

AS GIVEN FINAL OPERATING EXAMINATION
(IN ITS ENTIRETY)

AS GIVEN JPMs

DESIGNATED FOR DISTRIBUTION UNDER
RIDS CODE A070

A070

DISTRIBUTION CODE
A070

X

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 5S/SIMULATOR

Recover a Misaligned Rod

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melina Gallean Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: R. Was Jones Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** [Signature] Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMS and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Recover a misaligned rod.

Alternate Path:

N/A

Facility JPM #:

New

K/A Rating(s)/Task Number/AO, RO, SRO:

001A2.03//3.5/4.2//0010402004//RO, SRO

Task Standard:

Recover a misaligned control rod using OP-502, Control Rod Drive System, Section 4.7, Recovery of Misaligned Rod(s).

Preferred Evaluation Method:

Simulator In-Plant

References:

OP-502

Validation Time: 17 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. Reactor power is approximately 45%.
2. Control Rod 7-1 is on the bottom.
3. Group 7 is NOT at its out-limit.
4. OP-502, Steps 4.7.1 through 4.7.30 are complete.
5. IC #68

Tools/Equipment/Procedures Needed:

OP-502

READ TO OPERATORDIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

You are the Reactor Operator.
Control rod 7-1 has dropped into the core.
The plant is stable at 45% power.
The pre-job briefing has been completed.
The previous shift has completed steps 4.7.1 through 4.7.30.

INITIATING CUES:

You are requested by the Shift Manager to recover the misaligned rod starting with step 4.7.31.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-502, starting with step 4.7.31.</p> <p>EXAMINER'S CUE: For purposes of this JPM assume SRO concurs with each rod manipulation.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2A:</u> Perform PI Alignment of CRD with misaligned rod. Depress and Hold IN LIMIT (LATCH) BYPASS pushbutton and insert rod for approximately 15 sec.</p> <p><u>STANDARD:</u> Operator depresses IN LIMIT BYPASS pushbutton and holds it depressed while holding rod control handle in the insert direction for approximately 15 sec.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2B:</u> Compare Absolute and Relative readings on PI Panel.</p> <p><u>STANDARD:</u> Operator observes that the API and RPI do not match.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2C:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Adjust RPI to equal API with PI RESET RAISE/LOWER switch.</p> <p>Operator manipulates PI RESET RAISE/LOWER until RPI and API match.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2D:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Select RUN.</p> <p>Operator rotates RUN/JOG switch to RUN.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>CAUTION: Power must be maintained less than or equal to 60% RTP while withdrawing rod(s).</p>		<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3A:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Withdraw affected rod to its Group average height. IF power increases to greater than or equal to 60% RTP or; IF Flux Imbalance/Quadrant Power Tilt approaches limits, THEN stop rod withdrawal and continue to next Step.</p> <p>Operator withdraws rod to group average height. (No Limit or 60% RTP will be exceeded.) (Annunciator J-7-5 clears.)</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3B:</u> IF power remains constant AND limits for Flux Imbalance/Quadrant Power Tilt are NOT affected THEN GO TO Step 4.7.37.</p> <p><u>STANDARD:</u> Operator will use T-handle to withdraw Rod 7-1 to group average. Operator will GO TO Step 4.7.17.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 4:</u> Transfer affected rod from Auxiliary Power Supply to Normal Power Supply. Refer to Section 4.17 of this procedure.</p> <p><u>STANDARD:</u> Operator will GO TO step 4.17.1.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>CAUTION:</u> Tave control could go to Feedwater regulation.</p> <p><u>STEP 5:</u> Place Reactor Demand control station in HAND if not in Mini Track.</p> <p><u>STANDARD:</u> Operator verifies that Reactor Demand is in Mini Track by observing red and white lights on.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 6:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Place Reactor Diamond in MANUAL.</p> <p>Operator verifies Reactor Diamond is in MANUAL by observing MANUAL light ON and AUTO light OFF .</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 7:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Select GROUP SELECT Switch to desired group.</p> <p>Operator verifies that GROUP SELECT Switch is selected to Group 7.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 8:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Select ALL or desired rod. Use SINGLE SELECT Switch.</p> <p>Operator verifies that SINGLE SELECT Switch is selected to 1.</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 9:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Select SEQ OR. Verify SEQ OR light on, SEQ light ON.</p> <p>Operator depresses the SEQ/SEQ OR pushbutton and verifies both lights ON.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Select AUXIL.</p> <p>Operator depresses the AUXIL/GROUP pushbutton and verify AUXIL light ON and GROUP light OFF.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 11:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Place SPEED SELECTOR switch in JOG.</p> <p>Operator rotates RUN/JOG switch to JOG and verifies SY light ON.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 12:</u> Select CLAMP.</p> <p><u>STANDARD:</u> Operator depresses CLAMP/CLAMP RELEASE pushbutton and verifies CLAMP light ON and CLAMP REL light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>CAUTION: If ANY Amber control on lights for any rod(s) or group(s) is on, STOP, and notify SSOD. (If needed cue candidate: The SROs have discussed the misplacement of this caution and direct you to continue on with the procedure.)</p> <p><u>STEP 13:</u> Depress MAN TRANS.</p> <p><u>STANDARD:</u> Operator depresses MAN TRANS pushbutton and verifies TR CF light OFF. The operator will also verify the amber CONTROL ON light for rod 7-1 is OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 14:</u> Select CLAMP REL.</p> <p><u>STANDARD:</u> Operator depresses CLAMP/CLAMP RELEASE pushbutton and verifies CLAMP REL light ON and CLAMP light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 15:</u> Select GROUP.</p> <p><u>STANDARD:</u> Operator depresses GROUP/AUXIL pushbutton and verifies GROUP light ON and AUXIL light OFF. The operator will also verify the SY light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>EXAMINER'S NOTE: If the annunciator for Pressurizer high level alarms or any other annunciator alarms related to an increase in Reactor Coolant pressure or the spray valve opens, cue the Operator that another operator is responding to these indications.</p> <p><u>STEP 16:</u> Select TRANS RESET. Verify TRANS RESET light ON.</p> <p><u>STANDARD:</u> Operator depresses TRANS RESET pushbutton and verifies light ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 17:</u> Place SPEED SELECTOR switch in RUN.</p> <p><u>STANDARD:</u> Operator rotates RUN/JOG switch to RUN.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 18:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>IF another Group/Rod is to be placed on the Auxiliary Power Supply, THEN GO TO Step 4.16.1 of this procedure.</p> <p>N/A</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 19:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Restore SINGLE SELECT Switch. Place SINGLE SELECT Switch to OFF.</p> <p>Operator rotates SINGLE SELECT Switch to OFF.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 20:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Restore GROUP SELECT Switch. Place GROUP SELECT Switch to OFF.</p> <p>Operator rotates GROUP SELECT switch to OFF.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

<u>STEP 21:</u>	Select SEQ. Verify SEQ light ON and SEQ OR light OFF.	SAT
<u>STANDARD:</u>	Operator depresses SEQ/SEQ OR pushbutton and verifies SEQ light ON and SEQ OR light OFF.	UNSAT
EXAMINER'S CUE: You have recovered the misaligned rod; the JPM is complete.		
<u>COMMENTS:</u>	END OF TASK	

STOP TIME: _____

JPM QUESTION #1

Question: Given the following positions of each rod in group 7, what actions are required, if any?

ROD	POSITION (% Withdrawn)
7-1	98
7-2	99
7-3	73
7-4	97
7-5	98
7-6	42
7-7	99
7-8	98

Answer: Verify SDM is $\geq 1\% \Delta k/k$ OR initiate boration to restore SDM within limit in one hour. And, be in Mode 3 within 6 hours.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

001K5.07//3.3/4.0

References:

TS 3.1.4

JPM QUESTION #2

Question: If the Rod Index is 150 and the plant is at 80% and 320 EFPD, what actions are required, if any?

Answer: Initiate boration to restore SDM to $\geq 1\% \Delta k/k$ in 15 minutes AND within 2 hours either restore regulating rod groups to within restricted operating region OR reduce thermal power to less than or equal to the thermal power allowed by the regulating rod group insertion limits.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

001K5.04//4.3/4.7

References:

COLR

TS 3.2.1

JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

If the Rod Index is 150 and the plant is at 80% and 320 EFPD, what actions are required, if any?

JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

Given the following positions of each rod in group 7, what actions are required, if any?

ROD	POSITION (% Withdrawn)
7-1	98
7-2	99
7-3	73
7-4	97
7-5	98
7-6	42
7-7	99
7-8	98

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

INITIAL CONDITIONS:

You are the Reactor Operator.
Control rod 7-1 has dropped into the core.
The plant is stable at 45% power.
The pre-job briefing has been completed.
The previous shift has completed steps 4.7.1 through 4.7.30.

INITIATING CUES:

You are requested by the Shift Manager to recover the misaligned rod starting with step 4.7.31.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 10S/SIMULATOR

Manually Actuate Low Pressure Injection

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Richard Haller* Date/ 2-1-99

VALIDATED BY: * *D. Jones* Date/ 2/1/99

APPROVED BY: *R. W. Jones* Date/ 2-1-99
(Operations Training Manager)

CONCURRED: ** *D. Jones* Date/ 2-1-99
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. While in Mode 3 a LOCA causes a loss of subcooling margin.
2. LPI fails to actuate.
3. IC #63

Tools/Equipment/Procedures Needed:

EOP-03

READ TO OPERATORDIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

You are the Reactor Operator.

While in Mode 3 a LOCA causes a loss of subcooling margin.

INITIATING CUES:

You are requested to ensure that applicable ES (Engineered Safeguards) equipment is properly aligned.

START TIME: _____ Shaded Block Indicates Critical Step

<u>STEP 1:</u> Obtain a copy of appropriate procedure.	_____ SAT
<u>STANDARD:</u> Operator obtains a copy of EOP-03, step 3.10.	_____ UNSAT
EXAMINER'S NOTE: Operator may verify actions in steps 3.1 through 3.9.	
EXAMINER'S NOTE: Operator may use EOP-13, Rule 1.	
<u>COMMENTS:</u>	

<p>EXAMINER'S NOTE: All parts of step 2 can be performed in any sequence.</p> <p>STEP 2A: IF at any time, ES systems have, OR should have actuated, THEN ensure ES equipment is properly aligned. Ensure applicable ES actuations: HPI.</p> <p>STANDARD: Operator verifies HPI actuation ES status lights are green (excluding 1 HPI pump and 2 RB fans).</p> <p>COMMENTS:</p>	<p>SAT</p> <p>UNSAT</p>
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<p><u>STEP 2B:</u></p>	<p>LPI</p>	
<p><u>STANDARD:</u></p>	<p>Operator verifies LPI actuation ES status lights are green. Operator finds that the LPI actuation ES status lights for LPI pumps are yellow. Operator rotates control handles for both DHP-1A and DHP-1B to start. Operator verifies LPI actuation ES status lights are green. (A-2-4 and D-2-4 will alarm with their respective pump and then clear)</p>	<p>____ SAT</p>
<p><u>EXAMINER'S NOTE:</u></p>	<p>LPI MANUAL ACTUATION pushbutton are disabled.</p>	<p>____ UNSAT</p>
<p><u>COMMENTS:</u></p>		
<p><u>STEP 2C:</u></p>	<p>RBIC</p>	
<p><u>STANDARD:</u></p>	<p>Operator verifies RBIC actuation ES status lights are green.</p>	<p>____ SAT</p>
<p><u>COMMENTS:</u></p>		<p>____ UNSAT</p>
<p>END of TASK</p>		

STOP TIME: _____

NO REFERENCE ALLOWED
JPM QUESTION #1

Question: What is the status of the Decay Heat Pumps given the following set of plant conditions? (assume nothing has been bypassed or manually actuated)

Reactor Coolant pressure is 770 psig.
Reactor Building pressure is 4.3 psig.
There is a Loss of Off-Site Power (LOOP).

Answer: The Decay Heat Pumps will not be running.

CANDIDATE'S RESPONSE

Time:

K/A Rating:
006K4.05//4.3/4.4

References:
ROT-4-13

NO REFERENCE ALLOWED
JPM QUESTION #2

Question: What is the status of the Emergency Feedwater Pumps (EFPs) given the following set of plant conditions? (assume nothing has been bypassed or manually actuated)

Reactor Coolant pressure is 470 psig.
Reactor Building pressure is 2.3 psig.
There is a Loss of Off-Site Power (LOOP).

Answer: EFP-1 will not be running.
EFP-2 will be running.

CANDIDATE'S RESPONSE

Time:

K/A Rating:
056AA2.07//4.2/4.3

References:
ROT-4-13

NO REFERENCE ALLOWED
JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

What is the status of the Emergency Feedwater Pumps given the following set of plant conditions? (assume nothing has been bypassed or manually actuated)

Reactor Coolant pressure is 470 psig.

Reactor Building pressure is 2.3 psig.

There is a Loss of Off-Site Power (LOOP).

NO REFERENCE ALLOWED
JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

What is the status of the Decay Heat Pumps given the following set of plant conditions? (assume nothing has been bypassed or manually actuated)

Reactor Coolant pressure is 770 psig.

Reactor Building pressure is 4.3 psig.

There is a Loss of Off-Site Power (LOOP).

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

INITIAL CONDITIONS:

You are the Reactor Operator.

While in Mode 3 a LOCA causes a loss of subcooling margin.

INITIATING CUES:

You are requested to ensure that applicable ES (Engineered Safeguards) equipment is properly aligned.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 3S/SIMULATOR

Start a Reactor Building Pressure
Equalization/Mini-Purge under Non-Accident
Conditions

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Balkin Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12/17/98

APPROVED BY: H. White Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** Q. Miller Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMS and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

SIMULATOR OPERATOR INSTRUCTIONS:

1. The plant is at 100% normal full power.
2. IC #11.
3. Power up RM-A1G/I/P monitoring and pump.

Tools/Equipment/Procedures Needed:

OP-417
Calculator

READ TO OPERATORDIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

You are the Reactor Operator.
Chemistry has asked that a mini-purge be started in the Reactor Building (RB).
The previous shift has completed OP-417 up to and including step 4.7.14.

INITIATING CUES:

You are requested to finish the start of the RB mini-purge.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-417.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>NOTE: The "Reactor Bldg Purge Air Flow Low" alarm is expected to come in when AHF-7A or AHF-7B is started. As long as step 4.7.16 (flow requirement) is met, no actions are required.</p> <p><u>STEP 2A:</u> Start Reactor Bldg Purge Exhaust Fan. Notify Chemistry prior to start of purge.</p> <p><u>STANDARD:</u> Operator contacts Chemistry to inform them of the purge start.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2B:</u> Start Reactor Bldg Purge Exhaust Fan. Start AHF-7A OR AHF-7B.</p> <p><u>STANDARD:</u> Operator rotates either the control handle for either AHF-7A OR AHF-7B to the start position and hold until white permissive lights are ON and then verifies the red light ON and the green light OFF. (Annunciator F-4-7)</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2C:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Notify HP that RB purge has started.</p> <p>Operator contacts Health Physics to inform them of the purge start.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 3:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Verify total purge flow Channel "D" on AH-32-FIR is above the minimum required for fan operation. (> 20,000 SCFM).</p> <p>Operator observes the Channel "D" flow on AH-32-FIR is approximately 27.2 x 10³ SCFM.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 4:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>NOTE: LR-60-FI1/FI2 will not indicate until RB pressure > 0 psig.</p> <p>IF monitoring RB vent flow with LR-60-FI1/FI2, THEN multiply reading by 1.2273</p> <p>Operator locates LR-60-FI1/FI2.</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 5:</u> In modes 1-4, Perform RM-A1 gas Channel Checks every 8 hours. N/A if not required.</p> <p>EXAMINER'S CUE: Another operator will perform this step.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6A:</u> Perform RB Vent mini-purge, and/or Equalization. Open LRV-70 and LRV-71 OR Open LRV-72 and LRV-73</p> <p><u>STANDARD:</u> Operator rotates control switch for either LRV-70 and LRV-71 OR LRV-72 and LRV-73 in the OPEN position until the red light is ON and the green light is OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 6B:</u> Perform RB Vent mini-purge, and/or Equalization. IF LRV-70 and LRV-71 are Open THEN Throttle Open LRV-121 to maintain LR-60-FI1 or LR-60-FI2 on scale OR Throttle Open LRV-123 to maintain LR-60-FI1 or LR-60-FI2 on scale.</p> <p>EXAMINER'S CUE: LRV-121 is throttled Open (if LRV-70 and LRV-71 are Open); OR LRV-123 is throttled Open (if LRV-72 and LRV-73 are Open).</p> <p><u>STANDARD:</u> Operator verifies flow is on scale (LR-60-FI1/FI2).</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6C:</u> Notify Chemistry when flow is established, so they can obtain the required samples.</p> <p><u>STANDARD:</u> Operator notifies Chemistry that the RB Mini-Purge has commenced.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 6D:</u> IF RB Mini-Purge is to be ESTABLISHED, THEN concurrently Perform Section 4.6 of OP-417 to supply air to the RB.</p> <p>EXAMINER'S CUE: Section 4.6 is being performed by other operators.</p> <p><u>STANDARD:</u> Operator has completed the start of the Mini-Purge.</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
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STOP TIME: _____

JPM QUESTION #1

Question: Is the average Reactor Building (RB) temperature acceptable, given the attached data sheet?

Answer: The average RB temperature is 124.5°F, which meets SP-300 maximum tolerance.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

029K3.01//2.9/3.1

References:

SP-300

JPM QUESTION #2

Question: In Mode 1, while securing the RB equalization two (2) of the isolation valves (LRV-70 and LRV-71) will not close, what action should be taken, if any?

Answer: Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange in one hour. (Candidate may include 1 hour requirement in TS 3.6.1, Containment.) And, verify the affected penetration flow path is isolated once per 31 days for isolation devices outside containment and prior to entering Mode 4 from Mode 5 if not performed within the previous 92 days for isolation devices inside containment.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

029K4.03//3.2/3.5

References:

TS 3.6.3

Flow diagram

JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

In Mode 1, while securing the RB equalization two (2) of the isolation valves (LRV-70 and LRV-71) will not close, what action should be taken, if any?

JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question: Is the average Reactor Building (RB) temperature acceptable, given the attached data sheet?

G211	62
G216	74
G217	72
G218	72
G219	42
E213	52
E214	24
E215	51
P200	12.76
P201	13.06
R203 – A324	184
R208	2167
R209	2151
R210	2172
R212	601
R213	603
R701	147
S263	-.11
S297	OOS
S298	-.03
S299	-.02
S358	107
S359	121
S382	132
S383	138
S387	OOS
X284	106
X285	106

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

INITIAL CONDITIONS:

You are the Reactor Operator.
Chemistry has asked that a mini-purge be started in the Reactor Building (RB).
The previous shift has completed OP-417 up to and including step 4.7.14.

INITIATING CUES:

You are requested to finish the start of the RB mini-purge.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 8S/SIMULATOR

Synchronize in Off-Site Power and
Unload/Shutdown EDG-1A

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Bellini Date/ 12-17-98

VALIDATED BY: * D. Jan Date/ 12-17-98

APPROVED BY: R. Wilson Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Synchronize in Off-Site Power and unload/shutdown EDG-1A.

Alternate Path:

N/A

Facility JPM #:

048

K/A Rating(s)/Task Number/AO, RO, SRO:

062A4.07//3.1/3.1//0620402001//RO, SRO

Task Standard:

Synchronize in Off-Site Power and unload/shutdown EDG-1A using AP-770.

Preferred Evaluation Method:

Simulator In-Plant

References:

AP-770

Validation Time: 18 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. The plant is in Mode 3 following a loss of Off-Site Power.
2. Both Diesels are running and tied to their respective ES bus.
3. Off-Site power is available to the "A" ES bus.
4. IC #62

Tools/Equipment/Procedures Needed:

AP-770, Steps 3.43 and 3.44

READ TO OPERATORDIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is stable in Mode 3 following a loss of Off-Site Power.
Both Diesels are running and tied to their respective ES bus.
AP-770 is complete up to Off-Site power availability.

INITIATING CUES:

"A" Off-Site power is now available, you are requested to sync in Off-Site power to the "A" ES 4160V bus and then unload and shutdown EDG-1A.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of AP-770 step 3.43.</p> <p>EXAMINER'S CUE: All preceding steps are complete.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2A:</u> IF "A" ES 4160V BUS is supplied from EDG-1A, THEN sync in Off-Site power supply. Ensure plant conditions are stable.</p> <p><u>STANDARD:</u> N/A, the initial cue indicated stability. (Operator may verify.)</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2B:</u> Ensure HPI is bypassed or reset.</p> <p><u>STANDARD:</u> Operator verifies both "A" and "B" ES status panel that the Channel Function Enabled green light is ON and the Bypass Reset green light is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<u>STEP 2C:</u>	Depress 4160V ES "A" UV RESET pushbutton.	____ SAT
<u>STANDARD:</u>	Operator depresses pushbutton for 4160V UV RESET and verifies that both reset/normal lights are ON.	____ UNSAT
<u>COMMENTS:</u>		
<u>STEP 2D:</u>	Notify PPO to obtain key 94 from Control Room.	____ SAT
<u>STANDARD:</u>	Operator notifies PPO to obtain key 94.	
<u>COMMENTS:</u>		____ UNSAT
<u>STEP 2E:</u>	While maintaining frequency, notify PPO to select EDG-1A SPEED DROOP to 60 in increments of 10.	____ SAT
<u>STANDARD:</u>	Operator notifies PPO to adjust SPEED DROOP to 60 in increments of 10. Operator will raise EDG "A" speed to maintain frequency.	____ UNSAT
<u>COMMENTS:</u>		

<p><u>STEP 2F:</u></p>	<p>Select EDG "A" EXC VOLT ADJ SELECT to CONT RM.</p>	<p>____ SAT</p>
<p><u>STANDARD:</u></p>	<p>Operator rotates EDG "A" EXC VOLT ADJ SELECT switch to CONT RM. (Q-2-5)</p>	<p>____ UNSAT</p>
<p><u>COMMENTS:</u></p>		
<p><u>STEP 2G:</u></p>	<p>Notify PPO to select "A" EDG Unit-Parallel Switch to PAR.</p>	<p>____ SAT</p>
<p><u>STANDARD:</u></p>	<p>Operator notifies PPO to select PAR on the "A" EDG Unit-Parallel Switch.</p>	<p>____ UNSAT</p>
<p><u>COMMENTS:</u></p>		
<p><u>STEP 2H:</u></p>	<p>Adjust EDG "A" EXC VOLT ADJUST to maintain EDG "A" voltage 4150 to 4250 volts.</p>	<p>____ SAT</p>
<p><u>STANDARD:</u></p>	<p>Operator rotates EDG "A" EXC VOLT ADJUST knob to keep the voltage between 4150 and 4250 volts.</p>	<p>____ UNSAT</p>
<p><u>COMMENTS:</u></p>		

<p><u>STEP 2I:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Select synchroscope for Bkr to be paralleled to ON.</p> <p>Operator rotates synchroscope for Breaker 3211 to ON and verifies sync lights ON.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2J:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Adjust EDG "A" EXC VOLT ADJUST to match incoming and running voltages.</p> <p>Operator rotates EDG "A" EXC VOLT ADJUST knob so that the incoming voltage and running voltage are approximately the same.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2K:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Adjust EDG "A" SPEED to establish synchroscope moving slow in the FAST direction.</p> <p>Operator rotates EDG "A" SPEED control handle until the needle on the synchroscope is rotating slowly in the FAST direction.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2L:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Close oncoming Bkr at approximately 11 o'clock.</p> <p>Operator rotates breaker 3211 to close when the synchroscope is at approximately the 11 o'clock position. (Q-5-4 and Q-1-10)</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2M:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Select synchroscope to OFF.</p> <p>Operator rotates the synchroscope control handle for breaker 3211 to OFF and verifies sync lights OFF.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 3A:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>IF EDG-1A is running in parallel with Off-Site power, THEN unload and shutdown EDG-1A. Maintain -1.5 to +1.5 MVAR by adjusting EDG "A" EXC VOLT ADJUST</p> <p>Operator rotates EDG "A" EXC VOLT ADJUST knob to maintain MVARs between -1.5 and +1.5 if needed.</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 3B:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>IF EDG-1A load is > 1200 KW, THEN adjust EDG "A" SPEED to reduce load to approximately 1200 KW.</p> <p>Operator rotates EDG "A" SPEED control handle and reduces load to approximately 1200 KW.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 3C:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>WHEN load has been reduced to approximately KW for 3 to 5 minutes, THEN adjust EDG "A" SPEED to reduce EDG-1A load to approximately 200 KW.</p> <p>EXAMINER'S CUE: 4 minutes have passed.</p> <p>Operator rotates EDG "A" SPEED knob and reduces load to approximately 200 KW.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 3D:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Open Bkr 3209</p> <p>Operator rotates Breaker 3209 control handle to open and verifies green light ON and red light OFF. (Q-5-4 and Q-1-10 clear)</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<u>STEP 3E:</u>	Depress EDG-1A STOP pushbutton.	
<u>STANDARD:</u>	Operator EDG-1A STOP pushbutton and verifies generator meters decrease to 0.	SAT
<u>COMMENTS:</u>	END of TASK	UNSAT

STOP TIME: _____

JPM QUESTION #1

Question: While performing SP-300, Operating Daily Surveillance Log, on the "A" Emergency Diesel Generator, fuel oil level in the Day Tank is 22.5 inches on the dip stick, what is the usable volume and should any fuel oil transfer pumps operating?

Answer: 321.0 gallons; the AC fuel oil transfer pump should be running.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

064K1.03//3.6/4.0

References:

OP-103F

NO REFERENCES ALLOWED
JPM QUESTION #2

Question: Given the following conditions, what is the status of the Emergency Diesel Generators? (Explain)

Reactor Coolant temperature is 560°F.
Reactor Coolant pressure is 1450 psig.
Reactor Building pressure is 4.2 psig.
"A" 4160V ES Bus voltage is 3980.
"B" 4160V ES Bus voltage is 4100.

Answer: The High Pressure Injection (HPI) signal will start both Emergency Diesel Generators.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

064A3.01//4.1/4.0

References:

TS 3.3.8

NO REFERENCES ALLOWED
JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

Given the following conditions, what is the status of the
Emergency Diesel Generators? (Explain)

Reactor Coolant temperature is 560°F.

Reactor Coolant pressure is 1450 psig.

Reactor Building pressure is 4.2 psig.

"A" 4160V ES Bus voltage is 3980.

"B" 4160V ES Bus voltage is 4100.

JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

While performing SP-300, Operating Daily Surveillance Log, on the "A" Emergency Diesel Generator, fuel oil level in the Day Tank is 22.5 inches on the dip stick, what is the usable volume and should any fuel oil transfer pumps operating?

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

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is stable in Mode 3 following a loss of Off-Site Power.
Both Diesels are running and tied to their respective ES bus.
AP-770 is complete up to Off-Site power availability.

INITIATING CUES:

"A" Off-Site power is now available, you are requested to sync in Off-Site power to the "A" ES 4160V bus and then unload and shutdown EDG-1A.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 2 CR/CONTROL ROOM

Reset a Reactor Protection System Channel

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Bellini Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: F. Williams Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Reset a Reactor Protection System channel.

Alternate Path:

N/A

Facility JPM #:

076

K/ARating(s)/Task Number/AO, RO, SRO:

012A4.04//3.3/3.3//0120102007//RO, SRO

Task Standard:

Reset Reactor Protection System (RPS) channel "B" using OP-507.

Preferred Evaluation Method:

Simulator In-Plant

References:

OP-507

Validation Time: 5 min.

Time Critical: NO

Candidate: _____

NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. IC#11
2. Trip RPS channel "B" using the Reactor Building High Pressure Contact Monitor (Primary Method).
3. Acknowledge Alarms

Tools/Equipment/Procedures Needed:

OP-507
RPS cabinet key

READ TO OPERATORDIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is at 100% full power.
The "B" RPS has been tripped using the Primary Method.

INITIATING CUES:

You are requested to reset the "B" RPS channel.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-507, Section 4.10.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> IF Primary Method was used to trip RPS channel, THEN RESET the Reactor Bldg. High Pressure Contact Monitor. Depress reset toggle on the REACTOR BUILDING HIGH PRESS contact monitor. Verify both REACTOR BUILDING HIGH PRESS contact monitor lights are extinguished. GO TO Step 4.10.4.</p> <p><u>STANDARD:</u> Operator depresses and then releases the toggle for the REACTOR BUILDING HIGH PRESS contact monitor and verifies that both red lights go OUT.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Reset the reactor trip module. Depress subsystem reset toggle on the reactor trip module and Verify the protective subsystem amber indicating lamps on top of each channel cabinet are dim for the "B" channel.</p> <p>Operator depresses and then releases the subsystem reset toggle on the reactor trip module and verifies that the amber light for the "B" channel on each RPS cabinet dims.</p> <p>END of TASK</p>	<p>SAT</p> <p>UNSAT</p>
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STOP TIME: _____

JPM QUESTION #1

Question: Given the following set of plant parameters , what should be the condition of the Reactor Protection System (RPS)?
(Based on Technical Specification allowable values)

Reactor Coolant (RCS) pressure is 1845 psig.
Reactor power is 89% full power.
RCS outlet temperature is 595°F.
Reactor Building pressure is 2.8 psig.
Main Turbine control oil pressure is 55 psig.
The "A" Main Feedwater Pump control oil pressure is 56 psig.
The "B" Main Feedwater Pump control oil pressure is 60 psig.
3 Reactor Coolant Pumps are operating.

Answer: The Reactor should be tripped on RCS variable low pressure.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

012K4.02//3.9/4.3

References:

TS 3.3.1, Table 3.3.1-1

JPM QUESTION #2

Question: At 60% power, with the "A" Reactor Coolant Pump Power Monitor in bypass and the following set of the Reactor Coolant Pumps' kilowatt usage, what is the condition of the RPS bistables?

REACTOR COOLANT PUMP	KW
A	1,234
B	13,200
C	8,900
D	14,100

Answer: No RPS bistables are tripped.

CANDIDATE'S RESPONSE

Time:

K/A Rating:
003K3.04//3.9/4.2

References:
TS 3.3.1, Table 3.3.1-1

JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

At 60% power, with the "A" Reactor Coolant Pump Power Monitor in bypass and the following set of the Reactor Coolant Pumps' kilowatt usage, what is the condition of the RPS bistables?

REACTOR COOLANT PUMP	KW
A	1,234
B	13,200
C	8,900
D	14,100

JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question: Given the following set of plant parameters , what should be the condition of the Reactor Protection System (RPS)?
(Based on Technical Specification allowable values)

Reactor Coolant (RCS) pressure is 1845 psig.

Reactor power is 89% full power.

RCS outlet temperature is 595°F.

Reactor Building pressure is 2.8 psig.

Main Turbine control oil pressure is 55 psig.

The "A" Main Feedwater Pump control oil pressure is 56 psig.

The "B" Main Feedwater Pump control oil pressure is 60 psig.

3 Reactor Coolant Pumps are operating.

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

INITIAL CONDITIONS:

Your are the Reactor Operator.
The plant is at 100% full power.
The "B" RPS has been tripped using the Primary Method.

INITIATING CUES:

You are requested to reset the "B" RPS channel.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 1S/5CR/CONTROL ROOM

Perform Steam Generator Isolation for TRACC
Limits

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Richard Sullivan* Date/ 2-1-99

VALIDATED BY: * *D. Jones* Date/ 2/1/99

APPROVED BY: *R. W. Jones* Date/ 2-1-99
(Operations Training Manager)

CONCURRED: ** *Chris [Signature]* Date/ 2-1-99
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

SIMULATOR OPERATOR INSTRUCTIONS:

1. Large "A" OTSG tube leak
2. IC #66

Tools/Equipment/Procedures Needed:

EOP-14, Enclosure 12

READ TO OPERATORDIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

EOP-6 has been entered for a large tube leak in the "A" Steam Generator (OTSG).

The "A" OTSG level is 92% and increasing.

"A" OTSG blowdown is 500 gpm (The blowdown valves are full open).

"A" OTSG pressure is 300 psi.

Adequate Subcooling Margin exists and HPI has already been bypassed.

Reactor Coolant (RCS) temperature is approximately 430°F.

RCS pressure is 800 psig.

EFIC was actuated.

MSDT-22 and MSDT-23 have been isolated.

MSV-55 is closed.

INITIATING CUES:

You are directed by the Procedure Director to isolate the "A" OTSG for high level.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of EOP-14, Enclosure 12.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>NOTE: The following criteria is to be used during isolation determination: High OTSG level (Isolate any OTSG that can not be maintained $\leq 90\%$ due to tube rupture.); Low BWST level (Isolate any OTSG with tube rupture.); Atmospheric steaming time limit (Isolate the OTSG with the largest primary to secondary leak rate.)</p> <p><u>STEP 2:</u> IF blowdown is available, THEN maintain OTSG level $\leq 90\%$ using OTSG blowdown lines.</p> <p><u>STANDARD:</u> N/A, blowdown at maximum – see cue.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> IF either OTSG PRESS < 725 psig, THEN bypass EFIC isolation actuations.</p> <p><u>STANDARD:</u> N/A, “A” OTSG > 725 psig – see cue.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 4:</u> IF adequate SCM exists, AND HPI bypass permits exist, THEN bypass HPI.</p> <p><u>STANDARD:</u> N/A, HPI bypassed – see cue.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>NOTE: Emergency cooldown limits apply when RCS TEMP is > 500°F.</p> <p><u>STEP 5:</u> IF RCS TEMP is > 480°F, THEN establish RCS cooldown.</p> <p><u>STANDARD:</u> N/A, RCS Temp < 480°F – see cue.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u> Isolate MSDTs on affected OTSGs.</p> <p><u>STANDARD:</u> N/A, MSDT-22 and MSDT-23 have already been isolated – see cue.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 7:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>WHEN RCS TEMP \leq 480°F, THEN ensure RCS PRESS \leq 950 psig.</p> <p>N/A, these conditions already exist – see cue</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 8:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>IF EFIC is actuated, THEN depress MANUAL PERMISSIVE pushbuttons on EFIC channels “A” and “B”.</p> <p>N/A – EFIC is not actuated.</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p>EXAMINER'S NOTE: Steps 9A, 9B, and 9C may be done in any order.</p> <p><u>STEP 9A:</u> Isolate all sources to affected OTSG. Close the following valves on affected OTSG: FWV-216</p> <p><u>STANDARD:</u> Operator verifies FWV-216 closed by 0 flow indication and/or green light ON and red light OFF.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <hr/> <p>UNSAT</p>
<p><u>STEP 9B:</u> Isolate all sources to affected OTSG. Close the following valves on affected OTSG: EFV-14 and EFV-11</p> <p><u>STANDARD:</u> Operator rotates EFV-14 and EFV-11 control switches to closed positions and for each valve verifies green light ON and red light OFF and/or 0 flow indication.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <hr/> <p>UNSAT</p>

<p><u>STEP 9C:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Isolate all sources to affected OTSG. Close the following valves on affected OTSG: FWV-35, FWV-31, FWV-30, FWV-36</p> <p>Operator rotates control switches for FWV-35, FWV-31, FWV-30 and FWV-36 to closed positions and verifies for each valve green light ON and red light OFF. (Operator may select FWV-30 to MAN.)</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 10:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Close MS supply valve to EFP-2 affected OTSG: MSV-55.</p> <p>N/A – MSV-55 is closed (see initial conditions)</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 11A:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>WHEN RCS PRESS controlled ≤ 950 psig, THEN complete isolating affected OTSG. Close MSIVs on affected OTSG: MSV-412 and MSV-411.</p> <p>Operator rotates control switch for MSV-412 and MSV-411 to closed and verifies green light ON and red light OFF.</p>	<p>SAT</p> <p>UNSAT</p>
<p><u>STEP 11B:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Select ADV to HAND and closed on affected OTSG: MSV-25.</p> <p>Operator depresses HAND pushbutton for MSV-25 and verifies HAND light ON and AUTO light OFF. Operator depresses closed arrow pushbutton until meter reads 0.</p>	<p>SAT</p> <p>UNSAT</p>

<u>STEP 12:</u>	Close blowdown line isolation on affected OTSG: MSV-130.	SAT
<u>STANDARD:</u>	Operator rotates control switch for MSV-130 to close and verifies green light ON and red light OFF.	UNSAT
<u>EXAMINER'S CUE:</u> Another will continue the cooldown.		
<u>COMMENTS:</u>	END of TASK	

STOP TIME: _____

JPM QUESTION #1

Question: What is the maximum allowable Steam Generator level if Main Steam pressure is 835 psig and temperature is 550°F?

Answer: 78% \pm 2% on the operating level.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

035A1.01//3.6/3.8

References:

OP-103A Curve 15

JPM QUESTION #2

Question: What is the expected Feedwater temperature at 45% thermal power?

Answer: 370°F ± 10°F

CANDIDATE'S RESPONSE

Time:

K/A Rating:
059K1.05//3.1/3.2

References:
OP-103A Curve 17

JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question: What is the expected Feedwater temperature at 45% thermal power?

JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

What is the maximum allowable Steam Generator level if Main Steam pressure is 835 psig and temperature is 550°F?

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

INITIAL CONDITIONS:

EOP-6 has been entered for a large tube leak in the "A" Steam Generator (OTSG).
The "A" OTSG level is 92% and increasing.
"A" OTSG blowdown is 500 gpm (The blowdown valves are full open).
"A" OTSG pressure is 300 psi.
Adequate Subcooling Margin exists and HPI has already been bypassed.
Reactor Coolant (RCS) temperature is approximately 430°F.
RCS pressure is 800 psig.
EFIC was actuated.
MSDT-22 and MSDT-23 have been isolated.
MSV-55 is closed.

INITIATING CUES:

You are directed by the Procedure Director to isolate the "A" OTSG for high level.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 12S/SIMULATOR

Lower Water Level in the Reactor Coolant Drain
Tank

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Salter Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: B. Was Jones Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Lower water level in the Reactor Coolant Drain Tank.

Alternate Path:

WDP-8 will not start.

Facility JPM #:

170

K/A Rating(s)/Task Number/AO, RO, SRO:

007A1.01//2.9/3.1//0680102002//RO, SRO

Task Standard:

Lower water level in the Reactor Coolant Drain Tank using OP-407J,
Operation of the Reactor Coolant Drain Tank, WDT-5.

Preferred Evaluation Method:

Simulator In-Plant

References:

OP-407J

Validation Time: 8 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. Plant is in Mode 5.
2. The RCDT high level alarm is in.
3. WDP-8 does not start.
4. IC #64

Tools/Equipment/Procedures Needed:

OP-407J
Calculator

READ TO OPERATORDIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

Your are the Reactor Operator.
The plant is in Mode 1.
The RCDT (WDT-5) is in high level alarm.

INITIATING CUES:

You are requested to start lowering RCDT level by pumping it to the MWST (Miscellaneous Waste Storage Tank).

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Obtain a copy of appropriate procedure.</p> <p>Operator obtains a copy of OP-507J section 4.1.1.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>IF using WDP-7 (RC Drain Pump) to lower WDT-5 (RCDT) level, THEN GO TO 4.6.1.</p> <p>N/A, Operator believes WDP-8 is operable.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Determine the flow path from WDT-5 (RCDT), in order to lower WDT-5 (RCDT) level using WDP-8 (RCDT pump). IF RCDT effluent to MWST, THEN GO to Step 4.1.5.</p> <p>Operator goes to step 4.1.5 (MWST mentioned in cue).</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 4A:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Perform valve alignment for transfer of WDT-5 (RCDT) to WDT-4 (MWST). Close the following: WDV-247.</p> <p>Operator rotates WDV-247 switch to close and verifies green light ON and red light OFF.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 4B:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Open the following: WDV-94, WDV-62, WDV-61, and WDV-60.</p> <p>Operator rotates control switch for WDV-94, WDV-62, WDV-61, and WDV-60 and verifies for each valve red light ON and green light OFF.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 4C:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Select WDV-8/9 RC DR DIVERT Switch to MWS.</p> <p>Operator rotates RC DR DIVERT Switch to MWS and verifies that associated light comes ON.</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 5:</u> Start transfer for WDT-5 (RCDT). Start WDP-8 (RCDT Pump).</p> <p><u>STANDARD:</u> Operator rotates WDP-8 control handle to start and verifies that the red light does NOT come ON.</p> <p><u>EXAMINER'S NOTE:</u> Operator may ask at some time during the JPM to turn power off to WDP-8.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>EXAMINER'S CUE:</u> The Shift Supervisor requests that you use WDP-7 to lower the RCDT level.</p> <p><u>EXAMINER'S NOTE:</u> Operator may restore lineup.</p> <p><u>STEP 6:</u> IF using WDP-7 (RC Drain Pump) to lower WDT-5 (RCDT) level, THEN GO TO 4.6.1.</p> <p><u>STANDARD:</u> Operator goes to step 4.6.1.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 7:</u> Determine the flow path from WDT-5 (RCDT), in order to lower WDT-5 (RCDT) level. IF RCDT effluent to MWST, THEN GO to Step 4.6.5.</p> <p><u>STANDARD:</u> Operator goes to step 4.6.5 (MWST mentioned in cue).</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<u>STEP 8A:</u>	Perform valve alignment for transfer of WDT-5 (RCDT) to WDT-4 (MWST). Close the following: WDV-247.	____ SAT
<u>STANDARD:</u>	Operator notes that WDV-247 has been closed in an earlier step.	____ UNSAT
<u>COMMENTS:</u>		
<u>STEP 8B:</u>	Open the following: WDV-94, WDV-62, WDV-61, and WDV-60.	____ SAT
<u>STANDARD:</u>	Operator notes that WDV-94, WDV-62, WDV-61, and WDV-60 were opened in an earlier step.	____ UNSAT
<u>COMMENTS:</u>		
<u>STEP 8C:</u>	Select WDV-8/9 RC DR DIVERT Switch to MWS.	____ SAT
<u>STANDARD:</u>	Operator notes that WDV-8/9 RC DR DIVERT Switch was selected to MWS in an earlier step.	____ UNSAT
<u>COMMENTS:</u>		

<p>NOTE: WDP-7 has approximately 200 gpm capacity.</p> <p>NOTE: WDV-839 is locked in a throttled position.</p> <p><u>STEP 9A:</u> Start transfer of WDT-5 (RCDT) via WDP-7 (RC Drain Pump). Close WDV-64, WDP-7 from OTSGs.</p> <p> BOOTH CUE: WDV-64 is closed.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9B:</u> Open WDV-1045</p> <p> BOOTH CUE: WDV-1045 is open.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9C:</u> Close WDV-123</p> <p> BOOTH CUE: WDV-123 is closed.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 9D:</u> Open WDV-65</p> <p> BOOTH CUE: WDV-65 is open.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9E:</u> Start WDP-7</p> <p><u>STANDARD:</u> Operator rotates control handle for WDP-7 to start and verifies red light ON and green light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9F:</u> Throttle WDV-839 to adjust between 43 and 53 psig and lock WDV-839 in the throttled position.</p> <p> BOOTH CUE: The PPO is performing this action.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p> <p> END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

JPM QUESTION #1

Question: The Reactor Coolant Drain Tank (RCDT) high level annunciator has just come into alarm. How many gallons will have to be pumped out to bring the low level annunciator into alarm?

Answer: $(114.48 \text{ inches})(32.9 \text{ gal/inch}) - (90.16 \text{ inches})(32.9 \text{ gal/inch}) = 800 \text{ gallons} \pm 0.5 \text{ gallons}$

CANDIDATE'S RESPONSE

Time:

K/A Rating:

007A1.01//2.9/3.1

References:

AR-402; AP-520, Table 1

JPM QUESTION #2

Question: At full reactor power the pressure in the RCDT is increasing due to a weeping code safety. If RCDT pressure is currently 4 psig (assume no other line losses), what would the temperature be of the steam space in the RCDT (prior to cooling)?

Answer: 225°F ± 5°F

CANDIDATE'S RESPONSE

Time:

K/A Rating:

007A4.10//3.6/3.8

References:

Steam table

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

At full reactor power the pressure in the RCDT is increasing due to a weeping code safety. If RCDT pressure is currently 4 psig (assume no other line losses), what would the temperature be of the steam space in the RCDT (prior to cooling)?

JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

The Reactor Coolant Drain Tank (RCDT) high level annunciator has just come into alarm. How many gallons will have to be pumped out to bring the low level annunciator into alarm?

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

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is in Mode 1.
The RCDT (WDT-5) is in high level alarm.

INITIATING CUES:

You are requested to start lowering RCDT level by pumping it to the
MWST (Miscellaneous Waste Storage Tank).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 7P/PLANT

Place the "A" Hydrogen Analyzer In Service

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Bellin Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: R. West Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Place the "A" Hydrogen Analyzer in Service.

Alternate Path:

N/A

Facility JPM #:

Requal JPM

K/A Rating(s)/Task Number/AO, RO, SRO:

028A4.03//3.1/3.3//0090503001//AO, RO, SRO

Task Standard:

Place the "A" Hydrogen Analyzer in service using EOP-14, Enclosure 2.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

EOP-14

Validation Time: 11 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

EOP-14, Enclosure 2
Key

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The plant has just tripped.
A LOCA is in progress.
DHV-3 is energized.

INITIATING CUES:

You are requested by the Shift Supervisor to complete EOP-14,
Enclosure 2.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of EOP-14, Enclosure 2.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Energize DHV-3.</p> <p><u>STANDARD:</u> N/A, see initial conditions.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> Energize HPI recirc to sump valves. Unlock and close DPDP 8A-4 energizing MUV-543 and MUV-544 ("A" ES 4160 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-8A-4 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-8A-4 is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 4:</u> Energize PZR vent valves. Unlock and close DPDP 8A-13 energizing RCV-159 and RCV-160 ("A" ES 4160 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-8A-13 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-8A-13 is ON.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <p>UNSAT</p>
<p><u>STEP 5:</u> Energize WS valves for Hydrogen analyzers. Unlock and close DPDP 8A-14 energizing WSV-28, WSV-30, WSV-34 and WST-42 ("A" ES 4160 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-8A-14 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-8A-14 is ON.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <p>UNSAT</p>

<p><u>STEP 6:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Ensure "A" DC cooling control is aligned to Control Room. Ensure DH COOLER 3A OUTLET TEMP. CONTROL LOCATION switch DCV-177 MS is selected to CONTROL ROOM ("A" ES 4160V SWGR Room).</p> <p>Operator verifies that DH COOLER 3A OUTLET TEMP. CONTROL LOCATION switch DCV-177 MS is selected to CONTROL ROOM.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 7:</u></p> <p><u>STANDARD:</u></p> <p>EXAMINER'S CUE: Breaker DPDP-8B-8 is ON.</p> <p><u>COMMENTS:</u></p>	<p>Energize HPI recirc to sump valves. Unlock and close DPDP 8B-8 energizing MUV-545 and MUV-546 ("B" ES 4160 SWGR Room).</p> <p>Operator unlock breaker DPDP-8B-8 and rotate handle to ON.</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 8:</u> Energize WS valves for Hydrogen Analyzers. Unlock and close DPDP 8B-21 energizing WSV-26, WSV-32, WSV-38 and WSV-41 ("B" ES 4160 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-8B-21 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-8B-21 is ON.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 9:</u> Ensure "B" DC cooling control is aligned to Control Room. Ensure DH COOLER 3B OUTLET TEMP. CONTROL LOCATION switch DCV-178 MS is selected to CONTROL ROOM ("B" ES 4160V SWGR Room).</p> <p><u>STANDARD:</u> Operator verifies that DH COOLER 3B OUTLET TEMP. CONTROL LOCATION switch DCV-178 MS is selected to CONTROL ROOM.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 10:</u> Energize "A" loop HPVs. Unlock and close DPDP 5A-1 energizing RCV-157 and RCV-158 ("A" ES 480 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-5A-1 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-5A-1 is ON.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <p>UNSAT</p>
<p><u>STEP 11:</u> Energize WS valves for Hydrogen Analyzers. Unlock and close DPDP 5A-2 energizing WSV-29, WSV-31, WSV-35 and WSV-43 ("A" ES 480 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-5A-2 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-5A-2 is ON.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <p>UNSAT</p>

<p><u>STEP 12:</u> Energize "B" loop HPVs. Unlock and close DPDP 5B-1 energizing RCV-163 and RCV-164 ("B" ES 480 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-5B-1 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-5B-1 is ON.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <p>UNSAT</p>
<p><u>STEP 13:</u> Energize WS valves for Hydrogen Analyzers. Unlock and close DPDP 5B-27 energizing WSV-27, WSV-33, WSV-39 and WSV-40 ("B" ES 480 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-5B-27 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-5B-27 is ON.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <p>UNSAT</p>

<p>NOTE: Which Hydrogen analyzer to be used should be based on pre-existing (standby) status of analyzers and their power supplies. IF VBXS-1A is not on its normal power supply, "A" analyzer should not be considered available. If VBXS-1B is not on its normal power supply, "B" analyzer should not be considered available.</p> <p>EXAMINER'S CUE: All Inverters are on their normal power supply.</p> <p><u>STEP 14:</u> Notify NSS to choose Hydrogen analyzer and containment sample points to be used.</p> <p>EXAMINER'S CUE: The NSS requests you place the "A" Hydrogen Analyzer in service sampling from the RB Dome.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 15:</u> IF "B" Hydrogen Analyzer is to be place in service, THEN GO TO Step 2.19 in this enclosure.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p>STATUS: The "A" Hydrogen Analyzer is to be place in service.</p> <p>STEP 16: Open Containment Monitor Hydrogen Sampling Valves for sample point selected ("A" EFIC Room, RELAY RACK RR4A). IF RB Dome was elected, THEN open the following valves: WSV-30 and WSV-31.</p> <p>STANDARD: Operator rotates control switches for both WSV-30 and WSV-31 to open and verifies red light ON and green light OFF.</p> <p>EXAMINER'S CUE: WSV-30 and WSV-31 are open.</p> <p>COMMENTS:</p>	<p>SAT</p> <p>UNSAT</p>
<p>STEP 17: Open the "A" Hydrogen Analyzer return valves ("A" EFIC Room, RELAY RACK RR4A). WSV-42 and WSV-43.</p> <p>STANDARD: Operator rotates control switches for both WSV-42 and WSV-43 to open and verifies red light ON and green light OFF.</p> <p>EXAMINER'S CUE: WSV-42 and WSV-43 are open.</p> <p>COMMENTS:</p>	<p>SAT</p> <p>UNSAT</p>

<p><u>STEP 18:</u> Energize the "A" Hydrogen Analyzer ("A" EFIC Room, RELAY RACK RR4A). Select "System Power" switch to ON on WS-11-CS.</p> <p><u>STANDARD:</u> Operator selects toggle switch for "System Power" to on and verifies the indicating light illuminated.</p> <p><u>EXAMINER'S CUE:</u> The "A" Hydrogen Analyzer is in service.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 19:</u> Notify Control Room that PPO post event actions are complete with the "A" Hydrogen Analyzer in service and EXIT this enclosure.</p> <p><u>STANDARD:</u> Operator notifies the Control Room.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END of TASK</p>	<p>____ SAT</p> <p>____ UNSAT</p>

STOP TIME: _____

JPM QUESTION #1

Question: Following a LOCA with other complicating events, DPDP-1A is de-energized and WSV-38 is failed in the closed position. What are the sample flow paths for both hydrogen Analyzers?

Answer: The "A" Hydrogen Analyzer has no flow path.
The "B" Hydrogen Analyzer can only take samples from the Reactor Building Recirculation Duct.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

028A4.03//3.1/3.3

References:

EOP-14, Enclosure 2
Flow diagram

JPM QUESTION #2

Question: On January 2, 1999, WS-11-CR fails its channel check. On January 15, 1999, WS-10-CR fails its channel check. Today is February 3, 1999 and both WS-10-CR and WS-11-CR are still out of service, what action(s) should have been performed?

Answer: The plant should have been placed in Mode 4. (Candidate may add that attempts are in progress to make one of the Hydrogen Analyzers operable.) (Candidate may mention condition "A" of TS 3.3.17, which was exited when both Hydrogen Analyzers became inoperable.)

CANDIDATE'S RESPONSE

Time:

K/A Rating:

2.2.22//3.4/4.1

References:

Technical Specifications

JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question: On January 2, 1999, WS-11-CR fails its channel check.
On January 15, 1999, WS-10-CR fails its channel check.
Today is February 3, 1999, what action(s) have you
performed?

JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question: Following a LOCA with other complicating events, DPDP-1A is de-energized and WSV-38 is failed in the closed position. What are the sample flow paths for both hydrogen Analyzers?

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

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The plant has just tripped.
A LOCA is in progress.
DHV-3 is energized.

INITIATING CUES:

You are requested by the Shift Supervisor to complete EOP-14,
Enclosure 2.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 1P/PLANT

Reactor Coolant System Depressurization using
High Pressure Auxiliary Spray

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Salhan Date/ 12-17-88

VALIDATED BY: * D. Jones Date/ 12-17-88

APPROVED BY: F. Was 2 Jay Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Reactor Coolant System (RCS) depressurization using High Pressure Auxiliary Spray

Alternate Path:

N/A

Facility JPM #:

Licensed Operator Requalification JPM

K/ARating(s)/Task Number/AO, RO, SRO:

010A2.02//3.9/3.9//0040403006//AO, RO, SRO

Task Standard:

During Emergency Operation, depressurize the RCS using High Pressure Auxiliary Spray, EOP-14, Enclosure 13.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

EOP-14

Validation Time: 10 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

EOP-14, Enclosure 13
Simulate ladder usage

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

You are the Primary Plant Operator.
The Plant has tripped.
High Pressure Auxiliary Spray is required to lower the RCS pressure.
DHV-91 is closed.
Another Primary Plant Operator has verified that DHV-92 is open.
RCV-53 and RCV-13 are closed.

INITIATING CUES:

You are requested to perform the actions of the Primary Plant Operator (PPO) to establish High Pressure Auxiliary Spray, EOP-14, Enclosure 13.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of EOP-14, Enclosure 13.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Isolate Auxiliary spray line Decay Heat (DH) piping.</p> <p><u>STANDARD:</u> This step complete per initial conditions.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3A:</u> Align Makeup (MU) system to supply Auxiliary spray. Close RCV-53.</p> <p><u>STANDARD:</u> This sub-step completed per initial conditions.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3B:</u> Close RCV-13.</p> <p><u>STANDARD:</u> This sub-step completed per initial conditions.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 3C: Notify PPO to perform the following (119 ft. Auxiliary Building, AB, penetration area): Ensure MUV-520 "MU to DH High PRESS. Aux. Spray Drain" is closed.</p> <p>EXAMINER'S NOTE: Make sure candidate knows location of EOP ladder.</p> <p>EXAMINER'S CUE: Simulate the use of the ladder.</p> <p>STANDARD: Operator verifies MUV-520 is closed .</p> <p>EXAMINER'S CUE: MUV-520 is closed.</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 3D: Open MUV-273.</p> <p>STANDARD: Operator rotates hand-wheel of MUV-273 in the counter-clockwise (CCW) direction until the valve is open.</p> <p>EXAMINER'S CUE: MUV-273 is open</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 3E: Open DHV-95.</p> <p>STANDARD: Operator rotates hand-wheel of DHV-95 in the counter-clockwise (CCW) direction until the valve is open.</p> <p>EXAMINER'S CUE: DHV-95 is open</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 3F:</u> Throttle DHV-126 approximately 2 turns open.</p> <p><u>STANDARD:</u> Operator rotates hand-wheel of DHV-126 in the counter-clockwise (CCW) direction until the valve is 2 turns open.</p> <p>EXAMINER'S CUE: DHV-126 is throttled 2 turns open.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 4:</u> Manually control seal injection flow rate. Select MUV-16 to HAND.</p> <p>EXAMINER'S CUE: This step has been performed by the Control Room.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>NOTE: Aux. Spray flow is determined by subtracting individual seal flow from total seal flow.</p> <p><u>STEP 5:</u> WHEN directed by the controlling procedure, THEN throttle flows as desired. Throttle RCV-53 to maintain continuous high PRESS Aux. spray flow to limit Pressurizer (PZR) thermal cycles.</p> <p>EXAMINER'S CUE: This step has been performed by the Control Room.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 6:</u> Throttle MUV-16 to maintain desired individual seal injection flows.</p> <p>EXAMINER'S CUE: This step has been performed by the Control Room.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 7:</u> If necessary to obtain additional Aux. Spray flow, THEN notify PPO to throttle DHV-126.</p> <p>EXAMINER'S CUE: The Control Room Directs you to throttle open approximately one-half turn more.</p> <p><u>STANDARD:</u> Operator rotates hand-wheel of DHV-126 in the counter-clockwise (CCW) direction until the valve is 1/2 turn more open.</p> <p>EXAMINER'S CUE: Auxiliary spray flow is as desired.</p> <p><u>COMMENTS:</u></p> <p>END OF TASK</p>	<p>____ SAT</p> <p>____ UNSAT</p>
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STOP TIME: _____

JPM QUESTION #1

Question: During a cooldown directed in an Emergency Operating Procedure, High Pressure Auxiliary Spray is used to reduce pressure. At 350°F T_{incore} , what is the lowest pressure that can be achieved per the EOP prior to loss of adequate subcooling margin?

Answer: 287 psig (low range) \pm 10 psig.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

010K5.01//3.5/4.0

References:

EOP-14, Figure 2

JPM QUESTION #2

Question: Given the following plant data, what action is required, if any?

RCS pressure is 150 psig.
RCS temperature is 190°F.
All vessel head bolts are fully tensioned.
The PORV cannot be selected to low range.
CHV-5 and CHV-6 are closed and de-energized.
Pressurizer level is 138 inches.
Makeup Tank (MUT) level is 75 inches.
The OP-209 clearance has been accepted.

Answer: L.C.O. 3.4.11 is not met, the required actions for condition "I" must be performed.

Either restore LTOP System to OPERABLE status in 1 hour; or, depressurize RCS and establish RCS vent of \geq 0.75 square inches in 12 hours.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

010K4.03//3.8/4.1

References:

Technical Specifications

JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question: Given the following plant data, what action is required, if any?

RCS pressure is 150 psig.
RCS temperature is 190°F.
All vessel head bolts are fully tensioned.
The PORV cannot be selected to low range.
CHV-5 and CHV-6 are closed and de-energized.
Pressurizer level is 138 inches.
Makeup Tank (MUT) level is 75 inches.
The OP-209 clearance has been accepted.

JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

During a cooldown directed in an Emergency Operating Procedure, High Pressure Auxiliary Spray is used to reduce pressure. At 350°F T_{incore} , what is the lowest pressure that can be achieved per the EOP prior to loss of adequate subcooling margin?

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

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The Plant has tripped.
High Pressure Auxiliary Spray is required to lower the RCS pressure.
DHV-91 is closed.
Another Primary Plant Operator has verified that DHV-92 is open.
RCV-53 and RCV-13 are closed.

INITIATING CUES:

You are requested to perform the actions of the Primary Plant Operator (PPO) to establish High Pressure Auxiliary Spray, EOP-14, Enclosure 13.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 3P/PLANT

Start an Evaporator Condensate Storage Tank
(ECST) Release

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Michelle Mallon* Date/ 12-17-98

VALIDATED BY: * *D. [Signature]* Date/ 12-17-98

APPROVED BY: *R. Was [Signature]* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** *[Signature]* Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Start an Evaporator Condensate Storage Tank (ECST) release.

Alternate Path:

N/A

Facility JPM #:

New

K/A Rating(s)/Task Number/AO, RO, SRO:

068A4.02//3.2/3.1//0680103002//AO, RO, SRO

Task Standard:

Using OP-407A, Operation of the Evaporator Condensate Storage Tanks (ECSTs), startup a release.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

OP-407A

Validation Time: 21 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

OP-407A
Key
Calculator

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

You are the Primary Plant Operator.
The previous shift has recirculated the "A" ECST (WDT-10A) in preparation for release.
Raw Water (RW) dilution flow rate is 9,700 gpm
RWV-150 is in service.
The previous shift has signed the procedure up to and including step 4.3.8.

INITIATING CUES:

You are requested to start the release for the "A" ECST. (permit attached)

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-407A, Section 4.3.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2A:</u> Complete the Release valve alignment. Close WDV-893, Outlet Isolation to SW-RW.</p> <p><u>STANDARD:</u> Operator rotates hand-wheel of WDV-893 in the clockwise (CW) direction until the valve is closed.</p> <p>EXAMINER'S CUE: WDV-893 is closed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2B:</u> Unlock and open SDV-130, RM-L7 Outlet Crosstie.</p> <p><u>STANDARD:</u> Operator unlocks and rotates hand-wheel of SDV-130 in the counter-clockwise (CCW) direction until the valve is open.</p> <p>EXAMINER'S CUE: SDV-130 is open.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2C:</u> Unlock and open RWV-110, Release Isolation to the "A" DC-RW Train.</p> <p><u>STANDARD:</u> Operator unlocks and rotates chained hand-wheel of RWV-110 in the counter-clockwise (CCW) direction until the valve is open.</p> <p> EXAMINER'S CUE: RWV-110 is open.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2D:</u> Signatures.</p> <p><u>STANDARD:</u> Operator signs "Performed By" space.</p> <p> EXAMINER'S CUE: The examiner signs the "Verified By" space.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>CAUTION: WD-101-FIT will not count the Release volume if the "Total Inhibit" function is selected.</p> <p><u>STEP 3A:</u> Make preparations for the Release. Record the Maximum Waste flow rate from the Liquid Release Permit.</p> <p><u>STANDARD:</u> Operator records 60 gpm in the procedure.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3B:</u> Record the tank level on the Liquid Release Permit.</p> <p> EXAMINER'S CUE: Indicate a level of 95% .</p> <p><u>STANDARD:</u> Using Enclosure 4, Operator records 7,607 gallons on the permit.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3Ca:</u> PERFORM the following for WD-101-FIT at the Radwaste Panel: IF the "TOTAL INHIBIT" light is lit on the Totalizer, THEN depress Key #9 to remove this function and extinguish the light.</p> <p> EXAMINER'S CUE: The TOTAL INHIBIT light is NOT lit.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3Cb:</u> Depress Key #7 to display total.</p> <p><u>STANDARD:</u> Operator depresses key #7.</p> <p> EXAMINER'S CUE: The total is displayed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3Cc:</u> Depress Key #6 and ensure the Totalizer resets to zero.</p> <p><u>STANDARD:</u> Operator depresses key #6.</p> <p> EXAMINER'S CUE: The total of 0 is displayed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3Cd:</u> Record the Totalizer value on the liquid release Permit INTEGRATOR READING.</p> <p>EXAMINER'S CUE: The Totalizer value is 0.</p> <p><u>STANDARD:</u> Operator records 0 on permit.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 3Ce:</u> Depress Key #8 to display the flow rate.</p> <p><u>STANDARD:</u> Operator depresses key #8.</p> <p>EXAMINER'S CUE: The flow rate is displayed.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p>NOTE: Flow rate is limited to 65 gpm (per WD-101-FR) when WDT-10A is to be released using WDP-14B or WDT-10B is to be released using WDP-10A.</p> <p>NOTE: Flow rate is limited to 80 gpm (per WD-101-FR) when WDT-10A or WDT-10B is to be released using its associated pump and the suction cross tie valves are closed.</p> <p>EXAMINER'S CUE: WDT-10A is being released with its associated pump.</p> <p><u>STEP 4A:</u> Start the Release to "A" DC-RW. Perform the following at the Radwaste Panel: Open WDV-892, Outlet to the RW System.</p> <p><u>STANDARD:</u> Operator rotates control switch to WDV-892 to OPEN.</p> <p>EXAMINER'S CUE: WDV-892 is open.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 4B:</u> Rotate WDV-891 pneumatic loader counterclockwise until loose.</p> <p><u>STANDARD:</u> Operator rotates pneumatic loader counterclockwise until loose.</p> <p>EXAMINER'S CUE: Pneumatic loader is loose.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 4C:</u> Select WDV-891 Control Switch to the OPEN position.</p> <p><u>STANDARD:</u> Operator rotates control switch to WDV-891 to OPEN.</p> <p>EXAMINER'S CUE: WDV-891's control switch is selected to open.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 4D:</u> Throttle open WDV-891 to achieve $\leq 90\%$ of the Maximum Waste flow rate allowed per the Liquid Release Permit, as indicated on WD-101-FIT.</p> <p>EXAMINER'S CUE: The suction cross connect is CLOSED.</p> <p><u>STANDARD:</u> Operator rotates pneumatic loader until a flow of ≤ 54 gpm.</p> <p>EXAMINER'S CUE: Release flow rate is 60 gpm.</p> <p>Operator rotates pneumatic loader to lower flow.</p> <p>EXAMINER'S CUE: Release flow rate is 50 gpm.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 4E:</u> Record release start time.</p>	<p>_____ SAT</p>
<p><u>STANDARD:</u> Operator records the release start time in the space and on permit.</p>	
<p><u>EXAMINER'S CUE:</u> The release has been started.</p>	<p>_____ UNSAT</p>
<p><u>COMMENTS:</u></p>	
<p>END OF TASK</p>	

STOP TIME: _____

JPM QUESTION #1

Question: During a release of ECST-1A, WD-101-FIT becomes inoperable. What are the ODCM requirements, if any, regarding the release?

Answer: The release may continue if the flow rate is estimated at least once per 4 hours during the actual release.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

068K4.01//3.4/4.1

References:

OP-407A
ODCM

JPM QUESTION #2

Question: What are the release rates for the following?

At 1400 WD-97-LI reads 95.0%
At 1600 WD-97-LI reads 67.5%
At 1800 WD-97-LI reads 35.0%
At 2000 WD-97-LI reads 2.5%

Answer: See Attached.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

068A4.02//3.2/3.1

References:

OP-407A, Enclosures 1 & 4

JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question: What are the release rates for the following?

At 1400 WD-97-LI reads 95.0%
At 1600 WD-97-LI reads 67.5%
At 1800 WD-97-LI reads 35.0%
At 2000 WD-97-LI reads 2.5%

JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question: During a release of ECST-1A, WD-101-FIT becomes inoperable. What are the ODCM requirements, if any, regarding the release?

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

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The previous shift has recirculated the "A" ECST (WDT-10A) in preparation for release.
Raw Water (RW) dilution flow rate is 9,700 gpm
RWV-150 is in service.
The previous shift has signed the procedure up to and including step 4.3.8.

INITIATING CUES:

You are requested to start the release for the "A" ECST. (permit attached)

LIQUID RELEASE PERMIT

ESTIMATED RELEASE CONDITIONS (CHEMISTRY)		
RELEASE POINT ID: WDT-10A	PERMIT NUMBER: 990128.001.237.L	
RELEASE APPROVED BY: C. Chemistry RELEASE DATA VERIFIED BY: R. Reviewer	SPECIAL REQUIREMENTS:	
MONITOR: RM-L2		
MAX WARNING SETPOINT: 4.09 E5 CPM		
MAX HI TRIP SETPOINT: 5.11 E5 CPM		
BACKGROUND: 1.75 E4 CPM		
MINIMUM CIRCULATING WATER FLOW RATE	MINIMUM RAW WATER FLOW RATE	MAXIMUM WASTE FLOW RATE
150,000 GPM	9700 GPM	60 GPM

ACTUAL RELEASE CONDITIONS (OPERATIONS)				
RELEASE APPROVED BY (SSOD): N. Manager			DATE: 2-8-99	
RAW WATER FLOW RATE:	CIRC WATER FLOW RATE	EFFLUENT FLOW RATE	RM-L2 WARNING SETPOINT	RM-L2 HIGH TRIP SETPOINT
9700 GPM	600 K GPM	GPM	4.09 E5 CPM	5.11 E5 CPM
	DATE	TIME	INTEGRATOR READING	WDT-10A LEVEL
START			GAL	GAL
STOP			GAL	GAL
NET	N/A	MIN	GAL	GAL
COMPLETED BY/DATE:				
POST RELEASE APPROVED BY/DATE (SSOD):			RM-L2 READING AFTER FLUSH	
			CPM	

KEY

MANUAL RELEASE RATE DATA SHEET

(1)	(2)	(3)	(4)	(5)
TIME*	TANK LEVEL WD-97-LI WD-98-LI (%)	TANK VOLUME (gal)	$\frac{\Delta \text{VOLUME (gallons)}}{\Delta \text{TIME (minutes)}}$	RELEASE RATE (gpm)
1400	95.0	7607		
1600	67.5	5121	$\frac{2486}{120}$	20.7
1800	35.0	2216	$\frac{2905}{120}$	24.2
2000	2.5	144	$\frac{2072}{120}$	17.3

*Perform every 2 hours or per NSM, and final reading when release is secured.

Performed by _____ Time _____ Date _____
 Reviewed by _____ Time _____ Date _____

REGION II INITIAL LICENSE EXAMINATION JOB PERFORMANCE MEASURE

JPM A1A/ADMINISTRATIVE

Perform a Daily Heat Balance Power Comparison,
SP-312A

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Belkin Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: F. Wang Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform a Daily Heat Balance Power Comparison, SP-312A.

Alternate Path:

N/A

Facility JPM #:

Requal JPM

K/ARating(s)/Task Number/AO, RO, SRO:

015A1.01//3.5/3.8//0150202003//RO, SRO

Task Standard:

Perform a Daily Heat Balance Power Comparison, SP-312A.

Preferred Evaluation Method:

Simulator _____ In-Plant _____

References:

SP-312A

Validation Time: 20 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

SP-312A

READ TO OPERATORDIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

You are the Reactor Operator.

The plant is at full power.

SP-312A is being done to comply with the daily 0200 requirements.

The Tag Status Verification Sheet has been completed, all instruments are within their allowable calibration frequency.

The plant has been at steady state conditions for > 15 minutes.

The plant computer is operable.

There are no computer points on the deleted point summary.

Control Console NI power is as follows: NI-5, 52; NI-6, 53; NI-7, 54; NI-8, 52.

INITIATING CUES:

You are requested to perform Enclosure 1 of SP-312A (Group 59 is attached).

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of SP-312A.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> IF a heat balance point is found on the "Deleted Point Summary", THEN the point may be returned to scan to determine operability, OR NPTS or Reactor Engineering may be contacted to determine operability.</p> <p><u>STANDARD:</u> N/A, see initial conditions.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> Using Group 59 and initial condition information complete Enclosure 1.</p> <p><u>STANDARD:</u> Operator records values on Enclosure 1 from Group 59 and information provided in initial conditions.</p> <p>EXAMINER'S CUE: See Attached Key (NI-5 and NI-7 requirements of Step 5.2.2 in SP-312A; NI-8 requirements of Step 5.2.1, ITS 3.3.1)</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

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

INITIAL CONDITIONS:

You are the Reactor Operator.

The plant is at full power.

SP-312A is being done to comply with the daily 0200 requirements.

The Tag Status Verification Sheet has been completed, all instruments are within their allowable calibration frequency.

The plant has been at steady state conditions for > 15 minutes.

The plant computer is operable.

There are no computer points on the deleted point summary.

Control Console NI power is as follows: NI-5, 52; NI-6, 53; NI-7, 54; NI-8, 52.

INITIATING CUES:

You are requested to perform Enclosure 1 of SP-312A (Group 59 is attached).

KEY

DAILY NI POWER TO HEAT LANCE POWER COMPARISON

ENCLOSURE 1

Performance of this enclosure to meet the daily requirement should be as close to 0200 hrs as is reasonably possible. If it is performed early, or delayed, by more than 2 hours the NSM/NSS should refer to the completion time recorded for the last prior performance to determine the allowable window.

A		B	C	COMPARISON	
Heat Balance Power	Detector	NI Power	Control Console NI Power	Heat Balance (A) - NI Power (B) = (D)	
53.12 % RTP	NI-5	51.70	52	53.12 - 51.70 = 1.42	1. IF (D) < 0.8% RTP, THEN (D) is acceptable.
Method Used (✓):	NI-6	52.88	53	53.12 - 52.88 = 0.24	2. IF 0.8% RTP ≤ (D) ≤ 2.0% RTP, THEN refer to Step 5.2.2.
Group 59 ✓	NI-7	51.76	54	53.12 - 51.76 = 1.36	3. IF (D) > 2.0% RTP, THEN refer to Step 5.2.1.
SP-312D	NI-8	50.87	52	53.12 - 50.87 = 2.25	

NI Power - Heat Balance	Comparison (Control Console) NI Power - NI Power	(Control Console) NI Power - Heat Balance
(B) - (A) = (E)	(C) - (B) = (F)	(C) - (A) = (G)
NI-5 51.70 - 53.12 = -1.42	52 - 51.70 = 0.30	52 - 53.12 = -1.12
NI-6 52.88 - 53.12 = -0.24	53 - 52.88 = 0.12	53 - 53.12 = -0.12
NI-7 51.76 - 53.12 = -1.36	54 - 51.76 = 2.24	54 - 53.12 = 0.88
NI-8 50.87 - 53.12 = -2.25	52 - 50.87 = 1.13	52 - 53.12 = -1.12
IF (E) > 2.0% RTP, THEN refer to Step 5.2.3.	IF (F) > 5.0% RTP, THEN refer to Step 5.2.4.	IF (G) > 5.0% RTP, THEN refer to Step 5.2.5.

Computer groups 59 and 7 attached? Yes No (circle one)

Performed By: sign

Date: date

Time: current time

Verified By: _____

Date: _____

Time: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM A1B/ADMINISTRATIVE

Perform A Reactivity Balance Calculation, SP-421

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Gallin Date/ 2-1-99

VALIDATED BY: * D. Jones Date/ 2/1/99

APPROVED BY: R. W. Jones Date/ 2-1-99
(Operations Training Manager)

CONCURRED: ** [Signature] Date/ 2-1-99
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform a Reactivity Balance Calculation, SP-421.

Alternate Path:

N/A

Facility JPM #:

New

K/ARating(s)/Task Number/AO, RO, SRO:

001K5.72//3.1/3.6//1150202004//RO, SRO

Task Standard:

Perform a Reactivity Balance Calculation, SP-421.

Preferred Evaluation Method:

Simulator _____ In-Plant _____

References:

SP-421

Validation Time: 25 min.

Time Critical: NO

Candidate: _____ Time Start: _____
NAME

Performance Rating: SAT ____ UNSAT ____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

SP-421
OP-103C
Calculator

READ TO OPERATORDIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant has been at 100% full power for 103 hours.
EFPD is 209.9.
Boron concentration is 1235 ppm.
Rod Index is 280% WD.
Group 8 is 30.4% WD.
 T_{ave} is 579°F.

INITIATING CUES:

You are requested to perform a reactivity balance.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of SP-421.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Using the supplied data complete Enclosure 2.</p> <p><u>STANDARD:</u> Operator records values and completes calculations on Enclosure 2. (see answer key)</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

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

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant has been at 100% full power for 103 hours.
EFPD is 209.9.
Boron concentration is 1235 ppm.
Rod Index is 280% WD.
Group 8 is 30.4% WD.
 T_{ave} is 579°F.

INITIATING CUES:

You are requested to perform a reactivity balance.

KEY

REACTIVITY BALANCE DURING POWER OPERATION (> 15% FP)

REFERENCE CONDITIONS: 579°F, 100% FP, No Xenon, CRG 1-7 at 100% wd, HFP Samarium, CRG 8 at HFP nominal position

NOTE: Reactivity data in OP-103C is based on 100%FP=2568 MWth; EFPD for the purposes of this calculation is obtained by multiplying SAXON EFPD by 0.991.

1. Excess Fuel Reactivity

- a. Core Burnup = SAXON EFPD x 0.991 = $\frac{209.9}{1} \times 0.991 = \frac{208.0}{1}$ EFPD
- b. Excess Fuel Reactivity from Curve 10 of OP-103C, Reactivity Worth Curves. $+10.62\% \Delta k/k$

2. Boron Reactivity

- a. Boron Concentration $\frac{1235}{1}$ ppmB
- b. Using core burnup from Step 1 (a), find the HFP inverse boron worth from Curve 4 of OP-103C, Reactivity Worth Curves: $\frac{159.37}{1}$ ppm/% $\Delta k/k$
- c. Divide Step 2(a) by the inverse boron worth in Step 2 (b)
 $2(a)/2(b) = \frac{1235}{159.37} \text{ ppmB} / \frac{159.37}{1} \text{ ppm}/\% \Delta k/k = -7.75\% \Delta k/k$

3. Xenon Reactivity (Use Step 3.1, 3.2, or 3.3)

3.1 Obtain Xenon reactivity from SAXON (submit printout).

OR

- 3.2 a. Last power level was $\frac{100}{1}$ % FP for $\frac{103}{1}$ hrs.
- b. IF time at 100% FP power level was > 40 hrs.,
 THEN obtain Xenon reactivity from Curve 12 of OP-103C, Reactivity Worth Curves.

3.3 IF the value cannot be derived from 3.1 or 3.2, THEN contact Reactor Engineering for a value.

$-2.43\% \Delta k/k$

4. Reactivity Effect From Temperature

- a. Average RC Temperature $\frac{579}{1}$ °F
- b. Reference temperature is 579°F.
- c. Temperature coefficient at $\frac{1235}{1}$ ppmB obtained from Curve 13 of OP-103C, Reactivity Worth Curves, is $\frac{-1.23}{1} \times 10^{-2}\% \Delta k/k \cdot ^\circ F$.
- d. Reactivity = [T(ave) - 579] [Temp. Coeff.]
- e. Reactivity = $(\frac{579}{1} - \frac{579}{1}) (\frac{-1.23}{1}) = +1 - 0\% \Delta k/k$

5. Control Rod Reactivity

- a. Reactivity worth of inserted regulating rods as read from Curve 14 of OP-103C, Reactivity Worth Curves.

$-0.145\% \Delta k/k$

Rod Index $\frac{280}{1}$ % WD

NOTE: Group 8 worth compensation is not required since Group 8 HFP nominal position is already included in Curve 10 of OP-103C (see paragraph 3.2.5 for additional detail). This data on Group 8 position is recorded for use, where necessary, by Reactor Engineering for long term trending.

- b. Record Group 8 position $\frac{30.4}{1}$ % wd.

REACTIVITY BALANCE DURING POWER OPERATION ($\geq 15\%$ FP)
(Continued)

NOTE: Reactivity data in OP-103C is based on 100%FP = 2568 MWth; Core Power Level for the purposes of this calculation is obtained by multiplying measured core power level by 0.991.

6. Reactivity Effect of Power Doppler

- a. Core Power Level = Measured core power X 0.991 = 100 X 0.991 = 99.1% FP
b. Power Doppler reactivity correction from Curve 15 of OP-103C, Reactivity Worth Curves. + 0.01% Δ k/k

7. Net Reactivity

- a. Net reactivity is the sum of Steps 1 thru 6. 0.31% Δ k/k
b. Inform the Shift Supervisor of the results.

Acceptability

+ 0.13% Δ k/k

1. IF the absolute value of Step 7a is greater than 1.0% Δ k/k, THEN IMMEDIATELY inform the Nuclear Shift Supervisor and refer to ITS 3.1.2.
2. IF the absolute value of Step 7a is greater than 0.3% Δ k/k, THEN notify Reactor Engineering to investigate the situation. Reactor Engineering will document the results of the investigation on Enclosure 3.

Calculated By _____ Date _____ Time _____

Checked By _____ Date _____ Time _____

REGION II INITIAL LICENSE EXAMINATION JOB PERFORMANCE MEASURE

JPM A2R/ADMINISTRATIVE

Perform RC Pump Seal Data Sheet

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Michelle Gallier* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *F. Was Young* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** *[Signature]* Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform RC Pump Seal Data Sheet. (TO BE PERFORMED IN THE CONTROL ROOM)

Alternate Path:

N/A

Facility JPM #:

New

K/ARating(s)/Task Number/AO, RO, SRO:

003A4.04//3.1//1150202001//RO

Task Standard:

Perform RC Pump Seal Data Sheet, SP-300 Enclosure 2.

Preferred Evaluation Method:

Simulator _____ In-Plant _____

References:

SP-300

Validation Time: 20 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

SP-300

Calculator

READ TO OPERATORDIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

You are the Reactor Operator.

The plant is at 100% rated thermal power (N766).

Reactor Inlet Temperature is 557°F (R730).

RC System Pressure is 2160 psig (R724).

MUT Temperature is 108°F.

Beginning Time for seal leak-off flow was 0800.

Ending Time for seal leak-off flow was 1200.

Seal leak-off count at the beginning time for all RCPs was 0.

Seal leak-off count at the ending time: RCP-1A, 110; RCP-1B, 92;
RCP-1C, 86; RCP-1D, 120.

3rd Stage Seal Temperatures are: RCP-1A, 116; RCP-1B, 115; RCP-1C,
116; RCP-1D, 117.

INITIATING CUES:

You are requested to complete the RC Pump Seal Data Sheet.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of SP-300, Enclosure 2.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Using data provided in Initial Conditions Operator completes the top portions of Enclosure 2, page 4 of 12 in SP-300.</p> <p><u>STANDARD:</u> Operator fills in Reactor Inlet Temperature, RC System Pressure, Reactor Power, MUT Temperature, and checks that all 4 RCPs are running.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3:</u> RCP 2nd and 3rd stage seal pressure.</p> <p><u>STANDARD:</u> Operator locates Seal Pressure instrumentation (back of Control Board). Operator records 2nd and 3rd stage seal pressure.</p> <p><u>EXAMINER'S CUE:</u> Once Operator has demonstrated that he/she can read control board instrumentation furnish the following data:</p> <table border="1" data-bbox="537 701 1019 894"> <thead> <tr> <th>RCP</th> <th>3rd Stage</th> <th>2nd Stage</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>706</td> <td>1418</td> </tr> <tr> <td>B</td> <td>718</td> <td>1431</td> </tr> <tr> <td>C</td> <td>731</td> <td>1425</td> </tr> <tr> <td>D</td> <td>712</td> <td>1450</td> </tr> </tbody> </table> <p><u>COMMENTS:</u></p>	RCP	3 rd Stage	2 nd Stage	A	706	1418	B	718	1431	C	731	1425	D	712	1450	<p>SAT</p> <p>UNSAT</p>
RCP	3 rd Stage	2 nd Stage														
A	706	1418														
B	718	1431														
C	731	1425														
D	712	1450														
<p><u>STEP4:</u> Seal Leak-Off Flow.</p> <p><u>STANDARD:</u> Operator uses data in Initial Conditions to complete this section.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <p>UNSAT</p>															

<p><u>STEP 5:</u> Seal Injection Flow.</p> <p><u>STANDARD:</u> Operator locates Seal Injection flow instrumentation (PSA panel). Operator records seal injection flow for each RCP.</p> <p><u>EXAMINER'S CUE:</u> Once Operator has demonstrated that he/she can read control board instrumentation furnish the following data: RCP-1A, 9.5; RCP-1B, 9.5; RCP-1C, 9.7; RCP-1D, 9.5</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <p>UNSAT</p>
<p><u>STEP 6:</u> Control Bleed-Off Flow Rate.</p> <p><u>EXAMINER'S CUE:</u> Have candidate calculate CBO flow using the graph. (SP-300, Enclosure 2, page 7 of 12).</p> <p><u>STANDARD:</u> Operator records CBO flow rate on the enclosure.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <p>UNSAT</p>

<p><u>STEP 7:</u> Component Cooling Water Temperature.</p> <p><u>STANDARD:</u> Operator locates Component Cooling Water Temperature (ES panel). Operator records component cooling water temperature.</p> <p>EXAMINER'S CUE: Once Operator has demonstrated that he/she can read control board instrumentation furnish the component cooling water temperature of 76F°.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <hr/> <p>UNSAT</p>
<p><u>STEP 8:</u> 3rd Stage Seal Temperature.</p> <p><u>STANDARD:</u> Operator uses data in Initial Conditions to complete this section.</p> <p>EXAMINER'S NOTE: Rounding may cause slight variations between operator and answer key.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END of TASK</p>	<p>SAT</p> <hr/> <p>UNSAT</p>

STOP TIME: _____

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

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is at 100% rated thermal power (N766).
Reactor Inlet Temperature is 557°F (R730).
RC System Pressure is 2160 psig (R724).
MUT Temperature is 108°F.
Beginning Time for seal leak-off flow was 0800.
Ending Time for seal leak-off flow was 1200.
Seal leak-off count at the beginning time for all RCPs was 0.
Seal leak-off count at the ending time: RCP-1A, 110; RCP-1B, 92;
RCP-1C, 86; RCP-1D, 120.
3rd Stage Seal Temperatures are: RCP-1A, 116; RCP-1B, 115; RCP-1C,
116; RCP-1D, 117.

INITIATING CUES:

You are requested to complete the RC Pump Seal Data Sheet.

Reactor Inlet Temperature (R730) 557 °F

RC System Pressure (R724) 2160 psig

Reactor Power (N766) 100 %

MUT Temperature 108 °F

Date _____

RC PUMP	A	B	C	D	COMMENTS
RC RUNNING (✓)	✓	✓	✓	✓	
3rd Stage Seal Pressure	706	718	731	712	
2nd Stage Seal Pressure	1418	1431	1425	1450	
Seal Leak-Off Flow					
End Count/Time: <u>1200</u>	110	92	86	120	
Beginning Count/Time: <u>0800</u>	0	0	0	0	
Difference	110	92	86	120	
○ Time (4 hrs., nominal; convert time to minutes)	240	240	240	240	
Conversion Factor	.25	.24	.24	.25	
Leakage = $\frac{\text{Conversion Factor} \times \text{Difference}}{\text{○ Time in Min.}}$ - .05 (gpm)	0.06	0.04	0.04	0.08	
Seal Injection Flow	9.5	9.5	9.7	9.5	
Control Bleed-off Flow Rate* (X922, X923, X924, X925)	1.5	1.5	1.5	1.5	
Component Cooling Water Temp.	76	X	X	X	
3rd Stage Seal Temperature (X383, X386, X389, X392)	116	115	116	117	

*Sum of controlled leakage ≤ 12 gpm.
(Calculated CBO Flow figure may be used as backup)
COMMENTS:

Data Taken By _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM A3/ADMINISTRATIVE

Using a Survey Map Determine Radiation
Requirements

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Gallion Date/ 2-1-99

VALIDATED BY: * Alan Kennedy Date/ 2-1-99

APPROVED BY: R. W. Young Date/ 2-1-99
(Operations Training Manager)

CONCURRED: ** [Signature] Date/ 2-1-99
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Using a survey map, determine radiation requirements.

Alternate Path:

N/A

Facility JPM #:

New

K/ARating(s)/Task Number/AO, RO, SRO:

2.3.4//2.5/3.1//1190104005//AO, RO, SRO

Task Standard:

Using a survey map, determine radiation requirements using RSP-101 and HPP-300.

Preferred Evaluation Method:

Simulator _____ In-Plant _____

References:

RSP-101 and HPP-300.

Validation Time: 25 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

HPP-300
RSP-101
Provided Survey

READ TO OPERATORDIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is at full power.

INITIATING CUES:

Using the supplied survey map determine:

1. What types of areas would be posted?
2. How long can each of the following workers stay on the job (replace the coupling on MUP-1B) without exceeding HP Dose Goals for adults?

The work area dose rate is 20 mRem/hr.
General area dose rate for transit to the work site is 0.30 Rem/hr.
It takes 5 minutes to pass through the 0.30 Rem/hr area to reach the job site.

Worker 1 has an accumulated dose of 150 mRem for that week.
Worker 2 has an accumulated dose of 105 mRem for that week.

Worker 3 has an accumulated dose of 210 mR for that week.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain copies of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains copies of HPP-300 and RSP-101.</p> <p>EXAMINER'S NOTE: Provide Operator with the pre-marked survey.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Determination of radiation conditions.</p> <p><u>STANDARD:</u> Operator determines that: MUP-1A is a radiation area and should have a posted contaminated area in the corner. MUP-1B should be a posted high radiation area. MUP-1C is a radiation area; the marked contaminated area by definition is not contaminated.</p> <p>SEE ATTACHED KEY</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3:</u> Determination of stay times.</p> <p><u>STANDARD:</u> Operator determines:</p> <table border="1" data-bbox="535 378 1071 546"> <thead> <tr> <th><u>Worker</u></th> <th><u>Margin</u></th> <th><u>Stay time</u></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>50 mRem</td> <td>0 hr</td> </tr> <tr> <td>2</td> <td>95 mRem</td> <td>2.25 hr</td> </tr> <tr> <td>3</td> <td>0 mRem</td> <td>0 hr</td> </tr> </tbody> </table> <p>SEE ATTACHED KEY</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<u>Worker</u>	<u>Margin</u>	<u>Stay time</u>	1	50 mRem	0 hr	2	95 mRem	2.25 hr	3	0 mRem	0 hr	<p>SAT</p> <p>UNSAT</p>
<u>Worker</u>	<u>Margin</u>	<u>Stay time</u>											
1	50 mRem	0 hr											
2	95 mRem	2.25 hr											
3	0 mRem	0 hr											

STOP TIME: _____

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

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is at full power.

INITIATING CUES:

Using the supplied survey map determine:

1. What types of areas would be posted?
2. How long can each of the following workers stay on the job (replace the coupling on MUP-1B) without exceeding HP Dose Goals for adults?

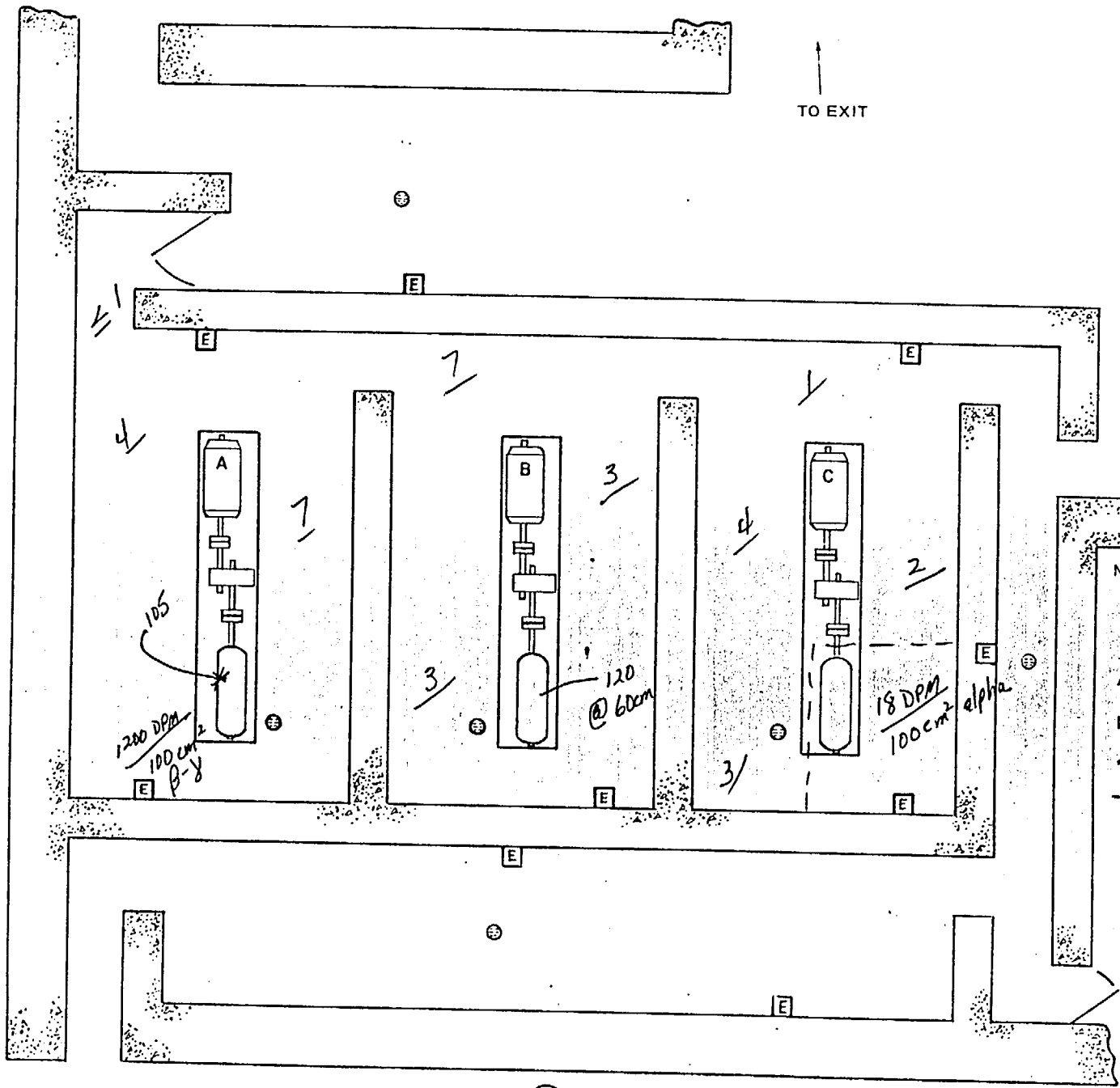
The work area dose rate is 20 mRem/hr.

General area dose rate for transit to the work site is 0.30 Rem/hr.
It takes 5 minutes to pass through the 0.30 Rem/hr area to reach the job site.

Worker 1 has an accumulated dose of 150 mRem for that week.
Worker 2 has an accumulated dose of 105 mRem for that week.

95' EL. AUXILIARY BUILDING
MAKE UP PUMP ROOM
AND VALVE ALLEY

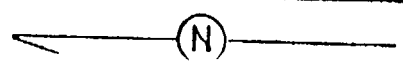
SURVEY NO. _____



NOTE:
SCALE 1/8" = 1'-0"
⊕ : FLOOR DRAIN
E : ELECTRICAL OUTLET

ALL DOSE RATES IN MREM/H
UNLESS OTHERWISE NOTE!
NO BETA RADIATION DETECT
UNLESS OTHERWISE NOTE!
* DENOTES CONTACT READING

--- ROPED AREA



KEY

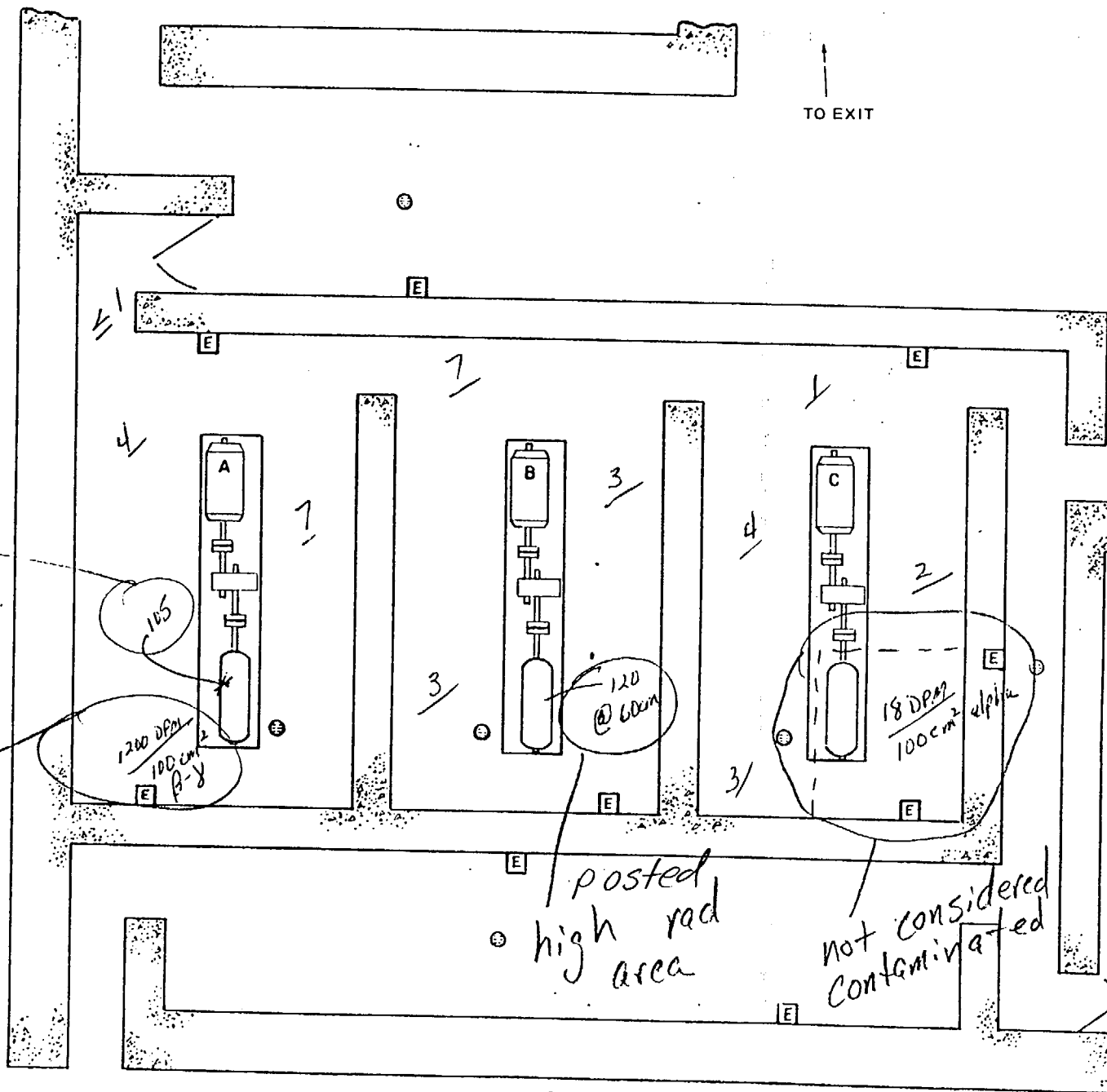
95' EL. AUXILIARY BUILDING
MAKE UP PUMP ROOM
AND VALVE ALLEY

SURVEY NO. _____

↑
TO EXIT

Just a
radiation
area

Contaminated
area



NOTE:
SCALE 1/8" = 1'-0"
⊙ = FLOOR DRAIN
E = ELECTRICAL OUTLET
ALL DOSE RATES IN MREM/Hr
UNLESS OTHERWISE NOTED
NO BETA RADIATION DETECTED
UNLESS OTHERWISE NOTED
• DENOTES CONTACT READING
--- ROPED AREA

posted
high rad
area

not considered
contaminated

← (N) →

REGION II INITIAL LICENSE EXAMINATION JOB PERFORMANCE MEASURE

JPM A4R/ADMINISTRATIVE

Complete an Off-Site Dose Assessment During
Radiological Emergencies (Control Room Method)

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Archie Allan* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *H. W. Young* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Complete an Off-Site Dose Assessment during Radiological Emergencies (Control Room Method).

Alternate Path:

N/A

Facility JPM #:

122 Modified

K/ARating(s)/Task Number/AO, RO, SRO:

2.4.39//3.3//1150402007//RO, SRO

Task Standard:

Complete an Off-Site Dose Assessment during Radiological Emergencies (Control Room Method), EM-204A.

Preferred Evaluation Method:

Simulator _____ In-Plant _____

References:

EM-204A

Validation Time: 15 min.

Time Critical: YES

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

EM-204A

READ TO OPERATORDIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

You are the Reactor Operator.
A LOCA is in progress.

INITIATING CUES:

You are requested to perform EM-204A using the following information:

RM-A2 Low Range Gas Channel reads 200K cpm.

Sigma-Theta is 24.3°.

Wind from (33') 270°.

Wind speed (33') 4.1 m/sec.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of EM-204A.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Using supplied information sheet, complete Enclosure 1.</p> <p><u>STANDARD:</u> Operator uses information sheet to complete the EM-204A Enclosure 1.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

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

INITIAL CONDITIONS:

You are the Reactor Operator.
A LOCA is in progress.

INITIATING CUES:

You are requested to perform EM-204A using the following information:

RM-A2 Low Range Gas Channel reads 200K cpm.
Sigma-Theta is 24.3°.
Wind from (33') 270°.
Wind speed (33') 4.1 m/sec.

KEY

DATA SHEET

STEP #	RAD AND MET MONITOR DATA			STATE NOT FORM
4.1.2	RM-A2 LOW RANGE GAS CHANNEL	200K	CPM	
or 4.1.3	RM-A2 MID-RANGE GAS CHANNEL		mR/HR	
4.2.1	SIGMA-THETA	24.3	DEGREES**	
or 4.2.2	WIND RANGE (33')		DEGREES	
4.2.3	WIND FROM (33')	270	DEGREES *	11.A
4.2.4	WIND SPEED (33')	4.1	M/SEC*	11.C mph = m/sec x 2.24
4.2.5	STABILITY CLASS	A		11.D
* 15 minute average from chart recorder on meteorological panel				
** Meter displays a rolling 15 minute average				

KEY

DATA SHEET

STEP#	SITE BOUNDARY DOSE INFORMATION			STATE NOT FORM
4.3.1 or 4.3.2	DDE mR/HR	THYROID mR/HR	TEDE mR/HR	
	2.1 E-01	6.3 E-01	2.3 E-01	
4.4.1	DOSE RATE CORRECTED FOR WIND SPEED = (mR/HR ÷ M/SEC)			10
	DDE mR/HR	THYROID mR/HR	TEDE mR/HR	
	0.05	0.15	0.06	
	Enter on State Form		Enter on State Form	
4.5.1	PROJECTED RELEASE DURATION <u>1</u> HOURS. (If duration can't be estimated, assume 1 hour.)			7.C.D
4.5.2	DOSE = (CORRECTED DOSE RATE X DURATION HOURS)			
	DDE mR	THYROID mR	TEDE mR	
	0.05	0.15	0.06	
4.6.1	NOBLE GAS CI/SEC	IODINE CI/SEC		8.A,B
	2.1 E-01	4.3 E-05		
4.6.2	AFFECTED SECTORS <u>D, E, F,</u> (three minimum)			11.B
4.7.1	_____ Performed by Date/Time			
4.7.2	_____ Emergency Coordinator Date/Time			

**REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

JPM A4S/ADMINISTRATIVE

Determination of Protective Action Requirements

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Richard Mallin* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *F. W. Long* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** *[Signature]* Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Using EM-202, determine protective action requirements.

Alternate Path:

N/A

Facility JPM #:

New

K/ARating(s)/Task Number/AO, RO, SRO:

2.4.41/2.4.44/4.1/4.0//1150101001//SRO

Task Standard:

Using EM-202, determine protective action requirements.

Preferred Evaluation Method:

Simulator _____ In-Plant _____

References:

EM-202

Validation Time: 15 min.

Time Critical: YES

Candidate: _____

NAME

Time Start: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time _____

Examiner: _____ / _____

NAME

SIGNATURE

DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

EM-202

READ TO OPERATORDIRECTIONS TO TRAINEE:

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

INITIAL CONDITIONS:

You are the Emergency Coordinator.
The following events have occurred:

A small break LOCA is in progress.

No HPI is available.

No Main or Auxiliary Feedwater is available.

The "A" Emergency Diesel Generator is unavailable.

There is no power supply for the "A" 4160ES bus.

The steam driven Emergency Feedwater pump experiences a catastrophic failure and the subsequent steam leak causes EFP-1 to trip.

There has been no core cooling for 25 minutes.

Incores indicate that the RCS has entered the Severe Accident Region.

RM-G29's reading escalates to 100 R/hr and RM-G30 escalates to 120 R/hr and both are increasing.

Reactor Building Spray has failed.

INITIATING CUES:

You are requested to determine the appropriate Protective Action Recommendation, if any.

START TIME: _____ Shaded Block Indicates Critical Step

<p>EXAMINER'S NOTE: Provide Operator with a copy of EM-202.</p>		
<p><u>STEP 1:</u> Obtain a copy of procedure.</p>		<p>_____ SAT</p>
<p><u>STANDARD:</u> Operator is given a copy of EM-202.</p>		
<p><u>COMMENTS:</u></p>		<p>_____ UNSAT</p>
<p><u>STEP 2:</u> Using supplied EM-202, operator determines emergency classification and the protective action.</p>		<p>_____ SAT</p>
<p><u>STANDARD:</u> Operator uses supplied copy of EM-202 and determines a General Emergency. Operator determines that the Protective Action Recommendation: 0-2 miles evacuate 360°; 2-5 miles evacuate 360°; and 5-10 miles shelter 360°.</p>		<p>_____ UNSAT</p>
<p><u>COMMENTS:</u></p>		
<p>END of TASK</p>		

STOP TIME: _____

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

INITIAL CONDITIONS:

You are the Emergency Coordinator.
The following events have occurred:

A small break LOCA is in progress.

No HPI is available.

No Main or Auxiliary Feedwater is available.

The "A" Emergency Diesel Generator is unavailable.

There is no power supply for the "A" 4160ES bus.

The steam driven Emergency Feedwater pump experiences a catastrophic failure and the subsequent steam leak causes EFP-1 to trip.

There has been no core cooling for 25 minutes.

Incores indicate that the RCS has entered the Severe Accident Region.

RM-G29's reading escalates to 100 R/hr and RM-G30 escalates to 120 R/hr and both are increasing.

Reactor Building Spray has failed.

INITIATING CUES:

You are requested to determine the appropriate Protective Action Recommendation, if any.

KEY

EMERGENCY CLASSIFICATION TABLE

ENCLOSURE 1
(Page 1 of 16)

ACCIDENT CONDITION:
RADIATION/CONTAMINATION

CONDITION	INDICATIONS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>ODCM Noble Gases instantaneous release rate limit exceeded.</p> <p>[See Off-Site Dose Calculation Manual (ODCM), Section 2.7(a).]</p>	<p>RM-A1 and/or RM-A2</p> <p>low range gas channel</p>	<p>X</p> <p>ODCM limit exceeded (high rad interlock actuation).</p>	<p>X</p> <p>≥ 10 times ODCM limit (10 times high rad interlock actuation setpoint)</p>		
<p>Effluent monitors and/or portable devices detect levels at the 0.83 mile Site Boundary > 50 mREM/hour DDE for 30 minutes or > 500 mREM/hour DDE for 2 minutes (or 5 times these levels to the thyroid).</p>	<p>RM-A1 and/or RM-A2 and/or portable monitors, air samples, and calculations</p>			X	
<p><u>Projected dose [44]</u> at the 0.83 mile Site Boundary corresponds to ≥ 1.0 REM TEDE or ≥ 5.0 REM Thyroid CDE under actual meteorological conditions, based on 1 hour of exposure.</p>	<p>Portable monitors and/or calculations</p>				X
<p><u>Sustained [29]</u> and <u>unevaluated [33]</u> airborne radioactivity concentration exceeding radiation monitor high alarm limits.</p>	<p>RM-A1 thru RM-A8 and/or RM-A11, RM-A12</p>	<p>X</p>			

Interpretation guidance is provided for the underlined, numbered terms on pages 14-16 of this enclosure.

EMERGENCY CLASSIFICATION TABLE

ENCLOSURE 1
(Page 2 of 16)

ACCIDENT CONDITION:
RADIATION/CONTAMINATION (Cont'd)

CONDITION	INDICATIONS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Removable surface contamination (beta, gamma) outside RCA $\geq 2,200$ dpm/100 cm ² averaged [3] over 100 ft ² area.	Survey	X			
Removable surface contamination (alpha) outside RCA ≥ 50 dpm/100 cm ² averaged [3] over 100 ft ² area.	Survey	X			
<u>Unexplained</u> [34] direct radiation level increase exceeding radiation monitor alarm limits.	RM-G1 thru RM-G18	X (> 100 times normal)	X ($> 1,000$ times normal)		
Containment Gross Gamma monitor reading exceeding limit (via Control Room instrumentation).	RM-G29 RM-G30	X > 10 R/hr	X > 100 R/hr	X $> 1,000$ R/hr plus two of the following: RCS Pressure $> 1,500$ psig Containment Pressure > 4 psig Average Containment Temperature $> 180^\circ\text{F}$	X $> 10,000$ R/hr plus two of the following: RCS Pressure $> 1,500$ psig Containment Pressure > 30 psig Average Containment Temperature $> 200^\circ\text{F}$

Interpretation guidance is provided for the underlined, numbered terms on pages 14-16 of this enclosure.

EMERGENCY CLASSIFICATION TABLE

ENCLOSURE 1
(Page 3 of 16)

ACCIDENT CONDITION:
RADIATION/CONTAMINATION (Cont'd)

CONDITION	INDICATIONS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
High Reactor Coolant Activity	RM-L1 and/or sample	X > 1.0 $\mu\text{Ci/gm}$ Dose Equivalent I-131 or > <u>100/E-bar</u> [41] $\mu\text{Ci/gm}$ for <u>48 hrs.</u> [8]	X $\geq 300 \mu\text{Ci/gm}$ Dose Equivalent I-131		
Other conditions exist, from whatever source, that make release of <u>large</u> [13] amounts of radioactivity in a short time period possible (core melt situation).	High radiation and/or contamination levels				X

Interpretation guidance is provided for the underlined, numbered terms on pages 14-16 of this enclosure.

EMERGENCY CLASSIFICATION TABLE

ENCLOSURE 1
(Page 4 of 16)

ACCIDENT CONDITION:
NATURAL PHENOMENA

CONDITION	INDICATIONS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Hurricane Warning	ESATCOM, MET Tower	X	X Within the 0.83 mile site boundary, the <u>sustained</u> [30] wind speed is > 110 mph.	X Within the 0.83 mile site boundary, the <u>sustained</u> [30] wind speed is > 110 mph with unit not in HOT STANDBY or below (Modes 3-6).	
Earthquake being experienced.	Seismic monitors activate.	X Any earthquake	X Any earthquake causing seismic annunciator alarm.		
Tornado being experienced.	ESATCOM, visual	X <u>Nearby</u> [19] that could strike the Protected Area.	X Strikes the Protected Area.		
Fire within the Protected Area.	Fire alarm, visual	X > 10 min. duration	X <u>Potentially affecting</u> [24] safety-related systems > 10 min. duration.	X Compromising the function of safety-related system (inability to shut down unit or extinguish fire).	
Flood being experienced or projected.	ESATCOM, Intake Canal level	X At levels \geq 98.0 ft. to < 129.0 ft.	X At levels \geq 129.0 ft.	X At levels \geq 129.0 ft. with unit not in COLD SHUTDOWN.	

Interpretation guidance is provided for the underlined, numbered terms on pages 14-16 of this enclosure.

EMERGENCY CLASSIFICATION TABLE

ENCLOSURE 1
(Page 5 of 16)

ACCIDENT CONDITION:
NATURAL PHENOMENA (Cont'd)

CONDITION	INDICATIONS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Missile Impact	Noise, visual		X From any source potentially <u>affecting</u> [38] safe shutdown equipment.	X <u>Affecting</u> [1] plant operations with severe <u>damage to safe shutdown</u> equipment. [39]	

Interpretation guidance is provided for the underlined, numbered terms on pages 14-16 of this enclosure.

EMERGENCY CLASSIFICATION TABLE

ENCLOSURE 1
(Page 6 of 16)

ACCIDENT CONDITION:
MAN-MADE PHENOMENA

CONDITION	INDICATIONS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Severe Explosion resulting in life-threatening forces OR significant damage to equipment or adjacent structures.	Noise, visual (fireball, scattered debris)	X Near or within the 0.83 mile Site Boundary, (includes all Generating Complex facilities), but not <u>affecting</u> [1] CR-3 operations.	X <u>Affecting</u> [1] CR-3 operations, but no damage affecting the operation of safe shutdown equipment.	X <u>Affecting</u> [1] CR-3 operations with <u>severe damage</u> [39] causing the failure of safe shutdown equipment.	
Toxic or flammable gas in the environment at <u>life-threatening</u> [15] levels.	Odor, breathing difficulty, explosion, etc.	X Near or within the 0.83 mile Site Boundary, (includes all Generating Complex facilities), but not entering Protected Area.	X Entry into Protected Area, not <u>affecting Vital Areas</u> . [40]	X Entry into <u>Vital Areas</u> . [40]	
Aircraft crash or <u>unusual</u> [36] aircraft activity over facility.	Noise, visual	X Within the 0.83 mile Site Boundary, but not hitting the Protected Area.	X Hitting within the Protected Area.	X <u>Hitting Vital Areas</u> [40] with unit not in COLD SHUTDOWN.	
Security Threat	Visual	X <u>Attempted entry or attempted sabotage</u> [2,28]	X Ongoing security <u>compromise</u> . [7]	X <u>Imminent</u> [11] loss of control of the Protected Area.	X <u>Loss of physical control</u> [23] of the Protected Area.
Train derailment on-site affecting access or containing hazardous materials.	Visual	X			

Interpretation guidance is provided for the underlined, numbered terms on pages 14-16 of this enclosure.

EMERGENCY CLASSIFICATION TABLE

ENCLOSURE 1
(Page 7 of 16)

ACCIDENT CONDITION:
LOSS OF CONTROL FUNCTIONS

CONDITION	INDICATIONS	UNUSUAL EVENT	ALERS	SITE AREA EMERGENCY	GENERAL EMERGENCY
<u>Loss of COLD SHUTDOWN capability.</u> [5]	RCS temperature		X	X No <u>containment integrity</u> [6] AND average of five highest in-cores > 200°F.	
<u>Loss of HOT SHUTDOWN capability.</u> [9]	RCS temperature, RCS pressure, flux level, etc.			X	
<u>Failure of RPS to initiate and complete a reactor trip which brings reactor subcritical (both manual and automatic).</u>	Rod positions, RCS temperature, RCS pressure, flux level, heat removal systems availability, etc.		X Automatic and manual reactor trip DID NOT OCCUR when a trip setpoint is/was exceeded AND de-energizing control rod power results in a subcritical reactor.	X Automatic and manual reactor trip DID NOT OCCUR when a trip setpoint is/was exceeded AND de-energizing control rod power DOES NOT result in a subcritical reactor.	X Automatic and manual reactor trip DID NOT OCCUR when a trip setpoint is/was exceeded AND de-energizing control rod power DOES NOT result in a subcritical reactor AND EITHER In-Core Temperature > 600°F OR RCS Pressure > 2,450 psig OR RB Pressure ≥ 4 psig.

Interpretation guidance is provided for the underlined, numbered terms on pages 14-16 of this enclosure.

EMERGENCY CLASSIFICATION TABLE

ENCLOSURE 1
(Page 8 of 16)

ACCIDENT CONDITION:
LOSS OF CONTROL FUNCTIONS (Cont'd)

CONDITION	INDICATIONS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL
Evacuation of Main Control Room.	Not Applicable		X <u>Local Control</u> [42]	X No <u>local control</u> [42] ≥ 15 min.	
All alarms lost.	All annunciator systems and computer alarms inoperable.		X	≥ 15 min. with plant <u>transient</u> [32]	
Loss of alarms or indications for process parameters requiring shutdown (Table 12.3, <u>RERP</u>) [27].	Loss of appropriate component indication or alarm.	X			
Significant loss of assessment or communications capability.	Loss of ALL Radiation Monitoring System instrumentation or ALL off-site phone communications (commercial and microwave).	X			

Interpretation guidance is provided for the underlined, numbered terms on pages 14-16 of this enclosure.

EMERGENCY CLASSIFICATION TABLE

ENCLOSURE 1
(Page 9 of 16)

ACCIDENT CONDITION:
LOSS OF POWER

CONDITION	INDICATIONS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Loss of <u>off-site power</u> [20] OR <u>all on-site AC power</u> . [21]	Loss of feeder breakers, loss of Control Room lighting, loss of RC pumps, etc. OR both Emergency Diesel Generators not available	X	X ≥ 15 min.		
Loss of <u>off-site power</u> [20] AND <u>all on-site AC power</u> [21].	Loss of feeder breakers, loss of Control Room lighting, loss of RC pumps, etc.		X ≤ 15 min.	X > 15 min.	X No <u>EFW</u> [43] > 3 hrs.
Loss of <u>vital on-site DC power</u> . [22]	"DC bus available" status lights off		X ≤ 15 min.	X > 15 min.	

Interpretation guidance is provided for the underlined, numbered terms on pages 14-16 of this enclosure.

EMERGENCY CLASSIFICATION TABLE

ENCLOSURE 1
(Page 10 of 16)

ACCIDENT CONDITION:
CORE/SPENT FUEL DAMAGE

CONDITION	INDICATIONS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Degraded core with possible loss of <u>coolable geometry</u> . [4]	In-core thermocouples, RM-L1 alarm, T _{max} meter, NI Error, SPNDs, etc.			X	
Loss of fuel cladding.	RM-L1 alarm, sample	X Sample indicates > 0.1% failed fuel in <u>30 min.</u> [31]	X Sample indicates > 1.0% failed fuel in <u>30 min.</u> [31] or 5% total fuel failure.		
Irradiated fuel damage accident in Reactor Building or Auxiliary Building.	RM-G15 thru RM-G18 and RM-G29, RM-G30, RM-A1 thru RM-A4 and RM-A6	X No release of radioactivity.	X <u>Limited</u> [14] damage with release of radioactivity.	X <u>Major</u> [18] fuel damage or water below fuel level.	
Core melt <u>likely</u> . [16]	In-core thermocouples, T _{max} meter, SPNDs, etc.				X
<u>Loss</u> [17] of two of three fission product barriers with a potential loss of third (e.g., loss of primary coolant boundary, clad failure, and high potential for loss of containment integrity).	RM-L1, RC pressure, RC temperature, T _{max} meter, SPNDs, etc. (See EM-202, Enc. 8, page 3 of 3.)				X

Interpretation guidance is provided for the underlined, numbered terms on pages 14-16 of this enclosure.

EMERGENCY CLASSIFICATION TABLE

ENCLOSURE 1
(Page 11 of 16)

ACCIDENT CONDITION:
LOSS OF REACTOR COOLANT

CONDITION	INDICATORS	USUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
RCS Code Safety or PORV stuck open.	VPIs [37], tail piece temperatures, RCS pressure, RCDT level, pressurizer level	X			
<u>Reactor Coolant Leak</u> [26]	RC pressure, pressurizer level, RB sump level, RB temperature, RB pressure RM-G16 thru RM-G18 RM-G29, RM-G30, RM-A6	X > 1.0 gpm <u>unidentified</u> [35] leakage in Modes 1 thru 4	X > 50 gpm	X > 1,000 gpm	X With ECCS failure and subsequent failure of containment heat removal system for > 3 hrs.
Steam Generator Tube Leak	RM-G25 thru RM-G28 and RM-A12, and Chemistry samples	X > 1.0 to ≤ 50 gpm	X > 50 to 200 gpm	X > 200 gpm	
Rupture of steam generator tube with loss of off-site power [20]	RM-G25 thru RM-G28, loss of feeder breakers, loss of lighting, etc.		X ≤ 200 gpm	X > 200 gpm	

Interpretation guidance is provided for the underlined, numbered terms on pages 14-16 of this enclosure.

EMERGENCY CLASSIFICATION TABLE

ENCLOSURE 1
(Page 12 of 16)

ACCIDENT CONDITION:
SECONDARY SYSTEM FAILURE

CONDITION	INDICATIONS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<u>Rapid depressurization</u> [25] of secondary systems.	MS pressure, MSIV actuation, feedwater flow, etc.	X			
Steam line break with primary-to-secondary leak.	RM-G25 thru RM-G28, MS pressure, MSIV actuation		X With > 10 gpm primary-to-secondary leakage.	X With > 50 gpm primary-to-secondary leakage with indication of fuel damage.	
Turbine Failure	Turbine rotating component failure, causing rapid plant shutdown.	X	X Causing casing penetration.		
Loss of Main and Emergency Feedwater	Feed flow, steam generator level, RC pressure, RC temperature, etc.	X HPI available.		X No core cooling available for > 20 min.	X No core cooling available with core damage <u>imminent.</u> [10]

Interpretation guidance is provided for the underlined, numbered terms on pages 14-16 of this enclosure.

EMERGENCY CLASSIFICATION TABLE

ENCLOSURE 1
(Page 13 of 16)

ACCIDENT CONDITION:
MISCELLANEOUS

CONDITION	INDICATIONS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Inability to reach required shutdown within Technical Specifications limits.		X			
Other conditions that warrant.	Not Applicable	X <u>Increased awareness</u> [12] of Plant Staff.	X Activation of Technical Support Center (TSC)/ Operational Support Center (OSC) and Emergency Operations Facility (EOF).	X Activation of TSC/OSC, EOF, monitoring teams, and public notification.	

Interpretation guidance is provided for the underlined, numbered terms on pages 14-16 of this enclosure.

KEY

**GUIDELINES FOR PROTECTIVE ACTION RECOMMENDATIONS
FOR
NON-ESSENTIAL GENERATING COMPLEX PERSONNEL AND GENERAL POPULATION**

PLANT CONDITIONS/OFF-SITE DOSE ESTIMATES	RECOMMENDED ACTION		
	0-2 MILES	2-5 MILES	5-10 MILES
<p>1. CONDITION: GENERAL EMERGENCY DECLARED. NO APPARENT CORE DAMAGE.</p> <p>CORE DAMAGE INDICATIONS: a. RCS pressure vs temperature in normal region (See EM-202, Enc. 8, page 3 of 3); or b. RM-G29/30 reading < 100 R/hr; or c. PASS results.</p>	Evacuate 360°	Evacuate 360°	None (See Note 1.)
<p>2. CONDITION: GENERAL EMERGENCY DECLARED. CLAD DAMAGE/GAS GAP RELEASE (NO CORE MELT).</p> <p>CORE DAMAGE INDICATIONS: a. RCS pressure vs temperature in gas gap failure region (See EM-202, Enc. 8, page 3 of 3); or b. Core uncovered for 15-30 minutes; or c. RM-G29/30 reading of 100-75,000 R/hr (RB spray off) OR 100-25,000 R/hr (RB spray on); or d. PASS results.</p> <p>OR:</p> <p>* Dose at the 0.83 mile Site Boundary is projected to be: a) TEDE: ≥ 1.0 Rem b) Thyroid CDE: ≥ 5.0 Rem</p>	Evacuate 360°	Evacuate 360°	Shelter 360° (See Note 1.)
<p>3. CONDITION: GENERAL EMERGENCY DECLARED. CORE MELT OCCURRING OR LIKELY.</p> <p>CORE DAMAGE INDICATIONS: a. RCS pressure vs temperature in the core melt region (See EM-202, Enc. 8, page 3 of 3); or b. Core uncovered for > 30 minutes; or c. RM-G29/30 reading > 75,000 R/hr (RB spray off) or > 25,000 R/hr (RB spray on).</p> <p>WITH:</p> <p>NO projected containment failure and NO release underway.</p> <hr/> <p>Projected containment failure and/or release underway.</p>	Evacuate 360°	Evacuate 360°	Shelter 360° (See Note 1.)
	Evacuate 360°	Evacuate 360°	Evacuate 360°

* PARS within the first hour of an event should be based on PLANT CONDITIONS ONLY until the TSC Dose Assessment Team is operational.

NOTE 1: Relocate/evacuate population affected by any ground contamination after plume passage or at any time projected dose is ≥ 1.0 REM TEDE or ≥ 5.0 REM Thyroid CDE.

NOTE 2: Evacuation time estimates are 2 hours for a 5 mile evacuation and 4 hours for a 10 mile evacuation. (These times do not include notification or preparation time for evacuees.)

GUIDELINES FOR FPC EMERGENCY WORKER EXPOSURE

CONDITION	DOSE LIMIT (REM TEDE)	GUIDANCE
1. Emergency conditions not requiring actions to prevent serious injury or protect valuable property.	5	Emergency worker exposure should not exceed 5 REM TEDE. Exposures in excess of this limit are voluntary and are authorized by the Emergency Coordinator.
2. Emergency conditions requiring actions to prevent serious injury or protect valuable property.	10	Exposure greater than 5 REM TEDE should be on a voluntary basis with approval of the Emergency Coordinator. Appropriate controls for emergency workers include time limitations and respirators.
3. Emergency conditions requiring lifesaving actions or actions to protect large populations.	25	Exposure greater than 5 REM TEDE should be on a voluntary basis with approval of the Emergency Coordinator. Appropriate controls for emergency workers include time limitations, respirators, and thyroid blocking.
4. Emergency conditions requiring lifesaving actions or actions to protect large populations.	> 25	Exposure greater than 5 REM TEDE should be on a voluntary basis with approval of the Emergency Coordinator. Volunteers should be healthy, above the age of 45, have an understanding of the health risks involved, and, preferably, be those whose normal duties have trained them for such missions. Appropriate controls for emergency workers include time limitations, respirators, and thyroid blocking.

NOTE: Reference for this table is Table 2.2 in the Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA 400-R/92-001).

FISSION PRODUCT BARRIER ASSESSMENT

There are three fission product barriers: fuel clad, Reactor Coolant System, and the Containment Building. Loss of two of three of these barriers with a potential for losing the third is grounds for a General Emergency. This enclosure lists these barriers with potential failure indications.

FUEL CLAD FAILURE INDICATIONS (challenged by high temperature, loose parts)

1. RM-L1 increasing
2. PASS indicating increased RCS activity
3. RM-G29/30 increasing (requires RCS failure also)
Gas Gap Failure = 100-75,000 R/hr (Building Spray off)
OR 100-25,000 R/hr (Building Spray on)
Core Melt = > 75,000 R/hr (Building spray off) OR > 25,000 R/hr (Building Spray on)
4. RCS pressure/incore temperature graph in Regions 3 or Severe Accident Region, (refer to EOP-7).

RCS FAILURE INDICATIONS (LOCA) (challenged by high RCS pressure, vibration)

1. RCS pressure decreasing
2. RB pressure increasing
3. RB temperature increasing
4. RB sump level increasing
5. RM-A6 monitors increasing
6. RM-G16/17/18 increasing
7. RM-G29/30 increasing

CONTAINMENT FAILURE INDICATIONS (challenged by high RB pressure and temperature)

1. RM-A2 monitors increasing
2. Other Auxiliary Building radiation monitors increasing
3. Abnormal radiation levels in Intermediate Building and on berm surveys