NRC Simulator JPM S.1

I. JPM Title: Respond to Dropped Control Rod

JPM ID Number: Simulator S.1 Revision: 0

II. Initiated:

Nuclear Regulatory Commission — 14 May 2004
Developer — Date

III. Reviewed:

Technical Reviewer — Date

IV. Approved:

Cognizant Plant Supervisor (optional) — Date

Nuclear Training Supervisor — Date

SUMMARY OF CHANGES

Change	Description	Date

Facility: Millstone Unit 3 Student: _____

JPM ID Number: Simulator S.1 Revision: 0

Task Title: Respond to Dropped Control Rod

System: n/a

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 30

Alternate Path **YES**

Task Number(s): _____

Applicable To: SRO X RO X PEO _____

K/A Number: 003.AA.1.02 K/A Rating: 3.4 / 3.6

Ability to operate and/or monitor the following as they apply to the Dropped Control Rod: Controls and components necessary to recover rod.

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

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

Task Standards:
- Applicant responds to the dropped rod and
- Applicant recovers the dropped rod

Required Materials:
- SP 3602A.1, Rod Cluster Control Exercise
- SP 3602A.1-001, Rod Cluster Control Exercise data sheet
- AOP 3552, Malfunction of the Rod Drive System

General References: AOP 3552, Malfunction of the Rod Drive System

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. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

You are to operate and respond to the simulator just as you would in the actual plant.

Initial Conditions:	You are a Control Room Operator at Millstone Generating Station, Unit 3. The plant is steady state at 100% power. No equipment is out of service. Surveillance procedure SP 3602A.1 is in progress. Sections 4.1 and 4.2 are complete. You are to begin exercising control rods using section 4.3. Begin with Shutdown Bank "A" (SBA). Do you have any questions? Are you ready to begin?
Initiating Cue:	You have the shift.

****** NOTES TO EVALUATOR ******

1. Critical steps for this JPM are indicated by an asterisk and bolding. 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?").

Start Time: _____

#	Step	Standard	S/U
	Simulator Setup	**IC-18** • RCS Tave = 587°F • PZR Pressure = 2235 psig • Reactor Power = 100% Malfunction **RD 0301 at 0%** occurs when Applicant begins withdrawing rods at SP 3602A.1, Step 4.3.3. NOTE: Malfunction **RD 0302 at 0%** when Applicant reaches step to determine Shutdown Margin.	
Examiner Cue:		**Here is the working copy of SP 3602A.1-001**	
Examiner Cue:		**You have the shift.**	
1.	1. The withdrawal of rods to 231 steps is to allow the exercise of shutdown banks and control banks A, B and C, and to identify Rod Control System problems while minimizing the impact of rod movement on core reactivity and AFD. 2. If a rod movement or indication problem is identified during the test, complete the test for the affected bank prior to transitioning to AOP 3552, "Malfunction of the Rod Drive System." (SP 3602A.1, NOTE preceding step 4.3.1)	Applicant reads note. **EXAMINER NOTE:** during validation, meaning of this NOTE confused RO. May need to prompt Applicant for a recommendation. SROs must make decision to respond to the dropped rod in their supervisory role.	
2.	Refer To SP 3602A.1-001 and RECORD all rod bank initial positions. (SP 3602A.1, Step 4.3.1)	Applicant records all rod bank initial positions on SP 3602A.1-001.	
3.	ROTATE control rod bank "SEL" switch (MB4), to the desired bank. (SP 3602A.1, Step 4.3.2)	Applicant rotates control rod bank "SEL" switch (MB4) to SBA.	
4.	WITHDRAW applicable rods from full out position to 231 steps. (SP 3602A.1, Step 4.3.3)	Applicant begins to withdraw SBA rods from full out position to 231 steps.	

#	Step	Standard	S/U
***Booth Operator*: Insert Malfunction RD 0301 at 0%.**			
5.	IF reactor trips, Go To E-0, "Reactor Trip or Safety Injection (OP 3353.MB4C 5-10, Step 1)	Applicant may refer to Alarm Response or go directly to AOP 3552.	Alternate Path
6.	Go To AOP 3552, "Malfunction of the Rod Drive System" (OP 3353.MB4C 5-10, Step 2)		
6.		Applicant enters AOP 3552 and performs the following:	
7.	**Stabilize Plant Conditions** (AOP 3552, Step 1)		
8.*	Place control rod bank SEL switch in MAN (AOP 3552, Step 1.a.)	Applicant rotates control rod bank "SEL" switch (MB4) to MAN.	
9.	Verify rods – NOT MOVING (AOP 3552, Step 1.b.)	Applicant observes DRPI for rod motion	
10.	Stop any power increase or decrease evolution in progress (AOP 3552, Step 1.c.)	Applicant observes no power change in progress	
11.	Check plant can be – MAINTAINED AT CURRENT POWER LEVEL (AOP 3552, Step 1.d.)	Applicant determines that plant can be maintained at current power level.	
12.	Verify Tavg-Tref deviation – LESS THAN OR EQUAL TO 1.5°F. (AOP 3552, Step 1.e.)	Applicant determines the Tavg-Tref deviation and takes appropriate action per the following RNO	

#	Step	Standard	S/U
13. *	Perform the applicable action: • IF Tavg greater than Tref AND the steam dumps are open, THEN Increase turbine load to close the steam dumps. • IF Tavg greater than Tref AND the steam dumps are closed, THEN Borate to minimize Tavg-Tref deviation. • *IF Tavg less than Tref, THEN Decrease turbine load to minimize Tavg-Tref deviation.* (AOP 3552, Step 1.e., RNO Column)	Applicant reduces turbine load to minimize the Tavg-Tref deviation. Applicant may reduce load such that rod recovery will not require further adjustment (take Tave-Tref negative so that it is close to zero when rod recovered).	
14.	Verify TURB LOAD REJECTION ARM C-7 (MB4D 6-6) annuniciator – NOT LIT. (AOP 3552, Step 1.f.)	Applicant observes MB4D 6-6 not lit	
15.	Maintain Tavg within 1.5°F of Tref using boration or dilution as necessary. (AOP 3552, Step 1.g.)		
16.	**Check No Rod Dropped** (AOP 3552, Step 2.)		
17.	Verify RPI URGENT FAILURE (MB4C 4-10) annuciator – NOT LIT (AOP 3552, Step 2.a.)	Applicant observes MB4C 4-10 not lit.	
18.	Check rod bottom lights – NONE LIT (AOP 3552, Step 2.b.)	Applicant recognizes that one rod bottom light is LIT and performs RNO actions:	
19.	Perform the applicable action: • IF only one rod bottom light is lit, THEN using Attachment B, Perform dropped rod recovery. • IF two or more rod bottom lights are lit, THEN Trip the reactor and Go to E-0, Reactor Trip or Safety Injection. (AOP 3553, Step 2.b., RNO)	Applicant goes to Attachment B to perform dropped rod recovery.	

#	Step	Standard	S/U
21.	**Check Plant Conditions** (AOP 3552, Att B, Step 1)		
22.	Verify operational mode – MODE 1 (AOP 3552, Att B, Step 1.a.)	Applicant recognizes plant is in Mode 1	
23.	Identify dropped rod • Lit rod bottom (RB) light on DRPI display • Zero indication on plant process Computer, Rod Supervision (AOP 3552, Att B, Step 1.b.)	Applicant determines identity of the dropped rod.	
***Booth Operator*: Insert Malfunction RD 0302 at 0%.**			
24.	IF reactor trips, Go To E-0, "Reactor Trip or Safety Injection" (OP 3353.MB4C 6-10, Step 1)	Applicant may refer to alarm response or trip the reactor and go to E-0 directly.	Alternate Path to E-0
25.	IF RPI urgent failure (4-10) annunciator lit Go To AOP 3552, "Malfunction of the Rod Drive System. (OP 3353.MB4C 6-10, Step 2)		
26.	IF two or more rod bottom lights are lit, TRIP reactor and Go To E-0, "Reactor Trip or Safety Injection". (OP 3353.MB4C 6-10, Step 3)	Applicant trips the reactor	
27.	• Foldout page must be open. • ADVERSE CTMT is defined as GREATER THAN 180_F or GREATER THAN 105 R/hr in containment. • The reactor can be interpreted as "tripped" when any two of the three bulleted substeps of step 1. are satisfied. (E-0, Note preceding Step 1)		

#	Step	Standard	S/U
28. *	**Verify Reactor Trip** • Check reactor trip and bypass breakers – OPEN • Check rod bottom lights – LIT • Check neutron flux - DECREASING (E-0, Step 1)	Applicant verifies all three criteria.	
29. *	**Verify Turbine Trip** a. Check all turbine stop valves - CLOSED (E-0, Step 2)	Applicant verifies all STOP valves closed.	
30. *	**Verify Power To AC Emergency Busses** a. Check AC emergency busses 34C and 34D - BOTH ENERGIZED (E-0, Step 3)	Applicant verifies power to 34C & 34D	
31. *	**Check If SI Is Actuated** a. Verify SAFETY INJECTION ACTUATION annunciator (MB4D 1-6 or MB2B 5-9) - LIT (E-0, Step 4)	SI should not have actuated.	
32. *	Check if SI is required: • CTMT pressure GREATER THAN 18 psia OR • PZR pressure LESS THAN 1890 psia OR • PZR level LESS THAN 9% OR • RCS subcooling LESS THAN 32°F OR • SG pressure LESS THAN 660 psig IF SI is required, THEN Initiate SI and Proceed to step 4.c. IF SI is NOT required, THEN Initiate monitoring of CSF Status Trees and Go to ES-0.1, Reactor Trip Response. (E-0, Step 4 RNO Column)	Applicant determines if SI is required and verifies that SI is not required.	
Examiner Cue:	**This evaluation for this JPM is complete. Thank you.**		

Stop Time: _____

* **denotes critical step**

Appendix C3 Form ES-C-1

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question:_____
_____
_____
_____

Response:_____
_____
_____
_____
_____

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

Student Handout

JOB PERFORMANCE MEASURE INSTRUCTION SHEET

DIRECTIONS TO STUDENT

YOU ARE TO OPERATE AND RESPOND TO THE SIMULATOR JUST AS YOU WOULD IN THE ACTUAL PLANT.

Initial Conditions

You are a Control Room Operator at Millstone Generating Station, Unit 3. The plant is steady state at 100% power. No equipment is out of service. Surveillance procedure SP 3602A.1 is in progress. Sections 4.1 and 4.2 are complete. You are to begin exercising control rods using section 4.3. Begin with Shutdown Bank "A" (SBA).

NRC Simulator JPM S.2

RO Applicants Only

JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: VENT UNISOLATED SI ACCUMULATORS

JPM ID Number: NRC Simulator JPM S.2
Drawn directly from MS3 JPM Bank – number 027

Rev: 0 chg 1
11/08/02

II. Initiated:

Dave Minnich	10/17/02
Developer	Date

III. Reviewed:

Bob Royce	10/17/02
Technical Reviewer	Date

IV. Approved:

NA	
Cognizant Plant Supervisor (optional)	Date
Trad Horner	10/17/02
Nuclear Training Supervisor	Date

JOB PERFORMANCE MEASURE APPROVAL SHEET

SUMMARY OF CHANGES

Change	Description	Date
1	Non-Intent change - Modified setup to more accurately indicate ES-1.2 plant conditions.	11/08/02

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3 Student: _____

JPM ID Number: 027 Rev: 0 chg 1

Task Title: VENT UNISOLATED SI ACCUMULATORS

System: ECC

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 10

Alternate Path: YES

Task Number(s): 006*01*57

Applicable To: SRO X RO X PEO ____

K/A Number: 006-A1-13 K/A Rating: 3.5 / 3.7

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

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

Task Standards: Vent Any Unisolated SI Accumulators IAW ES-1.2, Post LOCA Cooldown and Depressurization, Step 22

Required Materials: ES-1.2, Post LOCA Cooldown and Depressurization, Step 22, Rev.013
GA-7, Isolating Accumulators, Rev 000

General References: None.

*****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 objective(s) 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 were actually being performed.

JPM Number: NRC Simulator JPM S.2 Rev : 0 chg 1

Simulator Requirements:	1. Reset to IC-86, Post LOCA Cooldown conditions at step 21 of ES-1.2 .... **OR** 2. Reset to IC 18 100% power, MOL. Insert MALF RC03A, Severity 0.08 and go to run. 3. Carry out the actions specified in E-0, E-1 and ES1.2 up to step 21 of ES-1.2. 4. Insert I/O (SI) 3SIL*MV8808B, CLOSE - FALSE to prevent the "B" Accumulator outlet isolation valve from closing. 5. If necessary, remove the malfunction (RC03A), to fill the PZR to greater than 16%. Acknowledge the annunciators and place the simulator in "FREEZE". 6. After the examinee has received the initial conditions and initiating cues, place the simulator in "RUN". Approximate simulator setup time is 25 minutes.
Initial Conditions:	The plant has experienced a Loss of Coolant Accident. The control room crew has responded by using the Emergency Operating Procedures and has just completed step 21 of ES-1.2, Post LOCA Cooldown and Depressurization. Shutdown Margin has been verified adequate and ECCS has been verified NOT required.
Initiating Cues:	The US has directed you to complete step 22 of ES-1.2, Post LOCA Cooldown and Depressurization.

****** 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: NRC Simulator JPM S.2 Rev: 0 chg 1

Task Title: VENT UNISOLATED SI ACCUMULATORS

Start Time: _____

STEP	1		**Performance Step:**	CHECK RCS subcooling based on CETCs greater than 32° F.
GRADE			**Standards:**	Candidate checks that RCS subcooling based on CETCs greater than 32° F using PPC, Real -Time MMI, or MB indications.
			Grade:	**SAT** _____ **UNSAT** _____
STEP	2		**Performance Step:**	VERIFY PZR level Greater than - 16%
GRADE			**Standards:**	Candidate verifies PZR level - Greater than - 16% at MB4 or with PPC.
			Grade:	**SAT** _____ **UNSAT** _____
STEP	3		**Performance Step:**	Using GA-7, Isolate SI Accumulators
GRADE			**Standards:**	Candidate obtains a copy of GA-7, Isolate SI Accumulators.
			Grade:	**SAT** _____ **UNSAT** _____
STEP	4		**Performance Step:** (GA-7 step 1)	Locally Unlock and Place the SI accumulator isolation valve breakers to ON. • 32-2R-F4M • 32-2R-R5F • 32-2W-F4M • 32-2W-R3J
			Cue:	Booth Operator respond to request to close Accumulator Isolation valve breakers.
			Comment:	Use the following REMOTEs: SIR 15, SIR 16, SIR 17, SIR 18
GRADE		X	**Standards:**	Candidate simulates contacting PEO to Locally Unlock and Place the SI accumulator isolation valve breakers

to ON

Cue: Simulator instructor energize the valves and report local actions.

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

STEP	5	____	**Performance Step:**	CONFIRM power supplied to SI accumulator isolation valves.
GRADE	____	____	**Standards:**	OBSERVE "power on" white lights for SI Accumulator Isolation valves illuminate at MB2 RECEIVE report: PEO has Locally Unlocked and Placed the SI accumulator isolation valve breakers to ON

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

STEP	6	____	**Performance Step:** (GA-7 step 2)	RESET SI, If Necessary
			Comment:	SI will already have been reset in a previous EOP step. However, if the examinee resets SI, this is considered satisfactory. If the examinee asks whether SI has been reset, provide the following cue:

Cue: SI has already been reset.

STEP	7	X	**Performance Step:** (GA-7, step 3)	CLOSE all SI accumulator isolation valves
GRADE	____	____	**Standards:**	Candidate turns the control switch for 3SIH*MV8808A to the close position and observes that the indicating lights for 3SIH*MV8808A are green ON, red OFF. The valve is CLOSED.
GRADE	____	____	**Standards:**	Candidate turns the control switch for

				3SIH*MV8808C to the close position and observes that the indicating lights for 3SIH*MV8808C are green ON, red OFF. The valve is CLOSED
GRADE	____	X	**Standards:** *ALTERNATE PATH*	Candidate turns the control switch for 3SIH*MV8808B to the close position and observes that the indicating lights for 3SIH*MV8808B are green **OFF**, red **ON**. The valve position does not change. The valve is still **OPEN**
GRADE	____	____	**Standards:**	Candidate turns the control switch for 3SIH*MV8808D to the close position and observes that the indicating lights for 3SIH*MV8808D are green ON, red OFF. The valve is CLOSED
			Grade:	**SAT** _____ **UNSAT** _____
STEP	8	X	**Performance Step:** *ALTERNATE PATH*	Vent any unisolated accumulators Verify SI accumulator nitrogen supply valves (3SIL*CV8880 and 3SIL*CV8968) closed on MB2
GRADE	____	X	**Standards:**	Candidate observes SI accumulator nitrogen supply valves (3SIL*CV8880 and 3SIL*CV8968) closed on MB2. Green CLOSED indicating lights are ON and red OPEN indicating lights are OFF.
			Grade:	**SAT** _____ **UNSAT** _____
STEP	9	X	**Performance Step:**	For each accumulator requiring venting, OPEN one from each pair of the following isolation valves: For tank B (3SIL*SV8875B **OR** 3SIL*SV8875F)
GRADE	____	X	**Standards:**	Candidate pushes the controller for

PERFORMANCE INFORMATION

JPM Number: NRC Simulator JPM S.2 Rev: 0 chg 1

Task Title: VENT UNISOLATED SI ACCUMULATORS

				EITHER 3SIL*SV8875B **OR** 3SIL*SV8875F to the open position and observes that the indicating lights are green OFF, red ON. The valve is OPEN.
			Grade:	**SAT** _____ **UNSAT** _____
STEP	10	X	**Performance Step:**	OPEN one SI accumulator vent control valve (3SIL*HC943A **OR** 3SIL*HC943B).
GRADE	____	X	**Standards:**	Candidate operates **EITHER** 3SIL*HC943A **OR** 3SIL*HC943B to the open position and observes that the up arrow light is on. The valve position is >0%. Candidate observes pressure in accumulator decreasing on SIL-PI962 or 963.
GRADE	____	X	**Standards:**	Candidate observes pressure in accumulator decreasing on SIL-PI962 or 963.
GRADE	____	____	**Standards:**	Candidate observes ANN MB2A, 4-7B, SI ACC B PRESSURE LO
			Grade:	**SAT** _____ **UNSAT** _____

PERFORMANCE INFORMATION

JPM Number: NRC Simulator JPM S.2 Rev: 0 chg 1

Task Title: VENT UNISOLATED SI ACCUMULATORS

STEP	11		**Performance Step:** (GA-7, step 4)	Locally Place the SI accumulator isolation valve breakers to OFF and Lock. • 32-2R-F4M • 32-2R-R5F • 32-2W-F4M • 32-2W-R3J
			Comment:	Use the following REMOTEs: SIR 15 SIR 16 SIR 17 SIR 18
			Cue:	Booth Operator: respond to request to OPEN Accumulator Isolation valve breakers.
GRADE		X	**Standards:**	Candidate simulates contacting PEO to Locally Unlock and Place the SI accumulator isolation valve breakers to OFF and Lock
			Grade:	**SAT** _____ **UNSAT** _____
STEP	12		**Performance Step:**	CONFIRM power removed from SI accumulator isolation valves.
GRADE			**Standards:**	OBSERVE "power on" white lights for SI Accumulator Isolation valves extinguished at MB2 RECEIVE report from PEO that they have Placed the SI accumulator isolation valve breakers to OFF and have Locally Locked the breakers.
			Cue:	Simulator instructor de-energize the valves and report local actions.
			Grade:	**SAT** _____ **UNSAT** _____

Terminating Cue: The evaluation for this JPM is concluded.

Stop Time: _____

VERIFICATION OF JPM COMPLETION

Appendix C3 Form ES-C-1

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question:_____
_____
_____
_____

Response:_____
_____
_____
_____
_____

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

STUDENT HANDOUT

JPM Number: **NRC Simulator JPM S.2**

Initial Conditions: **The plant has experienced a Loss of Coolant Accident. The control room crew has responded by using the Emergency Operating Procedures and has just completed step 21 of ES-1.2, Post LOCA Cooldown and Depressurization. Shutdown Margin has been verified adequate and ECCS has been verified NOT required.**

Initiating Cues: **The US has directed you to complete step 22 of ES-1.2, Post LOCA Cooldown and Depressurization.**

JOB PERFORMANCE MEASURE APPROVAL SHEET

NRC Simulator JPM S.3

JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: SUBSEQUENT ACTIONS IN RESPONSE TO AUX. BLDG. RAD. MON. (3HVR-RE13) ALARM

NRC Simulator JPM S.3

JPM ID Number: Direct from MS3 JPM Bank – number 031 Revision: 6 chg 1

II. Initiated:

G. A. Tait — Developer — 6/8/99 — Date

III. Reviewed:

J. Deveau — Technical Reviewer — 6/30/99 — Date

IV. Approved:

NA — Cognizant Plant Supervisor (optional) — Date

R. Lueneburg — Nuclear Training Supervisor — 6/30/99 — Date

JOB PERFORMANCE MEASURE APPROVAL SHEET

SUMMARY OF CHANGES

Revision/Change	Change Information	Affected Pages
Rev 6, Change 1	Added information to support OP 3314A Rev 22 Change 1 Non-Intent Change	5, 7, 11

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3 Student: _____

NRC Simulator JPM S.3

JPM ID Number: 031 Revision: 6 chg 1

Task Title: SUBSEQUENT ACTIONS IN RESPONSE TO AUX. BLDG. RAD. MON. (3HVR-RE13) ALARM

System: HVR

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 20

Task Number(s): 088-01-220

Applicable To: SRO X RO X PEO _____

K/A Number: 060AA1.02 K/A Rating: 2.9 / 3.1

Ability to operate and / or monitor the following as they apply to the Accidental Gaseous Radwaste: Ventilation system.

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

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

Task Standards: Satisfactorily complete placing the upper levels of the Auxiliary Building on filtered exhaust in accordance with OP 3314A, "Auxiliary Building Heating, Ventilation and Air Conditioning"

Required Materials: OP 3314A, "Auxiliary Building Heating, Ventilation and Air Conditioning", Revision 022-09

General References: OP 3314A, "Auxiliary Building Heating, Ventilation and Air Conditioning", Revision 022-09

*****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 objective(s) 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 were actually being performed.

JPM Number: 031 Revision: 6 chg 1

Simulator Requirements:	Approximate setup time is 5 minutes. 1. **THIS JPM RUNS CONCURRENTLY WITH S.6 (Response to failed Main Steam Pressure Transmitter, PT20D). Use the S.6 simulator setup.** ~~2. Reset to IC-21, 100% steady state, MOL.~~ ~~3. Place the simulator in "RUN".~~ ~~4. Insert malfunction CV09 at 50% severity, 100 gpm leak in VCT.~~ ~~5. Insert malfunction CV10B at 0% severity, LT185 fails to 0% (indicates a VCT level transmitter line leak). This will cause annunciator MB3A 4-10, VCT level Hi/Lo, to come in.~~ ~~6. After approximately 2 minutes, 3HVR-RE13 will reach the alarm setpoint and annunciators MB2B 2-8 and MB2B 3-9 will come in. Place the simulator in "Freeze".~~ 7. After the examinee has received the initial conditions and initiating cues, place the simulator in "RUN".

****** 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".

   1. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").

Initial Conditions:	A leak on CHS*LT185 level transmitter line for the VCT has resulted in radiation monitor HVR-RE13 going into an alarm status. The control room team is carrying out the actions of AOP 3573, Radiation Monitor Alarm Response. One train of charging and RPCCW pump area ventilation is in service. The Waste Disposal Building ventilation and CTMT purge are not aligned to the AUX. Bldg. filters. General area ventilation is in service.

Initiating Cues:	In carrying out the responses of AOP 3573, Radiation Monitor Alarm Response, the US has directed you to place the upper levels of the Aux. Bldg. on filtered exhaust per OP 3314A, Section 4.2.

Special Instrctions for concuurent JPMs	This JPM is being conducted concurrently with another JPM to improve efficiency of your examination administration. To ensure exam security, please adhere to the following special requirements: 1. Speak softly when announcing alarms or providing information. 2. Direct ALL communications to me. If the simulator booth operator must manipulate components, I will contact the simulator booth operator for you. 3. Remain focused on your task assignment and do not allow other activities to distract you.

PERFORMANCE INFORMATION

JPM Number: 031 Revision: 6 chg 1

Task Title: SUBSEQUENT ACTIONS IN RESPONSE TO AUX. BLDG. RAD. MON. (3HVR-RE13) ALARM

Start Time: _____

STEP 1 ____ **Performance Step:**

CAUTION

This section supports response to high radiation in the upper levels of the Auxiliary Building (AOP 3573). This section establishes and maintains Auxiliary Building ventilation in the following alignment:

- One train of charging and CCP fans in operation
- 3HVR-FN7 discharging to normal exhaust path through 3HVR*AOD40A and 3HVR*AOD40B
- Waste Disposal Building ventilation and containment purge are not aligned to the Auxiliary Building filters

If it becomes necessary to deviate from this alignment, Auxiliary Building upper level ventilation must be stopped as specified in Section 4.3 (Step 4.2.1 Caution)

GRADE ____ ____ **Standards:** Reviews precaution.

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

Cue: An additional operator has been assigned to respond to any additional radiation monitor alarms that may annunciate during performance of this task.

PERFORMANCE INFORMATION

JPM Number: 031 Revision: 6 chg 1

Task Title: SUBSEQUENT ACTIONS IN RESPONSE TO AUX. BLDG. RAD. MON. (3HVR-RE13) ALARM

STEP	2		**Performance Step:**	CHECK 3HVR*AOD44A and 3HVR*AOD44B, charging and RPCCW pump normal exhaust dampers, open (VP1). (step 4.2.1)
GRADE			**Standards:**	Observes that the indicating lights for 3HVR*AOD44A and 3HVR*AOD44B are green OFF, red ON.
			Grade:	**SAT** _____ **UNSAT** _____
STEP	3		**Performance Step:**	CHECK 3HVR*FN14A and 3HVR*FN13A OR 3HVR*FN14B and 3HVR*FN13B, charging and RPCCW pump supply and exhaust fans, one train running (VP1). (step 4.2.2)
GRADE			**Standards:**	Observes that the indicating lights are green OFF red ON for 3HVR*FN14A and 3HVR*FN13A and green ON red OFF for 3HVR*FN14B and 3HVR*FN13B, the A train fans are running.
			Grade:	**SAT** _____ **UNSAT** _____
STEP	4		**Performance Step:**	CHECK 3HVR*FN14A and 3HVR*FN14B, charging and RPCCW pump supply fans, in "AUTO"(VP1). (step 4.2.3)
GRADE			**Standards:**	Observes that the "SPLY FAN?VEN DMPRS" control switches for 3HVR*FN14A and 3HVR*FN14Bare aligned to the "AUTO" position.
			Grade:	**SAT** _____ **UNSAT** _____

PERFORMANCE INFORMATION

JPM Number: 031 Revision: 6 chg 1

Task Title: SUBSEQUENT ACTIONS IN RESPONSE TO AUX. BLDG. RAD. MON. (3HVR-RE13) ALARM

STEP 5 ____ **Performance Step:** IF above lineup not established, Refer to Section 4.13 and PLACE one train of charging and RPCCW pump area ventilation in service. (step 4.2.4)

GRADE ____ ____ **Standards:** Proceeds to step 4.2.5 based upon lineup being verified established by previous procedure steps performed above.

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

STEP 6 ____ **Performance Step:** VERIFY, Waste Disposal Building ventilation and containment purge, not aligned to Auxiliary Building filters.

- 3HVR*AOD65A, filter sply, closed
- 3HVR*AOD65B, filter sply, closed
- 3HVR*AOD29A, filter sply, closed
- 3HVR*AOD29B, filter sply, closed

(step 4.2.5)

GRADE ____ ____ **Standards:** This information given as part of the turnover under initial conditions.

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

STEP 7 ____ **Performance Step:**

NOTE

This section supports response to high radiation in the upper levels of the Auxiliary Building (AOP 3573). Therefore, all general area ventilation is left on during the shift in alignment, 3HVR-HVU2B would supply more air than 3HVR-FN7 could exhaust and an unfiltered discharge could occur. (Step 4.2.6 Note)

GRADE ____ ____ **Standards:** Reviews Note.

PERFORMANCE INFORMATION

JPM Number: 031 Revision: 6 chg 1

Task Title: SUBSEQUENT ACTIONS IN RESPONSE TO AUX. BLDG. RAD. MON. (3HVR-RE13) ALARM

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

STEP 8 X **Performance Step:** IF general area ventilation is in service, PERFORM the following (VP1):

Numbered or Lettered steps should be done in the specified order.

a. STOP the following "AUX BLDG" "HVU's":
- 3HVR-HVU2A
- 3HVR-HVU2B

b. STOP the following "AUX BLDB" "EXH FANS":
- 3HVR-FN5
- 3HVR-FN7

(step 4.2.6)

GRADE ____ X **Standards:** Rotates control switch for 3HVR-HVU2A to "STOP" position and observes the indicating lights shift to green ON, red OFF.

GRADE ____ X **Standards:** Rotates control switch for 3HVR-HVU2B to "STOP" position and observes the indicating lights shift to green ON, red OFF.

GRADE ____ X **Standards:** Rotates control switch for 3HVR-FN5 to "STOP" position and observes the indicating lights shift to green ON, red OFF.

GRADE ____ X **Standards:** Rotates control switch for 3HVR-FN7 to "STOP" position and observes the indicating lights shift to green ON, red OFF.

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

Comments: Operation of 3HVR-HVU2A and

3HVR-HVU2B may be performed in any sequence HOWEVER, BOTH 3HVR-HVU2A and 3HVR-HVU2B must be stopped prior to operation of 3HVR-FN5 or 3HVR-FN7. Operation of 3HVR-FN5, and 3HVR-FN7 may be performed in any sequence.

STEP 9 X **Performance Step:** To shift Auxiliary Building filters to filtered alignment, PERFORM the following (VP1):

a. PRESS and HOLD "FILTER" pushbutton for the following dampers:
- 3HVR*AOD39A, normal exhaust
- 3HVR*AOD43A,filter supply damper

b. WHEN the following dampers reposition, RELEASE "FILTER" pushbuttons:
- 3HVR*AOD39A, normal exhaust, closes
- 3HVR*AOD43A, filter supply damper, opens

c. PRESS and HOLD "FILTER" pushbutton for the following dampers:
- 3HVR*AOD39B, normal exhaust
- 3HVR*AOD43B, filter supply damper

d. WHEN the following dampers reposition, RELEASE "FILTER" pushbutton"
- 3HVR*AOD39B, normal exhaust, closes
- 3HVR*AOD43B, filter supply damper, opens

(step 4.2.7)

GRADE ____ X ____ **Standards:** Depresses the "FILTER" pushbutton for filter/normal exhaust dampers 3HVR*AOD39A/43A and holds the button until the indicating lights shift to 3HVR*AOD39A, green ON, red OFF and 3HVR*AOD43A indicating lights shift to green OFF, red ON, THEN releases the pushbutton.

GRADE ____ X ____ **Standards:** Depresses the "FILTER" pushbutton for filter/normal exhaust dampers 3HVR*AOD39B/43B and holds the button until the indicating lights shift to 3HVR*AOD39B, green ON, red OFF and 3HVR*AOD43B indicating lights shift to green OFF, red ON, THEN releases the pushbutton.

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

PERFORMANCE INFORMATION

JPM Number: 031 Revision: 6 chg 1

Task Title: SUBSEQUENT ACTIONS IN RESPONSE TO AUX. BLDG. RAD. MON. (3HVR-RE13) ALARM

STEP	10	____	**Performance Step:**	VERIFY the following Auxiliary Building exhaust fan variable inlet vane controllers, in "AUTO" (VP1) • 3HVR*PIC194A, "AUX BLDG EXH FAN" • 3HVR*PIC104B, "AUX BLDG EXH FAN" (step 4.2.8)
GRADE	____	____	**Standards:**	Verifies indications for 3HVR*PIC104A indicate: • AUTO light ON • MANUAL light OFF
GRADE	____	____	**Standards:**	Verifies indications for 3HVR*PIC104B indicate: • AUTO light ON • MANUAL light OFF
			Grade:	**SAT** _____ **UNSAT** _____
STEP	11	____	**Performance Step:**	**NOTE** This section supports response to high radiation in the upper levels of the Auxiliary Building (AOP 3573). Therefore, all general area ventilation is left on during the shift in alignment, 3HVR-HVU2B would supply more air than 3HVR-FN7 could exhaust and an unfiltered discharge could occur. (Step 4.2.6 Note)
GRADE	____	____	**Standards:**	Reviews Note
			Grade:	**SAT** _____ **UNSAT** _____

PERFORMANCE INFORMATION

JPM Number: 031 Revision: 6 chg 1

Task Title: SUBSEQUENT ACTIONS IN RESPONSE TO AUX. BLDG. RAD. MON. (3HVR-RE13) ALARM

STEP 12 X **Performance Step:** To start Train A Auxiliary Building filter, PERFORM the following (VP1):

a. PLACE 3HVR*FN6A, filter exhaust fan, in "START" and HOLD.

b. WHEN the following occurs, RELEASE 3HVR*FN6A control switch:

- 3HVR*AOD20A, filter supply, opens
- 3HVR*MOD28A, filter exhaust, opens
- 3HVR*FN6A, exhaust fan, starts
- Filter bank heater, energizes

(step 4.2.9)

GRADE ____ X **Standards:** Rotates and maintains control switch for 3HVR*FN6A to "START" position until the following indications are observed:

- 3HVR*AOD20A, green light OFF, red light ON
- 3HVR*MOD28A, green light OFF, red light ON
- 3HVR*FN6A, green l light OFF, red light ON
- FLT1A HTR green light OFF, red light ON
- FLT2A HTR green light OFF, red light ON

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

Comments: The switch must be held for a minimum of five seconds to avoid an AUTO trip of the fan. If the fan trips and the examinee restarts it, the critical portion of this step is satisfied.

PERFORMANCE INFORMATION

JPM Number: 031 Revision: 6 chg 1

Task Title: SUBSEQUENT ACTIONS IN RESPONSE TO AUX. BLDG. RAD. MON. (3HVR-RE13) ALARM

STEP 13 ____ **Performance Step:** To start Train B Auxiliary Building filter, PERFORM the following (VP1):

a. PLACE 3HVR*FN6B, filter exhaust fan, in "START" and HOLD.

b. WHEN the following occurs, RELEASE 3HVR*FN6B control switch:

- 3HVR*AOD20B, filter supply, opens
- 3HVR*MOD28B, filter exhaust, opens
- 3HVR*FN6B, exhaust fan, starts
- Filter bank heater, energizes

(step 4.2.10)

GRADE ____ X **Standards:** Rotates and maintains control switch for 3HVR*FN6B to "START" position until the following indications are observed:

- 3HVR*AOD20B, green light OFF, red light ON
- 3HVR*MOD28B, green light OFF, red light ON
- 3HVR*FN6B, green I light OFF, red light ON
- FLT1B HTR green light OFF, red light ON
- FLT2B HTR green light OFF, red light ON

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

Comments: The switch must be held for a minimum of five seconds to avoid an AUTO trip of the fan. If the fan trips and the examinee restarts it, the critical portion of this step is satisfied.

PERFORMANCE INFORMATION

JPM Number: 031 Revision: 6 chg 1

Task Title: SUBSEQUENT ACTIONS IN RESPONSE TO AUX. BLDG. RAD. MON. (3HVR-RE13) ALARM

GRADE	____	____	**Standards:**	Examinee transitions to step 4.2.11 based upon Initiating Cue.
			Grade:	**SAT** _____ **UNSAT** _____
STEP	14	X	**Performance Step:**	START the following "AUX BLDG" "EHX FANS" (VP1) • 3HVR-FN5 • 3HVR-FN7 (step 4.2.11)
GRADE	____	X	**Standards:**	Rotates the control switch for 3HVR-FN5 to "START" and observes the indicating lights shift to green OFF, red ON.
GRADE	____	X	**Standards:**	Rotates the control switch for 3HVR-FN7 to "START" and observes the indicating lights shift to green OFF, red ON.
			Grade:	**SAT** _____ **UNSAT** _____
			Comments:	3HVR-FN5 and 3HVR-FN7 may be operated in any desired sequence.
STEP	15	X	**Performance Step:**	Performance Steps: START the following "AUX BLDG" "HVU's" (VP1) • 3HVR-HVU2A • 3HVR-HVU2B (step 4.2.12)
GRADE	____	X	**Standards:**	Rotates the control switch for 3HVR-HVU2A to "START" and observes the indicating lights shift to green OFF, red ON.
GRADE	____	X	**Standards:**	Rotates the control switch for 3HVR-

HVU2B to "START" and observes the indicating lights shift to green OFF, red ON.

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

Comments: 3HVR-HVU2A and 3HVR-HVU2B may be operated in any desired sequence.

STEP 16 ____ **Performance Step:** VERIFY the following annunciators, not lit:

- VP1A 1-6, "SLCRS/FUEL/AUX BLDG FLTR HTR TROUBLE"
- VP1A 3-6, "AUX BLDG VENT FN A LOCAL CNTL"
- VP1A 4-6, "AUX BLDG FNA AUTO TRIP/OVERCURRENT"
- VP1B 1-3, "RX PLANT VENT PNL TROUBLE"
- VP1C 1-6, "SLCRS/FUEL/AUX BLDG FLTR HTR TROUBLE"
- VP1C 3-6, "AUX BLDG VENT FN B LOCAL CNTL"
- VP1C 4-6, "AUX BLDG FN B AUTO TRIP. OVERCURRENT"

(step 4.2.13)

GRADE ____ ____ **Standards:** Verifies each of the above listed annunciator windows not lit.

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

STEP 17 ____ **Performance Step:** Notify US that the upper levels of the Auxiliary Building have been placed on filtered exhaust using Train A in accordance with OP 3314A Section 4.2.

GRADE ____ ____ **Standards:** Informs the US that the upper levels of the Auxiliary Building have been

PERFORMANCE INFORMATION

JPM Number: 031 Revision: 6 chg 1

Task Title: SUBSEQUENT ACTIONS IN RESPONSE TO AUX. BLDG. RAD. MON. (3HVR-RE13) ALARM

placed on filtered exhaust using Train A in accordance with OP 3314A Section 4.2.

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

Terminating Cue: The evaluation for this JPM is concluded.

Stop Time: _____

PERFORMANCE INFORMATION

JPM Number: 031 Revision: 6 chg 1

Task Title: SUBSEQUENT ACTIONS IN RESPONSE TO AUX. BLDG. RAD. MON. (3HVR-RE13) ALARM

Appendix C3 Form ES-C-1

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question:_____
_____
_____

Response:_____
_____
_____
_____

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

STUDENT HANDOUT

JPM Number: 031

Initial Conditions: **A leak on CHS*LT185 level transmitter line for the VCT has resulted in radiation monitor HVR-RE13 going into an alarm status. The control room team is carrying out the actions of AOP 3573, Radiation Monitor Alarm Response. One train of charging and RPCCW pump area ventilation is in service. The Waste Disposal Building ventilation and CTMT purge are not aligned to the AUX. Bldg. filters. General area ventilation is in service.**

Initiating Cues: **In carrying out the responses of AOP 3573, Radiation Monitor Alarm Response, the US has directed you to place the upper levels of the Aux. Bldg. on Train A filtered exhaust per OP 3314A, Section 4.2.**

Special Instrctions for concuurent JPMs	This JPM is being conducted concurrently with another JPM to improve efficiency of your examination administration. To ensure exam security, please adhere to the following special requirements: 4. Speak softly when announcing alarms or providing information. 5. Direct ALL communications to me. If the simulator booth operator must manipulate components, I will contact the simulator booth operator for you. 6. Remain focused on your task assignment and do not allow other activities to distract you.

JOB PERFORMANCE MEASURE APPROVAL SHEET

NRC Simulator JPM S.4

JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: Steam Generator Level Control with Feedwater Level Control Bypass Valve in AUTO and Feedwater Level Control Valve in HAND.

JPM ID Number: NRC Simulator S.4 Revision: 0

II. Initiated:

Nuclear Regulatory Commission — Developer

25 May 2004 — Date

III. Reviewed:

Technical Reviewer — Date

IV. Approved:

Cognizant Plant Supervisor (optional) — Date

Nuclear Training Supervisor — Date

JOB PERFORMANCE MEASURE APPROVAL SHEET

SUMMARY OF CHANGES

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3 Student: _____

JPM ID Number: NRC Simulator S.4 Revision: 0

Task Title: Steam Generator Level Control with Feedwater Level Control Bypass Valve in AUTO an Feedwater Level Control Valve in HAND.

System: 059

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 15

Task Number(s): _____

Applicable To: SRO X RO X PEO _____

K/A Number: 059 A2.12 K/A Rating: 3.4 / 3.1

Ability to (a) predict the impacts of the following malfunctions or operations on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of feedwater regulating valves.

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

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

Task Standards: Satisfactorily restore automatic SG water level control using the Feedwater Flow Control Bypass Valve.

Required Materials: Operating Procedure OP 3321, Main Feedwater, Section 4.17.

General References: Operating Procedure OP 3321, Main Feedwater, Section 4.17.

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 objective(s) 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 were actually being performed.

Special Instructions for concurrent JPMs	This JPM is being conducted concurrently with another JPM to improve efficiency of your examination administration. To ensure exam security, please adhere to the following special requirements: 1. Speak softly when announcing alarms or providing information. 2. Direct ALL communications to me. If the simulator booth operator must manipulate components, I will contact the simulator booth operator for you. 3. Remain focused on your task assignment and do not allow other activities to distract you.

Initial Conditions:	Plant is operating at power. Steam Generator "A" level control has been erratic due to a malfunction affecting the associated Feedwater Control Valve. The Feedwater Control Valve is in MANUAL.

Initiating Cues:	Place S/G "A" Water Level Control in Automatic using OP 3321, Section 4.17, to place the Feedwater Bypass Control Valve in AUTOMATIC with the Feedwater Control Valve in MANUAL.

JPM Number: NRC Simulator S.4 Revision: 0

Simulator Requirements:	
	This JPM runs concurrently with S.8, Swap RPCCW pumps and heat exchangers. The setup for S.4 is controlling. 1. Reset to IC 18. 2. Insert Malfunctions: None 3. I/O override: None 4. Place simulator in "RUN". 5. Place SG FRV in Manual 6. Place simulator in "FREEZE". 7. Place simulator in "RUN" after operator receives instruction. 8. After Exam Validation, the Simulator engineers investigated cause of the Bypass going full open when placed in AUTO. Additional setup may be required. Approximate simulator set up time is 5 minutes.

****** 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?").

VERIFICATION OF JPM COMPLETION

Start Time: _____

			NOTE:	1. If a problem with a feedwater control valve affects its ability to automatically close on a loss of power (air) or receipt of a FWI signal, the ACTION statement for T/S LCO 3.3.2 may apply. 2. When a feedwater regulating valve in automatic control is not operating properly, this section modifies the Feedwater Control System to operate with the feedwater regulating valve open and in "manual" control and its associated feedwater regulating bypass valve in automatic. (NOTE preceding 3321, Step 4.17.1)
STEP	1	____	**Performance Step:**	REQUEST authorization from the Duty Officer, Operations Manager, or Unit Director prior to performing this Section. (3321, Step 4.17.1)
			Standards:	
			Cue:	**The Operations Manager on Call (OMOC) authorized this action**
STEP	2	____	**Performance Step:**	Refer To T/S LCO 3.3.2 and determine required ACTIONs. (3321, Step 4.17.2)
			Standards:	
			Cue:	**The Unit Supervisor determined and initiated all T/S required ACTIONS.**

STEP	3		**Performance Step:**	ENSURE a Trouble Report has been generated for the affected FW flow control valve. (3321, Step 4.17.3)
			Standards:	
			Cue:	**A Trouble Report and a Condition Report has been generated for this problem.**
STEP	4	X	**Performance Step:**	PLACE 3FWS-SK509A, "PP A & B MSTR SPEED CNTL," in "MAN" (MB5). (3321, Step 4.17.4)
			Standards:	Candidate places 3FWS-SK509A in Manual.
			Grade:	**Sat** _____ **Unsat** _____
STEP	5		**Performance Step:**	IF 3FWS-FK510, steam generator 1 feed regulating valve, is the affected valve, PERFORM the following: (3321, Step 4.17.5.)
			Standards:	None
STEP	6		**Performance Step:**	VERIFY 3FWS-LK550, "SG1" "CONTROL" "BYP" in "MAN" (MB5). (3321, Step 4.17.5.a)
			Standards:	Applicant observes that 3FWS-LK550 is in Manual.
			Grade:	**Sat** _____ **Unsat** _____

STEP	7	X	**Performance Step:**	PLACE 3FWS-FK510, "SG1" "CONTROL" "FLOW" in "MAN" (MB5). (3321, Step 4.17.5.b)
			Standards:	Applicant selects manual on 3FWS-FK510. (Already in MAN)
			Grade:	**Sat** _____ **Unsat** _____
STEP	8	X	**Performance Step:**	PERFORM the following steps simultaneously until 3FWS-LK550 is 60 to 70% open while maintaining SG NR levels between 45% and 55% (MB5): • Slowly THROTTLE open 3FWS-LK550, "SG1" "CONTROL" "BYP" • Slowly THROTTLE close 3FWS-FK510, "SG1" "CONTROL" "FLOW" (3321, Step 4.17.5.c)
			Standards:	Applicant throttles the FCV closed while opening the FCV Bypass.
			Grade:	**Sat** _____ **Unsat** _____
			NOTE:	To prevent erratic valve operation, the NIS feed forward signal gain for a FW bypass level control valve should be set to zero prior to placing valve controller in "AUTO" . NOTE preceding (3321, Step 4.17.5.d)

VERIFICATION OF JPM COMPLETION

STEP	9		**Performance Step:**	REQUEST I&C Department remove circuit card 3FWS-LY-550, to defeat NIS feed forward signal gain for channels 550 and 560 (C7-421). (3321, Step 4.17.5.d)
			Standards:	Applicant requests removal of circuit card from Examiner.
			Cue:	Examiner directs Simulator Booth Operator to defeat feed forward signals for channels 550 and 560. Examiner reports to Applicant that the NIS feed forward signal gain for channels 550 and 560 are defeated.
STEP	10	X	**Performance Step:**	PLACE 3FWS-LK550, "SG1" "CONTROL" "BYP," in "AUTO" (MB5). (3321, Step 4.17.5.e)
			Standards:	Applicant selects automatic on 3FWS-FK550.
			Grade:	**Sat** _____ **Unsat** _____
STEP	11		**Performance Step:**	MONITOR 3FWS-LK550, SG 1 feed regulating valve bypass valve, for unstable operation. (3321, Step 4.17.5.f)
			Standards:	Applicant monitors 3FWS-LK550 and S/G water level for unstable operation.
			Grade:	**Sat** _____ **Unsat** _____
Terminating Cue: The evaluation for this JPM is complete. Thank you.				

Stop Time: _____

VERIFICATION OF JPM COMPLETION

Appendix C3 Form ES-C-1

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question:_____
_____
_____

Response:_____
_____
_____
_____

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

STUDENT HANDOUT

JPM Number: **NRC Simulator S.4**

Initial Conditions: **Plant is operating at power. Steam Generator "A" level control has been erratic due to a malfunction affecting the associated Feedwater Control Valve (Feed Reg Valve). The Feedwater Control Valve (Feed Reg Valve) is in MAN.**

Initiating Cues: **Place S/G "A" Water Level Control in Automatic using OP 3321, Section 4.17, to place the Feedwater Bypass Control Valve in AUTOMATIC with the Feedwater Control Valve in MANUAL.**

Special Instructions for concurrent JPMs	This JPM is being conducted concurrently with another JPM to improve efficiency of your examination administration. To ensure exam security, please adhere to the following special requirements: 4. Speak softly when announcing alarms or providing information. 5. Direct ALL communications to me. If the simulator booth operator must manipulate components, I will contact the simulator booth operator for you. 6. Remain focused on your task assignment and do not allow other activities to distract you.

NRC Simulator JPM S.5

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: RESPOND TO CONTAINMENT SUMP BLOCKAGE

JPM ID Number: NRC Simulator JPM S.5 Revision: 0

II. Initiated:

Nuclear Regulatory Commission	21 June 2004
Developer	Date

III. Reviewed:

Technical Reviewer	Date

IV. Approved:

Cognizant Plant Supervisor (optional)	Date
Nuclear Training Supervisor	Date

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

SUMMARY OF CHANGES

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3 Student: _____

JPM ID Number: NRC Simulator JPM S.5 Revision: 0

Task Title: RESPOND TO CONTAINMENT SUMP BLOCKAGE

System: FZ1

Alternate Path? Yes

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 18

Alternate Path: YES

Task Number(s): _____

Applicable To: SRO X RO X PEO _____

K/A Number: 026-A2.07 K/A Rating: 3.9 / 3.6
Ability to (a) predict the impacts of the following malfunctions or operations on the CSS: and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of containment spray pump suction when in recirculation mode, possibly caused by clogged sump screen, . . .

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

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

Task Standards: RESPOND TO CONTAINMENT SUMP BLOCKAGE

Required Materials: None

General References: ES-1.3, Transfer to Cold Leg Recirculation
ECA-1.1, Loss of Emergency Coolant Recirculation
GA-10, Filling RWST

*****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.

JPM Number: NRC Simulator JPM S.5 Revision: 0

Simulator Requirements:

Establish Cold Leg Recirculation up to ES-1.3, Step 5.
Containment Pressure less than 23 psia
Setup table with procedure open and foldout page out

"B" Train of SFP Cooling in service.

Have ES-1.3 open to Step 5 (page 9) with the foldout page out

Malfunction

When Applicant starts second Train B service water pump at ES-1.3, step 6.e., insert malfunction CH08 at Severity Level 50% and ramp in over 2 minutes.

JPM Number: NRC Simulator JPM S.5 Revision: 0

Initial Conditions: Following a large break loss of coolant accident (LBLOCA), the plant has established cold leg recirculation per ES-1.3, up to and including Step 4. You are to complete the remaining steps of ES-1.3 and respond to the plant as appropriate.

The crew has already addressed the containment integrity RED path.

Initiating Cues: You have the shift.

****** NOTES TO EVALUATOR ******

1. Critical steps for this JPM are indicated by an "*" 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: NRC Simulator JPM S.5 Revision: 0

Start Time: _____

No	*Procedure Step*	*Performance Standard*	*S/U*
1.	**Verify Cold Leg Recirculation** a. Check injection flow to RCS from charging pumps AND SI pumps – ESTABLISHED b. Verify at least one recirculation spray pump in each train - ALIGNED FOR COLD LEG RECIRC AND RUNNING ES-1.3, Step 5	Applicant verifies flow to RCS and RSS Pumps aligned for cold leg recirc	
2.	Functional Response procedures may now be implemented as necessary. NOTE Preceding ES-1.3, Step 6	Applicant reads note. Examiner Cue: if necessary "**The crew is performing all required functional recovery procedures. Please continue with your assigned task**"	
3.	**Restore One Train Of Service Water And RPCCW** ES-1.3, Step 6		
4.	Verify Containment pressure - LESS THAN 23 psia ES-1.3, Step 6.a	Applicant verifies CTMT press <23 psia	
5.	Check emergency bus 34D - ENERGIZED FROM EMERGENCY DIESEL GENERATOR ES-1.3, Step 6.b	Applicant observes 34D energized from offsite power and goes to the RNO	
6.	Perform the applicable action: • IF emergency bus 34D is energized by offsite power, THEN Proceed to step 6.d. • IF emergency bus 34D is deenergized, THEN Proceed to step 6.k. ES-1.3, Step 6.b, RNO	Applicant proceeds to step 6.d.	

PERFORMANCE INFORMATION

JPM Number: NRC Simulator JPM S.5 Revision: 0

No	*Procedure Step*	*Performance Standard*	*S/U*
7.	Verify Train B MCC/Rod Control Area SW booster pump (3SWP*P3B) - NOT RUNNING ES-1.3, Step 6.d	Applicant verifies 3SWP*P3B off.	
8.*	START the second Train B service water pump ES-1.3, Step 6.e	Applicant starts second SW pump in train "B".	
Booth Operator: Insert CH08 at Severity =50% and time ramp = 90 seconds.			
9.	Check Train B MCC/Rod Control Area SW booster pump (3SWP*P3B) - POWER AVAILABLE (VP1) ES-1.3, Step 6.f	Applicant verifies power available to 3SWP*P3B	
10.	Check B train spent fuel pool cooling system - IN SERVICE PRIOR TO EVENT ES-1.3, Step 6.g	Applicant observes SFC alignment to verify train "B" was in service before the event.	
11.*	START Train B RPCCW pump ES-1.3, Step 6.h	Applicant starts 3CCP*P1B.	
12.	OPEN RPCCW heat exchanger SW inlet valve (3SWP*MOV50B) ES-1.3, Step 6.i	Applicant opens 3SWP*MOV50B.	
13.	Proceed to step 7. ES-1.3, Step 6.j	Applicant continues in ES-1.3 until recognizing the blocked sump. Step 7 sends Applicant to GA-5 to restore spent fuel cooling.	

PERFORMANCE INFORMATION

JPM Number: NRC Simulator JPM S.5 Revision: 0

No	Procedure Step	Performance Standard	S/U
14 *	**CONTAINMENT SUMP SCREEN BLOCKAGE DETERMINATION CRITERIA** If ANY of the conditions listed below exists, Reset SI and CDA, then STOP the affected pump(s) and, Go to ECA-1.1, Loss of Emergency Coolant Recirculation: a. Containment sump level indications are NOT consistent with plant conditions • no indication of level increase • narrow range level, 3RSS-LI49, decreasing (MB2) b. ANY running RSS, Charging or Safety Injection pump or combination of pumps, taking suction from the Containment sump, indicating the following: • Amps oscillating • Flow oscillating • Discharge pressure oscillating ES-1.3, Foldout Page	***From Millstone 3 Simulator Book*** 50% Severity – • Sump level decreases to ~1/2 feet • Cavitation and flow oscillations evident 80% Severity – • Sump will empty • Severe cavitation and major flow oscillations 100% Severity – • Sump will empty • Cavitation and flow oscillations will eventually go to zero as sump level is expended. During Exam Validation – MB2B 4-4 (CTMT RECIRC PUMP DIS PRESSURE LO) came in to alert the Operator. The alarm response directs the user to check RSS Pump discharge pressure and flowrate. **Failure Criteria – Applicant does not respond to containment sump blockage ~4 minutes after reaching full severity.** Applicant stops all 8 ECCS Pumps: • Both Charging Pumps • Both SI Pumps • All four RSS Pumps	
ALTERNATE PATH. APPLICANT LEAVES ES-1.3 AND ENTERS ECA-1.1.			
15	If the suction source is lost to any ECCS or containment spray pump, the pump must be stopped. CAUTION preceding ECA-1.1, § 1	Applicant enters ECA-1.1 and reads CAUTION. Required actions should be completed already. Should have some level indicated in the sump.	

PERFORMANCE INFORMATION

JPM Number: NRC Simulator JPM S.5 Revision: 0

No	*Procedure Step*	*Performance Standard*	*S/U*
16	If emergency coolant recirculation capability is restored during this procedure, further recovery actions should continue by going to the procedure and step in effect. NOTE preceding ECA-1.1, § 1	Applicant reads NOTE.	
17	Continue Attempts To Restore Emergency Coolant Recirculation Equipment ECA-1.1, § 1	Applicant closes 3RSS*MOV20A or B	
18 *	Try to restore at least one Train. a. IF aligned for cold leg recirculation, CLOSE recirculation spray header isolation valve for selected train- • 3RSS*MOV20A • 3RSS*MOV20B START selected recirculation spray pump A OR B START selected train Charging and Safety Injection pumps ECA-1.1, § 1, RNO Column	Applicant starts the associated RSS pump Applicant may start the associated Charging and Safety Injection pumps Sump is still clogged. Applicant will have to secure the pumps just started per the CAUTION preceding ECA-1.1, Step 1 above. Failure to recognize continuing sump blockage and secure the pumps is a failure criteria.	
19	If offsite power is lost after SI reset, manual actions to restart safeguards equipment may be required. CAUTION preceding ECA-1.1, § 2	Applicant reads the CAUTION	

PERFORMANCE INFORMATION

JPM Number: NRC Simulator JPM S.5 Revision: 0

No	*Procedure Step*	*Performance Standard*	*S/U*
20	RESET ESF Actuation Signals If Required • SI • CDA • LOP • SIR ECA-1.1, § 2	Applicant resets those signals requiring reset. May reset all signals regardless of status – this is not an error. Failure to reset a locked-in signal is an error.	
21	Add Makeup To RWST a. Using GA-10, Fill the RWST as required while continuing with this procedure WHEN RWST level has increased to greater than 100,000 gal THEN Consult ADTS to determine what flow path should be established for injection ECA-1.1, § 3	***EXAMINER CUE: THE EVALUATION FOR THIS JPM IS COMPLETE. THANK YOU.***	

Stop Time: _____

VERIFICATION OF JPM COMPLETION

Appendix C3 Form ES-C-1

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question:_____
_____
_____

Response:_____
_____
_____
_____

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

STUDENT HANDOUT

JPM Number: NRC Simulator JPM S.5

Initial Conditions: A large break loss of coolant accident (LBLOCA) has occurred. The plant has just established cold leg recirculation per ES-1.3, Step 4. You are to complete the remaining steps of ES-1.3 and respond to the plant as appropriate.

The crew has already addressed the containment integrity RED path.

Initiating Cues: You have the shift.

NRC Simulator JPM S.6

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: START, PARALLEL & LOAD THE "B" EDG FROM MB8

JPM ID Number: NRC Simulator JPM S.6 Revision: 4, Chg. 3
Modified from Millstone 3 JPM Exam Bank (JPM Number 026)
10/21/02

II. Initiated:

Nuclear Regulatory Commission	21 June 2004
Developer	Date

III. Reviewed:

Technical Reviewer	Date

IV. Approved:

Cognizant Plant Supervisor (optional)	Date
Nuclear Training Supervisor	Date

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

SUMMARY OF CHANGES

Change	Description	Date

JOB PERFORMANCE MEASURE GUIDE

Facility: Millstone Unit 3 Student: _____

JPM Title: START, PARALLEL AND LOAD THE "B" EDG FROM MB8

JPM ID Number: NRC Simulator JPM S.6 Revision: 4, Chg. 3
Modified from Millstone 3 JPM Exam Bank (JPM Number 026)

System: EDG

Alternate Path? YES

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 18

Task Number(s): 064-01-016

Applicable To: SRO X RO X PEO _____

K/A Number: 064-000-A4.01 K/A Rating: 4.0 / 4.3
Ability to manually operate and/or monitor in the control room: Local and remote operation of the ED/G

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

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

Task Standards: Satisfactorily start the "B" Emergency Diesel Generator from MB8 using OP 3346A.

Required Materials: OP 3346A, Rev. 021-02

General References: OP 3346A, Rev. 021-02

*****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.

Simulator Requirements:	1. Reset to IC-18 or equivalent 100% power IC. 2. Insert the following malfunctions to occur after Applicant picks up some load: • EG08B, Severity = 100% (6,000 kW). • 65CS-3EGSEG-B (fails the "SPEED/LOAD" switch) • I/O Override MB8 E-G "Lower OFF, Raise ON" • EG/WM-3EGSEG-B to 8.00, 60 sec ramp (raises wattage). • EG/AM-3EGSEG-B to 1.00, 60 sec ramp (raises current). • EG/MB8B C13 DG B OVERLOAD (energizes overload annunciator). 3. Place the simulator in "Run" and check that the IC is stable. It is not necessary to place the simulator in "freeze". 4. Commence the JPM evaluation after the examinee has received the initial conditions and initiating cues. Approximate simulator setup time is 3-5 minutes.
Initial Conditions:	The plant is in a normal electric plant lineup with both EDGs ready for automatic loading. The Outside Rounds PEO has been sent to the "B" EDG enclosure and completed the preliminary checks for starting the "B" EDG. The prestart portions of the EDG Data Sheet (OP 3346A-013) and Diesel B Operating Log (OP 3346A-015) have been completed. The SBO diesel is not running. The other RO is filling out the Ops Forms.
Initiating Cues:	The US has directed you to conduct a start of the "B" EDG from MB8 using OP 3346A, Section 4.4 starting with step 4.4.4. The EDG is to be paralleled to the bus and loaded to 4500KW.

****** 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?").

VERIFICATION OF JPM COMPLETION

Start Time: _____

STEP 1 **X** **Performance Step:** OPEN 3SWP*AOV39B, "DG B OUT" (MB1). (Step 4.4.4)

Standards: Depresses the "open" pushbutton for 3SWP*AOV39B on MB1 and observes that the indicating lights shift to green OFF, red ON.

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

STEP 2 ____ **Performance Step:** VERIFY "EDG B" "VOLT REG SEL" (MB8), in "AUTO" (preferred) or "MANUAL". (Step 4.4.5)

Standards: Observes the control switch for the "B" diesel generator voltage regulator is aligned to the "AUTO" position.

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

STEP 3 ____ **Performance Step:** REQUEST Operator press "EXCITER RESET" button (3EGS*PNLB), and CHECK white "READY FOR AUTO START" (3EGS*PNLB) light lit. (Step 4.4.6)

Standards: Contacts the Outside Rounds PEO and directs the "exciter reset" button pressed and checks the "ready for auto start " light lit.

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

Cue: Inform the examinee that the exciter has been reset and 'ready for auto start' light is lit.

			Cue:	Prior to the next step, inform the examinee that the rocker arm prelube pump has not been run in the last 24 hours.
STEP	4	X	**Performance Step:**	START EGO*P1B, "PRELUBE" pump (MB8). [SER 102-81]. (Step 4.4.7)
			Standards:	Rotates the control switch for the "B" diesel generator rocker arm prelube pump to the "start" position and observes that the indicating lights shift to green OFF, red ON. Also notes the time that the prelube pump was started.
			Grade:	**SAT** _____ **UNSAT** _____
			NOTE	The prelube pump need not be run for 2 minutes to satisfactorily complete the step
STEP	5	X	**Performance Step:**	WHEN two minutes have elapsed, STOP EGO*P1B, "PRELUBE" pump (MB8). (Step 4.4.8)
			Standards:	After the prelube pump has run for 2 minutes, rotates the control switch for the "B" diesel generator rocker arm prelube pump to the "stop" position and observes the indicating lights shift to green ON, red OFF.
			Grade:	**SAT** _____ **UNSAT** _____
			Cue:	After ~ 15 seconds, inform the examinee that the prelube has run for 2 minutes

VERIFICATION OF JPM COMPLETION

STEP	6	____	**Performance Step:**	VERIFY SBO diesel is <u>not</u> paralleled to bus 34D. (Step 4.4.9)
			Standards:	As part of the initial conditions, the examinee was told that the SBO diesel was not running. May check the SBO diesel breaker (3BGS-ACB-BG-A is OPEN) on MB8 as a second check.
			Grade:	**SAT** _____ **UNSAT** _____
			Cue:	If the examinee asks the US the status of the SBO provide the following **Cue:** The SBO diesel is not running.
			Cue:	Prior to the next step, the examinee may request plant status based on the Caution in the procedure. Based on his requests provide the appropriate cues: - The opposite train diesel is operable - The opposite train diesel is not operating - Severe weather conditions do not exist - The grid is stable and a loss of offsite power is not anticipated. - 343B is not paralled to Unit 2 bus 24E

STEP 7 ____ **Performance Step:** CHECK that the following conditions do not exist:

" Emergency diesel generator A is inoperable

Cue: Emergency diesel generator "A" is operable.

" Emergency diesel generator A is operating in parallel.

Cue: The status of emergency diesel generator "A" is as observed on the console.

" Severe weather

Cue: The current & forecasted weather is mild.

" Other possible loss of offsite power (LOP) condition.

Cue: **Currently** there are no activities or circumstances that would raise the likelihood of a loss of offsite power.

" Cross tie breaker 34D*1T-2 closed while 34B is paralleled to Unit 2 bus 24E (Step 4.4.10)

Cue: Cross tie breaker 34D*1T-2 is open and 34 B is NOT paralleled to Unit 2 buss 24E.

Standards: Checks MB8 indications for the status of the other diesel generator and offsite power. Asks the US for the status of the other parameters.

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

STEP 8 **X** **Performance Step:** PLACE diesel generator B "MODE SEL" switch (MB8) in "PARALLEL". (Step 4.4.11)

Standards: Rotates the "B" diesel generator mode selector switch to the "parallel" position.

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

Comment: The RO may request the stopwatch to time the EDG start or they may use the computer.

STEP 9 **X** **Performance Step:** PLACE diesel generator B "START" switch (MB8) in "START". (Step 4.4.12)

Standards: Rotates the start switch for the B diesel generator to the "start" position and observes that exciter volts, generator volts and generator frequency meters will move off their bottom pegs as EDG comes up to speed.

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

Comments: The examinee may note the length of time for the diesel to start. This will be used to complete form 3346A-013. It is not necessary to complete the form to satisfy the critical nature of this step.

Current practice is to obtain start times for the plant computer.

STEP 10 ____ **Performance Step:** CHECK diesel generator B "LOAD" light (MB8) lit. (Step 4.4.13)

Standards: When the "B" diesel generator frequency meter indicates 60 Hz, observes that the white "LOAD" light is on.

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

VERIFICATION OF JPM COMPLETION

STEP 11 ____ **Performance Step:** Refer to OP 3346A-013, "Start" section and DOCUMENT the following: (Step 4.4.14)

- Time diesel started
- Diesel start time

Standards: Completes the section for time diesel started and the diesel starting time.

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

Cue: Inform the examinee that the other RO is filling out the log sheet.

STEP 12 ____ **Performance Step:** COMPLETE "Immediately after diesel started" section of OP 3346A-015. (Step 4.4.15)

Standards: Completes that section of OP 3346A-015.

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

Cue: Inform the examinee that the other RO is filling out the log sheet.

STEP 13 ____ **Performance Step:** IF diesel generator B is to be paralleled to bus 34D, Go To Section 4.12. (Step 4.4.16)

Standards: Proceeds to section 4.12.

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

Cue: If necessary, remind examinee that initiating cues are to start EDG along with, parallel and load to 4500KW from MB8.

STEP 14 ____ **Performance Step:** IF paralleling diesel from Control Room, PERFORM the following (MB8):
IF "CONTROL MODE" switch is selected to "LOCAL", using key # ILCO 999NY1E, PLACE "CONTROL MODE" switch in "REMOTE" (3EGS*PNLB). (Step 4.12.1.a)

Standards: Contacts Outside Rounds PEO to check the position of the "Control Mode" switch.

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

Cue: If the examinee contacts the PEO, provide the following **Cue:** The "Control Mode" switch is in "Remote".

STEP 15 X **Performance Step:** PLACE diesel generator B to bus 34D "SYNC SEL" switch in "ON". (Step 4.12.1.b)

Standards: Places the "B" train handle into the "B" diesel generator to bus 34D synchronizing selector switch and rotates the handle to the "on" position. Will also observe rotation of the synchroscope.

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

STEP 16 ____ **Performance Step:** IF 34C-1T-2, "34D-34B TIE" is closed, CHECK SBO D/G not paralleled to bus 34B. (Step 4.12.1.c)

Standards: Observes that 34D-1T-2 tie breaker is closed. Checks that the SBO D/G is not in parallel with bus 34B.

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

STEP 17 ____ **Performance Step:** IF 34D *1T-2 34D-34B tie Breaker is closed, check bus 34B is not paralleled to Unit 2 24E (step 4.12.d)

Standards: Observes that 34D-1T-2 tie breaker is closed. Check 24E not paralleled to 34B.

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

Cue: 34B is not paralleled to Unit 2".

STEP 18 **X** **Performance Step:** SYNCHRONIZE diesel to bus 34D as follows:

a. ADJUST diesel generator B "SPEED/LOAD" switch to obtain slow rotation of synchroscope in fast direction.

b. Using the selected regulator, ADJUST "EDG B" voltage regulator to obtain "INCOMING" voltage slightly greater than "RUNNING" voltage:
- "AUTO VOLT REGULATOR"
- "MAN VOLT REGULATOR"

(Step 4.12.1.e)

Standards: Rotates the "B" diesel generator Speed/Load switch to the "raise/lower" positions as necessary so the synchroscope is rotating slowly in the fast direction.

Standards: Rotates the "B" diesel generator voltage regulator adjust switch to the "raise/lower" positions as necessary until the "INCOMING" voltage is slightly higher than the "RUNNING" voltage.

STEP 19 **X** **Performance Step:** WHEN the synchroscope is rotating slowly in fast direction AND is at five minutes before twelve o'clock position, CLOSE DGB*34D-2, "EDG B SPLY". (Step 4.12.1.f)

Standards: When the synchroscope is at the five minutes to twelve o'clock position, rotates the control switch for diesel generator "B" supply breaker to the "close" position and observes the indicating lights shift to green OFF, red ON.

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

STEP 20 X **Performance Step:** Using the diesel generator B "SPEED/LOAD" switch, LOAD diesel to a minimum of 200kW as read on "KW". (Step 4.12.1.g)

Standards: Observes the load on the diesel. Rotates the "speed/load" switch to the "raise/lower" positions as necessary to load the diesel to at least 200kW.

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

Alternate Path: ***Malfunction causes the diesel to continually pickup load because the "SPEED/LOAD" switch has failed. The generator will overload to 8,000 kW because the load limiter is failed.***

Applicant should recognize the problem before receiving MB8B 3-13, "DG B OVERLOAD" and attempt to lower load. When that fails, Applicant should trip the EDG – preferably before the overload alarms.

Applicant may not have time to perform steps 21 through 25 before necessity to trip the EDG is evident.

STEP 21 ____ **Performance Step:** PLACE diesel generator B to bus 34D "SYNC SEL" switch in "OFF". (Step 4.12.1.h)

GRADE ____ ____ **Standards:** Rotates the diesel generator "B" to bus 34D synchronizing selector switch to the "off" position.

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

STEP 22 ____ **Performance Step:** COMPLETE "After EDG output breaker is closed" section of OP 3346A-014. (Step 4.12.3)

Standards: Completes that section of OP 3346A-014.

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

Cue: You may need to inform the examinee that the other RO is filling out the log sheet.

STEP 23 ____ **Performance Step:** OBSERVE the following load/duration limits:

Load	Maximum Duration
≤5000 kW	8,760 Hrs.
5000-5335 kW	2000 Hrs.
5335-5500 kW	160 Hrs.
5500-6000 kW	30 min
> 6000 kW	Prohibited

(Step 4.12.4)

Standards: The initial conditions stated that the diesel was to be loaded to 4500kW. Consequently, it may run at this load for a prolonged period of time.

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

Cue: If the examinee questions to what amount the diesel is to be loaded, provide the following **Cue:** The "B" EDG is to be loaded to 4500kW.

STEP 24 ____ **Performance Step:** NOTIFY Engineering Department of any operation with load greater than 5000kW, including load and duration of operation above 5000kW. (Step 4.12.5)

Standards: Since the diesel is only to be loaded to 4500kW, no action is required.

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

STEP 25 **X** **Performance Step:** Using ADJUST load as required using one of the following:
- "SPEED/LOAD" (MB8)
- "GOVERNOR CONTROL" (3EGS*PNLB)

(Step 4.12.6)

Standards: Rotates the "SPEED/LOAD" switch in the "raise/lower" directions as necessary to increase load. Observes a loading limit to fully load the EDG over ~20 minutes Consequently, picks up approximately 200-250KW per minute.

Total time to reach 4500KW should be approximately 20 minutes based in initial KW load.

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

Booth Operator: ***After the Applicant picks up some load, insert the specified malfunctions so that it appears that the diesel generator is continually picking up load and becomes overloaded.***

STEP 26 ____ **Performance Step:** OP 3346A, Precaution 3.16 prohibits operation above 6,000 kW

OP 3346A, Precaution 3.19 requires the user to push the emergency stop pushbuttons for abnormal shutdowns.

Standards: Applicant should observe real load (kW) increasing uncontrollably.

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

STEP 27 ____ **Performance Step:** IF emergency diesel generator B is paralled to grid, PLACE "SPEED/LOAD" switch in "LOWER" and REDUCE emergency diesel generator B load to less than 5,335 KW.

(OP 3353.MB8B 3-13, Step 1)

Standards: Applicant takes the "SPEED/LOAD" switch to "LOWER". Observes that this has no effect.

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

STEP 28 X **Performance Step:** IF emergency diesel generator B is single power source to emergency bus, REQUEST Control Room Operator STOP unnecessary loads to REDUCE emergency diesel generator B load to less than 5,335 KW.

(OP 3353.MB8B 3-13, Step 2)

Standards: Applicant recognizes that this step is not applicable.

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

STEP 29 ____ **Performance Step:** ACKNOWLEDGE local alarm to enable Control Room reflash capability.

(OP 3353.MB8B 3-13, Step 3)

Standards: Applicant acknowledges alarms if necessary.

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

VERIFICATION OF JPM COMPLETION

STEP 30 ____ **Performance Step:** DETERMINE cause of emergency generator B overload by checking alarms at MB8 and 3EGS*PNLB.

(OP 3353.MB8B 3-13, Step 4)

Standards: Applicant reviews MB8 and calls PEO to report conditions at 3EGS*PNLB.

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

STEP 25 **X** **Performance Step:** Trip the Emergency Diesel Generator

Standards: Applicant determines that a trip is necessary to protect the EDG from unnecessary overload and presses the EMERGENCY STOP PUSHBUTTON.

Failure criteria: ~2 minutes after reaching 6,000 kW and the Applicant has not tripped the EDG.

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

Terminating Cue: When the Applicant has tripped the EDG, tell the Applicant "**The evaluation for this JPM is complete. Thank you.**"

Stop Time: _____

VERIFICATION OF JPM COMPLETION

Appendix C3 Form ES-C-1

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question:_____
_____
_____

Response:_____
_____
_____
_____

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

STUDENT HANDOUT

JPM Number: **NRC Simulator JPM S.6**

Initial Conditions: **The plant is in a normal electric plant lineup with both EDGs ready for automatic loading. The Outside Rounds PEO has been sent to the "B" EDG enclosure and completed the preliminary checks for starting the "B" EDG. The prestart portions of the EDG Data Sheet (OP 3346A-013) and EDG B Operating Log (OP 3346A-015) have been completed. The SBO diesel is not running. The other RO will be filling out the Ops forms.**

Initiating Cues: **The US has directed you to conduct a start of the "B" EDG from MB8 using OP 3346A, Section 4.4 starting with step 4.4.4. The EDG is to be paralleled to the bus and loaded to 4500KW.**

NRC Simulator JPM S.7

Job Performance Measure

I. JPM Title: Respond to Main Steam Pressure Transmitter MSS-PT20D Failure to 100%, Causing SG Atmospheric Relief Valve MSS-PV20 to Open (OP3353.MB5C 5-7).

JPM ID Number: NRC Simulator S.7 Revision: 0

II. Initiated:

Nuclear Regulatory Commission — 25 May 2004
Developer — Date

III. Reviewed:

Technical Reviewer — Date

IV. Approved:

Cognizant Plant Supervisor (optional) — Date

Nuclear Training Supervisor — Date

Job Performance Measure

SUMMARY OF CHANGES

Change	Description	Date

Job Performance Measure

Facility: Millstone Unit 3 Student: _____

JPM ID Number: NRC Simulator S.7 Revision: 0

Task Title: Respond to Main Steam Pressure Transmitter MSS-PT20D Failure to 100%, Causing SG Atmospheric Relief Valve MSS-PV20 to Open (OP3353.MB5C 5-7).

System: 041, Main Steam

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 10 for RO / 15 for SRO

Task Number(s): _____

Applicable To: SRO X RO X PEO _____

K/A Number: 041 A4.06 K/A Rating: 3.1 / 2.9
Ability to manually operate and/or monitor in the control room: Atmospheric relief valve controllers

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

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

Task Standards:
- Applicant closes isolation valve 3MSS*MOV18D
- Applicant recognizes both instrument failure and component failure.

Required Materials: None

General References: OP 3353.MB5C 5-7, MAIN STEAM RELIEF VV NOT CLOSED
AOP 3571, Instrument Failure Response.

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. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

You are to operate and respond to the simulator just as you would in the actual plant.

Initial Conditions:	The plant is steady state at 100% power with no equipment out of service. You are to respond to the simulator just as you would respond to the actual plant. Do you have any questions? Are you ready to begin?
Initiating Cue:	You have the shift.
Special Instrctions for concuurent JPMs	This JPM is being conducted concurrently with another JPM to improve efficiency of your examination administration. To ensure exam security, please adhere to the following special requirements: 1. Speak softly when announcing alarms or providing information. 2. Direct ALL communications to me. If the simulator booth operator must manipulate components, I will contact the simulator booth operator for you. 3. Remain focused on your task assignment and do not allow other activities to distract you.

****** NOTES TO EVALUATOR ******

1. Critical steps for this JPM are indicated by an unshaded box after the step. 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?").

Start Time: _____

Simulator Setup	**IC-18** • RCS Tave = 587°F • PZR Pressure = 2235 psig • Reactor Power = 100% **NOTE** This JPM runs concurrently with S.3, Subsequent Actions in Response to Auxiliary Building Radiation Monitor (3HVR-RE13) Alarm. Use IC-18 for both JPMs.

Examiner Cue:	**You have the Shift**
Simulator Instruction:	**At t ≥ 45 seconds, insert malfunction MS11D, Severity = 100%.** **At t ≥ 50 seconds, insert malfunction MS09D, Severity = 100%**

NOTE: The two column format below shows the response per alarm response OP3353.MB5C, 5-7 on the left and AOP 3571 on the right. The expected Applicant behavior appears below each step in a shaded box.

	OP 3353.MB5C 5-7 Response	AOP 3571 Response	
1.	Applicant checks S/G pressures for proper operation of Main Steam Pressure Relief Valve. Observes that 3MSS-PIC20D is pegged high.		
Applicant observes that 3MSS-PIC20D failed high, causing Atmospheric Relief to OPEN			
2. *	IF pressure controller has failed, PLACE controller in "MAN" and CLOSE the Valve	Determine the Initiating Parameter and Place the Affected Controller in MANUAL. (Step 1)	
Applicant places 3MSS*PV20D in MANUAL.			
3. *	IF relief valve does *not* close, CLOSE the following isolation valves (MB5): • 3MSS*MOV18D	Stabilize the Plant Parameters (Step 2) NOTE: 3MSS*MOV18D is a throttle valve. Applicant must hold the CLOSE pushbutton until the valve is fully shut.	
Relief valve has failed OPEN. Applicant isolates it by closing 3MSS*MOV18D.			
4.	Refer to Technical Specification 3.7.1.6 and DETERMINE Limiting Condition for Operation.	Perform Corrective Actions using Appropriate Attachment (Step 3) *Attachment I*	

Examiner Cue for RO Applicants ONLY:	**The Unit Supervisor is referring to Technical Specifications. The evaluation for this JPM is complete. Thank you.**

SRO Applicants continue:			
5. *	SRO Applicant refers to Technical Specifications and enters LCO Action 3.7.1.6.a. (7 day timeclock)	NOTE TO EXAMINER: *Applicant should state or otherwise indicate recognition of LCO requirement.*	
6.	IF failure is due to an instrument problem, Go To AOP 3571.	Defeat the failed instrument input by placing the affected SG atmospheric relief valve controller in MANUAL and Close the valve. (Step I.1)	
7.		When conditions have stabilized, Observe MB annunciators and parameters and immediately report any unexpected or unexplained conditions to the Shift Manager. (Step I.2)	
8.		NOTE There are no Technical Specifications or bistables associated with this instrument. (precedes Step I.3)	
9.	NOTE TO EXAMINER: *Applicant should state or otherwise demonstrate request for I&C action..*	Request I&C Department perform corrective maintenance on failed instrument. (Step I.3)	
Examiner Cue:	**The evaluation for this JPM is complete. Thank you.**		

Stop Time: _____ * **denotes critical step.**

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question:_____
_____
_____

Response:_____
_____
_____
_____

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

Job Performance Measure
Student Handout
JOB PERFORMANCE MEASURE INSTRUCTION SHEET

DIRECTIONS TO STUDENT

YOU ARE TO OPERATE AND RESPOND TO THE SIMULATOR JUST AS YOU WOULD IN THE ACTUAL PLANT.

Initial Conditions

THE PLANT IS STEADY STATE AT 100% POWER WITH NO EQUIPMENT OUT OF SERVICE. YOU ARE TO MAINTAIN 100% POWER.

Special Instrctions for concuurent JPMs	This JPM is being conducted concurrently with another JPM to improve efficiency of your examination administration. To ensure exam security, please adhere to the following special requirements: 1. Speak softly when announcing alarms or providing information. 2. Direct ALL communications to me. If the simulator booth operator must manipulate components, I will contact the simulator booth operator for you. 3. Remain focused on your task assignment and do not allow other activities to distract you.

NRC Simulator JPM S.8

I. JPM Title: Swap RPCCW Train "B" to Train "C"

JPM ID Number: Simulator S.8 Revision: 0

II. Initiated:

Nuclear Regulatory Commission — 23 June 2004
Developer — Date

III. Reviewed:

Technical Reviewer — Date

IV. Approved:

Cognizant Plant Supervisor (optional) — Date

Nuclear Training Supervisor — Date

SUMMARY OF CHANGES

Change	Description	Date

Facility: Millstone Unit 3 Student: _____

JPM ID Number: Simulator S.8 Revision: 0

Task Title: Swap RPCCW Train "B" to Train "C"

System: 008 (RPCCW)

Alternate Path? Yes

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 30

Task Number(s): _____

Applicable To: SRO X RO X PEO _____

K/A Number: 008.A4.10 K/A Rating: 3.1 / 3.1
Ability to operate and/or monitor in the control room: Conditions that require the operation of two CCW coolers.

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

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

Task Standards:
- Applicant swaps from RPCCW Train "B" to Train "C"
- Applicant recognizes need to swap back to Train "B"
- Applicant successfully swaps back to Train "B"

Required Materials:
- OP 3330A, Reactor Plant Component Cooling Water

General References:
- OP 3330A, Reactor Plant Component Cooling Water
- OP 3353.MB1C 4-6, RPCCW HX OUT TEMP HI/LO

Initial Conditions:	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. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed. You are to operate and respond to the simulator just as you would in the actual plant.
	You are a Control Room Operator at Millstone Generating Station, Unit 3. The plant is steady state at 100% power. No equipment is out of service. The Unit Supervisor has directed you to **Shift from RPCCW Pump and Heat Exchanger B to RPCCW Pump and Heat Exchanger C** per section 4.6 of OP 3330A. Train "B" is to be taken out of service for planned maintenance. Do you have any questions?
Initiating Cue:	Here are copies of OP 3330A and OP 3326. You have the shift.
Special Instrctions for concuurent JPMs	This JPM is being conducted concurrently with another JPM to improve efficiency of your examination administration. To ensure exam security, please adhere to the following special requirements: 1. Speak softly when announcing alarms or providing information. 2. Direct ALL communications to me. If the simulator booth operator must manipulate components, I will contact the simulator booth operator for you. 3. Remain focused on your task assignment and do not allow other activities to distract you.

****** NOTES TO EVALUATOR ******

1. Critical steps for this JPM are indicated by an asterisk and bolding. 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?").

Start Time: _____

#	Step	Standard	S/U
Simulator Setup	**IC-18** • RCS Tave = 587°F • PZR Pressure = 2235 psig • Reactor Power = 100% Insert Malfunction SW07F, Severity = 100%, at time = 0. **NOTE:** This JPM runs concurrently with S.4, S/G Level Control with Feedwater Level Control Bypass Valve in AUTO. Both use IC-18. S.4 has additional requirements that do not affect this JPM. The Examiner should be on a headset with the Simulator Booth Operator to facilitate communications and maintain examination security.		
Examiner Cues:		**Here are copies of OP 3330A and OP 3326** **You have the shift.**	
1.	1. Train A and Train B RPCCW containment supply and return headers should be cross-connected during all RPCCW shifting evolutions to ensure adequate cooling water supply to reactor coolant pump lube coolers. 2. To prevent siphoning, hose directed to collection barrel should not be submerged. (CAUTION preceding 3330A Step 4.6.1)	Applicant reads the CAUTION	
2.	Refer To OP 3326, "Service Water System," and REVIEW precaution regarding train and heat exchanger alignment to avoid violating Service Water System and pump minimum or maximum flow conditions. (3330A Step 4.6.1)	Applicant refers to OP 3326, Precaution 3.8, and determines that the swap can be accomplished without violating SW flow requirements. • 1 RPCCW Heat Exchanger • 1 TPCCW Heat Exchanger	

#	Step	Standard	S/U
4.	IF in MODE 1, 2, or 3, Refer To TRM-7.4.1, "Fire Related Safe Shutdown Components," and REVIEW the required ACTION statement. (3330A Step 4.6.2)	**Examiner Cue: The Unit Supervisor is performing TRM-7.4.1, Action a. Please continue.**	
5.	ATTACH hose to 3SWP*V213, RPCCW heat exchanger B service water outlet vent, and DIRECT to a collection barrel in preparation for venting reactor plant component cooling water heat exchanger B. (3330A Step 4.6.3)	**Examiner Cue: The hose has been attached to 3SWP*V213 and routed to a collection barrel. Please continue.**	
6.	Refer To Section 4.10 and VERIFY RPCCW pump C and heat exchanger are aligned to Train B RPCCW System. (3330A Step 4.6.4)	**Examiner Cue: RPCCW Train "C" pump and heat exchanger are aligned to Train "B". Please continue.**	
7.	To prepare RPCCW heat exchanger C for service, CLOSE the following valves: • 3SWP*V211, RPCCW heat exchanger C inlet service water vent • 3SWP*V214, RPCCW heat exchanger C outlet service water vent (3330A Step 4.6.5)	Applicant calls PEO and directs closing of 3SWP*V211 and V214. ***Examiner: Direct Booth Operator to Close 3SWP*V211 and 3SWP*V214. When Booth Operator has closed the valves, tell Applicant that 3SWP*V211 and 3SWP*V214 are closed.***	BOOTH – NO CODES
8.	1. A total RPCCW train flow of greater than 5,100 gpm is desirable to prevent a pressure transient due to pump shifting, thus reducing the chance of lifting a pressure relief. 2. The following step initiates flow through the idle Train B Spent Fuel Pool Cooling System heat exchanger. (NOTE preceding 3330A Step 4.6.7)	Applicant reads the NOTE. **Booth Operator – maintain flow above 5,100 gpm.**	BOOTH

#	Step	Standard	S/U
9.	IF total train B RPCCW flow is less than 5,100 gpm as indicated by computer point CVCCPTRB, PERFORM the following, as necessary: • ADJUST 3CCP*V114, fuel pool cooler B RPCCW outlet, to obtain 1,700 to 1,900 gpm as indicated on 3CCP-FIS255B • ADJUST 3CCP*FCV66B, RHR heat exchanger B cooling outlet isolation, to obtain greater than 5,100 gpm • EVALUATE RPCCW System configuration and ESTABLISH greater than 5,100 gpm (3330A Step 4.6.6)	Total flow is expected to be greater than 5,100 gpm.	
10. *	To cross-connect the RPCCW System containment headers, PERFORM the following: a. OPEN the following valves (MB1): • 3CCP*AOV179A, "HDR DIV TR A" • 3CCP*AOV180A, "HDR DIV TR A" • 3CCP*AOV179B, "HDR DIV TR B" • 3CCP*AOV180B, "HDR DIV TR B" b. CLOSE the following valves (MB1): 1) 3CCP*MOV45B, "CTMT ISOL TR B" 2) 3CCP*MOV48B, "CTMT ISOL TR B" 3) 3CCP*MOV49B, "CTMT ISOL TR B" (3330A Step 4.6.7)	Applicant OPENS 3CCP*AOV179A, 180A, 179B and 180B in any order. Applicant closes 3CCP*MOV45B, 48B and 49B in the specified order.	

11. *	OPEN 3SWP*V38, RPCCW heat exchanger C service water inlet. (3330A Step 4.6.8)	Applicant directs PEO to OPEN 3SWP*V38 ***Examiner: Direct Booth Operator to Open 3SWP*V38. When Booth Operator has closed the valves, tell Applicant that 3SWP*V38 is closed.***	BOOTH
12.	When the heat exchanger shift has been completed, 3SWP*V39, RPCCW heat exchanger C service water outlet valve, should be fully open. (NOTE preceding 3330A Step 4.6.9)	Applicant reads NOTE	
13.	WHEN shifting heat exchanger, MONITOR 3SWP-FI 43B, "RPCCW HX" (MB1), and ENSURE service water flow does not drop below 6,000 gpm or rise above 10,000 gpm. (3330A Step 4.6.9)	Applicant reads step and identifies 3SWP-FI 43B.	
14. *	To shift RPCCW heat exchangers, simultaneously PERFORM the following: • Slowly OPEN 3SWP*V39, RPCCW heat exchanger C service water outlet • Slowly CLOSE 3SWP*V67, RPCCW heat exchanger B service water outlet (3330A Step 4.6.10)	Applicant directs PEO to slowly OPEN 3SWP*V39 while simultaneously and slowly CLOSING 3SWP*V67. ***Examiner: Direct Booth Operator to Open 3SWP*V39 and Close 3SWP*V67. When Booth Operator has closed the valves, tell Applicant that 3SWP*V39 is open and 3SWP*V67 is closed***	(SWR07 OP / SWR06 CL)
15.	Pressure transient from the pump shift may cause relief valves to lift and then the reliefs may fail to reseat. This could overfill radwaste tanks. (CAUTION preceding 3330A Step 4.6.11)	Applicant reads CAUTION.	

16. *	To shift RPCCW pumps, PERFORM the following (MB1): a. PLACE and HOLD 3CCP*P1C, "PP C" (Train B) control sitch in "START," then STOP 3CCP*P1B, "PP B." b. WHEN 3CCP*P1C, "PP C," indicates started, RELEASE CCP*P1C, "PP C" control switch. (3330A Step 4.6.11)	Applicants starts 3CCP*P1C and stops 3CCP*P1B. **NOTE:** P1C will NOT start until P1B's breaker opens.	
17.	VERIFY pump discharge pressure on 3CCP-PI 29C, "PP DIS PRES" (MB1). (3330A Step 4.6.12)	Applicant verifies that pump discharge pressure is approximately at its pre-swap value and steady.	
18.	WHEN 15 seconds have elapsed, if pump discharge pressure is not indicated on 3CCP-PI 29C, "PP DIS PRES" (MB1), PERFORM the following: a. STOP CCP*P1C, "PP C" (Train B) (MB1). b. Refer To step 4.4.7 and VENT the RPCCW System. (3330A Step 4.6.13)	Applicant waits 15 seconds and observes that 3CCP*P1C discharge pressure is indicated on 3CCP-PI 29C. The "C" SW-to-RPCCW heat exchanger is fouled. 3353.MB1C 4-6, "RPCCW HX OUT TEMP HI/LO" will energize soon. Applicant will need to decide whether to continue the procedure in effect or try to mark steps as "n/a" to restore "B" train RPCCW to service. **Ask the applicant for recommendations. Then direct the applicant to complete the procedure in effect and then to place "B" RPCCW train back in service.**	
19. *	PLACE 3CCP*P1B, "PP B" in PTL. (3330A Step 4.6.14)	Applicant places 3CCP*P1B in pull-to-lock	

20.	1. Do not perform operations which results in a change in CCP System temperature when monitoring RPCCW for indications of leakage. 2. When CCP leak trending is in progress, RPCCW surge tank level and 3CCP-LV20, CCP makeup valve, position (MB1) should be monitored for immediate indication of increased leakage. (NOTE preceding 3330A Step 4.6.15)	Applicant reads NOTE.	
21.	INITIATE a trend of CCP leakage for the next two hours by MONITORING CCP-L20A and CCP-L20B on the plant computer as follows: • PRESS, PLANT SENSORS • PRESS, F5 • PRESS, F6 (CCP LEVEL) • PRESS, F3 (1 min. trend) (3330A Step 4.6.15)	Applicant initiates trending on PPC	
22.	Due to heat up or tube leakage, heat exchanger may rapidly pressurize. The heat exchanger should be vented after isolation. (CAUTION preceding 3330A Step 4.6.16)	Applicant reads CAUTION	
23. *	To isolate and depressurize RPCCW B heat exchanger service water side, PERFORM the following: CLOSE 3SWP*V66, RPCCW heat exchanger B service water inlet. OPEN 3SWP*V213, RPCCW heat exchanger B service water outlet vent. (3330A Step 4.6.16)	Applicant directs PEO to CLOSE 3SWP*V66 and OPEN 3SWP*V213 ***<u>Examiner:</u> Direct Booth Operator to close 3SWP*V66 and open 3SWP*V213. When Booth Operator has closed the valves, tell Applicant that 3SWP*V66 is closed and 3SWP*V213 is open***	BOOTH

24. *	To split RPCCW System containment headers, PERFORM the following: a. OPEN the following valves (MB1): 1) 3CCP*MOV49B, "CTMT ISOL TR B" 2) 3CCP*MOV48B, "CTMT ISOL TR B" 3) 3CCP*MOV45B, "CTMT ISOL TR B" b. CLOSE the following valves (MB1): 1) 3CCP*AOV179A, "HDR DIV TR A" 2) 3CCP*AOV180A, "HDR DIV TR A" 3) 3CCP*AOV179B, "HDR DIV TR B" 4) 3CCP*AOV180B, "HDR DIV TR B" (3330A Step 4.6.17)	Applicant OPENS 3CCP*MOV49B, 48B and 45B in the specified order. Applicant closes 3CCP*AOV179A, 180A, 179B and 180B in any order.	
25.	IF CCP leakage trend increases, DISPATCH Operators to the CCP relief valves listed in the following to check for lifting: • Attachment 2, "RPCCW Relief Valve List - Train A" • Attachment 3, "RPCCW Relief Valve List - Train B" (3330A Step 4.6.18)	There will be no leakage trend. Applicant may be responding to high temperatures by now. If so, GO TO step 29 below.	ALTERNATE PATH
26	IF 3SFC*E1B is not aligned to cool the spent fuel pool, CLOSE 3CCP*V114, fuel pool cooler B RPCCW outlet. (3330A Step 4.6.19)	No action required because 3SFC*E1B is aligned to cool the spent fuel pool.	
27.	IF 3CCP*FCV66B, RHR heat exchanger B cooling outlet isolation, was throttled, RESTORE to initial position. (3330A Step 4.6.20)	No action required. If additional flow required, Booth Operator will take care of it behind the scenes.	

28.	Refer To OP 3326, "Service Water System," and PLACE RPCCW heat exchanger B service water side into fresh water layup. (3330A Step 4.6.21)	**Examiner Cue: The Work Control Supervisor will have RPCCW heat exchanger "B" placed into fresh water layup.**	
29. *	CHECK the following "RPCCW" "HX OUT TEMP" to confirm alarm, (MB1): • 3CCP-TI 34A • 3CCP-TI 34B • ***3CCP-TI 34C*** (3353.MB1C 4-6, Step 1)	When the high temperature alarm energizes, the Applicant will refer to 3353.MB1C 4-6 for direction. Applicant should read 3CCP-TI 34C	ALTERNATE PATH
30.	IF alarm is due to loss of service water, Go To AOP 3560, "Loss of Service Water." (3353.MB1C 4-6, Step 2)	Alarm is NOT due to loss of Service Water.	
31.	IF RPCCW temperature has been purposely lowered to maintain VCT outlet temperature less than 115°F, Go To procedure in effect. (3353.MB1C 4-6, Step 3)	**Examiner Cue (if necessary): RPCCW temperature has not been purposely lowered to maintain VCT outlet temperature less than 115°F.**	
32.	For a Safety Grade Shutdown, RPCCW heat exchanger outlet temperature may increase to 113° F (NOTE preceding 3353.MB1C 4-6, Step 4)	A Safety Grade Shutdown is NOT in progress.	
33.	IF RHR cooldown is in progress, REMOVE RPCCW loads or REDUCE RCS cooldown rate as necessary to reduce RHR heat exchanger RPCCW outlet temperature to less than or equal to the following: • For a normal cooldown - 130°F. • For a Safety Grade Cold Shutdown - 140°F. (3353.MB1C 4-6, Step 4)	RHR cooldown is NOT in progress.	

34.	CHECK RPCCW heat exchanger outlet TCV controller setpoint between 82°F and 88°F on the affected controllers: • 3CCP-TIC32A • 3CCP-TIC32B • ***3CCP-TIC32C*** (3353.MB1C 4-6, Step 5)	Applicant directs PEO to determine if 3CCP-TI32C controller is between 82°F and 88°F. **Examiner Cue: 3CCP-TI32C is at its program setpoint. The valve is full open**	
35.	IF temperature controller will not maintain RPCCW temperature in automatic, PLACE the affected controller in manual and adjust to maintain RPCCW outlet temperature. (3353.MB1C 4-6, Step 6)	Applicant should recognize the futility of this step and move on.	
36. *	IF RPCCW outlet temperature continues to increase, Refer To OP 3330A, "Reactor Plant Component Cooling Water," and SHIFT RPCCW pumps and heat exchangers. (3353.MB1C 4-6, Step 7)	Applicant goes to OP 3330A, Section 4.8.	
The "C" SW-to-RPCCW heat exchanger is fouled. 3353.MB1C 4-6, "RPCCW HX OUT TEMP HI/LO" will energize soon. Applicant will need to decide whether to continue the procedure in effect or try to mark steps as "n/a" to restore "B" train RPCCW to service. **Ask the applicant for recommendations. Then direct the applicant to complete the procedure in effect and then to place "B" RPCCW train back in service.**			
37.	Train A and Train B RPCCW containment supply and return headers should be cross-connected during all RPCCW shifting evolutions to ensure adequate cooling water supply to reactor coolant pump lube oil coolers. (CAUTION preceding 3330A, Step 4.8.1)	Applicant reads the CAUTION	

38.	This section assumes the RPCCW System and Service Water System are operating in a normal mode with all design features operational. (NOTE preceding 3330A, Step 4.8.1)	Applicant reads the NOTE	
39.	Refer To OP 3326, "Service Water System," and REVIEW precaution regarding train and heat exchanger alignment to avoid violating Service Water System and pump minimum or maximum flow conditions. (3330A, Step 4.8.1)	Applicant may or may re-verify this.	
40.	ATTACH hose to 3SWP*V214, RPCCW heat exchanger C service water outlet vent, and DIRECT to a collection barrel in preparation for venting reactor plant component cooling water heat exchanger C. (3330A, Step 4.8.2)	Applicant directs PEO to attach hose to 3SWP*V214 (may direct him to move the hose from HX "B" to "C") **Examiner Cue: the hose is connected to 3SWP*V214 and directed to the collection barrel.**	
41.	CHECK the following valves open: • 3CCP*V6, RPCCW pump B discharge valve • 3CCP*V91, RPCCW pump B suction valve (3330A, Step 4.8.3)	Applicant directs PEO to check 3CCP*V6 and V91 OPEN. **Examiner: direct Booth Operator to open 3CCP*V6 and 3CCPV91.**	BOOTH
42.	To prepare RPCCW heat exchanger B for service, CLOSE the following valves: • 3SWP*V210, RPCCW heat exchanger B inlet service water vent • 3SWP*V213, RPCCW heat exchanger B outlet service water vent (3330A, Step 4.8.4)	Applicant calls PEO and directs closing of 3SWP*V211 and V214. **Examiner: direct Booth Operator to close 3SWP*V210 and 3SWP*V213. When opened, tell the Applicant that "3SWP*V210 and 3SWP*V213 are open".**	BOOTH

43.	1. A total RPCCW train flow of greater than 5,100 gpm is desirable to prevent a pressure transient due to pump shifting, thus reducing the chance of lifting a pressure relief. 2. The following step initiates flow through the idle Train B Spent Fuel Pool Cooling System heat exchanger. (NOTE preceding 3330A, Step 4.8.5)	Applicant reads NOTE	BOOTH
44.	IF total train B RPCCW flow is less than 5,100 gpm as indicated by computer point CVCCPTRB, PERFORM the following: • ADJUST 3CCP*V114, fuel pool cooler B RPCCW outlet, to obtain 1,700 to 1,900 gpm as indicated on 3CCP-FIS255B • EVALUATE RPCCW System configuration and establish greater than 5,100 gpm (3330A, Step 4.8.5)	**Booth Operator: keep RPCCW flow up with CCR07 90% to load "B" train.**	
45. *	To cross-connect the RPCCW System containment headers, PERFORM the following: a. OPEN the following containment cross connect valves: • 3CCP*AOV179A, "HDR DIV TR A" • 3CCP*AOV180A, "HDR DIV TR A" • 3CCP*AOV179B, "HDR DIV TR B"	Applicant OPENS 3CCP*AOV179A, 180A, 179B, and 180B in any order.	

	• 3CCP*AOV180B, "HDR DIV TR B" b. CLOSE the following Train B containment isolation valves: 1) 3CCP*MOV45B, "CTMT ISOL TR B" 2) 3CCP*MOV48B, "CTMT ISOL TR B" 3) 3CCP*MOV49B, "CTMT ISOL TR B" (3330A, Step 4.8.6)	Applicant closes 3CCP*MOV45B, 48B, 49B in the specified order.	
46. *	OPEN 3SWP*V66, RPCCW heat exchanger B service water inlet. (3330A, Step 4.8.7)	Applicant directs PEO to OPEN 3SWP*V66 **Examiner: direct Booth Operator to open 3SWP*V66. When valve is open, tell Applicant "3SWP*V66 is open".**	BOOTH
47.	When the heat exchanger shift has been completed 3SWP*V67, RPCCW heat exchanger B service water outlet valve, should be fully open. (NOTE preceding 3330A, Step 4.8.8)	Applicant reads NOTE	
48.	WHEN shifting heat exchangers, MONITOR 3SWP-FI 43B, "RPCCW HX" (MB1), and ENSURE service water flow does not drop below 6,000 gpm or rise above 10,000 gpm. (3330A, Step 4.8.8)	Applicant reads STEP	
49. *	To shift RPCCW heat exchangers, simultaneously PERFORM the following: • Slowly OPEN 3SWP*V67, RPCCW heat exchanger B service water outlet valve • Slowly CLOSE 3SWP*V39, RPCCW heat exchanger C service water outlet valve (3330A, Step 4.8.9)	Applicant directs PEO to slowly OPEN 3SWP*V69 while simultaneously and slowly CLOSING 3SWP*V39. **Examiner: direct Booth Operator to open 3SWP*V69 and close 3SWP*V39. When valves are repositioned, tell the Applicant "3SWP*V69 is open and 3SWP*V39 is closed".**	BOOTH

50.	Pressure transient from the pump shift may cause relief valves to lift and then the reliefs may fail to reseat. This could overfill radwaste tanks. (CAUTION preceding 3330A, Step 4.8.10)	Applicant reads CAUTION	
51. *	To shift RPCCW pumps, PERFORM the following (MB1): a. PLACE and HOLD 3CCP*P1B, "PP B" control switch in "START," then STOP 3CCP*P1C, "PP C" (Train B). b. WHEN 3CCP*P1B, "PP B" indicates started, RELEASE 3CCP*P1B, "PP B," control switch. (3330A, Step 4.8.10)	Applicant starts 3CCP*P1B and stops 3CCP*P1C. NOTE: P1B will not start until P1C's breaker is open.	
52.	VERIFY pump discharge pressure on 3CCP-PI 29B, "PP DIS PRES" (MB1). (3330A, Step 4.8.11)	Applicant verifies that pump discharge pressure is approximately at its pre-swap value and steady.	
53.	WHEN 15 seconds have elapsed, if pump discharge pressure is not indicated on 3CCP-PI 29B, "PP DIS PRES" (MB1), PERFORM the following: a. STOP CCP*P1B, "PP B" (MB1). b. Refer To step 4.2.7 and VENT the RPCCW System.	Applicant waits 15 seconds and observes that 3CCP*P1B discharge pressure is indicated on 3CCP-PI 29B.	

54.	1. Do not perform operations which results in a change in CCP System temperature when monitoring RPCCW for indications of leakage. 2. When CCP leak trending is in progress, RPCCW surge tank level and 3CCP-LV20, CCP makeup valve, position (MB1) should be monitored for immediate indication of increased leakage. (NOTE preceding 3330A, Step 4.8.13)	Applicant places 3CCP*P1C in pull-to-lock	
55.	INITIATE a trend of CCP leakage over the next two hours by MONITORING CCP-L20A and CCP-L20B on the plant computer as follows: • PRESS, PLANT SENSORS • PRESS, F5 • PRESS, F6 (CCP LEVEL) • PRESS, F3 (1 min. trend) (3330A, Step 4.8.13)	Applicant initiates trend on PPC	
56.	Due to heat up or tube leakage, heat exchanger may rapidly pressurize. The heat exchanger should be vented after isolation. (CAUTION preceding 3330A, Step 4.8.14)	Applicant reads CAUTION	
57. *	To isolate and depressurize RPCCW C heat exchanger service water side, PERFORM the following: CLOSE 3SWP*V38, RPCCW heat exchanger C service water inlet. OPEN 3SWP*V214, RPCCW heat exchanger C service water outlet vent. (3330A, Step 4.8.14)	Applicant directs PEO to CLOSE 3SWP*V38 and OPEN 3SWP*V214 **Examiner: direct Booth Operator to close 3SWP*V38 and open 3SWPV214. When valves are repositioned, tell the Applicant "3SWP*V38 is closed and 3SWP*V214 is open".**	BOOTH

58. *	To split RPCCW A and B System containment headers, PERFORM the following (MB1): a. OPEN the following containment isolation valves: 1) 3CCP*MOV49B, "CTMT ISOL TR B" 2) 3CCP*MOV48B, "CTMT ISOL TR B" 3) 3CCP*MOV45B, "CTMT ISOL TR B" b. CLOSE the following containment cross connect valves: • 3CCP*AOV179A, "HDR DIV TR A" • 3CCP*AOV180A, "HDR DIV TR A" • 3CCP*AOV179B, "HDR DIV TR B" • 3CCP*AOV180B, "HDR DIV TR B" (3330A, Step 4.8.15)	Applicant OPENS 3CCP*MOV49B, 48B and 45B in the specified order. Applicant closes 3CCP*AOV179A, 180A, 179B and 180B in any order.	
59.	IF CCP leakage trend increases, DISPATCH Operators to the CCP relief valves listed in the following to check for lifting: Attachment 2, "RPCCW Relief Valve List - Train A" Attachment 3, "RPCCW Relief Valve List - Train B" (3330A, Step 4.8.16)	There will be no leakage trend. Applicant may be responding to high temperatures by now. If so, GO TO step 29 below.	
60.	IF 3SFC*E1B is not aligned to cool the spent fuel pool, CLOSE 3CCP*V114, fuel pool cooler B RPCCW outlet. (3330A, Step 4.8.17)	3SFC*E1B is aligned to cool the spent fuel pool.	
Examiner Cue:	**The evaluation for this JPM is complete. Thank you.**		

Stop Time: _____

* **denotes critical step**

Appendix C3 Form ES-C-1

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question:_____
_____
_____

Response:_____
_____
_____
_____

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

Student Handout

JOB PERFORMANCE MEASURE INSTRUCTION SHEET

DIRECTIONS TO STUDENT

YOU ARE TO OPERATE AND RESPOND TO THE SIMULATOR JUST AS YOU WOULD IN THE ACTUAL PLANT.

Initial Conditions

You are a Control Room Operator at Millstone Generating Station, Unit 3. The plant is steady state at 100% power. No equipment is out of service. The Unit Supervisor has directed you to **Shift from RPCCW Pump and Heat Exchanger B to RPCCW Pump and Heat Exchanger C** per section 4.6 of OP 3330A. Train "B" is to be taken out of service for planned maintenance.

Special Instrctions for concuurent JPMs	This JPM is being conducted concurrently with another JPM to improve efficiency of your examination administration. To ensure exam security, please adhere to the following special requirements: 4. Speak softly when announcing alarms or providing information. 5. Direct ALL communications to me. If the simulator booth operator must manipulate components, I will contact the simulator booth operator for you. 6. Remain focused on your task assignment and do not allow other activities to distract you.

NRC In-plant JPM I.1

I. JPM Title: Respond to Process Radiation Monitor Alarm DAS50-1

JPM ID Number: In-plant I.1 Revision: 0

II. Initiated:

Nuclear Regulatory Commission — 13 May 2004
Developer — Date

III. Reviewed:

Technical Reviewer — Date

IV. Approved:

Cognizant Plant Supervisor (optional) — Date

Nuclear Training Supervisor — Date

SUMMARY OF CHANGES

Change	Description	Date

Facility: Millstone Unit 3 Student: _____

JPM ID Number: In-plant I.1 Revision: 0

Task Title: Respond to Process Radiation Monitor Alarm DAS50-1

System: 068 (WDL)

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 20 (may have a wide variance among Applicants)

Task Number(s): _____

Applicable To: SRO X RO X PEO _____

K/A Number: 061.AK3.02 K/A Rating: 3.6 / 3.4
Knowledge of the operational implications of the following concepts as they apply to Area Radiation Monitoring (ARM) System Alarms: Guidance contained in alarm response for ARM system.

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

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

Task Standards:
- Applicant successfully locates the following components in-plant:
  3DAS-AOV51 Control Air to 3DAS-AOV51 or Control Power fuses 3DFT-P2A or B 3DFT-P2A/B Auto Start Timer
- Applicant successfully simulates performance of steps 1 through 5 of AOP 3573, Attachment A for DAS50-1 (Page 4 of 12).

Required Materials:
- Abnormal Operating Procedure AOP 3573, Radiation Alarm Response (acceptable to only include Attachment A, page 4 of 12).
- P&ID EM-106C. Zoom the portion showing H5-H10-N10-N5 to make it easier to read (this portion shows 3DFT-P2A/B, 3DAS-AOV51, and the local micro computer that controls SOV-51)
- ESK 7SE
- Electrical Print EE-1BR

General References: Abnormal Operating Procedure AOP 3573, Radiation Alarm Response

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. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

YOU ARE NOT TO ACTUALLY OPERATE ANY PLANT EQUIPMENT. SIMULATE AND DESCRIBE THE ACTIONS YOU WOULD TAKE.

Initial Conditions:	You are a Plant Equipment Operator at Millstone Generating Station, Unit 3. The Control Room has received a "RAD HI" annunciator alarm on MB2B 2-8. The Control Room is responding per AOP 3573, Radiation Monitor Alarm Response. Process monitor DAS50-1, Turbine Building floor drain sump pump discharge, causes the alarm. The Control Room has directed you to perform Subsequent Action Steps 1 through 5 of AOP 3573, Attachment A.
Initiating Cue:	**YOU ARE TO PERFORM SUBSEQUENT ACTION STEPS 1 THROUGH 5 OF AOP 3573, ATTACHMENT A.** **YOU ARE NOT TO ACTUALLY OPERATE ANY PLANT EQUIPMENT. SIMULATE AND DESCRIBE THE ACTIONS YOU WOULD TAKE.** **ARE THERE ANY QUESTIONS?** **YOU MAY BEGIN.**

****** NOTES TO EVALUATOR ******

1. Critical steps for this JPM are indicated by an asterisk after the step. 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?").

Start Time: _____

#	Step	Standard	S/U
	Examiner Cue	**WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM SUBSEQUENT ACTION STEPS 1 THROUGH 5 OF AOP 3573, ATTACHMENT A.** **DO NOT ACTUALLY OPERATE ANY PLANT EQUIPMENT. SIMULATE AND DESCRIBE THE ACTIONS YOU WOULD TAKE..**	
1.	Applicant obtains/requests copy of AOP 3573.	**Give copy of AOP 3573 to the Applicant**	
2.	• Automatically diverts floor drains to TPCCW drain sump 11A (Repositions 3DAS-AOV51, Turb Bldg 14_6_) • Automatically turns off and resets the auto start timer if both pumps in auto. • Automatically stops turb. Bldg sump pumps (3DFT-P2A and P2B) if the turbine bldg. Floor drains were initially aligned to the yard drains. (AOP 3573, Att A, DAS50-1 Automatic Actions)	Applicant goes to the Radioactive Liquid Waste Panel (3LWS-PNL01). Less familiar applicant may go directly to turbine building. Remote indication available at "Radioactive Liquid Waste Panel (3LWS-PNL01)" in the Waste Bldg, 24' level. 3DAS-AOV51 indicator is easy to see/interpret. <u>Examiner Notes</u> Limit Switches Upper – RW (rad waste – BLUE light) Lower – Drains (Yard Drains – YELLOW) Airline is easy to trace. Air to top only.	
3.	IF 3DAS-AOV51 is aligned to yard drains, THEN, Fail 3DAS-AOV51 to radwaste (isolate air or pull control power fuses at 3BYS-PNL34F, Ckt 3). (AOP3573, Att A, DAS50-1, Step 1)	Applicant checks position of 3DAS-AOV51	
Examiner Cue:	**3DAS-AOV51 is aligned to Yard Drains.**		
4.	. . . isolate air. . .	Applicant recognizes need to fail 3DAS-AOV51 to radwaste by either of the following means:	
a.1 *		Applicant locates and simulates isolating control air to 3DAS-AOV51 **Close valve by turning in the clockwise direction**	

#	Step	Standard	S/U
a.2 *	. . . isolate air. . .	Applicant studies configuration and realizes necessity to vent the I/P Converter after isolating air to reposition the valve. Some Applicants may not know to vent the valve I/P Converter through the petcock. These applicants may then elect to: • Vent the I/P Converter through the petcock located on the bottom • Vent the top of the valve operator by loosening a swage lok fitting • Pull the fuse as indicated by the procedure. Examiner Notes Limit Switches Upper – RW (rad waste – BLUE light) Lower – Drains (Yard Drains – YELLOW) Airline is easy to trace. Air to top only.	
Examiner Cues:	• The valve has not shifted (better applicant will not need cue) • The pressure gage mounted on the I/P Converter still indicates ~25 psig (or unchanged or as is) • Provide prints and diagrams as requested by the Applicant. • If applicant requests permission to perform one of the actions described above, grant it. • If already in the Turbine Building and Applicant elects to pull fuses, it is acceptable to have the applicant describe the process. Description should include location of 3BYS-PNL34F or process for finding the panel and electrical safety. • When the Applicant demonstrates or indicates performance of some action that would shift AOV51, give the cue below.		

#	Step	Standard	S/U
b.*	. . . pull control power fuses . . . Millstone's Site Safety Manual, MP-19-SH-REF01, Section 6, § 3.8.2 minimally requires low-voltage rubber gloves when working near equipment with voltages <50 to <750. If Applicant elects to pull fuses, use of proper PPE is important. Examiner may waive actual donning of PPE once Applicant clearly indicates the requirement to use PPE.	Applicant proceeds to 3BYS-PNL34F, Ckt 3, and simulates pulling control power fuses. 3BYS-PNL34F is Northeast of 3LWS-PNL01. Applicant may recognize that valve failed to transfer to Radwaste from 3LWS-PNL01 remote indication and elect to pull fuses right there. Good Practice – check circuit listing kept inside the panel.	
Examiner Cue:	**The fuses have been removed.** If already in the Turbine Building and Applicant elects to pull fuses, it is acceptable to have the applicant describe the process. Description should include location of 3BYS-PNL34F or process for finding the panel and electrical safety.		
5.*		Applicant checks position of 3DAS-AOV51.	
Examiner Cue:	In either case (air or fuses), cue the Applicant that the actions have been successful with **"The Blue Light is lit energized at the Radioactive Liquid Waste Panel and the I/P Converter regulator pressure is zero. 3DAS-AOV51 is aligned to radwaste."**		
6.*	Place one turbine building floor drain sump pump (3DFT-P2A or 3DFT-P2B) control switch in OFF. (AOP3573, Att A, DAS50-1, Step 2)	Applicant simulates placing one turbine building floor drain sump pump, 3DFT-P2A/B in "OFF". This is done in the turbine building at 3DFT-CSP2A-B. Panel is easy to interpret.	
Examiner Cue:	**The [selected] pump is OFF**		
7.	Check the AUTO START TIMER ENABLED light lit. (AOP3573, Att A, DAS50-1, Step 3)	Applicant checks that the AUTO START TIMER ENABLED light is lit White light in center of panel	
Examiner Cue:	**The AUTO START TIMER ENABLED light is lit.**		

#	Step	Standard	S/U
8.*	Manually Start one turbine building floor drain sump pump (3DFT-P2A or 3DFT-P2B). (AOP3573, Att A, DAS50-1, Step 4)	Applicant simulates manually starting the turbine building floor drain sump pump that is not in OFF	
Examiner Cue:	**The [selected] pump is running. The RED on light is energized. You can hear the pump running normally behind you.**		
9.	Verify pump trips on sump low level. (AOP3573, Att A, DAS50-1, Step 5)	Applicant simulates that the running pump trips on sump low level. Examiner should provide this input if necessary. Good Practice – look in sump by lifting cover and shining light in to verify low level.	
Examiner Cue:	**The [selected] pump has tripped on low level**		
10.	Applicant indicates that the task is complete.		

Stop Time:_____ * **Denotes critical step**

Appendix C3 Form ES-C-1

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question:_____
_____
_____
_____

Response:_____
_____
_____
_____
_____

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

Student Handout

JOB PERFORMANCE MEASURE INSTRUCTION SHEET

DIRECTIONS TO STUDENT

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM SUBSEQUENT ACTION STEPS 1 THROUGH 5 OF AOP 3573, ATTACHMENT A.

DO NOT ACTUALLY OPERATE ANY PLANT EQUIPMENT. SIMULATE AND DESCRIBE THE ACTIONS YOU WOULD TAKE.

Initial Conditions

You are a Plant Equipment Operator at Millstone Generating Station, Unit 3. The Control Room has received a "RAD HI" annunciator alarm on MB2B 2-8. The Control Room is responding per AOP 3573, Radiation Monitor Alarm Response. Process monitor DAS50-1, Turbine Building floor drain sump pump discharge, causes the alarm. The Control Room has directed you to perform Subsequent Action Steps 1 through 5 of AOP 3573, Attachment A.

NRC In-plant JPM I.2

I. JPM Title: Respond to potential steam binding of AFW pumps

JPM ID Number: In-plant I.2 Revision: 0

II. Initiated:

Nuclear Regulatory Commission — 13 May 2004
Developer — Date

III. Reviewed:

Technical Reviewer — Date

IV. Approved:

Cognizant Plant Supervisor (optional) — Date

Nuclear Training Supervisor — Date

SUMMARY OF CHANGES

Change	Description	Date

Facility: Millstone Unit 3 Student: _____

JPM ID Number: In-plant I.2 Revision: 0

Task Title: Respond to potential steam binding of AFW pumps

System: 061 (AFW)

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 15

Task Number(s): _____

Applicable To: SRO X RO X PEO X

K/A Number: 061.K1.01 K/A Rating: 3.8 / 3.4
Knowledge of the physical connections and/or cause-effect relationships between the AFW and the following systems: S/G.

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

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

Task Standards:
- Applicant successfully locates the following components in-plant:
  3FWA*V967 3FWA*P1A 3FWA*V4
  3FWA*V963 3FWA*P2 3FWA*V32
- Applicant successfully simulates performance of steps 4.13.4 and 4.13.6. to drain demineralized water through the pump casing.

Required Materials:
- Operating Procedure OP 3322, Auxiliary Feedwater System
- Pipe Wrench (may be simulated)
- Locked Valve Key 2022 (may be simulated)
- Valve Assist Device (may be simulated)
- Contact Pyrometer or Infrared Thermometer.
- AFW Room Key

General References:
- Form OP 3322-009, Independent Verification after Restoration
- Operating Procedure OP 3260B, Equipment Control
- Work Control Procedure WC 6, Determination and Performance of Independent and Dual Verifications.
- Surveillance Procedure SP 3670.3-013, Plant Equipment Rounds – Radwaste

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. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

YOU ARE NOT TO ACTUALLY OPERATE ANY PLANT EQUIPMENT. SIMULATE AND DESCRIBE THE ACTIONS YOU WOULD TAKE.

Initial Conditions:	You are a Plant Equipment Operator at Millstone Generating Station, Unit 3. During rounds in the Auxiliary Building, you discover that temperature of the **Piping to "B" SG at 3FWA*V878** is 197°F. Investigating, you find that the casings of motor driven auxiliary feedwater pump "A", 3FWA*P1A, and turbine driven auxiliary feedwater pump, 3FWA*P2, are too hot to touch. You report this information to the Control Room. The Shift Technical Advisor checks the Plant Computer and tells you and the Unit Supervisor that: • FWA-T50A, 3FWA*P1A discharge piping temperature is 189°F, • FWA-T50C, 3FWA*P2 discharge piping temperature is 190°F. The Unit Supervisor declares 3FWA*P1A and 3FWA*P2 inoperable and enters Tech Spec action statement 3.7.1.2.b. He then directs you to respond to potential steam binding of AFW Pumps per OP 3322. Specifically, you are to perform the steps necessary to cool the casings of 3FWA*P1A and 3FWA*P2. Then await further instruction.
Initiating Cue:	**YOU TO RESPOND TO POTENTIAL STEAM BINDING OF AFW PUMPS PER OP 3322. SPECIFICALLY, YOU ARE TO PERFORM THE STEPS NECESSARY TO COOL THE CASINGS OF 3FWA*P1A AND 3FWA*P2. THEN AWAIT FURTHER INSTRUCTION.** **YOU ARE NOT TO ACTUALLY OPERATE ANY PLANT EQUIPMENT. SIMULATE AND DESCRIBE THE ACTIONS YOU WOULD TAKE.** **ARE THERE ANY QUESTIONS?** **YOU MAY BEGIN.**

1. Critical steps for this JPM are indicated by an asterisk and bolding. 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?").

Start Time: _____

#	Step	Standard	S/U
Examiner Cue		**YOU TO RESPOND TO POTENTIAL STEAM BINDING OF AFW PUMPS PER OP 3322. SPECIFICALLY, YOU ARE TO PERFORM THE STEPS NECESSARY TO COOL THE CASINGS OF 3FWA*P1A AND 3FWA*P2. THEN AWAIT FURTHER INSTRUCTION.** **DO NOT ACTUALLY OPERATE ANY PLANT EQUIPMENT. SIMULATE AND DESCRIBE THE ACTIONS YOU WOULD TAKE..**	
1.		Applicant obtains/requests copy of OP 3322.	
Examiner Cue	**Give Applicant a copy of OP 3322, Section 4.13.**		
2.	This section is normally entered from SP 3670.3-013, "Plant Equipment Rounds-Radwaste," when either the containment penetration is greater than 150_F or the pump casing is too hot to maintain hand contact. (OP 3322, Note preceding step 4.13.1)	Applicant reads note	
Examiner Cue:	**Give copy of OP 3322 to the Applicant**		
3.	IF discharge piping temperature is less than 150°F or hand contact can be maintained on the TDAFW pump casing, NOTIFY SM/US and IF directed, Go To Section 4.14. (OP 3322, Step 4.13.1)	Initial conditions stated that the casing was too hot to touch. Therefore, no action required by Applicant. May check end of casing by hand – SAFETY ISSUE: use back of hand.	
4.	Refer To T/S 3.7.1.2, "Plant Systems, Auxiliary Feedwater System," and DETERMINE appropriate ACTION (OP 3322, Step 4.13.2)	Initial conditions stated that the CRS has entered Technical Specification action statement 3.7.1.2.b. Therefore, no action required by Applicant.	

5.	CHECK AFW pump discharge piping temperature (computer): • FWA-T50A, 3FWA*P1A discharge piping temperature • FWA-T50B, 3FWA*P1B discharge piping temperature • FWA-T50C, 3FWA*P2 discharge piping temperature (OP 3322, Step 4.13.3)	Initial conditions stated the discharge temperatures for this JPM. Therefore, no action required by Applicant.	
6.	IF FWA-T50A, 3FWA*P1A discharge piping temperature, is greater than 185_F, PERFORM the following: (OP 3322, Step 4.13.4)	Applicant goes to 3FWA*P1A Color coding: • System is GREEN (band around component label) • Train "A" is ORANGE (all over the place)	
7.*	UNLOCK and CLOSE 3FWA*V4, 3FWA*P1A discharge valve. (OP 3322, Step 4.13.4.b)	Applicant simulates unlocking and closing (turning clockwise) 3FWA*V4, 3FWA*P1A discharge valve. May use a cheater. Not required to report Locked Valve manipulations to Control Room because operating per procedure.	
8.	Opening the AFW pump discharge vents may result in the release of steam or hot water. (WARNING preceding OP 3322, Step 4.13.4.b)	Applicant reads WARNING and indicates understanding of the hazard. Prompt for vocalization if necessary. Personal Safety ISSUE	
Examiner Cue:	**3FWA*V4 is closed**		
9.*	OPEN 3FWA*V967, 3FWA*P1A discharge vent. (OP 3322, Step 4.13.4.b)	Applicant simulates uncapping and then careful opening of 3FWA*V967, 3FWA*P1A discharge vent. Applicant turns valve counter-clockwise. Note: pipe caps at MS3 have vent holes drilled in them. Not failure criteria if Applicant fails to remove cap but poor practice.	
Examiner Cue:	**3FWA*V967 is open / Steam and water are flowing out the vent**		

10.		Applicant checks temperature of casing by hand or contact pyrometer. **NOTE: The pump casing is covered with foam lagging or insulation. The successful Applicant should make some effort to determine the casing temperature at an uncovered portion of the pump. The ends or the discharge manifold beneath the pump were identified during validation.** **SAFETY:** Applicant should use back of hand to touch the casing.	
Examiner Cue:	**The casing is cool to the touch.**		
11. *	WHEN the casing cools to touch, CLOSE 3FWA*V967, 3FWA*P1A discharge vent. (OP 3322, Step 4.13.4.c)	Applicant simulates closing (clockwise turning) of 3FWA*V967, 3FWA*P1A discharge vent. Then simulates replacing the pipe cap if necessary. Critical step is closing the valve, not replacing the cap.	
Examiner Cue:	**3FWA*V967 is closed / water has stopped flowing from the vent**		
12. *	OPEN and LOCK 3FWA*V4, 3FWA*P1A discharge valve. (OP 3322, Step 4.13.4.d)	Applicant simulates opening and locking of 3FWA*V4, 3FWA*P1A discharge valve.	
Examiner Cue:	**3FWA*V4 is Locked Open**		
13.	Refer To OP 3322-009 and PERFORM Independent Verification for components listed for step 4.13.4.e. (OP 3322, Step 4.13.4.e)	Applicant requests Independent Verification of 3FWA*V4 and 3FWA*V967.	
Examiner Cue:	**The Independent Verifications are complete.**		
14.	Applicant goes to 3FWA*P2		
15.	IF FWA-T50C, 3FWA*P2 discharge piping temperature is greater than 185°F, PERFORM the following: (OP 3322, Step 4.13.6)		
16. *	UNLOCK and CLOSE 3FWA*V32, 3FWA*P2 discharge valve. (OP 3322, Step 4.13.6.a)	Applicant simulates unlocking and closing (clockwise turning) 3FWA*V32, 3FWA*P2 discharge valve. May use a cheater. Not required to report Locked Valve manipulations to Control Room because operating per procedure.	

Examiner Cue:	**3FWA*V32 is closed**		
17.	Opening the AFW pump discharge vents may result in the release of steam or hot water. (WARNING preceding OP 3322, Step 4.13.6.b)	Applicant reads WARNING and indicates understanding of the hazard. Prompt for vocalization if necessary. Personal Safety ISSUE	
18. *	OPEN 3FWA*V963, 3FWA*P2 discharge vent. (OP 3322, Step 4.13.6.b)	Applicant simulates uncapping and careful opening of 3FWA*V963, 3FWA*P2 discharge vent. Applicant turns valve counter-clockwise. Note: pipe caps at MS3 have vent holes drilled in them. Not failure criteria if Applicant fails to remove cap but poor practice.	
Examiner Cue:	**3FWA*V963 is open / Steam and water are flowing out the vent**		
20.		Applicant checks temperature of casing by hand or contact pyrometer. **NOTE: The pump casing is covered with foam lagging or insulation. The successful Applicant should make some effort to determine the casing temperature at an uncovered portion of the pump. The ends or the discharge manifold beneath the pump were identified during validation.** **SAFETY:** Applicant should use back of hand to touch the casing.	
Examiner Cue:	**The casing is cool to the touch.**		
21. *	WHEN the casing cools to touch, CLOSE 3FWA*V963, 3FWA*P2 discharge vent. (OP 3322, Step 4.13.6.c)	Applicant simulates closing of 3FWA*V963, 3FWA*P1A discharge vent. Applicant turns valve clockwise. Then simulates replacing the pipe cap. Critical step is closing the valve, not replacing the cap.	
Examiner Cue:	**3FWA*V963 is closed / water has stopped flowing from the vent**		
22. *	OPEN and LOCK 3FWA*V32, 3FWA*P2 discharge valve. (OP 3322, Step 4.13.6.d)	Applicant simulate opening and locking of 3FWA*V32, 3FWA*P1A discharge valve.	
Examiner Cue:	**3FWA*V32 is Locked Open**		

23.	Refer To OP 3322-009 and PERFORM Independent Verification for components listed for step 4.13.6.e. (OP 3322, Step 4.13.6.e)	Applicant requests Independent Verification of 3FWA*V32 and 3FWA*V963.	
Examiner Cues:	**The Independent Verifications are complete.**		
	The evaluation for this JPM is complete. Thank you.		

Stop Time: _____

* **Denotes critical task**

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question:_____
_____
_____
_____

Response:_____
_____
_____
_____
_____

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

Student Handout

JOB PERFORMANCE MEASURE INSTRUCTION SHEET

DIRECTIONS TO STUDENT

YOU TO RESPOND TO POTENTIAL STEAM BINDING OF AFW PUMPS PER OP 3322. SPECIFICALLY, YOU ARE TO PERFORM THE STEPS NECESSARY TO COOL THE CASINGS OF 3FWA*P1A AND 3FWA*P2. THEN AWAIT FURTHER INSTRUCTION.

YOU ARE NOT TO ACTUALLY OPERATE ANY PLANT EQUIPMENT. SIMULATE AND DESCRIBE THE ACTIONS YOU WOULD TAKE.

Initial Conditions

You are a Plant Equipment Operator at Millstone Generating Station, Unit 3.

During rounds in the Auxiliary Building, you discover that temperature of the **Piping to "B" SG at 3FWA*V878** is 197°F. Investigating, you find that the casings of motor driven auxiliary feedwater pump "A", 3FWA*P1A, and turbine driven auxiliary feedwater pump, 3FWA*P2, are too hot to touch.

You report this information to the Control Room. The Shift Technical Advisor checks the Plant Computer and tells you and the Unit Supervisor that:

- FWA-T50A, 3FWA*P1A discharge piping temperature is 189°F,
- FWA-T50C, 3FWA*P2 discharge piping temperature is 190°F.

The Unit Supervisor declares 3FWA*P1A and 3FWA*P2 inoperable and enters Tech Spec action statement 3.7.1.2.b. He then directs you to respond to potential steam binding of AFW Pumps. Specifically, you are to perform the steps necessary cool the casings of 3FWA*P1A and 3FWA*P2. Then await further instruction.

NRC In-plant JPM I.3

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

I. JPM Title: ESTABLISH ALTERNATE CHARGING PUMP COOLING (EOP 3501)

JPM ID Number: 137 Revision: 3

NRC In-plant JPM I.3

II. Initiated:

Scott Shultz — 01/02/03

Developer — Date

III. Reviewed:

Dave Minnich — 01/06/03

Technical Reviewer — Date

IV. Approved:

NA

Cognizant Plant Supervisor (optional) — Date

Tim Kulterman — 01/06/03

Nuclear Training Supervisor — Date

JOB PERFORMANCE MEASURE APPROVAL WORKSHEET

SUMMARY OF CHANGES

Change	Description	Date
rev 3	Updated JPM to reflect EOP 3501 revision 013 which moved the performance steps to Attachment K of the procedure. Procedure now requires use of fire water and no longer allows domestic water use. Also changed "Chicago" fittings to "cam-lock" fittings in accordance with the hose control program. Modified to have "B" CHS pump the running pump to avoid duplicity with JPM-093. Changed title from Establish Feed and Bleed on Charging Pump Cooling" to "Establish Alternate Charging Pump Cooling.: jss	12/30/02

JOB PERFORMANCE MEASURE GUIDE (Continued)

Facility: Millstone Unit 3 Student: _____

JPM ID Number: ***NRC In-plant JPM I.3*** Revision: 3

Task Title: ESTABLISH ALTERNATE CHARGING PUMP COOLING (EOP 3501)

System: 076 (Service Water)

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 20

Task Number(s): 344-05-153

Applicable To: SRO X RO X PEO X

K/A Number: 076-A-2.01 K/A Rating: 3.5 / 3.7

Ability to (a) predict the impacts of the following malfunctions or operations on the SWS; and)b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations.

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

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

Task Standards: Satisfactorily establish alternate Charging Pump Cooling using EOP 3501, Loss of All AC (Modes 5, 6, and Zero).

Required Materials: EOP 3501, Attachment K
PEO Rounds key (Ops key)

General References: EOP 3501, Attachment K, Rev. 013

*****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.

JPM Number: 137 Revision: 3

Initial Conditions: The plant is in Mode 5. A loss of all AC power has occurred. The control room team has progressed through EOP 3501. Attempts are being made to establish injection flow using the charging pumps. Attempts to restore cooling to CCE have failed.

Initiating Cues: The US has directed you to establish alternate charging pump cooling using EOP 3501 Attachment K. The "B" charging pump is running. Provide cooling to the "B" Charging Pump only.

****** 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: 137 Revision: 3

Task Title: ESTABLISH ALTERNATE CHARGING PUMP COOLING (EOP 3501)

Start Time: _____

			Comments:	For the first step of this JPM, the required hoses and fittings are staged in the Operations Department EOP locker (AB 43' outside Boron Evaporator cubicle).
STEP	1	____	**Performance Step:** [Step 1.a]	Determine Affected Charging Pump Check a Train A charging pump - RUNNING
GRADE	____	____	**Standards:**	Initial conditions stated that "B" charging pump is the running pump. Proceeds to step 3. If candidate asks, provide the cue:
			Cue:	"B" charging pump is running.
			Grade:	**SAT** _____ **UNSAT** _____
STEP	2	X	**Performance Step:** [Step 3.a)	Locally Align Fire Water Supply to CCE Heat Exchanger B Connect a hose from fire header Hose Station 52 supply valve (3FPW-V812) to CCE HX B service water inlet drain valve (3SWP*V195)
GRADE	____	X	**Standards:**	Locates Ops EOP locker AB 43' outside Boron Evap. Cubicle. Obtains hoses fittings and tools. Removes any pipe caps and connects hose from 3FPW-V812 (located outside "C" charging pump cubicle) to 3SWP*V195 (located in CCE cubicle).
			Cue:	Pipe caps are removed (if required) fittings are installed and the hose is connected.
			Grade:	**SAT** _____ **UNSAT** _____

PERFORMANCE INFORMATION

JPM Number: 137 Revision: 3

Task Title: ESTABLISH ALTERNATE CHARGING PUMP COOLING (EOP 3501)

STEP	3	X	**Performance Step:** [Step 3.b]	Close CCE HX B service water supply valve (3SWP*V63)
GRADE		X	**Standards:**	Locates 3SWP*V63, (AB 24' CCE cubicle) rotates operating handle clockwise until the valve is closed and the position indicator is perpendicular to the pipe.
			Cue:	The operating handle rotates in the clockwise direction
			Grade:	**SAT** _____ **UNSAT** _____
			Comments:	Fire Water System pressure is higher than the CCE heat exchanger service water outlet relief valve setpoint pressure (3SWP*RV96B)
STEP	4	X	**Performance Step:** [Step 3.c]	Throttle Open fire Hose Station 52 supply valve (3FPW-V812) one turn
GRADE		X	**Standards:**	Locates 3FPW-V812 (AB 24' outside "C" charging pump cubicle), rotates handwheel one (1) turn in the counterclockwise direction.
			Cue:	The handwheel rotates counterclockwise one turn and the hose moves indicating that it is pressurized
			Grade:	**SAT** _____ **UNSAT** _____

PERFORMANCE INFORMATION

JPM Number: 137 Revision: 3

Task Title: ESTABLISH ALTERNATE CHARGING PUMP COOLING (EOP 3501)

STEP 5 X **Performance Step:** [Step 3.d] Throttle Open CCE HX B service water inlet drain valve (3SWP*V195) to establish between 30 and 40 gpm flow (3SWP*FI160B)

GRADE ___ X **Standards:** Rotates 3SWP*V195 operating handle in the counterclockwise direction in small increments while observing flow indication on 3SWP*FI160B, until the indicated flow on 3SWP*FI160B is between 30 and 40 gpm.

Cue: The operating handle for 3SWP*V195 has been rotated counterclockwise. 3SWP*FI160B indicates 33 gpm.

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

STEP 6 ___ **Performance Step:** [Step 3.e] Check CCE HX SW outlet relief (3SWP*RV96B) – NOT LIFTING

GRADE ___ ___ **Standards:** Observes 3SWP*RV96B tailpiece for evidence of flow.

Cue: 3SWP*RV96B is not lifting, there is no flow observed from the tailpiece.

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

STEP 7 ___ **Performance Step:** [Step 4.a] Locally Monitor CCE System
Check operating charging pump oil temperature – BETWEEN 55°F and 131°F
For pump B 3CHS-TI1022B

GRADE ___ ___ **Standards:** Checks temperature indicated on 3CHS-TI1022B (located in "B" charging pump cubicle)

Cue: 3CHS-TI1022B indicates 110°F.

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

PERFORMANCE INFORMATION

JPM Number: 137 Revision: 3

Task Title: ESTABLISH ALTERNATE CHARGING PUMP COOLING (EOP 3501)

STEP	8		**Performance Step:**	Notify Control Room that Alternate charging pump cooling has been established for "B" charging pump.
GRADE			**Standards:**	Informs control room that alternate charging pump cooling for "B" charging pump has been established using EOP 3501, Attachment K.
			Grade:	**SAT** _____ **UNSAT** _____

Terminating Cue: The evaluation for this JPM is concluded.

Stop Time:_____

PERFORMANCE INFORMATION

JPM Number: 137 Revision: 3

Task Title: ESTABLISH ALTERNATE CHARGING PUMP COOLING (EOP 3501)

Appendix C3 Form ES-C-1

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question:_____
_____
_____

Response:_____
_____
_____
_____

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

PERFORMANCE INFORMATION

JPM Number: 137 Revision: 3

Task Title: ESTABLISH ALTERNATE CHARGING PUMP COOLING (EOP 3501)

JPM Number **137**

Initial Conditions: The plant is in Mode 5. A loss of all AC power has occurred. The control room team has progressed through EOP 3501. Attempts are being made to establish injection flow using the charging pumps. Attempts to restore cooling to CCE have failed.

Initiating Cues: The US has directed you to establish alternate charging pump cooling using EOP 3501 Attachment K. The "B" charging pump is running. Provide cooling to the "B" Charging Pump only.