	Report as refueling SRO. You are on the phones and awaiting instructions
			Comments:	US may inform you that they are stopping Ctmt purge.
STEP	<u>6</u>	<u>X</u>	Performance Step:	Stop CTMT Purge
GRADE	<u> </u>	<u>X</u>	Standards:	Either order the RO to perform step 4 and STOP CTMT Purge or direct as the Unit Supervisor.
			Grade:	SAT <u> </u> UNSAT <u> </u>
			Cue:	Either acknowledge fan by fan and valve by valve the repositioning of components or Acknowledge the order to stop CTMT Purge. Report CTMT Purge is stopped and Ctmt isolations closed.

PERFORMANCE INFORMATION

JPM Number: SRO2-A2

Revision: 0

Task Title: Fuel Handling SRO actions during a Fuel Handling Accident

STEP 7 _____

Performance Step: Dispatch an operator to Ctmt to locally close refueling cavity bottom suction valves

GRADE _____

Standards: Either contacts the refueling SRO to have a person go to the 3'8" level or contacts a PEO to enter Ctmt and perform the task.

Grade: SAT _____ UNSAT _____

Cue: Acknowledge request and report 3SFC-V998 and V999 are closed

STEP 8 _____

Performance Step: Verify Ctmt closure being maintained using Ops form 3613F.3-1

GRADE _____

Standards: Reviews form or ask for any exceptions to the Ctmt closure list

Grade: SAT _____ UNSAT _____

Cue: Report no exceptions are listed against the Ctmt closure list.

STEP 9 _____

Performance Step: Request security verify all unnecessary personnel have exited containment

GRADE _____

Standards: Calls security and request status of personnel in CTMT

Grade: SAT _____ UNSAT _____

Cue: Report only the personnel listed as part of the fuel handling crew are in Ctmt

PERFORMANCE INFORMATION

JPM Number: SRO2-A2

Revision: 0

Task Title: Fuel Handling SRO actions during a Fuel Handling Accident

STEP 10

Performance Step: Notify HP of the situation

GRADE

Standards: Calls HP and informs them of the situation.

Grade: SAT UNSAT

Cue: Acknowledge all information given and ask if any HP actions are desired by the Unit Supervisor

Comments: JPM Step 11 may not be accomplished until a decision to place the assembly in the North Saddle area applies

STEP 11 X

Performance Step: NOTE: If the fuel assembly must be lowered into the north saddle area, Do not unlatch the assembly

GRADE

Standards: Reviews the note prior to step 6 of AOP 3572

Grade: SAT UNSAT

Cue: If ordered to place fuel assembly in North saddle area ask, as the refueling SRO, if the Unit Supervisor wants it unlatched. Acknowledge the Unit Supervisor's order.

Comments:

PERFORMANCE INFORMATION

JPM Number: SRO2-A2

Revision: 0

Task Title: Fuel Handling SRO actions during a Fuel Handling Accident

STEP 12 X

Performance Step: Verify irradiated fuel- IN SIGMA MACHINE

GRADE X

Standards: Request status of the assembly being transferred

Grade: SAT UNSAT

Cue: Report that the assembly is in the Sigma Machine and nearing the upender but the SFP operator has retrieved the transfer carriage and is standing by to close the transfer tube gate valve. Cavity Level is starting to drop at a faster rate

Comments:

STEP 13 X

Performance Step: Locally perform the applicable action if time allows:

- If the Fuel assembly is near the core, THEN return the fuel assembly to a core location
- If the fuel assembly is near the upender AND the transfer carriage is in Ctmt, THEN position the fuel assembly in the upender and return to the horizontal position

GRADE X

Standards: Ask the Refueling SRO the position of the assembly

Grade: SAT UNSAT

Cue: The fuel assembly is nearing the upender and the transfer carriage is in the SFP.

Comments:

PERFORMANCE INFORMATION

JPM Number: SRO2-A2

Revision: 0

Task Title: Fuel Handling SRO actions during a Fuel Handling Accident

GRADE X Standards: Implements the RNO option based on the information given

Grade: SAT UNSAT

Cue:

Comments:

GRADE X Standards: Orders the refueling SRO to lower the hoist in a clear area in the north saddle until the cable is slack.

Grade: SAT UNSAT

Cue: Acknowledge order and if not told to NOT unlatch the assembly; Ask if the Unit Supervisor desires the assembly released

Comments: Based on the cue given above, the Note prior to step 6 of AOP 3572 applies and JPM Step 11 becomes a critical step

STEP 14 X Performance Step: Applies the note above step 6 of AOP 3572: If the fuel assembly must be lowered into the north saddle area, Do not unlatch the assembly

GRADE X Standards: Applies the note and instructs the Refueling SRO to Leave the assembly latched.

Grade: SAT UNSAT

Cue: Acknowledge the order and report the fuel assembly is being lowered into the north saddle area.

PERFORMANCE INFORMATION

JPM Number: SRO2-A2

Revision: 0

Task Title: Fuel Handling SRO actions during a Fuel Handling Accident

Comments:

STEP 15 _____

Performance Step: Proceeds to the next step; Prepare the Spent Fuel Pool Area

Comments:

Cue: The evaluation for this JPM is complete

Stop Time: _____

VERIFICATION OF JPM COMPLETION

JPM Number: SRO2-A2

Revision: 0

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO X

Validated Time (minutes): 10

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

Result of oral questions (if applicable):

Number of Questions: _____

Number of Correct Responses: _____

Score: _____

Areas for Improvement:

STUDENT HANDOUT

JPM Number:

SRO2-A2

Initial Conditions:

The plant is in mode 6 with you supervising the core offload from the control room as the Unit Supervisor.

Initiating Cues:

You receive a call from the Fuel Handling SRO that the refueling cavity level is slightly lower (about 2 in) than it was a minute ago. The sigma machine has just raised a fuel assembly from the core and started to traverse towards the upender. The RO has confirmed CTMT Sump level increasing on Plant Process Computer.

Perform the appropriate procedure to address the loss of cavity level.

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: Start the CTMT Air Filtration system

JPM ID Number: SRO2-A3

Revision: 0
change 1
3/31/00

II. Initiated:

J. William Côté
Developer

2/25/00
Date

III. Reviewed:

Martin
Technical Reviewer

3/31/00
Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

Nuclear Training Supervisor

4/4/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

JPM ID Number: SRO2-A3

Revision: 0 change 1

Task Title: Start the CTMT Air Filtration System

System: HVU

Time Critical Task: () YES (X) NO

Validated Time (minutes): _____

Task Number(s): 022-01-006, Starting a CAF Fan to reduce levels of radiation following a fuel handling accident

Applicable To: SRO X RO X PEO _____

K/A Number: GEN- 2.3.10 K/A Rating: 2.9/3.3

Method of Testing: Simulated Performance: X Actual Performance: X

Location: Classroom: _____ In-Plant:: X Simulator: X

Task Standards: Start the CAF system per EOP 3502 to reduce levels of radiation following a fuel handling accident

Required Materials:

General References: EOP3502

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: SRO2-A3

Revision: 0
change 1

Simulator Requirements:

1. Reset simulator to Temp IC 95
2. Place the portable whiteboard from the briefing room at the corner of MB8 to block the examinee's view of the Main Control Boards. (This is done to focus the examinee on VP1 and not the condition of the rest of the plant)
3. Place key, either #30 or #31, in 3HVR*CTV32A on VP1.

Initial Conditions:

The Plant is shutdown with refueling in process. A fuel Handling accident has occurred in CTMT resulting in a dropped fuel assembly. The crew is responding using EOP 3502, Fuel Handling Accident

Initiating Cues:

The Unit Supervisor has requested you perform EOP 3502 starting with step 4 and stop CTMT Purge and start CTMT Air Filtration System Train "A"

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, ALL critical steps must be completed correctly. The students performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: SRO2-A3

Revision: 0
change 1

Task Title: Start the CTMT Air Filtration system

Start Time: _____

STEP 1 X

Performance Step: Stop CTMT Purge and Exhaust Fans
• 3HVR-HVU1A
• 3HVR-HVU1B
• 3HVR-FN4A
• 3HVR-FN4B

GRADE _____ X

Standards: Locates 3HVR-HVU1A on VP1 and rotates the control switch to stop

Grade: SAT _____ UNSAT _____

Cue: Red light goes to off and Green light lit

GRADE _____ X

Standards: Locates 3HVR-HVU1B on VP1 and rotates the control switch to stop

Grade: SAT _____ UNSAT _____

Cue: Red light off and Green light lit

GRADE _____ X

Standards: Locates 3HVR-FN4A on VP1 and rotates the control switch to stop

Grade: SAT _____ UNSAT _____

Cue: Red light goes to off and Green light lit

GRADE _____ X

Standards: Locates 3HVR-FN4B on VP1 and rotates the control switch to stop

Grade: SAT _____ UNSAT _____

Cue: Red light off and Green light lit

PERFORMANCE INFORMATION

JPM Number: SRO2-A3

Revision: 0
change 1

Task Title: Start the CTMT Air Filtration system

Note:

Key is normally left in either 32A or 32B when purging Ctmt.

STEP 2 X

Performance Step: Unlock and Close CTMT Purge Isolation valves:

- 3HVR*CTV32A and
- 3HVR*CTV32B (key #54)
- 3HVR*CTV33A and
- 3HVR*CTV33B (key#54)

GRADE X

Standards: Locates 3HVR*CTV32A and 32B on VP1. Turns keylock switch to the Close direction.

Grade: SAT UNSAT

Cue: Key is inserted and turned in the closed direction. Valve indication turns to RED OFF and GREEN LIT.

GRADE X

Standards: Locates 3HVR*CTV33A and 33B on VP1. Turns keylock switch to the Close direction.

Grade: SAT UNSAT

Cue: Key is inserted and turned in the closed direction. Valve indication turns to RED OFF and GREEN LIT.

STEP 3 X

Performance Step: Verify Filtration unit 3HVU-FN3A or FN3B RUNNING

GRADE X

Standards: Locates Filtration unit 3HVU-FN3A on VP1 and verifies filter not running

Grade: SAT UNSAT

Cue: Green light LIT, Red light OFF

PERFORMANCE INFORMATION

JPM Number: SRO2-A3

Revision: 0
change 1

Task Title: Start the CTMT Air Filtration system

GRADE X Standards: Locates Filtration unit 3HVU-FN3B on VP1 and verifies filter not running

Grade: SAT UNSAT

Cue: Green light LIT, Red light OFF

STEP 4 X Performance Step: Shifts to the RNO Column to Start a CAF unit

GRADE X Standards: Realizes that neither train of filtration is running and shifts action to the Response Not Obtained Column.

Grade: SAT UNSAT

Cue:

Comments: Only one of the two filtration units needs to be started to Satisfy the critical nature of the following step.

STEP 5 X Performance Step: Start one CTMT Filtration unit:
• 3HVU-FN3A or
• 3HVU-FN3B

GRADE X Standards: Locates EITHER 3HVU-FN3A or 3B on VP1 and starts the unit

Grade: SAT UNSAT

Cue: Switch is rotated to the on position and Green Light is OFF and Red Light is LIT

PERFORMANCE INFORMATION

JPM Number: SRO2-A3

Revision: 0
change 1

Task Title: Start the CTMT Air Filtration system

STEP 6

Performance Step: Verify filter high differential pressure
alarm- NOT ACTUATED

GRADE

Standards: Locates alarm window on VP1B 2-1 to
verify if alarm has actuated

Grade: SAT UNSAT

Cue: Window is NOT LIT

Termination Cue: The Evaluation of this JPM is Complete

Stop Time: _____

VERIFICATION OF JPM COMPLETION

JPM Number: SRO2-A3

Revision: 0
change 1

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO X

Validated Time (minutes): 10

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

Result of oral questions (if applicable):

Number of Questions: _____

Number of Correct Responses: _____

Score: _____

Areas for Improvement:

STUDENT HANDOUT

JPM Number:

SRO2-A3

Initial Conditions:

The Plant is shutdown with refueling in process. A fuel Handling accident has occurred in CTMT resulting in a dropped fuel assembly. The crew is responding using EOP 3502, Fuel Handling Accident

Initiating Cues:

The Unit Supervisor has requested you perform EOP 3502 starting with step 4 and stop CTMT Purge and start CTMT Air Filtration System Train "A"

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: SM Actions Upon Receipt of a Classifiable Event

JPM ID Number: SRO2-A4

Revision: 0

II. Initiated:

J. William Côté
Developer

2/25/00

Date

III. Reviewed:

C. Martin
Technical Reviewer

2/27/00

Date

IV. Approved:

Cognizant Plant Supervisor (optional)

Date

[Signature]
Nuclear Training Supervisor

2/27/00
Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3

JPM ID Number: SRO2-A4

Revision: 0

Task Title: SM Actions Upon Receipt of a Classifiable Event

System: SERO

Time Critical Task: () YES (X) NO

Validated Time (minutes): 10 min

Task Number(s): 345-05-003

Applicable To: SRO X RO PEO

K/A Number: GEN.2.4.40 K/A Rating: 4.0

Method of Testing: Simulated Performance: X Actual Performance:

Location: Classroom: X Simulator: X In-Plant: X

Task Standards: Perform SRO responsibilities during E-Plan activation

Required Materials: EPOP 4411, DSEO Actions

General References: EPOP 4411, DSEO Actions

READ TO THE STUDENT

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objectives for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JOB PERFORMANCE MEASURE GUIDE (Continued)

JPM Number: SRO2-A4

Revision: 0

Simulator Requirements: any scenario requiring the activation of SERO

NOTE: If being performed during a scenario, the examinee should use available conditions and perform required actions

Initial Conditions: You are the Shift Manager. An event has occurred that has been classified as an ALERT C-1. You have just transitioned to EPOP 4411, DSEO.

Initiating Cues: Perform the required actions to activate the SERO

**** NOTES TO EVALUATOR ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. The students performance is graded by an "S" for satisfactory or a "U" for unsatisfactory on each step.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM Number: SRO2-A4

Revision: 0

Task Title: SM Actions Upon Receipt of a Classifiable Event

Start Time: _____

STEP 1 X

Performance Step: Direct the Shift Tech to perform State, town and SERO notifications

GRADE _____ X

Standards: Directs the Shift Tech to fill out a ENRS notification form and bring it to him for review prior to issue

Grade: SAT _____ UNSAT _____

Cue: Acknowledge request

STEP 2 _____

Performance Step: Notify the Security Shift Supervisor (SSS) of the following:

GRADE _____ _____

Standards:

- Emergency classification level - Alert C-1

Grade: SAT _____ UNSAT _____

Cue: Acknowledge as SSS

GRADE _____ _____

Standards:

- Affected Unit

Grade: SAT _____ UNSAT _____

Comments: It may be necessary to provide with cue if not being done during Sim scenario. Automatic Reactor trip fail but a manual trip from the control room was successful

Cue: Acknowledge as SSS

GRADE _____ _____

Standards:

- Nature of emergency

Grade: SAT _____ UNSAT _____

PERFORMANCE INFORMATION

JPM Number: SRO2-A4

Revision: 0

Task Title: SM Actions Upon Receipt of a Classifiable Event

GRADE **Cue:** Acknowledge as SSS
Standards:

- Increased need for security support [none required]

Grade: SAT UNSAT

Cue: Acknowledge as SSS

Comments:

STEP 3

Performance Step: If Unusual event has occurred, announce the following

GRADE

Standards: recognize that a UE did not occur

Grade: SAT UNSAT

STEP 4

Performance Step: If Unusual event is being escalated,

GRADE

Standards: recognize that a UE did not occur

Grade: SAT UNSAT

Cue: Initial classification was an ALERT-C1

STEP 5

Performance Step: If event which caused the UE has been resolved, Terminate the event

GRADE

Standards: recognize that a UE did not occur and continue on to step 4.2.9

Grade: SAT UNSAT

Cue: Initial classification was an ALERT-C1

Comments:

PERFORMANCE INFORMATION

JPM Number: SRO2-A4

Revision: 0

Task Title: SM Actions Upon Receipt of a Classifiable Event

STEP 6 X

Performance Step: If an Alert or higher has occurred, Announce the following using the Station Paging system:

GRADE X

Standards: Vocalizes the announcement in step 4.2.9 filling in the classification level and affected unit

Grade: SAT UNSAT

STEP 7 X

Performance Step: Repeat the Page

GRADE X

Standards: Vocalizes the announcement in step 4.2.9 filling in the classification level and affected unit

Grade: SAT UNSAT

Cue: The Evaluation for this JPM is complete

Stop Time:

VERIFICATION OF JPM COMPLETION

JPM Number: SRO2-A4

Revision: 0

Date Performed: _____

Student: _____

Evaluator: _____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? YES _____ NO X

Validated Time (minutes): 4

Actual Time to Complete (minutes): _____

Result of JPM: _____ ("S" for satisfactory, "U" for unsatisfactory)

Result of oral questions (if applicable):

Number of Questions: _____

Number of Correct Responses: _____

Score: _____

Areas for Improvement:

STUDENT HANDOUT

JPM Number:

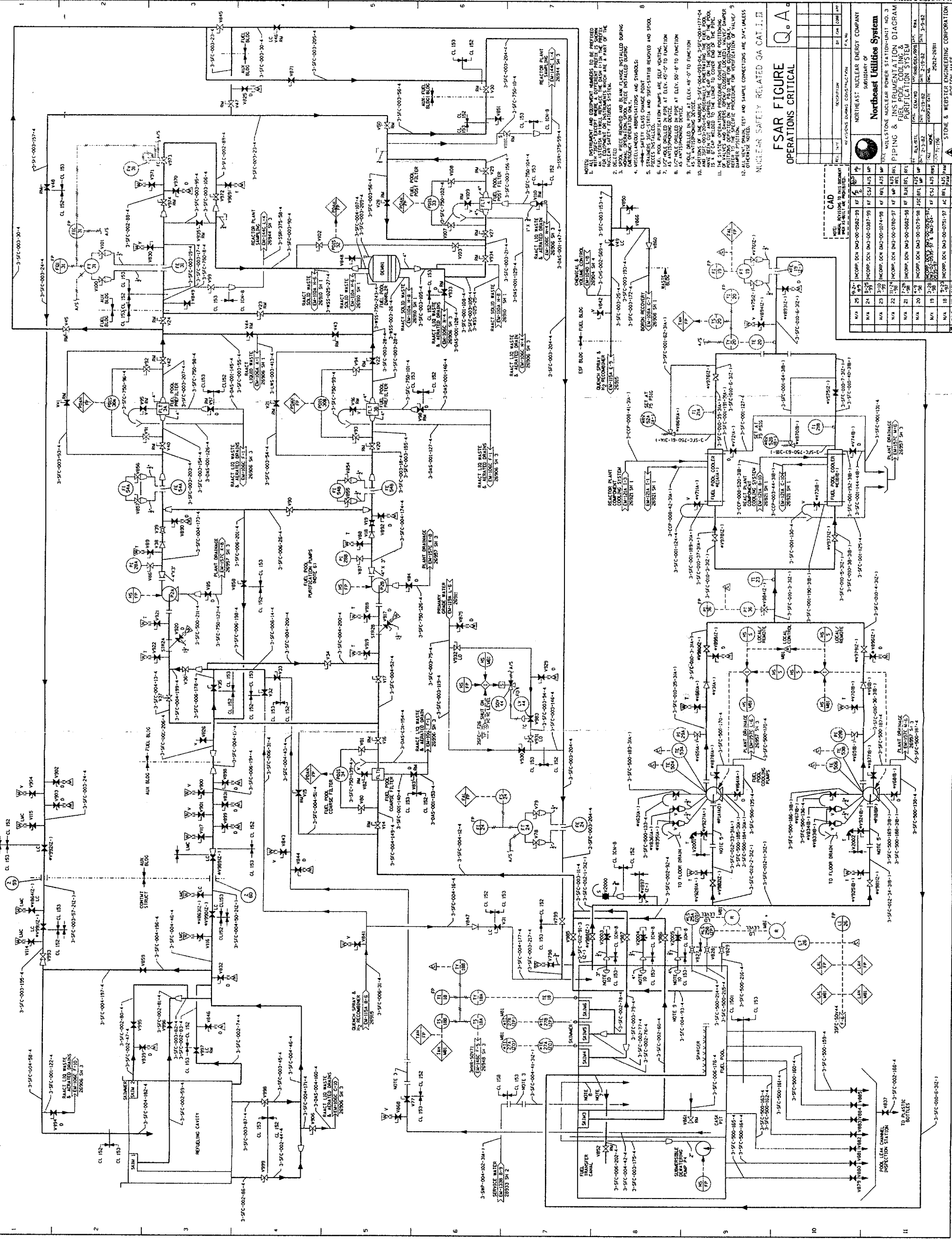
SRO2-A4

Initial Conditions:


You are the Shift Manager. An event has occurred that has been classified as an ALERT C-1. You have just transitioned to EPOP 4411, DSEO.

Initiating Cues:

Perform the required actions to activate the SERO



FSAR FIGURE OPERATIONS CRITICAL	Q. A.
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																				Northeast Utilities System THE MILLSTONE NUCLEAR POWER STATION—UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM FUEL POOL COOLING & PURIFICATION SYSTEM										SUBSIDIARY OF NORTHEAST NUCLEAR ENERGY COMPANY									
										REVISIONS DURING CONSTRUCTION DESCRIPTION DATE BY										REVISIONS DURING CONSTRUCTION DESCRIPTION DATE BY																			
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[illegible]

HEAR SAFETY RELATED QA CAT. I, II

FSAR FIGURE
OPERATIONS CRITICAL

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	REVISIONS DURING CONSTRUCTION	P.A. No.
	NORTHEAST NUCLEAR ENERGY COMPANY SUBSIDIARY OF	

Northeast Utilities System

RLK/RTL	CEM/WD	1993 RMB/DEK/RPB	1993 RMA
0.00	0.00	0.00	0.00

DATE	TIME	NAME	WORKSHEET DATE	WORK NO.	WORK NO.
2-3-82					25212-26911

STONE & WEBSTER ENGINEERING CONSULTANTS
BOSTON, MASS.

