VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Perform Control Room Panel Walkdowns (weekly surveillance)
Failure Mode: Incorrect switch positions
Reference: OP 0150, "Conduct of Operations and Operator Rounds"
Task Number: 2997230301 (Complete CRO Round Sheet)

Task Performance: AO/RO/SRO ___ RO/SRO _X_ SRO Only ___

Sequence Critical: Yes ___ No _X_

Time Critical: Yes ___ No _X_

Operator Performing Task:_____

Examiner:_____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation_____ Performance__X___ Discuss_____

Setting: Classroom _____ Simulator___X___ Plant_____

Performance Expected Completion Time: __15 minutes

Evaluation Results:

Performance: PASS _____ FAIL _____ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: M Hardo 10/5/10
Operations Representative — Date

Approved by: K. STUBAC 10/6/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "SAT" or "UNSAT". Comments are required for any "UNSAT" classification. If a step is preceded by an asterisk (*), it is a critical step. **If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.**

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- The plant is operating at 100% RTP
- The plant is 2 days into in a 7 day LCO for corrective maintenance on the "A" Core Spray System

Initiating Cues:

- It is Monday just after the 1815 brief and you have been assigned by the CRS to perform VYOPF 0150.10 (Operations Department Control Room Panel Walkdown Checklist) IAW OP 0150, "Conduct of Operations and Operator Rounds", Section "F" for the current day of the week. .

Task Standards:

- VYOPF 0150.10 completed for CRP 9-3; identification of 4 deficiencies noted and CRS informed. At the discretion of the evaluator, the CRP 9-26 walkdown can also be performed to complete VYOPF 0150.10 in its entirety.

Required Materials:

- OP 0150, "Conduct of Operations and Operator Rounds"
- VYOPF 0150.10 for Monday walkdowns (CRP 9-3 and CRP 9-26)

Simulator Set-Up:

- **IC: 814**
- **RUN on scenario file NRC JPM RO a1a**
    - Simulator setup with the following discrepancies:
        - CRP 9-3, Danger tag hanging on CS pump "A" with the switch in PTL
        - CRP 9-3, HPCI-17 closed (vice open)
        - CRP 9-3, HPCI 57 & 58 open (vice closed)

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

Evaluation **Performance Steps**

EVALUATOR NOTES:

SAT/UNSAT **Step 1: Obtain OP 0150, "Conduct of Operations and Operator Rounds", and review section "F".**

Standard: OP 0150 obtained and Section "F" reviewed.

SAT/UNSAT **Step 2: Obtain copy of VYOPF 0150.10 and identifies that 9-3 and 9-26 are required panel walkdowns for given day**

Standard: Operator obtains copy of form, identifies 9-3 and 9-26 as panel walkdowns required IAW section "F", step 9.

SAT/UNSAT ***Step 3: Completes VYOPF 0150.10 for panel 9-3**

Standard: Operator identifies the following abnormalities/deficiencies:

- Operator identifies a danger tag on CS Pump "A" and documents the reason in the remarks section. This is done IAW OP 0150, Section "F", step 6.
- Operator Identifies HPCI-17, HPCI-57 and HPCI 58 are in the incorrect positions. Prior to repositioning, the operator immediately notifies the CRS/SM IAW OP 0150, Section "F", step 8.

EVALUATOR CUE: Inform the operator that the HPCI valves were incorrectly repositioned following the last HPCI surveillance. A CR has been written.

EVALUATOR CUE: Inform the operator that the HPCI valves will be swapped back after the walkdown is complete IAW OP 2120, Section I.

Evaluation	Performance Steps
SAT/UNSAT	***Step 4:** VYOPF 0150.10 is completed in accordance with the standards outlined in section "F". Standards: • Switch positions that differ from the normal position identified on VYOPF 0150.10 due to Tagouts should be noted in the remarks section. • If abnormal switch and/or indications are detected which are not expected the CRS / SM shall be immediately notified. • No attempt shall be made to correct the condition prior to obtaining permission from the CRS/SM and the expected response from such actions is completely understood.

***Critical Step**

TIME FINISH: _____

Terminating Cue: Once the operator completes the panel walkdowns on CRP 9-3, the JPM can be terminated. At the discretion of the examiner, the panel walkdown of CRP 9-26 can be completed and the entire form filled out.

Evaluator Comments: _____

System Generic K/A's: 2.1.31 Ability to locate control room switches, controls, and indications and to determine that they correctly reflect the desired plant lineup (RO 4.6, SRO 4.3)

EXAMINEE HANDOUT

Initial Conditions:

- The plant is operating at 100% RTP
- The plant is 2 days into in a 7 day LCO for corrective maintenance on the "A" Core Spray System

Initiating Cues:

- It is Monday just after the 1815 brief and you have been assigned by the CRS to perform VYOPF 0150.10 (Operations Department Control Room Panel Walkdown Checklist) IAW OP 0150, "Conduct of Operations and Operator Rounds", Section "F" for the current day of the week. .

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Record Critical Data
Failure Mode: Not applicable
Reference: OP 0105, "Reactor Operations"
Task Number: 2987240201 (Startup Reactor to Criticality)

Task Performance: AO/RO/SRO ___ RO/SRO _X_ SRO Only ___

Sequence Critical: Yes ___ No _X

Time Critical: Yes ___ No _X

Operator Performing Task:_____

Examiner:_____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation_____ Performance__X___ Discuss_____

Setting: Classroom _____ Simulator___X___ Plant_____

Performance Expected Completion Time: _10 minutes

Evaluation Results:

Performance: PASS _____ FAIL _____ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer Date

Reviewed by: _____ 10/5/10
Operations Representative Date

Approved by: _____ 10/5/10
Facility Reviewer Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "SAT" or "UNSAT". Comments are required for any "UNSAT" classification. If a step is preceded by an asterisk (*), it is a critical step**. If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.**

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk through"** the JPM, stating the indications/parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- A reactor Startup and rod withdraw to criticality is in progress IAW OP 0105, Phase 1A, "Reactor Operations"

Initiating Cues:

- The Operator at the Controls has just reported to the Control Room Supervisor (CRS) that the reactor is critical.
- The CRS directs you to record the parameters on VYOPF 0105.03 and calculate the stable period IAW OP 0105 Phase 1A, step 28.
- An additional operator is provided to range IRMs as necessary
- Complete the VYOPF 0105.03 form and forward it to the SM for review

Task Standards:

VYOPF 0105.03 data collected and documented satisfactorily, form initialed/dated and forwarded to the Shift Manager for review.

Required Materials:

- OP 0105, "Reactor Operations", placekept through Phase 1A, step 27.
- VYOPF 0105.03 completed through "Doubling Count Rates"
- Stop watch
- Calculator

Simulator Set-Up:

- Simulator setup with a critical reactor. Simulator is taken to freeze in order to allow the operator to take critical data IAW OP 0105, Phase 1A, step 28.
- Audio alarms silenced
- An additional Simulator operator responsible for ranging IRMs to maintain 25/75 scale
- **IC: 815**

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

Evaluation **Performance Steps**

EVALUATOR NOTES:

- If asked, inform the operator that their sole function is to record data. The other responsibilities of OP 0105 will be addressed by the rest of the crew.
- There is no particular order to the data taken on VYOPF 0105.03. The sequence provided on this JPM worksheet is the layout as it exists on the form. They can be done in any order.

SAT/UNSAT **Step 1: Obtain VYOPF 0105.03, "Reactor Criticality Check Sheet, Regular and In-Sequence".**

Standard: Obtains VYOPF 0105.03 from the Operator at the Controls.

SAT/UNSAT ***Step 2: Records Time at criticality**

Standard: Documents **current time** on VYOPF 0105.03.

SAT/UNSAT ***Step 3: Records Rod Sequence from the Rod Worth Minimizer at criticality.**

Standard: Documents "**A2**" Rod Sequence on VYOPF 0105.03.

SAT/UNSAT ***Step 4: Records Rod Group from the Rod Worth Minimizer at criticality**

Standard: Documents Rod Group **2** on VYOPF 0105.03.

Evaluation	Performance Steps	
SAT/UNSAT	*Step 5:	**Records Rod Number from the Rod Worth Minimizer, ERFIS screen, or CRP 9-5 full core display at criticality**
	Standard:	Documents Rod Number **18-23** on VYOPF 0105.03.
SAT/UNSAT	*Step 6:	**Records Rod Position from the Rod Worth Minimizer, ERFIS screen, or CRP 9-5 full core display at criticality**
	Standard:	Documents Rod Position **24** on VYOPF 0105.03.
SAT/UNSAT	*Step 7:	**Records B023 "Temperature" from ERFIS screen**
	Standard:	Documents B023 Temperature **151°F** on VYOPF 0105.03.
SAT/UNSAT	*Step 8:	**Records B025 "Reactor Pressure" from ERFIS screen**
	Standard:	Documents B025 Pressure **0 psig** on VYOPF 0105.03.
SAT/UNSAT	*Step 9:	**Records "A" Loop Temperature from TR 2-165 (Red) on CRP 9-4.**
	Standard:	Documents TR 2-165 (Red) Temperature **~155°F** on VYOPF 0105.03.
SAT/UNSAT	*Step 10:	**Records "B" Loop Temperature from TR 2-165 (Blue) on CRP 9-4.**
	Standard:	Documents TR 2-165 (Blue) Temperature **~152°F** on VYOPF 0105.03.

Evaluation	Performance Steps
SAT/UNSAT	***Step 11:** **Records Reactor Vessel Flange Temperature from TR 2-3-90 (Red) on CRP 9-4.** Standard: Documents TR 2-3-90 (Red) Temperature ~**155°F** on VYOPF 0105.03.
SAT/UNSAT	***Step 12:** **Records Reactor Water Cleanup Inlet Temperature from TI 12-137 on CRP 9-4.** Standard: Documents TI 12-137 Temperature ~**100°F** on VYOPF 0105.03.
SAT/UNSAT	***Step 13:** **Calculates Stable Period by applying Note 1 on VYOPF 0105.03.** Standard: Documents Stable Period of **XXX seconds** by multiplying time for power to double by 1.445. (based on the time of their calculation and when count rates have doubled)
SAT/UNSAT	***Step 14:** **Records C121 ERFIS Period from ERFIS screen.** Standard: Documents C121 ERFIS Period **XXX seconds** on VYOPF 0105.03. (as indicated based on when they observe the period)
SAT/UNSAT	***Step 15:** **Records Reactor Pressure from PR-X-Y on CRP 9-5.** Standard: Documents PR-X-Y pressure **0 psig** on VYOPF 0105.03.
SAT/UNSAT	**Step 16:** **Initials and Dates the completed VYOPF 0105.03.** Standard: Records his/her **initials** and **current date** on VYOPF 0105.03.

***Critical Step**

TIME FINISH: _____

Terminating Cue: Operator completes and looks to forward the completed VYOPF 0105.03 form to the Shift Manager.

Evaluator Comments:

System Generic K/A's: 2.1.20 Ability to interpret and execute procedure steps (RO 4.6, SRO 4.6)

EXAMINEE HANDOUT

Initial Conditions:

- A reactor Startup and rod withdraw to criticality is in progress IAW OP 0105, Phase 1A, "Reactor Operations"

Initiating Cues:

- The Operator at the Controls has just reported to the Control Room Supervisor (CRS) that the reactor is critical.
- The CRS directs you to record the parameters on VYOPF 0105.03 and calculate the stable period IAW OP 0105 Phase 1A, step 28.
- An additional operator is provided to range IRMs as necessary
- Complete the VYOPF 0105.03 form and forward it to the SM for review

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
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2010 ILO NRC EXAM

Task Identification:

Title: Interpret station Electrical/Mechanical Drawings
Failure Mode: Not applicable
Reference: EN-OP-102, Attachment 9.2
Task Number: FQC-OPS-TOPOSIT (Knowledge of Work Boundaries)

Task Performance: AO/RO/SRO ___ RO/SRO _X_ SRO Only ___

Sequence Critical: Yes _X_ No ___

Time Critical: Yes ___ No _X_

Operator Performing Task:_____

Examiner:_____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation_____ Performance__X___ Discuss_____

Setting: Classroom __X___ Simulator_____ Plant_____

Performance Expected Completion Time: _22 minutes

Evaluation Results:

Performance: PASS _____ FAIL _____ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: _____ 10/5/10
Operations Representative — Date

Approved by: _____ 10/5/10
K. STUPAK
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "SAT" or "UNSAT". Comments are required for any "UNSAT" classification. If a step is preceded by an asterisk (*), it is a critical step. **If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.**

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **classroom** and you are to **perform** the actions.

You are requested to **"talk through"** the JPM, stating the indications/parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- The plant is operating at 100% RTP.
- The Control Room has removed the "A" RBCCW from service due to a seal failure.

Initiating Cues:

- Using Station mechanical and/or electric drawings, to determine which components are required to be danger tagged for the seal replacement.
- List ALL required **components** in the correct **sequence** AND in the correct **position** as required by EN-OP-102, "Protective and Caution Tagging", Attachment 9.2
- Fill in the table on Examinee handout

Task Standards:

- The operator determines the following components are required to be danger tagged and lists them in the required tagging sequence. **(critical steps and sequence is BOLDED)**
  - **"A" RBCCW pump control switch on CRP 9-6 (SW-9-6-19) PTL**
  - **Bus 9, cubicle 5B (P59-1A pump breaker) OPEN**
  - **V70-94A (pump discharge valve) CLOSED**
  - **V70-96A (pump suction valve) CLOSED**
  - V70-923 (PI-2A isolation valve on pump discharge line) OPEN
  - V70-600 (pump casing vent valve) OPEN
  - V70-924 (PI-2A drain valve on pump discharge line) OPEN

Required Materials:

- EN-OP-102, "Protective and Caution Tagging", Attachment 9.2
- P&ID G-191159 Sheet 3 (mechanical)
- P&ID G-191301 Sheet 1 (electrical)
- CWD Sheet 442

Simulator Set-Up:

- N/A

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

Evaluation **Performance Steps**

EVALUATOR NOTE: The operator may elect to review the CWD for the "A" RWCU first prior to looking at the other electrical drawings.

SAT/UNSAT **Step 1: Obtain EN-OP-102, "Protective and Caution Tagging" and reviews Attachment 9.2, "General Tagout Standards"**

Standard: Obtains a copy of EN-OP-102, Attachment 9.2. When asked, provide a copy of EN-OP-102, "Protective and Caution Tagging. The operator then reviews the procedure and Attachment 9.2.

EVALUATOR NOTE: When asked, provide the candidate with a copy of EN-OP-102

SAT/UNSAT **Step 2: Operator identifies the tagging sequence outlined in EN-OP-102.**

Standard: Operator identifies the recommended tagging sequence for pumps as follows:

- Control switch
- Breaker for main power
- Breakers for auxiliary power (motor heater, oil pumps, etc.)
- Discharge valve
- Suction valve

SAT/UNSAT ***Step 3: Operator identifies the control switch for the "A" RBCCW pump on CWD Sheet 442**

Standard: Operator identifies P59-1A control switch (SW-9-6-19) as the control switch for the "A" RBCCW pump on CWD 442.

Operator identifies the position that the switch will be tagged in (Pull to lock).

Evaluation	Performance Steps
SAT/UNSAT	*Step 4: Operator identifies the breaker cubicle for the "A" RBCCW pump
	Standard: Operator identifies Bus 9, breaker cubicle 5B as the power supply for the "A" RBCCW pump using CWD 442 and/or P&ID G-191301 Sheet 1.
	Operator identifies the position that the breaker will be tagged (open/racked out)
SAT/UNSAT	*Step 5: Operator identifies the discharge valve for the RBCCW pump
	Standard: Operator identifies valve V70-94A as the "A" RBCCW pump discharge valve using P&ID G-191159 Sheet 3.
	Operator identifies the position that the valve will be tagged (closed)
SAT/UNSAT	*Step 6: Operator identifies the suction valve for the RBCCW pump
	Standard: Operator identifies valve V70-96A as the "A" RBCCW pump suction valve using P&ID G- G-191159 Sheet 3.
	Operator identifies the position that the valve will be tagged (closed)
SAT/UNSAT	Step 7: Operator identifies the PI isolation valve on the discharge of the "A" RBCCW pump.
	Standard: Operator identifies valve V70-923 as the PI-2A isolation valve on pump discharge line using P&ID G-191159 Sheet 3.
	Operator identifies the position that the valve will be tagged (open)

SAT/UNSAT **Step 8:** **Operator identifies the pump casing vent valve for the "A" RBCCW pump.**

Standard: Operator identifies valve V70-600 as the pump casing vent valve using P&ID G-191159 Sheet 3.

Operator identifies the position that the valve will be tagged (open)

SAT/UNSAT **Step 9:** **Operator identifies the PI-2A drain valve on the pump discharge line pump casing vent valve for the "A" RBCCW pump.**

Standard: Operator identifies valve V70-924 as the PI-2A drain valve on the pump discharge line using P&ID G-191159 Sheet 3.

Operator identifies the position that the valve will be tagged (open)

EVALUATOR CUE: Once the table is filled in, inform the Operator no additional tasks are needed for this JPM.

***Critical Step**

Terminating Cue: The JPM is complete

TIME FINISH: _____

Evaluator Comments:

System Generic K/A's: 2.2.41 Ability to obtain and interpret station electrical and mechanical drawings (RO 3.5, SRO 3.9)

EXAMINEE HANDOUT

Initial Conditions:

- The plant is operating at 100% RTP.
- The Control Room has removed the "A" RBCCW from service due to a seal failure.

Initiating Cues:

- Using Station mechanical and/or electric drawings, to determine which components are required to be danger tagged for the seal replacement.
- List ALL required components in the correct sequence AND in the correct position as required by EN-OP-102, "Protective and Caution Tagging", Attachment 9.2
- Fill in the table on Examinee handout

SEQUENCE	COMPONENT	POSITION

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Activate the Fire Brigade and Make Required Plant Announcements
Failure Mode: N/A
Reference: OP 3020, "Fire Emergency Response Procedure"
Task Number: 2867290401, 2850110101

Task Performance: AO/RO/SRO _____ RO/SRO _____ SRO Only__X__

Sequence Critical: Yes ___ No _X

Time Critical: Yes ___ No _X

Operator Performing Task:_____

Examiner:_____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation_____ Performance__X__ Discuss_____

Setting: Classroom __X__ Simulator_____ Plant_____

Performance Expected Completion Time: 6 minutes

Evaluation Results:

Performance: PASS _____ FAIL _____ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: MD Hanbo 10/5/10
Operations Representative — Date

Approved by: K. STUDAK 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "SAT" or "UNSAT". Comments are required for any "UNSAT" classification. If a step is preceded by an asterisk (*), it is a critical step. **If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.**

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk through"** the JPM, stating the indications/parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- The plant is operating at 100% RTP

Initiating Cues:

- The Control Room has just received Fire Alarms on Control Room Panel CP-115-3. The CRS has entered OP 3020, Fire Emergency Response Procedure, Figure 1 and has directed you to make ALL required announcements based on the location of the fire.

Task Standards:

- Plant Announcement made in accordance with OP 3020 Figure 1 (Table A) and PSB/PUB announcement made in accordance with OP 3020 Figure 1 (Table B).

Required Materials:

- OP 3020 Figure 1; Figure 1 is placekept up to the plant announcement.

Simulator Set-Up:

- **IC: 810** (100% power IC)
- **RUN on scenario file NRC JPM RO A4**
    - **mfFP_01c** "Active" (Fire in the East Switchgear Room). Also, ensure that Zone 27 indicating light is in alarm using soft panel if necessary)

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

Evaluation	Performance Steps
SAT/UNSAT	**Step 1: Obtain a copy of OP 3020, Figure 1**
	Standard: Operator obtains a copy of OP 3020 Figure 1.
	EVALUATOR CUE: Provide the operator the flow chart that is placekept up to the point where a plant announcement is required to be made.
SAT/UNSAT	**Step 2: Recognizes that Zone 27 and 29 Fire Alarms are in the East Switchgear Room**
	Standard: Operator recognizes that the Control Room Fire Protection Panel has Zone 27 and 29 alarms which correspond to a CO_2 discharge and detector fire alarm in the East Switchgear Room.
SAT/UNSAT	***Step 3: Activates the paging system in preparation for plant announcement per Table "A"**
	Standard: Operator places page system "Volume and Alarm Tone" select switch to "Alert"

Evaluation **Performance Steps**

SAT/UNSAT ***Step 4:** **Make Plant Announcement Per Table "A"**

Standard: Operator makes the following announcement:

"Attention! Attention! Attention!"
"Fire! Fire! Fire!"
"There is a fire in the East Switchgear Room."
"Fire Brigade respond and assemble on the North Side of the Admin Building"
"Medical Response Team report to the West side of the Admin Building"
"All personnel evacuate the Switchgear Rooms, the Admin Building lower level, and Lobby due to a CO2 discharge and report to the West side of the Admin Building."

EVALUATOR CUE: After the Table "A" announcement, inform the candidate that time progression has been used and the 5 man fire brigade team is assembled.

SAT/UNSAT **Step 5: Deactivates the paging system**

Standard: Operator places page system "Volume and Alarm Tone" select switch to "Off"

EVALUATOR NOTE: The following call will be ***simulated***

SAT/UNSAT ***Step 6:** **Activate the PSB/PUB Office Paging System per Table "B"**

Standard: Operator dials x3999 and makes the following announcement on the office paging system.

Evaluation **Performance Steps**

SAT/UNSAT ***Step 7:** **Make PSB/PUB Announcement Per Table "B"**

Standard: Operator makes the following announcement:

"Attention! Attention! Attention!"
"Fire Emergency! Fire Emergency!"
"Medical Response Team report to the West side of the Admin Building"
"Fire Emergency! Fire Emergency!"
"Medical Response Team report to the West side of the Admin Building"

***Critical Step**

TIME FINISH: _____

Terminating Cue: Plant Announcement made in accordance with OP 3020 Figure 1 (Table A) and PSB/PUB announcement made in accordance with OP 3020 Figure 1 (Table B)

Evaluator Comments: _____

System Generic K/A's: 2.4.27 Knowledge of the "Fire in the Plant" procedures (RO 3.4, SRO 3.9)

EXAMINEE HANDOUT

Initial Conditions:

- The plant is operating at 100% RTP

Initiating Cues:

- The Control Room has just received Fire Alarms on Control Room Panel CP-115-3. The CRS has entered OP 3020, Fire Emergency Response Procedure, Figure 1 and has directed you to make ALL required announcements based on the location of the fire.

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Determine License Reactivation Requirements
Failure Mode: N/A
Reference: AP 0151, "Responsibilities and Authorities of Operations Department Personnel"
Task Number: 34103703 (Maintain a valid SRO license)

Task Performance: AO/RO/SRO _____ RO/SRO __X__ SRO Only_____

Sequence Critical: Yes ___ No _X

Time Critical: Yes ___ No _X

Operator Performing Task:_____

Examiner:_____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation_____ Performance__X__ Discuss_____

Setting: Classroom __X__ Simulator_____ Plant_____

Performance Expected Completion Time: ~~X~~ 10 minutes

Evaluation Results:

Performance: PASS _____ FAIL _____ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: _____ 10/5/10
Operations Representative — Date

Approved by: _____ 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "SAT" or "UNSAT". Comments are required for any "UNSAT" classification. If a step is preceded by an asterisk (*), it is a critical step. **If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.**

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **classroom** and you are to **perform** the actions.

You are requested to **"talk through"** the JPM, stating the indications/parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- A Senior Reactor Operator (SRO) has been in Training to support the most recent Initial License Operator (ILO) Class.
- Now that the class is over, this individual wishes to return to crew rotation.
- A portion of VYOPF 0151.02, "Watch Standing License Reactivation Form", has been completed.
- Under instruction watches for the Control Room Supervisor position (CRS) occurred on the following dates and times. These dates and times are from the "Credit for Position Report" that the Operation Department Admin Specialist printed out on ESOMS.
    - October 7th, 2010 from 0600-1800 (This watch included a review of all shift turnover procedures)
    - October 8th, 2010 from 0600-1800
    - November 16th , 2010 from 1800-0600 (this watch included a plant tour from the Shift Manager)
    - November 17th , 2010 from 1800-0600

Initiating Cues:

- In accordance with AP 0151, "Responsibilities and Authorities of Operations Department Personnel", determine the requirements that must be met in order for the individual to resume duties on shift as a Senior Reactor Operator as follows:

- Perform the following sections of AP 0151:
  - 4.11.1.5
  - VYAPF 0151.01 will be completed using the guidance provided in step 4.11.4.3.2

- Route VYAPF 0151.01 and VYAPF 0151.02 to the Operations Manager for review

Task Standards:

- The operator determines the correct requirements to activate the SRO license and completes VYAPF 0151.01 to be forwarded to the Operations Manager for review.

Required Materials:

- AP 0151, "Responsibilities and Authorities of Operations Department Personnel"
- Handout: VYAPF 0151.01
- Handout: VYAPF 0151.02 (partially completed)
- ESOMS "Credit for Position Report" **(if available)**

Simulator Set-Up:

- N/A

Provide operator with Initial Conditions/Cue and handouts (Last 3 pages of this JPM).

TIME START: _____

Evaluation	Performance Steps	
SAT/UNSAT	**Step 1:**	**Obtain AP 0151, "Responsibilities and Authorities of Operations Department Personnel" and review section 4.11,**
	Standard:	Obtains AP 0151.
	EVALUATOR CUE:	When asked, provide a copy of AP 0151.
SAT/UNSAT	***Step 2:**	**IAW AP 0151, section 4.11.1.5.1.1 verify the individual is currently enrolled and participating in the Vermont Yankee Licensed Operator Requalification (LOR) Program or SRO Upgrade Program.**
	Standard:	Upon reviewing VYAPF 0151.02, the operator determines that the signature and date satisfy the requirements of being up to date in the License Operator Requalification Program.
SAT/UNSAT	***Step 3:**	**IAW AP 0151, section 4.11.1.5.1.2, verify the individual has stood 40 hours of parallel watches under the direct supervision of an operator or senior operator**
	Standard:	From the initial conditions, the operator determines that the individual stood 48 hours of under instruction watches at the CRS position.
	EVALUATOR NOTE:	The operator may incorrectly determine that 5-12 hour watches are required. This is the requirement for maintaining a license in a calendar quarter.
	EVALUATOR CUE:	If asked, inform the operator that the individual was logged in to ESOMS Narrative Log Shift Roster/

Evaluation	Performance Steps	
SAT/UNSAT	*Step 4:	**IAW AP 0151, section 4.11.1.5.1.2, verify the individual has completed a plant tour from an active license holder while standing the 40 hours of under instruction watches.**
	Standard:	From the initial conditions, the operator determines that a plant tour was conducted by the Field Support Supervisor (FSS) on November 16th, 2010. The FSS is an active license holder on shift.
SAT/UNSAT	*Step 5:	**IAW AP 0151, section 4.11.1.5.1.2, verify the individual has completed a review of all required shift turnover procedures while standing the 40 hours of under instruction watches.**
	Standard:	From the initial conditions, the operator determines that a review of the procedures was conducted on October 7th, 2010.
SAT/UNSAT	*Step 6:	**IAW AP 0151, section 4.11.1.5.1.2, the 40 hours will be documented on NRC License Maintenance Quarterly Summary, VYAPF 0151.01**
	Standard:	The operator documents the watches stood on VYOPF0151.01 using guidance of step 4.11.4.3.2 that was provided in the initiating cue.

Evaluation **Performance Steps**

SAT/UNSAT ***Step 9:** **IAW AP 0151, section 4.11.2.3.2, verify and/or record the reactivation information on VYOPF 0151.01.**

Standard: Operator verifies and or records the following information:

- Reactivation is **checked**
- Calendar quarter is checked **(Oct. 1-Dec.31)**
- Individual's name recorded

EVALUATOR CUE: Candidate's name is **Doug Favreau**

- Individual's position recorded **(CRS)**
- Number of 12 hour watches stood **(4-12 hour watches)**
- **Initial for verification** after ensuring the acceptance criteria (b) is met for reactivation: 40 hours of under instruction watches.

EVALUATOR CUE: If not available, inform the operator that the "Credit for Position Report" is being printed by the Operations Department Administrative Specialist and will be forwarded to the Operations Manager.

SAT/UNSAT **Step 10: Route the VYAPF 0151.01 and VYAPF 0151.02 forms to the Operations Manager or Designee for review**

Standard: Operator routes form VYAPF .01 to the Operations Manager for review.

***Critical Step**

TIME FINISH: _____

Terminating Cue: The operator informs the evaluator that the reactivation requirements are satisfied. The form is routed to the Operations Manager for review.

Evaluator Comments: _____

System Generic K/A's: 2.1.1 Knowledge of conduct of operations requirements. (RO 3.8, SRO 4.2)

EXAMINEE HANDOUT

Initial Conditions:

- A Senior Reactor Operator (SRO) has been in Training to support the most recent Initial License Operator (ILO) Class.
- Now that the class is over, this individual wishes to return to crew rotation.
- A portion of VYOPF 0151.02, "Watch Standing License Reactivation Form", has been completed.
- Under instruction watches for the Control Room Supervisor position (CRS) occurred on the following dates and times. These dates and times are from the "Credit for Position Report" that the Operation Department Admin Specialist printed out on ESOMS.
    - October 7th, 2010 from 0600-1800 (This watch included a review of all shift turnover procedures)
    - October 8th, 2010 from 0600-1800
    - November 16th , 2010 from 1800-0600 (this watch included a plant tour from the Shift Manager)
    - November 17th , 2010 from 1800-0600

Initiating Cues:

- In accordance with AP 0151, "Responsibilities and Authorities of Operations Department Personnel", Determine the requirements that must be met in order for the individual to resume duties on shift as a Senior Reactor Operator.
- Once the requirements are met, verify completed and/or complete as necessary, VYAPF 0151.01 IAW AP 0151, section 4.11.2 and forward to the Operations Manager for review.

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Determine Containment Venting Strategy while Implementing the Severe Accident Guidelines.
Failure Mode: N/A
Reference: Severe Accident Guidelines (SAGs)
Task Number: 31071403 (Direct Primary Containment Venting)

Task Performance: AO/RO/SRO _____ RO/SRO _____ SRO Only__X__

Sequence Critical: Yes ___ No _X

Time Critical: Yes ___ No _X

Operator Performing Task:_____

Examiner:_____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation_____ Performance__X__ Discuss_____

Setting: Classroom __X__ Simulator_____ Plant_____

Performance Expected Completion Time: __10 minutes

Evaluation Results:

Performance: PASS _____ FAIL _____ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: MD Hasko 10/5/10
Operations Representative — Date

Approved by: M.C. STUPAK 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "SAT" or "UNSAT". Comments are required for any "UNSAT" classification. If a step is preceded by an asterisk (*), it is a critical step. **If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.**

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **classroom** and you are to **perform** the actions.

You are requested to **"talk through"** the JPM, stating the indications/parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- The plant automatically scrammed from normal full power operations due to a large break loss of coolant accident (LOCA).
- Equipment malfunctions have resulted in the inability to maintain Adequate Core Cooling (ACC) and the Severe Accident Guidelines (SAGs) have been entered.
- Containment conditions are as follows:
  - Torus water level is 20 feet and slowly rising
  - Torus O_2: 4% and steady
  - Torus H_2: 5% and steady
  - Drywell O_2: 6% and steady
  - Drywell H_2: 5% and steady
- Radiological conditions are as follows:
  - Stack High Range Monitor (Gas 3 [RM-17-155]) is reading 175 mR/hr and slowly rising
  - Dose assessment using actual meteorology indicates doses of 105 mRem/hr and steady at the Site boundary
  - Field surveys are in progress
- The Emergency Plan organization is NOT yet manned

Initiating Cues:

- In accordance with the SAGs, determine the following for each the Torus and Drywell **independent of one another**:(Fill in chart on handout)
  - Can high radiation isolations be defeated?
  - What is/are the procedures(s) that can be used to vent containment?
  - What is the criterion for securing venting?
  - Can release rate limits be exceeded?

Task Standards:

- The correct SAG-2 thresholds for H_2/O_2 and the subsequent containment venting actions have been determined and all questions from the initiating cue answered.

Required Materials:

- Severe Accident Guideline (SAG)-2, "RPV, Containment, and Radioactivity Release Control"
- AP 3125, "Emergency Plan Classification and Action Level Scheme", Appendix "A" (Hot)
- EAL Bases document
- Technical Specifications

Simulator Set-Up:

- N/A

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

Evaluation	Performance Steps	
SAT/UNSAT	**Step 1:**	**Obtain SAG-2 flowchart and reviews the flowpath for Hydrogen and Oxygen concentration.**
	Standard:	Obtains SAG-2 Flowchart.
SAT/UNSAT	***Step 2:**	**From the given Hydrogen and Oxygen concentrations, the operator determines the required action levels for containment venting/purge operations in the Drywell and Torus:**
	Standard:	From the given Hydrogen and Oxygen concentrations, the operator determines the following: ▪ Action level 2 for the Drywell ▪ Action level 4 for the Torus
SAT/UNSAT	**Step 3:**	**Obtains and reviews AP 3125, Appendix "A" (Hot) to review the Emergency Action Level thresholds for current radiological conditions.**
	Standard:	Some action levels have criteria for securing venting operations based on reaching General Emergency levels for effluent releases. Based on the initial conditions, the operator determines that the plant is at Site Area Emergency levels for effluent releases with plenty of margin to the General Emergency levels.

Evaluation	Performance Steps

SAT/UNSAT ***Step 4: Based on the action level for the Drywell, the operator answers the given questions**

Standard: The operator answers the Drywell questions as follows (Action level 2):

- Can high radiation isolations be defeated? **YES**
- What is/are the procedures(s) that can be used to vent containment? **The Drywell is vented using OP 2115, OP 2125, or OE 3107.**
- What is the criterion for securing venting?
  - **Hydrogen no longer detected in the Drywell AND EITHER Drywell Oxygen is <5% OR Hydrogen no longer detected in the Torus -or-**
  - **RPV water level maintained above TAF AND off site release rates reach General Emergency level.**
- Can release rate limits be exceeded? **NO (below the limit already)**

SAT/UNSAT ***Step 5: Based on the action level for the Torus, the operator answers the given questions**

Standard: The operator answers the Torus questions as follows (Action level 4):

- Can high radiation isolations be defeated? **NO**
- What is/are the procedures(s) that can be used to vent containment? With Torus level at 18.5 feet, **the Torus is vented using OP 2115 or OP 2125**
- What is the criterion for securing venting?
  - **Hydrogen no longer detected in the Torus OR Off Site release rate reaches the LCO.**
- Can release rate limits be exceeded? **NO (below the limit already)**

***Critical Step**

TIME FINISH: _____

Terminating Cue: The operator informs the evaluator that all the questions asked in the initiating cue have been answered.

Evaluator Comments: _____

System Generic K/A's: 2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc. (RO 3.9, SRO 4.2)

EXAMINEE HANDOUT

Initial Conditions:

- The plant automatically scrammed from normal full power operations due to a large break loss of coolant accident (LOCA).
- Equipment malfunctions have resulted in the inability to maintain Adequate Core Cooling (ACC) and the Severe Accident Guidelines (SAGs) have been entered.
- Containment conditions are as follows:
  - Torus water level is 20 feet and slowly rising
  - Torus O_2: 4% and steady
  - Torus H_2: 5% and steady
  - Drywell O_2: 6% and steady
  - Drywell H_2: 5% and steady
- Radiological conditions are as follows:
  - Stack High Range Monitor (Gas 3 [RM-17-155]) is reading 175 mR/hr and slowly rising
  - Dose assessment using actual meteorology indicates doses of 105 mRem/hr and steady at the Site boundary
  - Field surveys are in progress
- The Emergency Plan organization is NOT yet manned

Initiating Cues:

- In accordance with the SAGs, determine the following for each the Torus and Drywell **independent of one another**: (Fill in chart on handout)
  - Can high radiation isolations be defeated?
  - What is/are the procedures(s) that can be used to vent containment?
  - What is the criterion for securing venting?
  - Can release rate limits be exceeded?

EXAMINEE HANDOUT

QUESTIONS	DRYWELL	TORUS
Can high radiation isolations be defeated?		
What is/are the procedures(s) that can be used to vent containment?		
What is the criterion for securing venting?		
Can release rate limits be exceeded?		

ONTAINMENT
'Y RELEASE

IENT TEMPERATURE

st radiation is below 14 mr/hr,
C

s and low RPV water level
3)

ture (Detail I):

l areas except those needed for.

DR IMENT RADIATION

l level (Detail I):

areas except those needed for.

< 5% **ng HVAC exhaust:**

solation.

Drywell H_2		
	None	No action
	< 6%	①
	> 6% or unknown	

MENT WATER LEVEL

er level (Detail I):

drea water level below max

dead areas except systems

H-2

'Y RELEASE

ses outside primary and
ystems needed for other

■ IF Offsite release rate is
THEN Vent and purge the dr down

☛ OK to defeat isolations excep

1. Sample the containment a
2. Vent the drywell using OP
3. IF The drywell can
THEN Purge the drywe
4. Stop drywell vent and pur
   - Hydrogen is no longer
   OR
   - Offsite release rate re

H-3

Max Normal Operating Limit	Max Safe Operating Limit
mr/hr	mr/hr
100	1000
100	1000
100	1000
100	1000
100	1000
100	1000
100	1000
100	1000
100	1000
100	1000

■ IF Offsite release rate is
level,
OR RPV water level cannc
THEN Vent and purge the dr

☛ OK to defeat all isolations.

1. Vent the drywell using OP 21
2. IF The drywell can be ve
THEN Purge the drywell with
OP 2125.
3. Stop drywell vent and purge
   - Hydrogen is no longer de
   AND EITHER
   - Drywell oxygen is less
   OR
   - Hydrogen is no longer
   - **OR** RPV water level can
   release rate reaches Gen

H-4

■ Vent and purge the drywell:

☛ OK to defeat all isolation

☛ OK to exceed release ra

1. Vent the drywell using OP 21
2. IF The drywell can be ve
THEN Purge the drywell wit
OP 2115 or OP 2125

☛ Use whichever will reduc
5% faster

3. IF Permitted by SAG-1,
THEN Operate drywell spra

H-5

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Administrative Review of OPST-CS-4123-02A, "Core Spray 'A' MOV/Injection Valve Operability Test", Surveillance.
Failure Mode: Administrative deficiencies and out of spec IST value associated with paperwork
Reference: OPST-CS-4123-02A, "Core Spray 'A' MOV/Injection Valve Operability Test"
Task Number: 34202603 (Review Results of Surveillance Test)

Task Performance: AO/RO/SRO _____ RO/SRO _____ SRO Only__X__

Sequence Critical: Yes ___ No _X

Time Critical: Yes ___ No _X

Operator Performing Task:_____

Examiner:_____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation_____ Performance__X__ Discuss_____

Setting: Classroom __X__ Simulator_____ Plant_____

Performance Expected Completion Time: 8 minutes

Evaluation Results:

Performance: PASS _____ FAIL _____ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: MO Hanlon 10/5/10
Operations Representative — Date

Approved by: K. STOPAK 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "SAT" or "UNSAT". Comments are required for any "UNSAT" classification. If a step is preceded by an asterisk (*), it is a critical step. **If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.**

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **classroom** and you are to **perform** the actions.

You are requested to **"talk through"** the JPM, stating the indications/parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- The plant is operating at 100% RTP
- OPST-CS-4123-02A, Core Spray 'A' MOV/Injection Valve Operability Test", surveillance was just completed to satisfy the monthly requirement.
- Core Spray "A" is administratively inoperable IAW OPST-CS-4123-02A, step 9.2. (T.S. 3.5.A).

Initiating Cues:

- In accordance with OPST-CS-4123-02A, Core Spray 'A' MOV/Injection Valve Operability Test", perform section 12.4, "SRO Review".
- Step 9.13 will not be signed until the CRS has performed the review of the surveillance.

Task Standards:

Section 12.4 complete and signed off to be forwarded to the Shift Manger for review.

Required Materials:

- OPST-CS-4123-02A, Core Spray 'A' MOV/Injection Valve Operability Test"
- Step 8 prerequisites are completed
- Step 9 provided (placekept) to the candidate completed with the following discrepancies:
  - Step 9.6.3 missing final Torus volume
  - Step 9.7.2.A missing an initial
- Step 9.13 not filled in until after the CRS review is complete
- Step 12.1.1 table filled in with RO and IV names/signatures
- Step 12.2 completed
- Attachment 1 completed with open time for CS-12A UNSAT at 7.70 seconds

Simulator Set-Up:

- N/A

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

Evaluation	**Performance Steps**
SAT/UNSAT	**Step 1: Obtain the completed OPST-CS-4123-02A for review.** Standard: Obtains OPST-CS-4123-02A and reviews section 12.4 **EVALUATOR NOTE:** When the operator asks, provide a copy of the completed surveillance.
SAT/UNSAT	***Step 2: IAW step 12.4.1, VERIFY all data, initial AND signature blocks are complete.** Standard: The operator notices the following deficiencies with the surveillance paperwork: ▪ final torus water volume missing for step 9.6.3 ▪ missing initial for step 9.7.2.A The operator **does NOT initial** the review for this step until the paperwork is fixed. **EVALUATOR CUE:** Inform the operator that the missing initial and data has been filled in by the operators that performed the surveillance. **This step can now be initialed** for and the review continued.
SAT/UNSAT	**Step 3: IAW step 12.4.2, VERIFY personnel performing activities are recorded in Step 12.1.1.** Standard: The operator verifies personnel performing activities are recorded in step 12.1.1 AND **initials this review** as complete.

Evaluation	Performance Steps

SAT/UNSAT ***Step 4:** **IAW step 12.4.3, VERIFY Acceptance Criteria met in Section 11.0.**

Standard: The operator verifies not ALL acceptance criterion is met for section 11.0 on Attachment 1. The following deficiency is noted:

- 11.4 PUMP DISCHARGE CS-12A does NOT stroke open within IST Acceptable as recorded on Attachment 1.
- Notes that the IST Review for CS-12A in section 12.2 is subsequently incorrect.

The operator **does NOT initial the review** for this step and continues with step 12.4.4.

SAT/UNSAT ***Step 5:** **IAW step 12.4.4, takes action if acceptance criterion was not met.**

Standard: The operator performs the following:

- Informs the Shift Manger
- Ensure CR and WR have been initiated
- Record CR and WR in the "Remarks" section 12.3

AND **initials this review as complete**

EVALUATOR NOTE/CUE: If asked, inform the operator that the Shift Technical Advisor has written a CR and initiated a WR. Provide the numbers to the operator to fill in on section 12.4.4:

- **CR-VTY-2010-XXXX**
- **WR Number: YYYYY**

SAT/UNSAT **Step 6:** **IAW step 12.4.5, RECORD any additional required corrective OR compensatory actions in Remarks section.**

Standard: The operator notes and required corrective action or compensatory measure. This **may include documenting that CS-12A did not meet the IST requirement for opening. Initials this review** as complete.

Evaluation	Performance Steps

SAT/UNSAT **Step 7:** **IAW step 12.4.6, IF reactor pressure is LESS THAN 400 psig in Step, then reschedule…**

Standard: The operator verifies step 9.7.1 was done at a pressure >400 psig and **marks step 12.4.6 as "N/A"**

SAT/UNSAT **Step 8:** **IAW step 12.4.7, ENSURE results are entered in Control Room Log Book.**

Standard: The operator verifies entry in the Control Room Log Book and **initials this review** as complete.

EVALUATOR CUE: If asked, inform the operator that the Shift Manager made an entry in the Control Room Log Book (including the updating results of the surveillance).

SAT/UNSAT **Step 9:** **IAW step 12.4.8, RECORD date AND time SRO Review complete.**

Standard: The operator signs and records the date and time the SRO Review is complete: **Signature, printed name, current date and time**.

***Critical Step**

TIME FINISH: _____

Terminating Cue: Section 12.4 of OPST-CS-4123-02A is complete and routed to the Shift Manager for review (step 12.5).

Evaluator Comments:

System Generic K/A's: 2.2.12 Knowledge of surveillance procedures (RO 3.7, SRO 4.1)

EXAMINEE HANDOUT

Initial Conditions:

- The plant is operating at 100% RTP
- OPST-CS-4123-02A, Core Spray 'A' MOV/Injection Valve Operability Test", surveillance was just completed to satisfy the monthly requirement.
- Core Spray "A" is administratively inoperable IAW OPST-CS-4123-02A, step 9.2. (T.S. 3.5.A).

Initiating Cues:

- In accordance with OPST-CS-4123-02A, Core Spray 'A' MOV/Injection Valve Operability Test", perform section 12.4, "SRO Review".
- Step 9.13 will not be signed until the CRS has performed the review of the surveillance.

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Determine the Radiological Protection Requirements for Entering a Locked High Radiation Area.
Failure Mode: N/A
Reference: EN-RP-101, "Access Control for Radiologically Controlled Areas"
Task Number: 2990100301 (Apply Radiological and Contamination Safety Procedures)

Task Performance: AO/RO/SRO _____ RO/SRO ___X___ SRO Only_____

Sequence Critical: Yes ___ No _X

Time Critical: Yes ___ No _X

Operator Performing Task:_____

Examiner:_____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation_____ Performance__X___ Discuss_____

Setting: Classroom ___X___ Simulator_____ Plant_____

Performance Expected Completion Time: __9 minutes

Evaluation Results:

Performance: PASS _____ FAIL _____ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: MD Hardo 10/5/10
Operations Representative — Date

Approved by: K. STUPAK 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "SAT" or "UNSAT". Comments are required for any "UNSAT" classification. If a step is preceded by an asterisk (*), it is a critical step. **If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.**

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **classroom** and you are to **perform** the actions.

You are requested to **"talk through"** the JPM, stating the indications/parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- The plant is shutdown for a refueling outage.
- Fuel moves from the Spent Fuel Pool to and from the RPV are in progress
- A leak develops resulting in the loss of Fuel Pool level. The Control Room enters and directs actions of ON 3157, "Loss of Fuel Pool Level".
- The source of the leak has been found and secured.
- Makeup water will be provided from the Condensate Transfer System IAW ON 3157, operator action 10a.
- The required valve manipulations will take a total of 20 minutes in the area to restore fuel pool level to normal.
    - **NOTE 1:** For the purpose of this scenario, the operator is at the location of the valves in communication with the SRO on the refuel floor for the entire 20 minutes
    - **NOTE 2:** assume a total exposure of 5 mrem is collected by the AO transitioning to and from the valve locations.

Initiating Cues:

- For the given scenario and RWP Index provided, determine the following:
  - Which valves are operated?
  - Which type of radiologically controlled area the valves are located in?
  - Which RWP and task to enter under?
  - Will the dose alarm be received by the individual performing the valve manipulations?

Task Standards:

- The answers to the initiating cues have been provided.

Required Materials:

- OP 3157, "Loss of Fuel Pool Level"
- OP 2184, Normal Fuel Pool Cooling System", Appendix "A"
- RWP Index
- RWP 2010-0053, task #7
- ESOMS Equipment Manager program available
- Survey map of the Fuel Pool Heat Exchanger Room with valve locations identified by Operations and RP.

Simulator Set-Up:

- N/A

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

Evaluation	Performance Steps
SAT/UNSAT	***Step 1:** **Obtain ON 3157, "Loss of Fuel Pool Level" to determine which valves are required to be operated.**
	Standard: Obtains ON 3157, and from operator action 10a determines that with the fuel moves in progress, the fuel pool gates are removed. FPC-28, Reactor Well Fill from Condensate Transfer, and FPC-53, Reactor Well Recirculation Valve, are required to be operated to provide makeup flow.
	EVALUATOR CUE: When asked, provide the Operator with a copy of ON 3157.
SAT/UNSAT	***Step 2:** **Operator determines where these valves are located**
	Standard: The operator can use a variety of references to determine the location of the valves. ▪ OP 2184 Appendix "A" lists FPC -28 and FPC in the "Reactor Building (Fuel Pool Pump Area)" ▪ ESOMS Equipment Manager lists these valves in the "RB 303/Fuel Pool HX Room" ▪ Operator knowledge (see Evaluator Note)
	EVALUATOR NOTE: If the operator just states where the valves are located based on prior knowledge, the evaluator may elect to ask a follow-up to have the operator prove it.
	EVALUATOR NOTE: ESOMS Equipment Manager is a program that can be accessed from the START menu: Programs/Nuclear ESOMS/Equipment Database. From here, each operator has their own login.

Evaluation **Performance Steps**

SAT/UNSAT * **Step 3:** **Operator reviews RWP Index to determine the required RWP and the type of radiologically controlled area.**

Standard: The operator reviews the index and determines that the Fuel Pool Heat Exchanger Room is listed under RWP 2010-0053 and that the RWP controls entry in the Locked High Radiation Area (LHRA).

EVALUATOR CUE: When asked, provide the Operator with a copy the RWP Index.

SAT/UNSAT ***Step 4:** **Operator reviews the RWP and determines the task number for which he/she will enter under.**

Standard: The operator reviews the RWP and determines that task number seven applies to the Fuel Pool Cooling Heat Exchanger Room.

EVALUATOR CUE: When asked, provide the Operator with a copy RWP 2010-0053.

SAT/UNSAT ***Step 5:** **Operator reviews the survey map to determine how much dose would be received for the required time to perform the valve operations**

Standard: The operator predetermines that he/she will receive XX mr in the twenty minutes it takes to perform the valve operations.

This dose for the valve operations plus the 5mrem accumulated transitioning to and from the HX room are added and compared to the ED alarm setpoint.

The operator determines that the total dose accumulated for the Fuel Pool makeup water transfer operation will not result in an ED alarm for total dose.

EVALUATOR NOTE: If the operator operator chose the wrong valves, it would result in an ED alarm for total dose.

***Critical Step**

TIME FINISH: _____

Terminating Cue: Answers to the questions have been provided to the evaluator

Evaluator Comments:

System Generic K/A's: 2.3.7 Ability to comply with radiation work permit requirements during normal or abnormal conditions (RO 3.5, SRO 3.6)

EXAMINEE HANDOUT

Initial Conditions:

- The plant is shutdown for a refueling outage.
- Fuel moves from the Spent Fuel Pool to and from the RPV are in progress
- A leak develops resulting in the loss of Fuel Pool level. The Control Room enters and directs actions of ON 3157, "Loss of Fuel Pool Level".
- The source of the leak has been found and secured.
- Makeup water will be provided from the Condensate Transfer System IAW ON 3157, operator action 10a.
- The required valve manipulations will take a total of 20 minutes in the area to restore fuel pool level to normal.
    - **NOTE 1:** For the purpose of this scenario, the operator is at the location of the valves in communication with the SRO on the refuel floor for the entire 20 minutes
    - **NOTE 2:** assume a total exposure of 5 mrem is collected by the AO transitioning to and from the valve locations.

Initiating Cues:

- For the given scenario and RWP Index provided, determine the following:
    - Which valves are operated?
    - Which type of radiologically controlled area the valves are located in?
    - Which RWP and task to enter under?
    - Will the dose alarm be received by the individual performing the valve manipulations?

1. Which valves are operated? _____

2. What type of radiologically controlled area are the valves located in? _____

3. Which RWP and task number is the operator entering under? **RWP #:** _____

   Task #: _____

4. Will the Electronic Dosimeter (ED) dose alarm be received by the individual performing the valve manipulations? **Circle answer**

   YES / NO

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Emergency Action Level Classification
Failure Mode: N/A
Reference: AP 3125, "Emergency Plan Classification"
Task Number: 34401703 (Analyze Indications to Determine if an Emergency Plan Event is in Progress)

Task Performance: AO/RO/SRO _____ RO/SRO _____ SRO Only X

Sequence Critical: Yes ___ No X

Time Critical: Yes X No ___

Operator Performing Task:_____

Examiner:_____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation_____ Performance X Discuss_____

Setting: Classroom X Simulator_____ Plant_____

Performance Expected Completion Time: 8 minutes

Evaluation Results:

Performance: PASS _____ FAIL _____ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: _____ 10/5/10
Operations Representative — Date

Approved by: _____ 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "SAT" or "UNSAT". Comments are required for any "UNSAT" classification. If a step is preceded by an asterisk (*), it is a critical step. **If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.**

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **classroom** and you are to **perform** the actions.

You are requested to **"talk through"** the JPM, stating the indications/parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- With the plant operating at 100% RTP and end of cycle, a steam leak in the steam tunnel resulted in 3 of 4 Main Steam Lines isolating. MS-80D and MS-86D failed to isolate and could not be manually shut. Partial rod insertion had resulted in power remaining at 60%.

- The applicable Emergency Operating Procedures have been entered and current plant conditions are as follows:
  - RPV water level is being controlled in the -19 inches to +6 inches and power is now 14%.
  - Pressure is cycling near the SRV setpoints
  - SLC failed to inject and rod insertion appendices are being performed
  - Drywell pressure is 9.8 psig and steady
  - Drywell radiation levels as read on the Drywell Hi Range Radiation Monitors (RM-16/19-1A/B) are 1100 R/hour and slowly rising
  - Chemistry samples revealed primary coolant activity of 320 µCi/gm I-131 dose equivalent
  - Torus level is 11.5 feet and rising slow
  - Torus temperature is 164°F and steady
  - Steam Tunnel temperatures are at 180°F and rising slow

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "SAT" or "UNSAT". Comments are required for any "UNSAT" classification. If a step is preceded by an asterisk (*), it is a critical step. **If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.**

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **classroom** and you are to **perform** the actions.

You are requested to **"talk through"** the JPM, stating the indications/parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- With the plant operating at 100% RTP and end of cycle, a steam leak in the steam tunnel resulted in 3 of 4 Main Steam Lines isolating. MS-80D and MS-86D failed to isolate and could not be manually shut. Partial rod insertion had resulted in power remaining at 80%.

- The applicable Emergency Operating Procedures have been entered and current plant conditions are as follows:
  - RPV water level is being controlled in the -19 inches to +6 inches and power is now 14%.
  - Pressure is cycling near the SRV setpoints
  - SLC failed to inject and rod insertion appendices are being performed
  - Drywell pressure is 9.8 psig and steady
  - Drywell radiation levels as read on the Drywell Hi Range Radiation Monitors (RM-16/19-1A/B) are 1100 R/hour and slowly rising
  - Chemistry samples revealed primary coolant activity of 320 µCi/gm I-131 dose equivalent
  - Torus level is 11.5 feet and rising slow
  - Torus temperature is 164°F and steady
  - Steam Tunnel temperatures are at 180°F and rising slow

Initiating Cues:

- As the Shift Manager, in accordance AP 3125, "Emergency Plan Classification and Action Level Scheme", step 4.2, to make the highest Emergency Action Level (EAL) classification required for the current plant conditions
- You have **15 minutes** to make the classification

Task Standards:

- The correct EAL classification has been made and justification for the criteria used explained to the evaluator.

Required Materials:

- AP 3125, "Emergency Plan Classification and Action Level Scheme"
- EAL Bases document
- EOP-2, "RPV ATWS Control"
- P &ID G-191167, "Flow Diagram Nuclear Boiler"

Simulator Set-Up:

- N/A

Evaluation **Performance Steps**

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____ **(15 minutes from the start of JPM to document the highest EAL classification for current plant conditions)**

EVALUATOR NOTES: Based on the thought process used by the operator in determining the highest EAL classification, a review of other EALs while determining the highest may be captured in the remarks section.

If at any time throughout this JPM the Operator wishes to review the EAL Bases document, provide this to the Operator.

There is ONLY one EAL classification for a General Emergency associated with this JPM.

SAT/UNSAT **Step 1: Obtain AP 3125, "Notification of Significant Events" and review steps 4.1 and 4.2**

Standard: Obtains AP 3125 and reviews steps 4.1 and 4.2

EVALUATOR CUE: Provide a copy of AP 3125 to the operator when asked.

SAT/UNSAT **Step 2: Obtains and reviews AP 3125, Appendix "A" (Hot) to review the Emergency Action Level thresholds for current plant conditions.**

Standard: Operator determines that plant conditions warrant the use of AP 3125, Appendix "A" (HOT) and

EVALUATOR CUE: Provide a copy of AP 3125 and/or AP 3125 Appendix "A" (Hot) to the operator when asked.

Evaluation **Performance Steps**

SAT/UNSAT ***Step 3:** **Operator determines that there is a loss of the Primary Containment barrier IAW AP 3125, Appendix A, Table F-1.**

Standard: The operator determines that an open Main Steam Line that cannot be shut manually following a failure to auto close constitutes " Failure of **all** valves in **any** one line to close **AND** Direct downstream pathway to the environment exists after PC isolation signal" (steam leak in the steam tunnel).

SAT/UNSAT ***Step 4:** **Operator determines that there is a loss of the Reactor Coolant System barrier IAW AP 3125, Appendix A, Table F-1.**

Standard: Operator determines that there is a loss based on any ONE of the following:

- RPV level cannot be restored and maintained > TAF or **cannot** be determined **OR**
- DW High Rad Monitor (RM-16-19-1A/B) > 10 R/hr

EVALUATOR NOTE: Operator needs to understand that high power ATWS that challenges containment will result in water level being intentionally lowered to <TAF. In this case, a SAE will always apply under EAL SS2.1. **(See EAL bases for this threshold)**

SAT/UNSAT ***Step 5:** **Operator determines that there is a potential loss of the Fuel Clad barrier IAW AP 3125, Appendix A, Table F-1.**

Standard: Operator determines that there is a potential loss based on RPV level cannot be restored and maintained > TAF or **cannot** be determined **OR**

There is a loss of Fuel Clad barrier based on Primary Coolant Activity.

EVALUATOR NOTE: Operator needs to understand that high power ATWS that challenges containment will result in water level being intentionally lowered to <TAF. In this case, a SAE will always apply under EAL SS2.1. **(See EAL bases for this threshold)**

Evaluation	Performance Steps
SAT/UNSAT	*Step 6: Operator determines that the criteria has been satisfied for Emergency Action Level (EAL) classification FG1.1.
	Standard: The operator declares EAL FG1.1.
	EVALUATOR NOTES: Ensure the Operator explains the criteria used in determining that FG1.1 applies: Loss of Reactor Coolant System and Primary Containment barriers with the potential Loss of the Fuel Clad barrier. Verifying this with the Operator does not have to be within the 15 minutes to declare the correct EAL.
	EVALUATOR CUE: Inform the Operator that the STA will backup the classification. The JPM is complete.

***Critical Step**

TIME FINISH: _____

TOTAL TIME to declare EAL: _____ (Criteria: ≤ 15 minutes)

Terminating Cue: The operator makes the highest EAL classification based on current plant conditions.

Evaluator Comments: _____

System Generic K/A's: 2.4.41 Knowledge of the emergency action level thresholds and classifications (RO 2.9/SRO 4.6)

EXAMINEE HANDOUT

Initial Conditions:

- With the plant operating at 100% RTP and end of cycle, a steam leak in the steam tunnel resulted in 3 of 4 Main Steam Lines isolating. MS-80D and MS-86D failed to isolate and could not be manually shut. Partial rod insertion had resulted in power remaining at 60%.

- The applicable Emergency Operating Procedures have been entered and current plant conditions are as follows:
  - RPV water level is being controlled in the -19 inches to +6 inches and power is now 14%.
  - Pressure is cycling near the SRV setpoints
  - SLC failed to inject and rod insertion appendices are being performed
  - Drywell pressure is 9.8 psig and steady
  - Drywell radiation levels as read on the Drywell Hi Range Radiation Monitors (RM-16/19-1A/B) are 1100 R/hour and slowly rising
  - Chemistry samples revealed primary coolant activity of 320 µCi/gm I-131 dose equivalent
  - Torus level is 11.5 feet and rising slow
  - Torus temperature is 164°F and steady
  - Steam Tunnel temperatures are at 180°F and rising slow

Initiating Cues:

- As the Shift Manager, in accordance AP 3125, "Emergency Plan Classification and Action Level Scheme", step 4.2, to make the highest Emergency Action Level (EAL) classification required for the current plant conditions
- You have **15 minutes** to make the classification **(document EAL below)**

EAL Classification: _____

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
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2010 ILO NRC EXAM

Task Identification:

Title: Transfer the Mode Switch to Run
Failure Mode: N/A
Reference: OP 0105, "Reactor Operations"
Task Number: 2017400201 (Perform Heating and Pressurization of the Reactor)

Task Performance: AO/RO/SRO ___ RO/SRO Only _X_ SE Only ___

Sequence Critical: Yes _X_ No ____

Time Critical: Yes ____ No _X_

Individual Performing Task: _____

Examiner: _____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation ___ Performance _X_ Discuss ___

Setting: Classroom ___ Simulator _X_ Plant

Performance Expected Completion Time: 15 minutes

Evaluation Results:

Performance: PASS ___ FAIL ___ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: MD Hamp 10/5/10
Operations Representative — Date

Approved by: K. STUPAK 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- A plant startup is in progress with reactor power just below 2% on the APRMs. The crew is currently performing actions as directed IA OP 0105, Phase 2D.
- The Mechanical Vacuum Pump (Hogger) has been secured

Initiating Cues:

- You have been directed by the CRS to transfer the Mode Switch to RUN IAW OP 0105, "Reactor Operations", phase 2D, step 10a → 10g.
- Phase 2D, step 10e, is in progress and is being performed by other operators.
- OP 2111, CRD Hydraulic System, section AA placekeeping for rod movement has been suspended by the CRS.

Task Standards:

- Mode switch has been transferred to RUN

Required Materials:

- OP 0105, placekept up to Phase 2D, step 10a.
- A2 rod sequence placekept up to rod group 26, control rod 18-27

Simulator Set-Up:

- IC- **811**
- Ensure CRD parameters are in band

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

Evaluation	Performance Steps
SAT/UNSAT	**Step 1: Obtain OP 0105 and review procedure**
	Standard: Operator obtains procedure and reviews requirements
	EVALUATOR CUE: When the operator asks, provide a copy of the procedure and inform him/her all prerequisites are met.
SAT/UNSAT	***Step 2: IAW OP 0105, Phase 2D, step 10a, pull control rods until all APRMs are indicating onscale.**
	Standard: IAW the A2 rod with draw sequence, the operator withdraws control rods to bring all APRMs indicating onscale
	EVALUATOR NOTE: The goal is to not only bring onscale but to also clear the downscale alarms. Based on how the operator reads the APRM recorders, this may vary from 2 control rods to several (operator dependent).
SAT/UNSAT	**Step 3: IAW OP 0105, Phase 2D, step 10b, Check that the APRMs are reading above 2% power by shifting the recorder select switches one at a time to APRM and returning them to the IRM positions.**
	Standard: Operator verifies that all APRMs are reading above 2% power by operating the 6 APRM/IRM shared recorders one at a time. After the operation of each one, the recorder is returned to the IRM position.

Evaluation **Performance Steps**

SAT/UNSAT ***Step 4:** **IAW OP 0105, Phase 2D, step 10c, check that all APRM downscale alarms are clear**

Standard: Operator verifies all downscale alarms are clear on the bench board for each APRM AND annunciator 5-M-4, "APRM DWNSCL" clears

SAT/UNSAT ***Step 5:** **IAW OP 0105, Phase 2D, step 10d, smartly transfer Reactor Mode Switch to RUN**

Standard: Operator rotates the Mode switch clockwise to the RUN position

EVALUATOR NOTE: Failure to ensure APRM downscale alarms have cleared prior to this step will result in an IRM HI-Hi signal. (IRM high flux trip and inoperative trip are bypassed in the RUN mode only if the APRM downscale trips have cleared)

SAT/UNSAT **Step 6:** **IAW OP 0105, Phase 2D, step 10e, ensure actions to inert the containment and establish Drywell to Torus ΔP per OP 2115 are in progress or initiated.**

EVALUATOR CUE: If asked, remind the operator that this step is being performed by other operators and he/she shall continue with Phase 2D, step 10f.

SAT/UNSAT ***Step 7:** **IAW OP 0105, Phase 2D, step 10f, transfer recorder switches to APRM channels.**

Standard: Operator rotates each IRM/APRM recorder clockwise to the APRM position to allow APRM monitoring on each recorder.

Evaluation **Performance Steps**

SAT/UNSAT ***Step 8:** **IAW OP 0105, Phase 2D, step 10g, fully withdraw all IRM detectors**

Standard: Operator performs the following actions to withdraw IRM detectors:

- Depresses "SRM/IRM Detector Position" pushbutton on CRP 9-5
- Depresses "Channel A through F IRM/Select" pushbutton on CRP 9-5
- Depresses "Drive Out" pushbutton on CRP 9-5

EVALUATOR NOTE: The operator may chose to ensure IRM withdraw by observing IRM recorders. Proper IRM withdrawal may be determined by selecting each IRM channel for recording as its respective chamber is withdrawn and verify that indicated level is decreasing

EVALUATOR NOTE: The operator may reference OP 2131, step A.11 for withdrawing IRMs however this is not required since it is skill of the craft IAW EN-OP-115.

EVALUATOR CUE: The IRMs will take some time to drive out. It is at the discretion of the evaluator to inform the operator that no other actions are required for this JPM.

* Critical Step

TIME FINISH: _____

Terminating Cue: OP 0105, Phase 2D, steps 10a → 10g are complete (Mode switch is in RUN, monitoring APRM power with the IRM detectors withdrawn).

Evaluator Comments:

System K/A: Average Power Range Monitor System (215005) A4.01 (Ability to manually operate and/or monitor in the Control Room: IRM/APRM recorder. RO3.2/SRO3.1)

EXAMINEE HANDOUT

Initial Conditions:

- A plant startup is in progress with reactor power just below 2% on the APRMs. The crew is currently performing actions as directed IA OP 0105, Phase 2D.

Initiating Cues:

- You have been directed by the CRS) to transfer the Mode Switch to RUN IAW OP 0105, "Reactor Operations", phase 2D, step 10a → 10g.
- Phase 2D, step 10e, is in progress and is being performed by other operators.

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
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2010 ILO NRC EXAM

Task Identification:

Title: Respond to a failed EPR and MPR
Failure Mode: Pressure Oscillations on MPR/Both regulators have failed
Reference: OT 3115, "Reactor Pressure Transients"
Task Number: 2000180501 (Respond to High Reactor Pressure)

Task Performance: AO/RO/SRO ___ RO/SRO Only _X_ SE Only ___

Sequence Critical: Yes _X_ No ____

Time Critical: Yes ____ No _X_

Individual Performing Task: _____

Examiner: _____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation ___ Performance _X_ Discuss ___

Setting: Classroom ___ Simulator _X_ Plant

Performance Expected Completion Time: 6 minutes

Evaluation Results:

Performance: PASS ___ FAIL ___ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: _____ 10/5/10
Operations Representative — Date

Approved by: K. STOJAK 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- The plant was operating at 84% RTP and 984 psig when a failed EPR has resulted in high reactor pressure
- The CRS has entered OT 3115, "Reactor Pressure Transients"

Initiating Cues:

- You have been directed as the **OATC** by the CRS to perform OT 3115, step 2.

Task Standards:

- Manual scram inserted for failed EPR and MPR

Required Materials:

- OT 3115, "Reactor Pressure Transients" placekept up to step 2

Simulator Set-Up:

- IC- **812**
- **Run** on Scenario file NRC JPM S-2
- MPR stroke set at 68%
- OT 3115 placekept up to step 2

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

Evaluation	Performance Steps
SAT/UNSAT	**Step 1: Obtain OT 3115 and review procedure**
	Standard: Operator obtains procedure and reviews requirements
	EVALUATOR CUE: When the operator asks, provide a copy of the procedure.
SAT/UNSAT	**Step 2: IAW OT 3115, step 2a1, verify the MPR has taken control**
	Standard: Operator verifies the white light above the MPR control switch is illuminated and that pressure is being controlled at a higher pressure on the MPR.
SAT/UNSAT	***Step 3: IAW OT 3115, step 2a2, place the EPR CUTOUT SWITCH on CRP 9-7 to CUTOUT**
	Standard: Operator places the EPR CUTOUT SWITCH to CUTOUT. Annunciator 7-G-2, "EPR CONTROL POWER LOSS/TROUBLE" is an expected alarm.

Evaluation **Performance Steps**

SAT/UNSAT ***Step 4:** **IAW OT 3115, step 2a3, lower the MPR setpoint to return reactor pressure to pre-transient pressure**

Standard: Operator turns the MPR control switch counter clockwise incrementally to lower reactor pressure to its pre-transient pressure (~984 psig). The indications the operator should use are the ERFIS display (B025) on CRP 9-5 and/or the pressure recorder on CRP 9-5 (PR 2-3-56).

SIM OPERATOR CUE: When pressure is ~985 psig, insert KEY 1 (MPR failure resulting in high reactor pressure)

SAT/UNSAT **Step 5:** **Operator observes rising Reactor pressure and abnormal response to operation of the MPR.**

Standard: Operator informs the CRS of rising reactor pressure and a failed MPR.

EVALUATOR NOTE: The ramp time of the MPR malfunction is such that an automatic reactor scram will occur in 70 seconds when initiated from 985 psig.

EVALUATOR CUE: If recommended to the CRS to manually scram the reactor, inform the operator to take the appropriate actions for the indications observed.

SAT/UNSAT ***Step 6:** **IAW OT 3115, IMMEDIATE OPERATOR ACTIONS, operator manually scrams the reactor**

Standard: Operator depresses the manual scram pushbuttons on CRP 9-5 to scram the reactor.

EVALUATOR CUE: If asked as the CRS, inform the operator to take the appropriate actions for the indications observed.

EVALUATOR CUE: Inform the operator there are no additional actions required for this JPM.

* Critical Step

TIME FINISH: _____

Terminating Cue: A manual scram has been inserted following realization that both EPR and MPR have failed.

Evaluator Comments:

System K/A: Reactor/Turbine Pressure Regulating System (241000) A2.02 (Ability to (a) predict the impacts of the following on the REACTOR/TURBINE PRESSURE REGULATING SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations RO 3.7/SRO 3.7).

EXAMINEE HANDOUT

Initial Conditions:

- The plant was operating at 100% RTP when a failed EPR has resulted in high reactor pressure
- The CRS has entered OT 3115, Reactor Pressure Transients"

Initiating Cues:

- You have been directed as the **OATC** by the CRS to perform OT 3115, step 2.

ENTRY CONDITIONS

1. An unexpected or unexplained change in reactor pressure.

IMMEDIATE OPERATOR ACTIONS

1. IF unsuccessful controlling pressure with either the EPR or MPR, THEN manually SCRAM the reactor and enter OT 3100, Reactor Scram.

a. IF pressure is RISING, THEN manually control reactor pressure between 800 psig and 1000 psig using the Bypass Opening Jack, unless otherwise directed.

b. IF pressure is LOWERING, THEN close the MSIVs to prevent a rapid cooldown.

FOLLOW-UP ACTIONS

1. Determine if the pressure change was caused by one of the following:

   - Pressure regulator failure: Go to Steps 2 and 3.
   - MSIV, stop valve, or control valve closure: Go to Steps 4 and 5.
   - Bypass valve failure: Go to Step 6.
   - Reactivity changes: Go to Step 7.

2. IF pressure change was due to **EPR** failure, THEN perform the following:

   a. IF pressure is **RISING**, THEN:

      1) Verify that the MPR takes control.

      2) Place the EPR CUTOUT SWITCH on CRP 9-7 to CUTOUT.

      3) Lower the MPR setpoint to return reactor pressure to pre-transient pressure.

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Main Steam Isolation Valve Full Closure Time Test
Failure Mode: MS-86A fails the timing test
Reference: OP 0105, "Reactor Operations"
Task Number: 2390010201 (Perform Main Steam Valve Full Closure and Timing at Power)

Task Performance: AO/RO/SRO ___ RO/SRO Only _X_ SE Only ___

Sequence Critical: Yes _X_ No ____

Time Critical: Yes ____ No _X_

Individual Performing Task: _____

Examiner: _____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation ___ Performance _X_ Discuss ___

Setting: Classroom ___ Simulator _X_ Plant

Performance Expected Completion Time: 15 minutes

Evaluation Results:

Performance: PASS ___ FAIL ___ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: MD Hawe 10/5/10
Operations Representative — Date

Approved by: K. STOPAK 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- A plant startup is in progress with reactor power at 55% RTP. The crew is performing steps within OP 0105, "Reactor Operations", Phase 4B.

Initiating Cues:

- You have been directed by the CRS perform MSIV Full Closure and Timing Test IAW OP 4113, "Main Steam System Surveillance", Section "A".
- Steps A1 → 5 are complete
- A 2nd licensed operator is standing by to verify RPS relay actuation upon cycling MSIVs.

Task Standards:

- Identifies the out of spec MS-86A MSIV and takes the action of informing the CRS and shutting MS-80A.

Required Materials:

- OP 0105, placekept up to Phase 4B step 12.
- OP 4113
- VYOPF 4113.02 with header information filled in

Simulator Set-Up:

- IC- **813**
- **RUN** on Scenario file NRC JPM S-3

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

Evaluation	Performance Steps
SAT/UNSAT	**Step 1: Obtain OP 0105 and OP 4113 and review procedure**
	Standard: Operator obtains procedures and reviews requirements
	EVALUATOR CUE: When the operator asks, provide a copy of the surveillance and inform him/her all prerequisites are met.
SAT/UNSAT	**Step 2: IAW OP 4113, step A6, check steam flow in all 4 steam lines on CRP 9-5 and verify that they indicate approximately the same value.**
	Standard: Operator observes all four Main Steam flow indicators are reading approximately the same value on CRP 9-5 (FI 6-88A/B/C/D)
SAT/UNSAT	**Step 3: IAW OP 4113, step A7, determine which valve will be tested and notify the operator at the RPS Panel and at CRP 9-5.**
	Standard: Operator determines that the first valve to be tested will be MS-80A. This information is conveyed to the Operator at the Controls and the operator standing by at CRP 9-15 and 9-17 to observe RPS relay actuation.
	EVALUATOR CUE: Acknowledge the operator and inform him/her that you are standing by to cycle the first MSIV (MS-80A)

Evaluation **Performance Steps**

SAT/UNSAT ***Step 4:** **IAW OP 4113, step A8a, close and time STEAM ISOLATION MS-80A as follows:**

- **Place STEAM ISOLATION MS-80A control switch to the CLOSE position**
- **Observe valve closure by Green indicating light illuminates when the valve starts to close AND**
- **Red open light extinguishes within the limits of 3 to 5 seconds**
- **On CRP 9-5, observe steam flow decreases to approximately zero as indicated on FI 6-88A, STEAM FLOW A**
- **On CRP 9-5, observe steam flow increases on FI 6-88B (C, D) STEAM FLOW B (C, D)**

Standard: Operator places the MS-80A control switch to close and times the valve closure with a stop watch. The watch is started when the switch is repositioned and stopped when the red light extinguishes. Additionally, the operator observes steam flow indications on CRP 9-5.

EVALUATOR CUE: If asked as the OATC to mark steam flow indication for the MS-80A MSIV, inform him/her, flow indications on CRP 9-5 were SAT.

EVALUATOR NOTES: If the operator wishes to have a second operator provide a redundant timing of the valve, inform him/her that a second operator is timing the valve. Any information asked for concerning the valve closure time will be identical to the operator's time.

Observing the steam flow indications is not critical to this step. Closing the valve and timing the valve closure is.

Evaluation **Performance Steps**

SAT/UNSAT ***Step 5:** **IAW OP 4113, step A8a2, record STEAM ISOLATION MS-80A closure time to the nearest 1/100 of a second.**

Standard: Operator records the closing time for MS-80A on VYOPF 4113.02

SAT/UNSAT **Step 6:** **IAW OP 4113, step A8a3, if STEAM ISOLATION MS-80A does not satisfy the closure time criteria of 3-5 seconds, perform the following…**

Standard: Operator identifies that the closure time for MS-80A was SAT and this step is N/A

SAT/UNSAT **Step 7:** **IAW OP 4113, step A8a4, verify that RPS recognizes STEAM ISOLATION MS-80A closure by observing that the following relays have de-energized (contacts open).**

EVALUATOR CUE: When asked, inform the operator that 5A-K3A and 5A-K3B are de-energized on CRP 9-15 and CRP 9-17.

SAT/UNSAT ***Step 8:** **IAW OP 4113, step A8b, return STEAM ISOLATION MS-80A control switch to the AUTO OPEN position.**

Standard: Operator returns the MS-80A control switch to the AUTO OPEN position and observes.

- On CRP 9-5, observe steam flow increases on FI 6-88A STEAM FLOW A.
- Observe that STEAM ISOLATION MS-80A indicates full open.

EVALUATOR NOTE: Observing steam flow and indication is NOT critical for this step. Placing the control switch to open is critical.

Evaluation **Performance Steps**

SAT/UNSAT ***Step 9:** **IAW OP 4113, step A8c, verify RPS recognizes STEAM ISOLATION MS-80A is open by observing that the following relays have re-energized (contacts closed).**

EVALUATOR CUE: When asked, inform the operator that 5A-K3A and 5A-K3B are energized on CRP 9-15 and CRP 9-17.

EVALUATOR NOTE: Based on the relays being re-energized, the operator determines that step A8d is not applicable

SAT/UNSAT ***Step 10:** **IAW OP 4113, step A8e, record results on VYOPF 4113.02**

Standard: Operator documents that the relays have energized as expected on VYOPF 4113.02 under "SAT" column " Results of RPS Relay Actuation".

SAT/UNSAT ***Step 11:** **IAW OP 4113, step A9a, close and time STEAM ISOLATION MS-86A as follows:**

- **Place STEAM ISOLATION MS-86A control switch to the CLOSE position**
- **Observe valve closure by Green indicating light illuminates when the valve starts to close AND**
- **Red open light extinguishes within the limits of 3 to 5 seconds**
- **On CRP 9-5, observe steam flow decreases to approximately zero as indicated on FI 6-88A, STEAM FLOW A**
- **On CRP 9-5, observe steam flow increases on FI 6-88B (C, D) STEAM FLOW B (C, D)**

Standard: Operator places the MS-86A control switch to close and times the valve closure with a stop watch. The watch is started when the switch is repositioned and stopped when the red light extinguishes. Additionally, the operator observes steam flow indications on CRP 9-5.

EVALUATOR CUE: If asked as the OATC to mark steam flow indication for the MS-80A MSIV, inform him/her, flow indications on CRP 9-5 were SAT.

Evaluation **Performance Steps**

EVALUATOR NOTES: If the operator wishes to have a second operator provide a redundant timing of the valve, inform him/her that a second operator is timing the valve. Any information asked for concerning the valve closure time will be identical to the operator's time.

Observing the steam flow indications is not critical to this step. Closing the valve and timing the valve closure is.

SAT/UNSAT ***Step 12:** **IAW OP 4113, step A9a2, record STEAM ISOLATION MS-86A closure time to the nearest 1/100 of a second.**

Standard: Operator records the closing time for MS-86A on VYOPF 4113.02

SAT/UNSAT ***Step 13:** **IAW OP 4113, step A9a3, if STEAM ISOLATION MS-80A does not satisfy the closure time criteria of 3-5 seconds, perform the following...**

- **Suspend any further MSIV testing**
- **Close STEAM ISOLATION MS-80A**
- **Notify the Operations Manager**
- **Refer to Technical Specification 3.7**

Standard: Operator informs the CRS of the UNSAT closure time and that TS 3.7 applies. Operator takes the control switch for MS-80A to the closed position.

EVALUATOR NOTE: Informing the CRS about the UNSAT closure time and TS application is not critical. Shutting MS-80A is a critical step.

EVALUATOR CUE: Inform the operator as the CRS that additional MSIV testing is suspended. No additional actions are required for this JPM.

TIME FINISH: _____

Terminating Cue: MSIV testing through MS-86A is complete. MS-80A and 86A are in the closed position. VYOPF 4113.02 is documented through the UNSAT closure time for MS-86A.

Evaluator Comments: _____

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System K/A: Primary Containment Isolation System (Main Steam 223002) A2.08 (Ability to predict the impacts on the PRIMARY CONTAINMENT ISOLATION (a) SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF and (b) based on those (b) predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: surveillance testing RO 2.7/SRO 3.1)

EXAMINEE HANDOUT

Initial Conditions:

- A plant startup is in progress with reactor power at 55% RTP. The crew is performing steps within OP 0105, "Reactor Operations", Phase 4B.

Initiating Cues:

- You have been directed by the CRS perform MSIV Full Closure and Timing Test IAW OP 4113, "Main Steam System Surveillance", Section "A".
- Steps A1 → 5 are complete
- A 2nd licensed operator is standing by to verify RPS relay actuation upon cycling MSIVs.

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Respond to a trip of a CRD Pump
Failure Mode: N/A
Reference: OPON-3145-01, "Loss of CRD Regulating Function"
Task Number: 2007280501 (Respond to a loss of CRD Regulating Function)

Task Performance: AO/RO/SRO ___ RO/SRO Only _X_ STA Only ___

Sequence Critical: Yes _X_ No ____

Time Critical: Yes ____ No _X_

Individual Performing Task: _____

Examiner: _____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation ___ Performance _X_ Discuss ___

Setting: Classroom ___ Simulator _X_ Plant

Performance Expected Completion Time: 9 minutes

Evaluation Results:

Performance: PASS ___ FAIL ___ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: mo Hamb 10/5/10
Operations Representative — Date

Approved by: K. STUPAK 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- The plant was operating at 100% RTP when the "B" CRD Pump tripped due to an electrical fault
- The CRS has entered OPON-3145-01, "Loss of CRD Regulating Function"
- Recirculation pump seal purge has been secured

Initiating Cues:

- The pump tripped 5 minutes ago.
- You have been directed by the CRS to perform OPON-3145-01, step 3.5 to start the "A" CRD pump.

Task Standards:

- The operator starts the "A" CRD pump IAW OPON-3145-01, step 3.5

Required Materials:

- OPON-3145-01 is placekept up to step 3.4.

Simulator Set-Up:

- IC- **810**
- Remove recirculation seal pump purge from service.
- Secure the "B" RWCU pump
- **RUN** on Scenario file NRC JPM S-4 and S-6

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

EVALUATOR NOTE: In the event the operator takes an unanticipated long time such that pressure has not been restored within 20 minutes from receiving a second accumulator alarm, the operator will be expected to insert all control rods IAW step 3.1.2.

TIME START: _____ **(15 minute clock to restore CRD charging pressure to ≥940 psig)**

Evaluation	Performance Steps
SAT/UNSAT	**Step 1: Obtain OPON-3145-01 and review procedure**
	Standard: Operator obtains procedures and reviews requirements
	EVALUATOR CUE: When the operator asks, provide a copy of the procedure.
SAT/UNSAT	**Step 2: IAW OPON-3145-01, step 3.5.1.A, on CRD SYSTEM FLOW CONTROL FIC 3-301, use the display pushbutton to observe the value of the following: CRD.S and CRD.P**
	Standard: Operator depresses the "D" pushbutton to observe the "CRD.P" value and the "CRD.S" value.

Evaluation	Performance Steps
SAT/UNSAT	*Step 3: IAW OPON-3145-01, step 3.5.1.B, verify CRD.S and CRD.P indicate the same value, THEN on CRD SYSTEM FLOW CONTROL FIC 3-301 depress the A/M pushbutton.

Standard: Operator adjusts setpoint signal (CRD.S) to 0.0 to match CRD.P by turning controller potentiometer counterclockwise to 0.0.

Operator depresses A/M pushbutton on CRD SYSTEM FLOW CONTROL FIC 3-301 and verifies the green auto LED extinguishes and the red manual LED illuminates.

EVALUATOR NOTE: Observing the light indications is not a critical part of this step.

EVALUATOR NOTE: If the operator would need to make adjustments while in manual, step 3.5.1.C would be followed which has the operator select the CRD.V parameter and make adjustments as necessary.

SAT/UNSAT	*Step 4: IAW OPON-3145-01, step 3.5.2, ADJUST the flow controller to zero to close CRD FCV-19A(B).

Standard: Operator rotates the potentiometer on FIC 3-301 counterclockwise to close CRD FCV-19A (CRD.V parameter). Indication of the valve closing is on CRP 9-5 bench board.

SAT/UNSAT	*Step 5: IAW OPON-3145-01, step 3.5.3, START the alternate CRD pump, P-8-1A(B).

Standard: Operator turns the P-38-1A pump control switch to the START position and observes pumps running indications (amps, annunciators, etc.). Annunciators 5-C-5 and 5-B-8 are expected to clear.

EVALUATOR NOTE: While not procedurally required when starting a 480Vac load, a plant announcement may be made as a good practice.

Evaluation	Performance Steps
SAT/UNSAT	***Step 6:** **IAW OPON-3145-01, step 3.5.4, slowly ADJUST the CRD flow controller to establish 48-52 gpm.**
	Standard: Operator rotates the potentiometer on FIC 3-301 clockwise to raise flow up to 48-52 gpm. Operator observes CRD-FCV-19A opening and CRD parameters returning to normal operational bands.
	EVALUATOR NOTE: It was provided in the initial conditions that Recirculation pump seal purge was removed from service.
SAT/UNSAT	**Step 7:** **IAW OPON-3145-01, step 3.5.5.A, on CRD SYSTEM FLOW CONTROL FIC 3-301, use the display pushbutton to observe the value of the following: CRD.S and CRD.P**
	Standard: Operator depresses the "D" pushbutton to observe the "CRD.P" value and the "CRD.S" value. The operator may write these numbers down for use in the next step.
SAT/UNSAT	**Step 8:** **IAW OPON-3145-01, step 3.5.5.B, using one or both of the following steps as plant conditions dictate, adjust the CRD system flow controller so that CRD.S and CRD.P indicate the same value.**
	Standard: Operator adjusts the CRD.S parameter to match the CRD.S parameter to the CRD.P parameter from step 3.5.5.A.
SAT/UNSAT	**Step 9:** **IAW OPON-3145-01, step 3.5.5.C, when CRD.S and CRD.P indicate the same value, on CRD SYSTEM FLOW CONTROL FIC 3-301 depress the A/M pushbutton.** ▪ On CRD SYSTEM FLOW CONTROL FIC 3-301 verify the green auto LED illuminates and the red manual LED extinguishes.
	Standard: Operator depresses the A/M pushbutton on FIC 3-301 and observes the light indications.
	EVALUATOR NOTE: Observing the light indications is not a critical part of this step.

Evaluation	Performance Steps
SAT/UNSAT	**Step 10: IAW OPON-3145-01, step 3.5.6, IF required, THROTTLE CRD-36A(B) Pump A(B) Discharge Stop Check, to maintain charging header pressure at the flow control station at 1420-1470 psig (PI-3-34).**
	Standard: Operator contacts the RBAO to mark charging pressure as read on PI-3-34 and throttle CRD-36A as necessary.
	EVALUATOR NOTE: When asked what pressure is on PI-3-34, inform the operator that pressure is 1450 psig and steady.
SAT/UNSAT	**Step 10: IAW OPON-3145-01, step 3.5.7, IF recirc pump seal purge was isolated, THEN RESTORE recirc pump seal purge to service.**
	Standard: Operator contacts the RBAO to place Recirculation pump seal purge in service.
	EVALUATOR NOTE: When asked, acknowledge the order to place Recirculation seal purge in service. Inform the operator that the JPM is complete.

TIME FINISH: _____

Terminating Cue: OPON-3145-01 has been completed with the exception of placing Recirculation pump seal purge in service. The "A" CRD pump is running.

Evaluator Comments:

System K/A: Control Rod Drive Hydraulic System (201001) (A2.01 Ability to (a) predict the impacts of the following on the CONTROL ROD DRIVE HYDRAULIC SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations RO 3.2/SRO 3.3)

EXAMINEE HANDOUT

Initial Conditions:

- The plant was operating at 100% RTP when the "B" CRD Pump tripped due to an electrical fault
- The CRS has entered OPON-3145-01, "Loss of CRD Regulating Function"
- Recirculation pump seal purge has been secured

Initiating Cues:

- The pump tripped 5 minutes ago.
- You have been directed by the CRS to perform OPON-3145-01, step 3.5 to start the "A" CRD pump.

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Testing Of Emergency Governor
Failure Mode: Governor Will Not RESET
Reference: OP 4160, "Turbine Generator Surveillance"
Task Number: 2457120201

Task Performance: AO/RO/SRO ___ RO/SRO _X_ SRO Only __

Sequence Critical: Yes _X_ No _

Time Critical: Yes ___ No _X_

Operator Performing Task: _____

Examiner: _____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation ___ Performance _X_ Discuss ____

Setting: Classroom ___ Simulator _X_ Plant __

Performance Expected Completion Time: 9 minutes

Evaluation Results:

Performance: PASS __ FAIL __ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: _____ 10/5/10
Operations Representative — Date

Approved by: _____ 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the Simulator and you are to perform the actions.

You are requested to **"talk through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- The plant is at 100% power.

Initiating Cues:

- The CRS directs you to perform the once/month Emergency Governor Test from CRP 9-7 IAW OP 4160, section G.
- A second licensed operator will monitor panel CRP 9-5 and the alarm typer as necessary.

Task Standards:

- The Oil Trip Test on the Emergency Governor is complete.

Required Materials:

- OP 4160, Turbine Generator Surveillance
- VYOPF 4160.16 with header information filled in

Simulator Setup:

- **IC-810**
- Run on Scenario file NRC JPM S-5

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

Evaluation **Performance Steps**

TIME START: _____

SAT/UNSAT **Step 1: Obtain Procedure OP 4160 and review admin limits precautions, and prerequisites.**

Standard: Operator obtains the OP procedure and reviews admin limits, precautions and prerequisites.

EVALUATOR CUE: When the operator asks, provide a copy of the procedure and inform him/her that all prerequisites are satisfied.

SAT/UNSAT **Step 2: Station an operator at the front standard to observe local indications.**

Standard: Dispatch an AO to the front standard to observe the local indications.

EVALUATOR CUE: When asked as the AO, inform the Control Room that you are stationed at the front standard and in communication with the Control Room.

SAT/UNSAT ***Step 3: Place in LOCKOUT as follows:**

1) Pull EMER GOVERNOR TRIP & TEST switch handle out.

Standard: Operator pulls Emergency Governor Trip Test handle out straight out on CRP 9-7.

Evaluation	Performance Steps
SAT/UNSAT	**Step 4:** **2) Verify emergency governor lockout valve red LOCKOUT light (to left and above switch) illuminates and stays on.** Standard: Operator checks that RED light above and to left of switch is ON.
SAT/UNSAT	**Step 5:** **3) Have operator at the front standard verify (lockout indication) amber EMERGENCY TRIP VALVE LOCKED OUT light is illuminated.** Standard: Direct AO at the front standard to verify amber LOCKED OUT indication is illuminated. **EVALUATOR CUE:** When asked as the AO, report that the amber LOCKED OUT indication is illuminated.
SAT/UNSAT	***Step 6:** **Place in TRIP as follows:** **1)Turn the EMER GOVERNOR TRIP & TEST switch fully clockwise through RESET to the TRIP position and hold it there** Standard: Operator turns the switch fully clockwise to the 3 o'clock position and holds it there. **SIM OPERATOR:** Insert **KEY 1** to override the switch in the TRIP position.
SAT/UNSAT	**Step 7:** **2) Verify green TRIP light (directly above switch) illuminates and stays on while the switch is held in TRIP position.** Standard: Operator checks that GREEN light above the switch is ON.
SAT/UNSAT	**Step 8:** **3) Verify red trip RESET light (above switch to right) extinguishes and stays out while the switch is held in TRIP position.** Standard: Operator checks that red RESET light above and to the right of the switch is NOT on.

Evaluation **Performance Steps**

SAT/UNSAT **Step 9:** **4) Verify computer alarm typer prints TURBINE TRIP – EMERG TRIP VALVE.**

Standard: Operator asks that CRO verify alarm typer prints TURBINE TRIP – EMERG TRIP VALVE.

EVALUATOR CUE: When asked as the additional Control Room operator, report that the typer has printed "TURBINE TRIP-EMERG TRIP VALVE",

SAT/UNSAT ***Step 10:** **Reset the trip as follows:**

1)Turn the EMER GOVERNOR TRIP & TEST switch counter-clockwise to the RESET position and hold it there

Standard: Operator turns the switch counter-clockwise to the ~1:30 position and holds it there.

SAT/UNSAT ***Step 11:** **2) Verify green TRIP light extinguishes and stays out.**

Standard: Operator observes that GREEN light above the switch is still ON.

SAT/UNSAT ***Step 12:** **3) Verify red trip RESET light illuminates and stays on.**

Standard: Operator observes that red RESET light above and to the right of the switch is still NOT on.

SAT/UNSAT ***Step 13:** **4) Verify alarm typer prints TURBINE EMERG TRIP VALVE NORM.**

Standard: Operator asks that additional operator in the Control Room to verify alarm typer prints "TURBINE EMERG TRIP VALVE NORM".

EVALUATOR CUE: When asked as the additional Control Room operator, report that the typer has **NOT** printed "TURBINE TRIP EMERG TRIP VALVE NORM"

Evaluation	Performance Steps
SAT/UNSAT	***Step 14: 5) Turn the switch counter-clockwise to vertical position, but do not push in at this time.** Standard: Operator turns switch to 12 o'clock position and releases switch.
SAT/UNSAT	***Step 15: 6) Observe green TRIP light stays out.** Standard: Operator observes that green TRIP light is still on.
SAT/UNSAT	***Step 16: 7) Observe red trip RESET light stays on.** Standard: Operator observes that red RESET light above and to the right of the switch is still NOT on.
SAT/UNSAT	***Step 17: 8) Verify alarm typer still indicates TURBINE EMERG TRIP VALVE NORM.** Standard: Operator asks that CRO verify alarm typer prints TURBINE EMERG TRIP VALVE NORM. **EVALUATOR CUE:** When asked as the additional Control Room operator, report that the typer has still **NOT** printed "TURBINE TRIP EMERG TRIP VALVE NORM"
SAT/UNSAT	**Step 18: 9) Have operator at the front standard verify (reset indication) red EMERGENCY TRIP VALVE RESET light is lit.** Standard: Operator directs the AO at the front standard to verify red RESET indication is illuminated. **EVALUATOR CUE:** When asked as the AO at the front standard, report that the amber LOCKED OUT indication is still illuminated and the red RESET indication is NOT illuminated.

Evaluation **Performance Steps**

SAT/UNSAT **Step 19: 10) If 6), 7), 8) or 9) above are not satisfied, return the switch to the TRIP position and repeat reset Steps G.1.d.1) through G.1.d.9).**

Standard: informs the CRS that the trip failed to reset and the procedure directs to make another attempt at resetting.

SAT/UNSAT ***Step 20: Reset the trip as follows:**

1)Turn the EMER GOVERNOR TRIP & TEST switch counter-clockwise to the RESET position and hold it there

Standard: Operator turns the switch counter-clockwise to the ~1:30 position and holds it there.

SAT/UNSAT ***Step 21: 2) Verify green TRIP light extinguishes and stays out.**

Standard: Operator observes that GREEN light above the switch is still ON.

SAT/UNSAT ***Step 22: 3) Verify red trip RESET light illuminates and stays on.**

Standard: Operator observes that red RESET light above and to the right of the switch is still NOT on.

SAT/UNSAT ***Step 23: 4) Verify alarm typer prints TURBINE EMERG TRIP VALVE NORM.**

Standard: Operator asks that additional operator in the Control Room to verify alarm typer prints "TURBINE EMERG TRIP VALVE NORM".

EVALUATOR CUE: When asked as the additional Control Room operator, report that the typer has **NOT** printed "TURBINE TRIP EMERG TRIP VALVE NORM"

Evaluation **Performance Steps**

SAT/UNSAT ***Step 24: 5) Turn the switch counter-clockwise to vertical position, but do not push in at this time.**

Standard: Operator turns switch to 12 o'clock position and releases switch.

SAT/UNSAT ***Step 25: 6) Observe green TRIP light stays out.**

Standard: Operator observes that green TRIP light is still on.

SAT/UNSAT ***Step 26: 7) Observe red trip RESET light stays on.**

Standard: Operator observes that red RESET light above and to the right of the switch is still NOT on.

SAT/UNSAT ***Step 27: 8) Verify alarm typer still indicates TURBINE EMERG TRIP VALVE NORM.**

Standard: Operator asks that CRO verify alarm typer prints TURBINE EMERG TRIP VALVE NORM.

EVALUATOR CUE: When asked as the additional Control Room operator, report that the typer has still **NOT** printed "TURBINE TRIP EMERG TRIP VALVE NORM"

SAT/UNSAT **Step 28: 9) Have operator at the front standard verify (reset indication) red EMERGENCY TRIP VALVE RESET light is lit.**

Standard: Operator directs the AO at the front standard to verify red RESET indication is illuminated.

EVALUATOR CUE: When asked as the AO at the front standard, report that the amber LOCKED OUT indication is still illuminated and the red RESET indication is NOT illuminated.

Evaluation **Performance Steps**

SAT/UNSAT ***Step 29:** **11) If test indications are not normal at this time, perform the following:**

a) Leave the emergency governor trip/test switch in the LOCKOUT position.

Standard: Operator informs CRS that the reset is still not successful and leaves switch pulled out.

SAT/UNSAT **Step 30:** **b) Contact the Maintenance Department.**

Standard: Contacts the maintenance department. Based on the recommendation the Maintenance Department provides, step G.1.e is not performed.

EVALUATOR CUE: When asked as Maintenance, inform the Control Room the switch should be left as is and they will commence troubleshooting.

SAT/UNSAT **Step 31:** **IAW step G.1.f, document remote test performance on VYOPF 4160.16.**

Standard: Operator checks "REMOTE" and "UNSAT"

EVALUATOR CUE: Inform the operator there is nothing else required for this JPM.

*Critical Step

TIME FINISH: _____

Terminating Cue: The Oil Trip Test on the Emergency Governor is complete.

Evaluators Comments:

System: K/A: **Main Turbine Generator and Auxiliary Systems (245000) A4.08 (Ability to manually operate and/or monitor in the Control Room: Turbine Oil Pressure RO 2.7/SRO 2.7)**

EXAMINEE HANDOUT

Initial Conditions:

- The plant is at 100% power.

Initiating Cues:

- The CRS directs you to perform the once/month Emergency Governor Test from CRP 9-7 IAW OP 4160, section G.
- A second licensed operator will monitor panel CRP 9-5 and the alarm typer as necessary.

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Respond to high Reactor Building Ventilation alarm
Failure Mode: Reactor Building Ventilation failed to isolate
Reference: ARS 9-5-H-1
Task Number: 2727150401 (Respond to ARM Alarms)

Task Performance: AO/RO/SRO ___ RO/SRO Only _X_ SE Only ___

Sequence Critical: Yes ___ No X____

Time Critical: Yes ____ No _X__

Individual Performing Task: _____

Examiner: _____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation ___ Performance _X_ Discuss ___

Setting: Classroom ___ Simulator _X__ Plant

Performance Expected Completion Time: 9 minutes

Evaluation Results:

Performance: PASS ___ FAIL ___ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: MO Hardo 10/5/10
Operations Representative — Date

Approved by: K. STOMAK 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- The plant was operating at 100% RTP when the Control Room received annunciator 9-5-H-1, "RX BLDG/REFUEL FLR CH A RAD HI
- Radiological conditions appear to be normal for current plant operations

Initiating Cues:

- You have been directed by the CRS to perform the following:
  - Determine the cause for the annunciator **and THEN** based on the cause
  - Confirm and backup all APPLICABLE automatic actions IAW ARS 9-5-H-1.

Task Standards:

- Cause has been determined to be a failed upscale ARM
- PCIS Group 3 backed up, SBGT initiation backed up, RB ventilation secured backed up.

Required Materials:

- ARS 9-5-H-1, CRP 9-5 operator aid

Simulator Set-Up:

- IC- **810**
- **Run** on Scenario file NRC JPM S-4 and S-6
- Insert **KEY** 2

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

Evaluation	Performance Steps
SAT/UNSAT	**Step 1: Obtain ARS 9-5-H-1 and review** Standard: Operator obtains ARS and reviews requirements **EVALUATOR CUE:** When the operator asks, provide a copy of ARS 9-5-H-1.
SAT/UNSAT	**Step 2: Operator reviews the ARS to determine the cause and informs the CRS** Standard: Operator confirms validity of the alarm by observing the failed upscale PRM on CRP 9-10 (RM 17-452A, "Rx Bldg Vent Exh South Rad Mon"). Additionally, the operator observes the note in the ARS and realizes that a failed upscale detector will result in ALL automatic actions. An additional indication used may be ERFIS to observe the high radiation alarm and indication. **EVALUATOR CUE:** When informed of the cause, acknowledge as the CRS

Evaluation **Performance Steps**

SAT/UNSAT **Step 3: Operator reviews automatic actions and references CRP 9-5 operator aid to assist in confirming and back up expected automatic actions.**

Standard: Operator reviews ARS and determines SBGT initiation, isolation of RB ventilation, and a PCIS Group 3 isolation should have occurred.

EVALUATOR NOTE: The operator may use OP 2115, "Primary Containment" to reference the PCIS Group 3 expected actions in place of or in addition to the CRP 9-5 operator aid.

EVALUATOR NOTE: Confirming and backing up the following automatic actions is not sequence critical and may be done in any order. They are outlined here as they are on the CRP 9-5 operator aid.

SAT/UNSAT **Step 4: Operator verifies the following valves are closed:**

- **AC-23**
- **AC-8**
- **AC-10**
- **AC-9**
- **AC-7**
- **AC-7A**
- **AC-7B**

Standard: Operator observes the control switches on CRP 9-3 are in the closed position and the green indicating light above the control switch for each valve is illuminated.

SAT/UNSAT ***Step 5: Operator initiates back up for valve position on AC-22B.**

Standard: Operator places the control switch for AC-22B on CRP 9-3 to "CLOSE".

Evaluation	Performance Steps
SAT/UNSAT	**Step 6: Operator verifies the following valves are closed:** ▪ **AC-22A** ▪ **AC-6A** Standard: Operator observes the control switches on CRP 9-3 are in the closed position and the green indicating light above the control switch for each valve is illuminated.
SAT/UNSAT	***Step 7: Operator initiates back up for valve position on AC-6B, SGT-6, CA-38, and AC-20.** Standard: Operator places the control switch for AC-6B, SGT-6, CA-38, and AC-20 on CRP 9-3 to "CLOSE".
SAT/UNSAT	**Step 8: Operator verifies the following valves are closed:** ▪ **AC-11A** ▪ **AC-11B** Standard: Operator observes the control switches on CRP 9-3 are in the closed position and the green indicating light above the control switch for each valve is illuminated.
SAT/UNSAT	***Step 9: Operator initiates back up for valve position on CA-38B.** Standard: Operator places the control switch for CA-38B on CRP 9-3 to "CLOSE".
SAT/UNSAT	**Step 10: Operator backs up SBGT auto initiation by operating the following valve control switches on CRP 9-26:** ▪ **SGT-1A** ▪ **SGT-1B** ▪ **SGT-2B** ▪ **SGT-3B** Standard: Operator places the control switch for SGT-1A, SGT-1B, SGT-2B, and SGT-3B on CRP 9-26 to the "CLOSE AUTO-OP" position

Evaluation	Performance Steps

SAT/UNSAT ***Step 11: Operator observes that RB ventilation did NOT auto isolate. Operator then initiates an isolation by operating the following control switches on CRP 9-26:**

- **HVAC-9**
- **HVAC-12**
- **HVAC-10**
- **HVAC-11**

Standard: Operator places the control switch for HVAC-9, HVAC-12, HVAC-10, and HVAC-11 on CRP 9-26 to the "CLOSE" position.

SAT/UNSAT ***Step 12: Operator initiates back up for valve position on VG-76A, VG-76B, VG-26, and VG-23.**

Standard: Operator places the control switch for VG-76A, VG-26B, VG-26, and VG-23 on CRP 9-47 to "CLOSE".

SAT/UNSAT **Step 13: Operator verifies the following valves are closed:**

- **NG-11A**
- **NG-12A**
- **NG-13A**
- **VG-22A**
- **VG-9A**

Standard: Operator observes the control switches on CAD Panel "A" are in the closed position and the green indicating light above the control switch for each valve is illuminated.

EVALUATOR CUE: If asked about CAD Panel "B", inform the operator that valves on CAD panel "B" have been verified and no abnormalities were found (Simulator not modeled for CAD Panel "B".)

Evaluation	Performance Steps	
SAT/UNSAT	**Step 14:**	**Operator verifies all PCIS Group 3 have been backed up completely.**
	Standard:	Operator observes the red "SYS 1 RESET PERMISSIVE GRP3" and "SYS 2 RESET PERMISSIVE GRP3" on CRP 9-5 are illuminated.
SAT/UNSAT	**Step 15:**	**Operator informs the CRS that PCIS Group 3 has been backed up, SBGT auto initiated, and RB ventilation failed to isolate and had to be manually isolated.**
	Standard:	Operator makes report to the CRS

* Critical Step

TIME FINISH: _____

Terminating Cue: PCIS Group 3 has been backed up, SBGT verified running, and RB ventilation manually isolated due to failure to auto isolate.

Evaluator Comments: _____

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System K/A: Radiation Monitoring System (272000) A3.06 (Ability to monitor automatic operations of the RADIATION MONITORING SYSTEM including Ventilation system isolation indications RO 3.4/SRO 3.4).

EXAMINEE HANDOUT

Initial Conditions:

- The plant was operating at 100% RTP when the Control Room received annunciator 9-5-H-1, "RX BLDG/REFUEL FLR CH A RAD HI
- Radiological conditions appear to be normal for current plant operations

Initiating Cues:

- You have been directed by the CRS to perform the following:
    - Determine the cause for the annunciator **and THEN** based on the cause
    - Confirm and backup all APPLICABLE automatic actions IAW ARS 9-5-H-1.

REACTOR BUILDING VENTILATION		5-H-1 Page 1 of 1
RX BLDG/REFUEL FLR CH A RAD HI		[redacted]
Causes: 1. High Rad. Rx. Bldg. vent. 2. High Rad. refuel floor. 3. Detector Downscale.*	Setpoints: 1. HIGH Rx Vent - 9 mR/hr Refuel Floor 70 mR/hr 2. LOW .2 VDC	Actuating Devices: 17-452, A and B 17-453, A and B References: CWD 1100, 1101, 1120 ON 3153 ON 3157 AP 0156 AP 3125 EOP-4

Confirmation:

1. Reactor Bldg. vent and refuel floor rad. monitoring indications on CRP 9-10.

Automatic Actions:

1. SBGT initiation.
2. Isolation of Rx. Bldg. ventilation, drywell/torus vent and purge valves, Group III isolation.

***NOTE**

*Requires both channel A and B downscale for these auto actions.

Operator Actions:

1. If channel A or B alarm, verify that HVAC isolates and SBGT starts.
2. Advise all personnel of potentially high radiation and evacuate Reactor Building.
3. Request Rad Protection to initiate local surveys.
4. Monitor radiation levels on other indications.
5. Refer to ON 3153, Excessive Radiation Levels, and EOP-4, Secondary Containment Control.
6. Refer to AP 0156, Notification of Significant Events, and AP 3125, Emergency Plan Classification and Action Level Scheme, for notification and classification.

NOTE

One upscale or 2 downscale is a trip.

Group 3

CRP 9-3

Vertical

- N2 Purge Supply AC-23

Bench Board

- Drywell Purge AC-8
- Torus Purge AC-10
- Air Purge Supply AC-9
- Vent to RTF-5 AC-7
- Drywell Vent AC-7A
- Torus Vent AC-7B
- Drywell Make-up AC-22B
- Torus Make-up AC-22A
- Drywell 3" Vent AC-6A
- Torus 3" Vent AC-6B
- Vent to SBGT SGT-6
- Ctmt Compr Suct CA-38A
- N2 Make-up AC-20
- Ctmt Compr Suct CA-38B

CRP 9-26

- SBGT Fan A REF-2A
- Inlet Bypass SGT-1A
- Inlet Isolation SGT-2A
- SBGT Fan B REF-2B
- Inlet Bypass SGT-1B
- Inlet Isolation SGT-2B
- Disch Isolation SGT-3A
- Cool Air Inlet SGT-4A
- RB Vent Supply HVAC-9
- RB Vent Exhaust HVAC-12
- Disch Isolation SGT-3B
- Cool Air Inlet SGT-4B
- RB Vent Supply HVAC-10
- RB Vent Exhaust HVAC-11

CRP 9-47

- CAM Return Inbd VG-76A
- CAM Return Otbd VG-76B
- CAM Supply Inbd VG-26
- CAM Supply Otbd VG-23

CAD - A

- Drywell Vent VG-22A
- Cmpr Discharge NG-11A
- Discharge to Torus NG-12A
- Discharge to DWL NG-13A
- DWL Vent Isol VG-9A

CAD - B

- Drywell Vent VG-22B
- DWL Vent Isol VG-9B
- Discharge to DWL NG-13B
- Discharge to Torus NG-12B
- Cmpr Discharge NG-11B

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Start a Reactor Feedwater Pump during Startup
Failure Mode: Pump discharge valve fails to remain open
Reference: OP 2172, Feedwater System
Task Number: 2597150101

Task Performance: AO/RO/SRO ___ RO/SRO _X_ SRO Only ___

Sequence Critical: Yes ___ No _X_

Time Critical: Yes ___ No _X_

Operator Performing Task: _____

Examiner: _____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation _X_ Performance ___ Discuss ___

Setting: Classroom ___ Simulator _X_ Plant ___

Performance Expected Completion Time: _8 minutes_

Evaluation Results:

Performance: PASS __ FAIL __ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: _____ 10/5/10
Operations Representative — Date

Approved by: K. STUPAK 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- The plant is operating at ~ 84% power with a plant startup is in progress IAW OP 0105, Phase 4B.

Initiating Cues:

- The CRS directs you to start the 'B' Feedwater pump and secure the 'A' Feedwater pump using OP 0105, Phase 4B, step 22.
- The TBAO has walked down the RFP Room in preparation for pump start and all personnel are cleared of the area.

Task Standards:

- The 'B' feedwater pump tripped due to discharge valve failing to remain open (within 5 seconds of receiving the "FW Pump B Trip Flow Lo" alarm (6-E-5)).

Required Materials:

- OP 0105, "Reactor Operations, Phase 4B, placekept up to step 22

Simulator Setup:

- IC-**812**
- **Run** on Scenario file NRC JPM S-7

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

Evaluation **Performance Steps**

TIME START: _____

SAT/UNSAT **Step 1:** **Operator obtains the procedure and reviews the step for starting a 3rd RFP and the precautions associated with OP 0105, Phase 4.**

Standard: OP 0105 is obtained and the procedure reviewed for starting a 3rd RFP.

EVALUATOR CUE: When the operator asks, provide a copy of the procedure and inform him/her that all prerequisites are satisfied.

SAT/UNSAT **Step 2:** **On CRP 9-6 verify COND PUMP A, B, and C are running**

Standard: The operator observes the pump running indications for the "A", "B", and "C" RFPs (light indications, current indications, and RFP suction pressure indication)

SAT/UNSAT ***Step 4:** **Verify Standby Lube Oil pump in service**

Standard: Operator verifies the Standby Lube Oil pump is in service for the "B" RFP.

Evaluation	Performance Steps
SAT/UNSAT	**Step 5: On CRP 9-6, close feed pump discharge valve (FWD-4A, B, or C) for the oncoming pumps** Standard: Operator closes feed pump discharge valve FWD-4B.
SAT/UNSAT	**Step 5: Operator makes a Gaitronics announcement for starting the "B" RFP and calls the TBAO to stand by for start of the "B" RFP** Standard: Operator makes Gaitronics announcement and calls the TBAO to standby to monitor the "B" RFP after it ahs been started. **EVALUATOR CUE:** When asked, inform the operator as the TBAO that you are standing by for the start of the "B" RFP.
SAT/UNSAT	***Step 6: Position the feed pump control switch to START and verify the following:** ▪ **Pump breaker closes.** ▪ **Pump discharge valve opens.** ▪ **Auxiliary lube oil pump stops** Standard: Operator verifies pump current rises after the pump control switch is taken to normal after start, pump discharge valve (FDW-4B) opens by observing red light ON and green light OFF above valve control switch, and the auxiliary lube oil pump stops by observing green light ON and red light OFF. Additionally, the minimum flow recirculation valve (FDW-2B) will close as adequate flow exists through the open discharge valve. **SIM OPERATOR CUE:** When the FDW-4B indicates full open, enter KEY 1 (CLOSE FDW-4B and indicate CLOSE on FDW-2B).

Evaluation	Performance Steps
SAT/UNSAT	*Step 10: **Operator recognize that FDW-4B strokes closed and that FDW-2B (minimum flow recirculation valve) remains closed**
	Standard: Operator recognizes that the pump discharge valve strokes closed and that the minimum flow recirculation valve remains closed.
	SIM OPERATOR CUE: When the FDW-4B indicates full closed, enter **KEY 2** (Maintains indication that FDW-4B is closed even if operator attempts to reopen the valve and gives annunciator 6-E-5 13 seconds after the discharge valve closes).
	EVALUATOR CUE: If asked as the CRS for concurrence or permission to secure the RFP, then inform the operator to continue with OP 0105 for RFP start.
SAT/UNSAT	*Step 11: **Immediately following pump startup, ensure that the discharge valve and minimum flow valve open. If minimum flow path or normal flow cannot be established, the pump shall be immediately secured.**
	Standard: Operator takes the "B" RFP control switch to stop.
	EVALUATOR NOTE: The operator may attempt to re-open the discharge valve
	EVALUATOR NOTE: If the operator does not recognize there is no minimum or normal flow path, annunciator 6-E-5 will alarm. The operator must trip the pump within 10 seconds of receiving this alarm to meet the prescribed task standard.
	EVALUATOR CUE: After the "B" RFP trips, inform the operator that there are no further actions required for this JPM.

*Critical Step

TIME FINISH: _____

Terminating Cue: The 'B' Feedwater pump tripped.

Evaluator Comments: _____

System: K/A: Reactor Feedwater System (259001) A4.02 Ability to manually operate and/or monitor in the Control Room: Manually start/control a RFP/TDRFP RO 3.9/SRO 3.7).

EXAMINEE HANDOUT

Initial Conditions:

- The plant is operating at ~ 84% power with a plant startup is in progress IAW OP 0105, Phase 4B.

Initiating Cues:

- The CRS directs you to start the 'B' Feedwater pump and secure the 'A' Feedwater pump using OP 0105, Phase 4B, step 22.
- The TBAO has walked down the RFP Room in preparation for pump start and all personnel are cleared of the area.

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Energize Bus 8 from Bus 9
Failure Mode: N/A
Reference: OP 2143, "480 and Lower Voltage AC System"
Task Number: 2620060101

Task Performance: AO/RO/SRO ___ RO/SRO _X_ SRO Only ___

Sequence Critical: Yes _X_ No__

Time Critical: Yes ___ No _X

Operator Performing Task: _____

Examiner: _____

Date of Evaluation: _____

Activity Code : _____

Method of Testing: Simulation __ Performance _X_ Discuss ___

Setting: Classroom __ Simulator _X_ Plant _

Performance Expected Completion Time: 4 minutes

Evaluation Results:

Performance: PASS __ FAIL __ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer Date

Reviewed by: M D Hartz 10/5/10
Operations Representative Date

Approved by: K. STUPAK 10/15/10
Facility Reviewer Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- While operating at 100% RTP the plant experiences a loss of 480V Bus 8
- The CRS has entered ON 3180, “Loss of Bus 8”

Initiating Cues:

- As directed in ON 3180, the CRS directs you to energize bus 8 from bus 9 IAW OP 2143, Appendix “C”

Task Standards:

- Bus 8 is re-energized from Bus 9

Required Materials:

- OP 2143, "480 And Lower Voltage AC System", Appendix “C”

Simulator Setup:

- IC- **810**
- RUN on Scenario file NRC JPM S-8

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

Evaluation **Performance Steps**

TIME START: _____

SAT/UNSAT **Step 1: Obtain Procedure, review administrative limits, precautions and prerequisites**

Standard: Operator obtains OP 2143 and reviews administrative limits, precautions, and prerequisite.

EVALUATOR CUE: When the operator asks, provide a copy of the procedure and inform him/her that all prerequisites are satisfied.

SAT/UNSAT **Step 2: Ensure that Bus 9 is energized**

Standard: Checks Bus 9 energized using voltage indication on CRP 9-8 (EI 9-8-28) (or via appropriate breaker line-up)

SAT/UNSAT **Step 3: Inform the CRS the need to enter the following LCOs and to declare the following equipment inoperable:**

- **24 hour cold shutdown LCO 3.10.B.1 while Bus 8 is powered from Bus 9.**
- **Declare both diesel generators A and B inoperable.**
- **Declare Buses 8 and 9 inoperable**

Standard: Informs CRS to enter LCO 3.10.B.1, and to declare both diesel generators and buses 8 & 9 inoperable IAW OP 2143.

EVALUATOR CUE: Inform the operator that TS 3.10.B.1 has been entered.

Evaluation **Performance Steps**

SAT/UNSAT ***Step 4: Open/confirm open breaker 88**

Standard: Places control switch for Breaker 88 to OPEN. On CRP 9-8, observes green light ON, red light OFF

SAT/UNSAT **Step 5: Verify zero voltage on Bus 8**

Standard: Checks Bus 8 voltage reading zero

SAT/UNSAT ***Step 6: Close Breaker 9T8 from CRP 9-8.**

Standard: Places control switch for Breaker 9T8 to CLOSE and releases. Verifies Breaker 9T8 CLOSED by red light ON and green light OFF.

EVALUATOR NOTE: Operator may make a plant announcement informing the station that buses 8 and 9 are being cross tied, This announcement is not a critical portion of this step.

SAT/UNSAT ***Step 7: Close Breaker 8T9 from CRP 9-8.**

Standard: Places control switch for Breaker 8T9 to CLOSE and releases. Verifies Breaker 8T9 CLOSED by red light ON and green light OFF.

SAT/UNSAT **Step 8: Observe Bus 8 voltage approximately 435 to 506 VAC**

Standard: Observes Bus 8 volts approximately 480 volts on CRP 9-8 vertical panel (EI 9-8-27)

SAT/UNSAT **Step 9: Verify XFMR T-9 amps less than or equal to 160 amps on EI-9-8-11.**

Standard: Verifies and notes that T-9 amps are less than 160 amps on EI-9-8-11.

*Critical Step

TIME FINISH: _____

Terminating Cue: Bus 8 is re-energized from Bus 9

Evaluator Comments:_____

System K/A: AC Electrical Distribution (262001) (A4.01 Ability to manually operate and/or monitor in the Control Room: All breakers and disconnects (including available switchyard) RO 3.4/SRO 3.7)

EXAMINEE HANDOUT

Initial Conditions:

- While operating at 100% RTP the plant experiences a loss of 480V Bus 8
- The CRS has entered ON 3180, "Loss of Bus 8"

Initiating Cues:

- As directed in ON 3180, the CRS directs you to energize bus 8 from bus 9 IAW OP 2143, Appendix "C"

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Shutdown the "A" Diesel Generator Locally
Failure Mode: N/A
Reference: OP 2126, "Diesel Generators"
Task Number: 2647230101, Shutdown the Diesel Generator Locally

Task Performance: AO/RO/SRO _X_ RO/SRO __ SRO Only_____ AO Only _____

Sequence Critical: Yes _X_ No _____

Time Critical: Yes ___ No _X_

Operator Performing Task: _____

Examiner: _____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation _X_ Performance ___ Discuss ____

Setting: Classroom ___ Simulator ___ Plant _X_

Performance Expected Completion Time: 15 minutes

Evaluation Results:

Performance: PASS __ FAIL __ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: Mo Hanbo 10/5/10
Operations Representative — Date

Approved by: K. STUPAK 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **plant** and you are to **simulate** the actions.

You are requested to **"talk through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- The "A" EDG has been running for 60 minutes, paralleled to the bus, loaded to 2500 KW for post maintenance testing of the local control panel.
- All Operator rounds have been completed satisfactorily, and the EDG is ready to be secured.

Initiating Cues:

- You have been directed by the CRS to shutdown the EDG locally, per OP 2126, "Diesel Generators", Section "D".

Task Standards:

- The local shutdown of the diesel generator is complete and satisfactory.

Required Materials:

- OP 2126, "Diesel Generators"

Simulator Setup:

N/A

Evaluation **Performance Steps**

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

SAT/UNSAT **Step 1:** **Obtain Procedure OP 2126 and review Precautions/Limitations.**

Standard: OP 2126 obtained, reviewed the Precautions/Limitations

EVALUATOR CUE: Inform operator the Precautions/Limitations are SAT.

EVALUATOR NOTE: All steps are performed in the DG A Room.

SAT/UNSAT ***Step 2:** **On generator panel DG-1-1A, using the GOVERNOR control switch, gradually reduce load to approximately 50%.**

Standard: On DG A, the operator intermittently positions diesel governor control switch to LOWER until generator unloads to 50% on Diesel Control Panel.

EVALUATOR CUE: Inform the Operator that the EDG is unloaded to 1250 KW

SAT/UNSAT **Step 3:** **Using the AUTO VOLTAGE REG ADJUST switch, adjust reactive load to as close to zero KVARs as possible**

Standard: Reactive load reads approximately zero KVARs.

EVALUATOR CUE: When asked, inform the Operator that KVARs are reading approximately zero

SAT/UNSAT **Step 4:** **Run unit at 50% load for 5 minutes.**

Standard: Operator allows unit to run for 5 minutes at 50% load.

EVALUATOR CUE: Inform the Operator that using time-compression, The EDG has been running at 50% load for 5 minutes.

Evaluation	Performance Steps
SAT/UNSAT	***Step 4:** **On generator panel DG-1-1A, using the GOVERNOR control switch, unload unit to < 200 kw.** Standard: Operator intermittently positions diesel governor control switch to LOWER until generator unloads to < 200KW, as indicated on the Diesel Control Panel. **EVALUATOR CUE:** Inform the Operator that the EDG is unloaded to 180 KW
SAT/UNSAT	**Step 5:** **On CRP 9-8 open diesel output breaker 4KV BREAKER DIESEL GENERATOR 1A.** Standard: Operator directs another operator to open the DG A output breaker from CRP 9-8. **EVALUATOR CUE:** Inform the Operator that the output breaker has been Opened and EDG KW is zero; green light lit and red light out.
SAT/UNSAT	**Step 6:** **Run unloaded for approximately 1 minute.** Standard: Operator allows diesel to run unloaded for approximately one minute. **EVALUATOR CUE:** Inform the Operator that using time-compression, the EDG has been running for one minute.
SAT/UNSAT	***Step 7:** **Reset the SPEED DROOP to "Zero"** Standard: Operator resets the speed droop to zero at the Diesel Governor. (Top left knob on governor.) **EVALUATOR CUE:** Inform the Operator that the speed droop is at zero.

Evaluation	Performance Steps
SAT/UNSAT	**Step 8: Check the voltage regulator maintaining approximately 4160V and the governor maintaining 60 Hz.**
	Standard: Operator observes voltage and adjusts voltage regulator as necessary to maintain 4160V, and observes frequency meter and adjusts governor as necessary to maintain 60 HZ.
	EVALUATOR CUE: Inform the Operator that Voltage indicates 4160V and Frequency indicates 60 Hz.
SAT/UNSAT	**Step 9: Have a second operator independently verify the governor is maintaining diesel generator frequency at 60 Hz.**
	Standard: Operator contacts another operator to perform independent verification of EDG frequency.
	EVALUATOR CUE: Inform the Operator that a second operator has performed independent verification.
SAT/UNSAT	***Step 10: Stop the diesel from the DG-1-1A(B) GENERATOR panel by depressing the MANUAL ENG. STOP pushbutton.**
	Standard: Operator depresses the MANUAL ENG. STOP pushbutton on the Diesel Generator Control panel.
	EVALUATOR CUE: Inform the Operator that the EDG slows, noise level is reduced to normal background.

Evaluation	Performance Steps
SAT/UNSAT	**Step 11: Locally verify the following cycle on after the diesel has stopped.** **a. Lube oil pump** **b. Cooling water pump** **c. Heaters** Standard: Operator observes breaker lights, pressures and amps, to verify lube oil pump, cooling water pump, and heater breakers cycle on as diesel speed decreases. **EVALUATOR CUE:** If asked, inform Operator that the lube oil pump, cooling water pump, and heater breakers are operating as designed.
SAT/UNSAT	**Step 12: Refill the diesel day tank to the automatic high level cutout by depressing the FUEL OIL TRANSFER PUMP START button at the DG-1-A GENERATOR Panel.** Standard: Operator depresses the Fuel Oil Transfer Pump START button at the EDG control panel. **EVALUATOR CUE:** START pushbutton is depressed/Red light on
SAT/UNSAT	**Step 13: Verify that the diesel day tank level alarms are clear.** Standard: Operator observes diesel day tank level alarms are clear. **EVALUATOR CUE:** Inform the Operator that both Diesel Day tank alarms are clear. (DG-D-1, Low level alarm and DG-D-2, High level alarm)

Evaluation **Performance Steps**

SAT/UNSAT **Step 14: Close DLO-10A(B), LO DAY TANK SUPPLY VALVE if previously opened to make up oil.**

a. Verify lube oil makeup tank is at least 5/8 full.
b. If lube oil tank level is < 5/8 full submit a WR

Standard: Operator observes DLO-10A position and if open, rotates valve hand wheel fully clockwise to the SHUT position.

EVALUATOR CUE: When Operator indicates he will check valve shut by rotating clockwise, inform Operator that the valve is closed and the lube oil tank level is > 5/8 full.

SAT/UNSAT **Step 15: Reset all relay targets.**

Standard: Operator observes all relay targets on Diesel Control Panel.

EVALUATOR CUE: Inform the Operator that all relays are as-is.

SAT/UNSAT **Step 16: At CRP 9-8, return the BKR CONT SELECT CONT RM DG PNL switch to REMOTE.**

Standard: Operator requests control room to position BKR CONT SELECT CONT RM DG PNL switch to REMOTE on CRP 9-8.

EVALUATOR CUE: Inform the Operator that BKR CONT SELECT CONT RM DG PNL switch to REMOTE on CRP 9-8.

SAT/UNSAT **Step 17: If it is known that the unit will sit idle for greater than one (1) hour following a run, THEN between 10-15 minutes after diesel shutdown, air roll the Diesel as follows:**

Standard: Operator begins 10-15 minute waiting period to allow air rolling of the diesel.

EVALUATOR CUE: Inform the Operator 10-15 minute waiting period is over. The air roll and remaining section of the procedure will be completed by another operator.

* Critical Step

TIME FINISH: _____

Terminating Cue: The EDG is shutdown.

Evaluators Comments:_____

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System K/A: Emergency Generators (Diesel/Jet) (264000) (A2.02 Ability to (a) predict the impacts of the following on the EMERGENCY GENERATORS (DIESEL/JET) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Unloading prior to securing emergency generator RO 3.1/SRO 3.1).

EXAMINEE HANDOUT

Initial Conditions:

- The "A" EDG has been running for 60 minutes, paralleled to the bus, loaded to 2500 KW for post maintenance testing of the local control panel.
- All Operator rounds have been completed satisfactorily, and the EDG is ready to be secured.

Initiating Cues:

- You have been directed by the CRS to shutdown the EDG locally, per OP 2126, "Diesel Generators", Section "D".

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Isolate and Vent the Scram Air Header
Failure Mode: N/A
Reference: OE 3107, "EOP/SAG Appendices", Appendix D
Task Number: 2007550501, Perform Manual Isolation and Venting of the Scram Air Header

Task Performance: AO/RO/SRO X RO/SRO ___ SRO Only _____ AO Only _

Sequence Critical: Yes ___ No X

Time Critical: Yes ___ No X

Operator Performing Task: _____

Examiner: _____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation X Performance ___ Discuss ___

Setting: Classroom ___ Simulator ___ Plant X

Performance Expected Completion Time: 5 minutes

Evaluation Results:

Performance: PASS ___ FAIL ___ Time Required: _____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: _____ 10/5/10
Operations Representative — Date

Approved by: _____ 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.

After providing the initiating cue, ask the operator "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the Plant and you are to **simulate** all actions.

You are requested to **"talk through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- Actions are being carried out IAW EOP-2, "RPV ATWS Control". The reactor is at 1000 psig and all control rods have failed to insert.

Initiating Cues:

- CRS directs you to isolate and vent the Scram Air Header per OE 3107, "EOP/SAG Appendices", Appendix D

Task Standards:

- Scram Air Header isolated and vented in accordance with OE 3107, "EOP/SAG Appendices", Appendix D

Required Materials:

- OE 3107, "EOP/SAG Appendices", Appendix D

Evaluation **Performance Steps**

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

SAT/UNSAT **Step 1: Obtain Procedure**

Standard: OE 3107 Appendix D obtained

EVALUATOR CUE: When the operator asks, provide a copy of the procedure.

SAT/UNSAT **Step 2: If reactor pressure is < 500 psi., THEN OPEN/confirm OPEN CRD-56 Charging Water Header Supply**

Standard: Determines reactor pressure is >500 psig based on initial conditions or calls the control room to confirm reactor pressure.

EVALUATOR CUE: If requested inform the operator that reactor pressure is at 1000 psig (This pressure was provided as an initial condition).

SAT/UNSAT ***Step 3: CLOSE/check CLOSED the following:**

a. * CRD-A1 Air filter inlet valve
b. * CRD-A4 Air filter inlet valve

Standard: CRD-A1 and CRD-A4, Air filter inlet valve handwheels are taken to the clockwise direction until valve resistance is felt.

EVALUATOR CUE: CRD-A1 and CRD-A4 valve handwheels rotate freely in the clockwise direction and the valve stem lowers until resistance is felt.

Evaluation	Performance Steps
SAT/UNSAT	***Step 4:** **OPEN/check OPEN the following:** **a. * CRD-A2 Air filter outlet valve** **b. * CRD-A3 Air filter outlet valve** Standard: CRD-A2 and CRD-A3 Air filter outlet valve are open, handwheel taken to the clockwise direction, then counter-clockwise until full open. **EVALUATOR CUE:** CRD-A2 and CRD-A3 valve handwheels rotate freely in the clockwise direction, then counterclockwise until resistance is felt and the handwheel stops moving. The valve stem moves first inward then outward while the valve is moving. **EVALUATOR NOTE:** One valve is already aligned in the OPEN position for normal plant operations.
SAT/UNSAT	***Step 5:** **Open the air filter cartridge drains to vent the scram air header** **a. * Open CRD-A12 Air Filter Drain Valve** **b. * Open CRD-A13 Air Filter Drain Valve** Standard: CRD-A12 and CRD-A13 Air Filter Cartridge drain valves are petcocks located on the underside of the air filters, are rotated counterclockwise. **EVALUATOR CUE:** CRD-A12 and CRD-A13 valves rotated counterclockwise to a position parallel to the vent/drain line. The sound of air rushing out is heard.
SAT/UNSAT	**Step 6:** **Verify the scram air header is depressurized by observing decreasing pressure on scram valve pilot air pressure gauge PI-3-229** Standard: Air pressure decreasing on PI-3-229, located on the wall above the air filter. **EVALUATOR CUE:** When the operator locates PI-3-229 inform him that the air pressure is decreasing.

Evaluation **Performance Steps**

SAT/UNSAT **Step 7: Inform the CRS that the scram air header has been isolated and vented**

Standard: The operator informs the CRS that the scram air header has been isolated and vented

EVALUATOR CUE: Acknowledge the report to the CRS that the scram air header is isolated and vented. No additional actions will be required.

*Critical Step

TIME FINISH: _____

Terminating Cue: Scram air header isolated and vented IAW OE 3107 Appendix D.

Evaluators Comments:

System K/A: Control Rod Drive Hydraulics (201001) and SCRAM present and Reactor power above APRM downscale or unknown (295037) (EA1.05 Ability to monitor and/or monitor the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: CRD hydraulics system RO 3.9/SRO 4.0)

EXAMINEE HANDOUT

Initial Conditions:

- Actions are being carried out IAW EOP-2, "RPV ATWS Control". The reactor is at 1000 psig and all control rods have failed to insert.

Initiating Cues:

- CRS directs you to isolate and vent the Scram Air Header per OE 3107, "EOP/SAG Appendices", Appendix D

VERMONT YANKEE NUCLEAR POWER CORPORATION
JOB PERFORMANCE MEASURE
WORKSHEET
2010 ILO NRC EXAM

Task Identification:

Title: Respond to RPS Power Protection Panel Trip
Failure Mode: N/A
Reference: OP 2134, "Reactor Protection System"
Task Number: 2127070401, Respond to RPS Power Protection Panel Trip

Task Performance: AO/RO/SRO __X__ RO/SRO ___ SRO Only ___

Sequence Critical: Yes __X__ No

Time Critical: Yes ___ No __X__

Individual Performing Task: _____

Examiner: _____

Date of Evaluation: _____

Activity Code: _____

Method of Testing: Simulation __X__ Performance __ Discuss

Setting: Classroom ___ Simulator __ Plant _X_

Performance Expected Completion Time: 15 minutes

Evaluation Results:

Performance: PASS ___ FAIL ___ Time Required:_____

Prepared by: _____ 10-5-10
NRC Exam Lead Developer — Date

Reviewed by: MO Hawe 10/5/10
Operations Representative — Date

Approved by: K STUPAK 10/5/10
Facility Reviewer — Date

Directions:

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

Read to the person being evaluated:

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Plant** and you are to **simulate** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

Initial Conditions:

- The plant is operating normally at full power. RPS Power Protection Panels PPP-A-1 and PPP-A-2 have tripped. In addition, the MG set Generator Output breaker has tripped. The trips have been determined to be spurious.

Initiating Cues:

- The CRS directs you to reset the RPS Power Protection Panel Trips in accordance with OP 2134, "Reactor Protection System", Section "F". Maintenance is **NOT** available to assist in setting RPS MG Set voltage at this time.

Task Standards:

- RPS Power Protection Panels PPP-A-1 and PPP-A-2 are reset and re-powered.

Required Materials:

- OP 2134 Reactor Protection System

Simulator Setup:

N/A

Evaluation **Performance Steps**

Provide operator with Initial Conditions/Cue (Last Page of this JPM).

TIME START: _____

SAT/UNSAT **Step 1: Obtain Procedure OP 2134 and review precautions and prerequisites.**

Standard: OP 2134 obtained, precautions and prerequisites reviewed.

EVALUATOR CUE: When the operator asks, provide a copy of the procedure and inform him/her all prerequisites are met.

SAT/UNSAT **Step 2: Check the status lights on the tripped RPS power protection panels to determine the cause of the trip.**

Standard: Operator checks the status lights on panels PPP-A-1 and PPP-A-2.

EVALUATOR CUE: Inform the operator Panels PPP-A-1 and PPP-A-2 status lights for undervoltage and underfrequency are lit.

SAT/UNSAT **Step 3: If the cause of the trip is the MG set then: Check the M/G set generator output voltage and adjust voltage to 118 ± 1 volt.**

Standard: Operator checks MG3-1A output voltage meter.

EVALUATOR CUE: Inform the operator that the MG3-1A output voltage meter indicates 118 volts (or "As-Is" if operating).

SAT/UNSAT ***Step 4: Position the MG3-1A output breaker to OFF.**

Standard: Operator places MG3-1A output breaker to OFF.

EVALUATOR CUE: Inform Operator that breaker is OFF.

Evaluation **Performance Steps**

SAT/UNSAT ***Step 5:** **Position the MG3-1A output breaker in ON.**

Standard: Operator places MG3-1A output breaker to ON.

EVALUATOR CUE: Inform Operator that breaker is in ON.

EVALUATOR CUE: Inform Operator that the Control Room will initiate a WR due to Maintenance not being available (step 4b).

SAT/UNSAT **Step 6:** **RESET the affected RPS Power Protection Panel as follows:**

Verify Power In lamp is On.

Standard: Operator verifies that PPP-A-1 POWER IN lamp is On.

EVALUATOR CUE: Inform Operator that PPP-A-1 POWER IN lamp is On.

SAT/UNSAT ***Step 7:** **Place panel output breaker to OFF to reset.**

Standard: Operator positions PPP-A-1 output breaker to OFF.

EVALUATOR CUE: Inform Operator that breaker is OFF.

SAT/UNSAT ***Step 8:** **Place panel output breaker to ON.**

Standard: Operator positions PPP-A-1 output breaker is placed in ON.

EVALUATOR CUE: Inform Operator that breaker is ON.

SAT/UNSAT **Step 9:** **Verify the Power Out light on the affected RPS Power Protection Panel is On.**

Standard: Operator verifies that PPP-A-1 Power Out light is lit.

EVALUATOR CUE: Inform Operator that light is lit.

Evaluation	Performance Steps
SAT/UNSAT	**Step 10: RESET the affected RPS Power Protection Panel as follows:** **Verify Power In lamp is On.** Standard: Operator verifies that PPP-A-2 POWER IN lamp is On. **EVALUATOR CUE:** Inform Operator that PPP-A-2 POWER IN lamp is On.
SAT/UNSAT	***Step 11: Place panel output breaker to OFF to reset.** Standard: Operator positions PPP-A-2 output breaker to OFF. **EVALUATOR CUE:** Inform Operator that breaker is OFF.
SAT/UNSAT	***Step 12: Place panel output breaker to ON.** Standard: Operator positions PPP-A-2 output breaker is placed in ON. **EVALUATOR CUE:** Inform Operator that breaker is ON.
SAT/UNSAT	**Step 13: Verify the Power Out light on the affected RPS Power Protection Panel is On.** Standard: Operator verifies that PPP-A-2 Power Out light is lit. **EVALUATOR CUE:** Inform Operator that light is lit.
SAT/UNSAT	**Step 14: Verify that the AEOG radiation monitor is indicating correctly.** Standard: Operator directs control room operator to check the indications on the AEOG radiation monitor. **EVALUATOR CUE:** Inform the Operator that the AEOG radiation monitor indicates correctly.

Evaluation	Performance Steps
SAT/UNSAT	**Step 15: At east wall of Cable Vault, Box B1024, check that RPS AVAILABLE white lamp is On.** Standard: Operator verifies that RPS AVAILABLE white lamp on Box B1024 is On. **EVALUATOR CUE:** Inform Operator that lamp is lit.
SAT/UNSAT	***Step 16: Turn the APRM Bus A Reset selector switch to RESET and return it to NORMAL.** Standard: Operator turns the APRM Bus A Reset selector switch to RESET and returned to NORMAL on Box B1024. **EVALUATOR CUE:** Inform the Operator that the switch has been rotated to RESET and returned to NORMAL
SAT/UNSAT	**Step 17: Ensure that red lamp for RPS A is On** Standard: Operator verifies that the RPS A red lamp is lit. **EVALUATOR CUE:** Inform the Operator the red lamp is lit.
SAT/UNSAT	**Step 18: Contact the Control Room and request that the following actions be performed:** **a) Reset of the half scram.** **b) Reset of the Group 3 isolation per OP 2115** Standard: Operator contacts the Control Room and requests the following actions be performed: a) Reset of the half scram b) Reset of the Group 3 isolation per OP 2115 **EVALUATOR CUE:** Inform Operator that the JPM is complete.

Time Critical

TIME FINISH: _____

Terminating Cue: The RPS Power Protection Panels PPP-A-1 and PPP-A-2 has been reset.

Evaluator Comments: _____

System K/A: Reactor Protection System (212000) (A2.02 Ability to (a) predict the impacts of The following on the REACTOR PROTECTION SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: RPS Bus power supply failure RO 3.7/SRO3.9).

EXAMINEE HANDOUT

Initial Conditions:

- The plant is operating normally at full power. RPS Power Protection Panels PPP-A-1 and PPP-A-2 have tripped. In addition, the MG set Generator Output breaker has tripped. The trips have been determined to be spurious.

Initiating Cues:

- The CRS directs you to reset the RPS Power Protection Panel Trips in accordance with OP 2134, "Reactor Protection System", Section "F". Maintenance is **NOT** available to assist in setting RPS MG Set voltage at this time.

Facility:	VERMONT YANKEE	Scenario No.:	1	Op Test No.:	**VY 2010**
Examiners:		Operators:		CRS -	
				OATC -	
				BOP -	

Initial Conditions: A reactor power reduction is in progress to support planned maintenance on the "C" Reactor Feedwater Pump seal and electrical grid maintenance.

Turnover: The crew is directed to continue with a power reduction to 80% RTP to support planned maintenance on the "C" Reactor Feedwater Pump seal. The seal has minor leakage and there are no operational restrictions on operating with the current leakage. From there, maintain 80% RTP until the maintenance is complete and RFP restored to service. The plant is expected to remain at 80% RTP for ~48 hours to support maintenance activities.

Critical Tasks:

1. When PCIS Group 1, 2, **3**, 5, or 6 fails to isolate with a leak present, initiate PCIS Group manually. **STANDARD:** Leak or release terminated within 10 minutes of receipt of the auto isolation signal.
2. When torus pressure exceeds the suppression chamber spray initiation pressure, initiate drywell containment spray while in the safe region of the drywell spray initiation limit. **STANDARD**: spray the drywell within 10 minutes of exceeding a Torus pressure of 10 psig AFTER power has been restored to Bus 3 AND RPV level not an overriding priority.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R- OATC N-CRS N- BOP	With the plant at 90% RTP, continue a power reduction to 80% RTP to support planned maintenance on the "C" RFP seal. Remove the "C" Reactor Feedwater pump from service following power reduction.
2	mfRC_04	C- ALL TS- CRS	Inadvertent Initiation of RCIC (positive reactivity addition) (OT) (TS)
3	mfFW_14	I- OATC I- CRS	Steam Flow Summer failure low (OT)
4	IOR RHdi3210A S34A	TS- CRS	Respond to Annunciator 3-J-9 (RHR/CS A BUS/LOGIC FAIL) (TS)
5	Mf_06A	C- ALL	Small steam Leak in the drywell

6	mfED_03A	M- ALL	Loss of Bus 1 resulting in the loss of Feedwater
	mfDG_05B	C- BOP C- CRS	"B" EDG fails to start
	Mf_06A	M- ALL	Larger steam Leak in the drywell
	mfPC_1SB06 mfPC_1SB06A	C- BOP	PCIS Group 3 failure (AC-6 and AC-6B fail to close)
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Vermont Yankee 2010 NRC Scenario #1

The crew takes the watch with the reactor operating at 90% RTP. They will continue a power reduction to 80% and remove the "C" Reactor Feedwater Pump (RFP) IAW OP-0105, "Reactor Operations". This will be done to perform corrective maintenance on the 'C" RFP.

The crew will respond to an inadvertent initiation of Reactor Core Isolation Cooling IAW OT 3110, "Positive Reactivity Insertion". After verifying the requirements of EN-OP-115, "Conduct of Operations", the crew can override the system by tripping RCIC. The CRS will determine that RCIC is INOPERABLE and enter TS LCO 3.5.G.2 (14 days). RCIC will remain AVAILABLE for the remainder of the scenario.

The crew will respond to a downscale failure of the Steam Flow Summer. The failure will result in RPV water level lowering and require the OATC to take manual control of the FWLC system to restore level IAW OT 3113, "Reactor Low Level" and transfer the FWLC System to Single Element.

The crew will respond to annunciator 3-J-9, "RHR/CS A BUS/LOGIC FAIL". When an operator is sent to investigate, it will be determined that DC-2C circuit breaker #2 was found tripped. As a result, the CRS will enter TS LCO 3.5.A.6 (24 hour cold shutdown).

The crew will respond to a small leak in the Drywell IAW OT 3111' "High Drywell Pressure. Efforts to control drywell pressure will be unsuccessful, and the crew will insert a manual scram prior to reaching the high Drywell pressure setpoint. Entry into EOP-1, "RPV Control" and EOP-3, "Primary Containment Control", will be required.

After the RPV water level band has been given to the OATC, the crew will respond to the loss of Bus 1 and the loss of ALL feedwater IAW OT 3169, "Loss of Bus 1". The "B" EDG will not start automatically or manually due to an air start solenoid failure. IAW EOP-1, RPV level control will be shifted to alternate preferred injection systems (Table "C").

As the water level control issues are being addressed, the steam leak will become larger requiring additional actions in EOP-3. Two PCIS Group 3 valves will fail (AC-6 and AC-6B) requiring manual operation to shut them with a leak in containment **(CRITICAL TASK).** As Torus pressure rises to 10 psig, action will be taken to initiate Drywell Sprays **(CRITICAL TASK).** To do this power will have to be restored to Bus 3 from the Vernon Tie for the "B"/"D" RHRSW pumps.

SIMULATOR EVALUATION GUIDE

2010 NRC Examination

NRC Evaluators:

_____

_____

_____

ILO Candidates

BOP _____

OATC _____

BOP _____

Critical Task Performance: SAT UNSAT
(Circle One)

Date Administered: _____

Prepared by: _____ Date: 10-5-10
Lead Exam Developer

Reviewed by: _____ Date: 10/5/10
Operations Representative

Approved by: K. STUPAK Date: 10/5/10
Facility Reviewer

CREW BRIEF:

-Power level: 90% RTP

-Rod Sequence: Rapid Shutdown Sequence Latched **-Rod Group:** 53 with rod 14-23 the next rod

-Equipment out of service and/or tagged or abnormalities:

1. Minor seal leakage on the "C" Reactor Feedwater Pump.
2. Scheduled ISO-NE electrical grid maintenance
3. IRM "A"

-Reason For Equipment out of Service or tagged:

1. IRM "A" Detector sticking

-Applicable Tech Spec LCOs:

1. N/A

EOOS Color:

Green

-Plant evolutions in progress/Scheduled Shift Evolutions:

1. A power reduction to 90% was commenced last shift.
2. Continue with a power reduction to 80% RTP IAW **OP 0105, "Reactor Operations", step 5.c.2.b** to support planned maintenance on the electrical grid as well as, the "C" Reactor Feedwater Pump seal. The seal has minor leakage and there are no operational restrictions on operating with the current leakage.
3. The plant is expected to remain at 80% RTP for ~48 hours to support maintenance activities.
4. From there, maintain 80% RTP until the maintenance is complete and RFP restored to service. To support the evolution, Hydrogen Water Chemistry has been aligned to the "A" and "B" Reactor Feedwater pumps.
5. The "C" RFP discharge valve (FDW-4C) is to remain shut in preparation for the tagging order.

SCENARIO SUMMARY:

See ES-D-1 for summary

TERMINATING CONDITION(S):

1. The Drywell sprayed to lower Drywell pressure 2.5-3.5 psig and RPV water level and pressure being controlled in EOP-1 bands.

REFERENCES:

1. OP 0105, "Reactor Operations"
2. EN-OP-115, "Conduct of Operations"
3. DP 0166, "Operations Department Standards"
4. OP 2121, "RCIC System"
5. OT 3110, "Positive Reactivity Insertion"
6. OT 3113, "Reactor Low Level"
7. Alarm Response Sheet 3-J-9
8. OT 3111, "High Drywell Pressure"
9. OT 3169, "Loss of Bus 1"
10. ON 3171, "Loss of Bus 3"
11. OT 3100, "Reactor Scram"
12. EOP-1, "RPV Control"
13. EOP-3, "Primary Containment Control"
14. Technical Specifications

SIMULATOR OPERATOR INSTRUCTIONS

Simulator Set Up: 90% RTP

1. IC-801 on LOI Exam Load; RUN on Scenario List NRC Scenario 1 (included are event triggers ET AC6 and ET AC6B)
2. Master FWLC setpoint set for 160 inches and displaying the "S" parameter
3. Individual FWLC controllers are displaying the "V" parameter
4. Master Recirculation Flow Controller selected for FINE adjust
5. Individual Recirculation controllers are displaying the "P" parameter
6. Rapid Shutdown Sequence available
7. Turnover checklist and TS tracking sheet filled out (VYAPF 0152.01 and 0152.02)
8. OP 0105 placekept through Phase 5A, step 5.c.2.a

Discretionary Distracter Malfunctions/RFs/IOs:

No.	MF/RF/IO #	Severity	Ramp	REM #	Act. Time	Description
1.	mfDG_05B	Active		Preinsert		Failure of the "B" EDG to start
2.	mfPC_1SB06 mfPC_1SB06B	Active		Preinsert		PCIS Group 3 failure (AC-6 and AC-6B fail to close)
3.	mfRH_03A	Active		Preinsert		RHR-26A (Drywell Spray) fails to open
4.	mfRC_04	Active		1	After "C" RFP removed from service	Inadvertent initiation of Reactor Core Isolation Cooling (RCIC)
5.	mfFW_14	0%	120	2	After RCIC TS call made	Steam Flow summer fails downscale
6.	IOR RHdi3210AS34A	Test		3	After FWLCS restored to automatic	3-J-9 (RHR/CS A BUS/LOGIC FAIL)
7.	mfAN03M8	Failure		3		Fails 3-J-9 annunciator

8.	mfMS_06	.1	300	4	After RHR/CS TS call made	Main Steam Leak in the Drywell
9.	mfED_03A	Active		5	Insert after RPV water level band has been directed.	Loss of 4KV Bus 1
10.	mfMS_06	1.5	120	6	Insert after the preferred injection source needed to restore level has been determined	Main Steam Leak in the Drywell
11.	rfFW_04	BYPASS		7		Feedwater Pump "B" condensate pump trip bypass switch.

SIMULATOR OPERATOR INSTRUCTIONS (Continued)

Additional Instructions:

1. When asked as the FSS/TBAO to place the P-1-1B TRIP on COND PUMP TRIP control switch to BYPASS, insert key 7.

2. When asked as the WMM/FSS to investigate the cause of RCIC inadvertently injecting, acknowledge and make a time compressed report that the cause was due to a failed low level sensing circuit. The recommendation will be to remove the LT input to the sensing circuit from service. This report will be made at the discretion of the Lead Evaluator.

   NOTE (2): PRIOR to the scram, ensure you call the Control Room as I&C and inform them that the LT input to the sensing circuit was removed from service. **(DELETE malfunction on KEY 1)**

3. When called as the FSS/RBAO to fill and vent the RCIC system, inform the crew that time compression has been used and the RCIC system is filled and vented IAW OP 4121.

4. When asked as the WWM/FSS to investigate the cause of the failed Steam Flow Summer, acknowledge and make a time compressed report that the failure was due to an output signal failure. Additional time will be needed to troubleshoot and determine the extent of the failure. This report will be made at the discretion of the Lead Evaluator.

5. When asked as the TBAO to mark the status of DC-2C, circuit 2, report that the breaker is tripped free.

6. When asked as the WWM/FSS to investigate the cause for DC-2C, circuit 2 being tripped, provide a time compressed report (when prompted by the lead evaluator) that the cause is unknown and troubleshooting is in progress.

7. When asked as the WWM/FSS to investigate the failure of the "B" EDG to start, provide a time compressed report (when prompted by the lead evaluator) that there is an air start solenoid failure. Troubleshooting is in progress to determine the cause.

8. When asked as the WWM/FSS/RBAO to manually open RHR-26A, report that the valve is binding and cannot be opened manually.

OPERATOR ACTIONS
EVENT NUMBER 1

Crew Task Description:

Down power reduction from 90% → 80% RTP to support removing the "C" Reactor Feedwater Pump from Service

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CRS	Directs the OATC to commence a power reduction to 80% RTP IAW OP 0105, Phase 5, step 5.c.2).b).				
2.	OATC	Using the rapid shutdown sequence, inserts control rods in reverse order until power is ~80% RTP.				
3.	CRS	Directs the BOP to perform VYOPF 0105.07 Decreasing power /Shutdown Check Sheet				
4.	BOP	Performs VYOPF 0105.07 consistent with down power reduction				
5.	CRS	Directs the BOP to remove the "C" Reactor Feedwater Pump (RFP) from service IAW OP 0105, Phase 5, step 8.				
6.	BOP	Removes the "C" RFP from service				
7.	CREW	Human Performance Tools consistently utilized throughout event number 1.				

OPERATOR ACTIONS
EVENT NUMBER 2

Crew Task Description:
Respond to an Inadvertent Initiation of Reactor Core Isolation Cooling (RCIC)

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognizes that RCIC has inadvertently initiated by either CRP 9-4 indications, water level change, or the plant computer typer.				**ENTER KEY 1**
2.	CRS	Enters and directs actions of OT 3110, "Positive Reactivity Insertion".				
3.	CRS	After confirming that adequate feedwater exists and level is adequate, directs that RCIC be tripped IAW EN-OP-115 guidance and OT 3110.				
4.	BOP	Trips RCIC as directed				
5.	CREW	The crew may elect to perform OP 2121, "RCIC System", section G, and respond to a RCIC Turbine Trip. This involves fill and vent the system and swap RCIC suction.				
6.	CRS	Makes a power, pressure, and level report to the CRS when conditions stabilize (management expectation)				
7.	CREW	Contact WWM/FSS to investigate the cause for the inadvertent start of RCIC				
8.	CRS	Enters TS LCO 3.5.G.2 for RCIC being INOPERABLE. RCIC is still available if needed as a source of high pressure injection (14 day).				
9.	CRS	Brief the crew				

10.	CREW	Human Performance Tools consistently utilized throughout event number 2.				

OPERATOR ACTIONS
EVENT NUMBER 3

Crew Task Description:
Respond to Reactor Low Level due to a failed steam flow summer

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognizes that the feedwater regulating valves are closing resulting in a lowering RPV water level.				**ENTER KEY 2**
2.	OATC	Shifts the RX VESSEL MASTER CONTROLLER to manual by depressing the A/M pushbutton (Immediate action)				
3.	CRS	Confirms/directs as necessary that the RX VESSEL MASTER CONTROLLER is in manual.				
4.	CRS	Enters and directs actions of OT 3113, "Reactor Low Level"				
5.	CREW	Recognizes that the Steam Flow Summer has failed downscale and is the cause of the lowering RPV water level.				
6.	BOP	Responds to a trip of Hydrogen Water Chemistry (failed stem flow input)				
7.	CREW	Contacts WWM/FSS to determine the cause of the failed Steam Flow Summer.				
8.	CRS	Directs OATC to place VESSEL LEVEL CONTROL MODE switch to the 1 ELEM position.				
9.	OATC	Places the VESSEL LEVEL CONTROL MODE switch to the 1 ELEM position.				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
10.	OATC	Makes a power, pressure, and level report to the CRS when conditions stabilize (management expectation)				
11.	CRS	Directs the OATC to place the RX VESSEL MASTER CONTROLLER to automatic once conditions have stabilized.				
12.	OATC	Places the RX VESSEL MASTER CONTROLLER to automatic.				
13.	CRS	Brief the crew				
14.	CREW	Human Performance Tools consistently utilized throughout event number 3.				

OPERATOR ACTIONS
EVENT NUMBER 4

Crew Task Description:
Respond to Annunciator 3-J-9 RHR/CS A BUS/LOGIC FAIL

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	BOP	Acknowledges annunciator 3-J-9 and refers to appropriate Alarm Response Sheet				**ENTER KEY 3**
2.	CREW	Contacts the WWM/FSS/TBAO to investigate the cause of the alarm				
3.	BOP	Informs the CRS that T.S. 3.5 applies				
4.	BOP	After receiving the report from the WWM/FSS/TBAO that DC-2C circuit 2 was found tripped, informs the CRS.				
5.	CRS	Enters T.S. LCO 3.5.A.6 for one CS and 1 RHR subsystem being INOPERABLE. (24 hour cold shutdown)				
EVALUATOR NOTE:		Based on the pace of the scenario and direction provided from the CRS, the CREW may elect to commence a normal reactor shutdown IAW OP 0105, "Reactor Operations".				
6.	CREW	Human Performance Tools consistently utilized throughout event number 4.				

OPERATOR ACTIONS
EVENT NUMBER 5

Crew Task Description:
Respond to a small steam leak in the drywell and Reactor Scram

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognizes and reports rising Drywell pressure				**DELETE KEY 1 along with making report annotated by Note (2) on page 9.** **ENTER KEY 4**
2.	CRS	Enters and directs actions of OT 3111, "High Drywell Pressure"				
3.		• Start all available Drywell RRUs				
4.		• Close AC-20				
5.		• Commence a power reduction to 28.5-29.5 Mlbm/hour (if time permits)				
6.		• Provide an action level to manually scram the reactor PRIOR to reaching the automatic scram setpoint				
7.		• IF TIME PERMITS, may direct transferring house loads to the Startup Transformers.				
8.	BOP	When directed perform actions of OT 3111				
9.		• Start all available drywell RRUs				
10.		• Close AC-20				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
11.		• Transfers house loads to the Startup Transformers				
12.	OATC	When directed, commence a power reduction to 28.5-29.5 Mlbm/hour.				
13.		Insert a manual scram at the action level provided by the CRS.				
14.	CRS	Confirms/directs the insertion of a manual scram				
15.	CRS	Recognizes entry condition for EOP-1 and EOP-3. Enters and directs actions of EOP-1, "RPV Control" and EOP-3, "Primary Containment Control", and OT 3100, "Reactor Scram".				
16.	OATC	Performs and reports the following scram actions: • Mode switch to shutdown • Power <2% • All control rods are inserted • PB-1 on RX VESSEL MASTER CONTROLLER depressed				
17.	BOP	Reports the turbine has tripped and power exists to all AC buses.				
18.	CRS	Directs level control 127-177 inches and RPV pressure control 800-1000 psig IAW EOP-1				
19.	OATC	Controls RPV water level 127-177 inches and RPV pressure 800-1000 psig as directed.				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
20.	CRS	With adequate high pressure injection source and water level in band, direct HPCI inhibited once auto start at 2.3 psig. **NOTE:** The crew may anticipate the automatic start of HPCI and dial the setpoint down to prevent water level from going >177 inches.				
21.	CRS	Verify automatic actions for EOP-1 Table "A" setpoints as necessary (127 inches)				
22.	CRS	Brief the crew				
23.	CREW	Human Performance Tools consistently utilized throughout event number 5.				

OPERATOR ACTIONS
EVENT NUMBER 6

Crew Task Description:

Respond to a Loss of 4KV Bus 1 with failure of "B" EDG to start and a larger steam leak in the drywell with a failure of the "A" loop RHR Drywell spray valve to open RHR-26A.

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
2.	CREW	Recognizes and reports the Loss of 4KV Bus 1				**ENTER KEY 5**
3.	CRS	Enters and directs actions of OT 3169, "Loss of Bus 1".				
4.	BOP	Performs and reports the following BOP operations: • The "B" EDG failed to start. • Power to all AC buses except buses 1, 3, and 8				
5.	CREW	Contacts WWM/FSS and directs them to investigate the loss of Bus 1 and the failure of the "A" EDG to start.				
6.	OATC	Reports the loss of all running Feedwater Pumps.				
7.	CRS	Directs the use of HPCI (un-inhibit), RCIC (reset the turbine trip), "C" RFP re-started, or maximize CRD to restore and maintain RPV water level 127-177 inches.				**ENTER KEY 6**
8.	OATC	Maintains RPV water level 127-177 inches as directed.				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
9.	OATC/BOP	Continue to maintain RPV pressure 800-1000 psig as directed. **NOTE:** With the loss of Bus 1, the Auxiliary Oil pump is lost and eventually, the use of bypass valves will not be an option. Pressure control will need to be shifted to an alternate source (SRVs/HPCI/RCIC).				
10.	CRS	Directs BOP to start all available drywell RRUs defeating interlocks as necessary				
11.	BOP	Starts all available Drywell RRUs as necessary				
12.	**CREW CCT-1**	**When PCIS Group 1, 2, 3, 5, or 6 fails to isolate with a leak present, initiate PCIS Group manually (AC-6 and AC-6B). STANDARD: Leak or release terminated within 10 minutes of receipt of the auto isolation signal.**				
13.	CRS	Direct the BOP spray the Torus using the "A" Loop of RHR				
14.	BOP	Sprays the Torus as directed				
15.	**CREW CCT-2**	**When torus pressure exceeds the suppression chamber spray initiation pressure, initiate drywell containment spray while in the safe region of the drywell spray initiation limit. STANDARD: Spray the drywell within 10 minutes of exceeding a Torus pressure of 10 psig AFTER power has been restored to Bus 3.**				
16.	CRS	Direct the Recirculation pumps and Drywell RRUs secured if running.				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
17.	BOP	If running, secure the Recirculation pumps and Drywell RRUs.				
18.	BOP	Recognize and report that RHR-26A will not open and that the drywell can be sprayed remotely using the "A" Loop of RHR				
19.	CREW	Contact the WWM/FSS to investigate the cause for the failure of RHR-26A to open AND manually open RHR-26A locally. **NOTE:** Efforts to manually open RHR-26A will fail requiring the crew to bring the Vernon Tie on to Bus 3 and spray using the "B" Loop of RHR.				
20.	CRS	Direct power to be restored to Bus 3 via the Vernon Tie. This will power Loop "B" valves from Bus 8 and power the RHRSW pumps from Bus 3. **NOTE:** power will have to be restored to Bus 3 from the Vernon Tie for the "B"/"D" RHRSW pumps OR manual operation of RHR-26A.				
21.	BOP	Restore power to Bus 3 via the Vernon Tie				
22.	BOP	Spray the Drywell as directed				
23.	CRS	Classify the event IAW AP 3125, EAL FS1.1				
24.	CRS	Brief the crew				
25.	CREW	Human Performance Tools consistently utilized throughout event number 6.				

SCENARIO 1 EVALUATOR NOTES:

Facility:	VERMONT YANKEE	Scenario No.:	2	Op Test No.:	**VY 2010**
Examiners:		Operators:		CRS -	
				OATC -	
				BOP -	

Initial Conditions: The plant is operating at 100% RTP. RHR-39A (TORUS SPRAY/CLG RHR) valve motor actuator is being repaired (30-day LCO entered 1 day ago per TS 3.5.B.1).

Turnover: Maintain 100% RTP in conjunction with performing "Once/Week Pump Performance Testing" IAW OP 4160, "Turbine Generator Surveillance", section B.1.c → B.1.f. Local testing is not desired. Sections B.1.a and B.1.b have been completed.

Critical Tasks:

1. With the reactor at power and a full auto scram signal, manually scram the reactor. **STANDARD:** Actuate the manual scram pushbuttons, place the mode switch in SHUTDOWN, or actuate the ARI/RPT pushbuttons within **1 minute** of reaching the Limiting Safety System Setting (LSSS for APRM Hi-Hi).
2. During an ATWS with conditions met to perform power/level control TERMINATE AND PREVENT INJECTION into the RPV using appendix GG, until conditions are met to re-establish injection. **STANDARD:** completion of Terminate and prevent injection IAW OE 3107 Appendix GG within **5 minutes** of loss of forced circulation.
3. With a reactor scram required and the reactor not shutdown, TAKE ACTION TO REDUCE POWER by injecting boron and/or inserting control rods, to prevent exceeding the primary containment design limits. **STANDARD:** Actions taken within **10 minutes** of the scram failure to implement appropriate appendices and/or inject SLC. Only one method needs to be used. The method must result in successful control rod insertion or SLC injection.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N- BOP N-CRS	Complete "Once/Week Pump Performance Testing" IAW OP 4160, "Turbine Generator Surveillance", section B.1.c → B.1.f. Local testing is not desired.
2	mfED_06E	TS- CRS	Loss of DC-2AS (TS)
3	mfFW_10A	I- OATC I- CRS	Failure of the 'A' Feedwater Regulating valve controller (OT)
4	mfED_05C	C- ALL TS- CRS	Loss of Bus 8 (ON) (TS)
	mfPC_11A	C- BOP	Failure of SBGT train "A" fan to auto start

5	mfMC_08	C- BOP C- CRS	Condenser air in-leakage/High Condenser backpressure (OT) due to "A" Condenser casing failure
	N/A	R- OATC	Power reduction IAW OT 3120, "Condenser High Backpressure"
6	mfNM_05D mfRD_12A mfRD_12B	M- ALL	APRM "D" Fails upscale with and Hydraulic ATWS
	mfRP_01A mfRP_01B	C- OATC C- CRS	Failure to auto scram; manual scram insertion results in partial rod insertion; ARI/RPT initiated
	mfRP_09A mfRP_09B	C- OATC	Failure of RWCU to completely isolate on SLC initiation.
	mfSL_01A	C- OATC	Failure of running SLC pump
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Vermont Yankee 2010 NRC Scenario #2

The crew will complete the "Once/Week Pump Performance Testing" IAW OP 4160, "Turbine Generator Surveillance", section B.1.c → B.1.f. B.1.a and B.1.b are complete and local testing is not desired.

The crew will respond to a loss of DC-2AS. The CRS will take actions IAW ON 3163, "Loss of DC-2AS" and enter required TRM and TS LCOs (section 3.10)

Shortly after the "A" EDG control power has been transferred to its alternate source, a failure of the 'A' feedwater regulating valve controller will occur. The crew will respond IAW OT 3114 (Reactor High Level) and place the "A" FRV Controller in manual control to block the auto signal failure.

Once level has been restored to its pre-transient value, the crew will respond to a loss of Bus 8. SBGT "A" fan will fail to auto-initiate upon receipt of the Group III isolation signal. The crew will backup the Group III isolation and initiate SBGT "A". Review of Tech Specs will reveal a 24-hour shutdown LCO due to inadequate RHR torus cooling/spray capability and inadequate LPCI (loss of emergency bus 8 will also get the plant into a 24 hour LCO).

Once the 24-hour shutdown LCO has been determined, condenser air in-leakage will result in rising condenser backpressure and entry into OT 3120. While attempts are made to determine the cause, a power reduction will be ordered IAW OT 3120. The leak will be slow enough to perform a controlled power reduction in order to get a reactivity manipulation. During the power reduction, an upscale failure of the "D" APRM will occur.

When the APRM fails upscale, it will result in a trip of RPS Channel "B" which will fail and subsequently, an ATWS will result. The manual scram pushbuttons will only insert control rods partially **(CRITICAL TASK**) and ARI/RPT pushbuttons will be used unsuccessfully. The crew will be evaluated controlling and shutting down the plant in accordance with EOP-1 and EOP-2. IAW EOP-2, "ATWS RPV Control", actions are taken to insert control rods and/or initiate SLC **(CRITICAL TASK),** and terminate and prevent injection **(CRITICAL TASK).** When SLC is initiated, the Group V isolation will fail and CU-18 and 68 will fail to isolate (CU-15 lost power and tripped the RWCU pump during the loss of Bus 8). After three minutes of operation, the "A" SLC pump will trip resulting in no SLC injection.

SIMULATOR EVALUATION GUIDE

2010 NRC Examination

NRC Evaluators:	**ILO Candidates**	
_____	BOP	_____
_____	OATC	_____
_____	BOP	_____

Critical Task Performance: SAT UNSAT
(Circle One)

Date Administered: _____

Prepared by: _____ Date: 10-5-10
Lead Exam Developer

Reviewed by: MO Harris Date: 10/5/10
Operations Representative

Approved by: K. STUPAIK Date: 10/5/10
Facility Reviewer

CREW BRIEF:

-Power level: 100% RTP

-Rod Sequence: Rapid Shutdown Sequence Latched **-Rod Group:** 53

-Equipment out of service and/or tagged or abnormalities:

1. RHR-39A (TORUS SPRAY/CLG RHR)
2. IRM "A"

-Reason For Equipment out of Service or tagged:

1. RHR-39A (TORUS SPRAY/CLG RHR) valve motor actuator is being repaired (30-day LCO entered 1 day ago per TS 3.5.B.1). Repairs will take a total of 2-3 days.
2. IRM "A" Detector sticking

-Applicable Tech Spec LCOs:

1. 3.5.B.1

EOOS Color:

Green

-Plant evolutions in progress/Scheduled Shift Evolutions:

1. Maintain 100% RTP
2. Complete "Once/Week Pump Performance Testing" IAW OP 4160, "Turbine Generator Surveillance", section B.1.c → B.1.f. B1.a and B1.b are complete and local testing is not desired.

SCENARIO SUMMARY:

See ES-D-1 for summary

TERMINATING CONDITION(S):

1. All Control Rods inserted, EOP-2 exited and EOP-1 re-entered with appropriate level and pressure bands directed to crew.

REFERENCES:

1. OP 0105, "Reactor Operations"
2. EN-OP-115, "Conduct of Operations"
3. DP 0166, "Operations Department Standards"
4. OP 4160, "Turbine Generator Surveillance"
5. ON 3163, "Loss of DC-2AS"
6. OT 3114, "Reactor High Level"
7. OT 3110, "Positive Reactivity Insertion"
8. OT 3120, "Condenser High Back Pressure"
9. OT 3100, "Reactor Scram"
10. EOP-1, "RPV Control"
11. EOP-2, "RPV ATWS Control"
12. Technical Specifications
13. Technical Requirements Manual

SIMULATOR OPERATOR INSTRUCTIONS

Simulator Set Up: 100% RTP

1. IC-802 on LOI Exam Load; RUN on Scenario File "NRC Scenario 2"
2. Master FWLC setpoint set for 160 inches and displaying the "S" parameter
3. Individual FWLC controllers are displaying the "V" parameter
4. Master Recirculation Flow Controller selected for FINE adjust
5. Individual Recirculation controllers are displaying the "P" parameter
6. EOOS updated for RHR-39A being INOPERABLE; DT on RHR-39A control switch
7. Rapid Shutdown Sequence available
8. Turnover checklist and TS tracking sheet filled out (VYAPF 0152.01 and 0152.02)
9. OP 4160 placekept through section B.1.b
10. VYOPF 4160.01 form filled out through "Turning Gear Oil Pump"

Discretionary Distracter Malfunctions/RFs/IOs:

No.	MF/RF/IO #	Severity	Ramp	REM #	Act. Time	Description
1.	mfPC_11A	Active		Preinsert		Failure of SBGT "A" to auto start
2.	mfRD_12A mfRD_12B	40% 35%		Preinsert		Hydraulic ATWS
3.	mfRP_01B	Active		Preinsert		Failure of Manual Scram
4.	mfED_06E	Active		1	After OP 4160 surveillance	Loss of DC-2AS
5.	mfFW_10A	60%	120	2	After TS call for Loss of DC-2AS	Failure of the "A" Feedwater control level signal
6.	mfED_05C	Active		3	After FWLCS is restored to automatic	Loss of Bus 8
7.	mfRP_01A	Active		4	Along with key 5	Failure of Automatic Scram
8.	mfMC_08	.1 (1/10)	300	5		Loss of Main Condenser vacuum (air in leakage)

9.	MfNM_05D	100%		6	After power reduction of OT 3120	"D" APRM fails upscale
10.	mfRP_09A mfRP_09B	Active		7	Along with Key 5	Failure of RWCU to completely isolate
11.	mfSL_01A	Active		8	Insert key 8 30 seconds after the "A" pump has been running	Trip of "A" SLC pump
12.	rfED_45	Close		9	When asked by crew	"A" EDG Alternate Control Power
13.	rfDG_07A	Reset		10	When asked by crew	"A" EDG Annunciator Panel
14.	rfRD_02	0		11	When asked by crew	Close CRD-56
15.	rfRD_20	0		12	When asked by crew	Close PCV-CRD-22
16.	rfCU_06	0		13	When asked by crew	RWCU annunciator panel

SIMULATOR OPERATOR INSTRUCTIONS
(Continued)

Additional Instructions:

1. When asked as the WWM/FSS to investigate the loss of DC-2AS, provide a time compressed report (when prompted by the lead evaluator) that there is a ground fault condition on DC-2AS. Extensive troubleshooting will be required to determine the location and repair. Anticipated time without DC-2AS will be 1 shift. Additionally if asked concerning concurrence to transfer control power, provide report that Electrical Maintenance gives concurrence to transfer control power.
2. When asked as the TBAO to transfer "A" EDG control power to DC-2, insert key 9
3. When asked as the WWM/FSS, acknowledge the request to station a 2 hour fire watch for the Cable Vault and provide a time compressed report that a 2 hour fire watch has been established.
4. When asked as the TBAO to acknowledge "A" EDG Control Panel annunciators, insert key 10.
5. When asked as the WWM/FSS to investigate the failure of the "A" FWLC, provide a time compressed report (when prompted by the lead evaluator) that there is a failure of the automatic output signal in the controller. The FWLC should remain in manual control until troubleshooting, repairs, and retests are completed.
6. When asked as the WWM/FSS to investigate the loss of Bus 8, provide a time compressed report (when prompted by the lead evaluator) that there is a ground fault condition on Bus 8. Extensive troubleshooting will be required to determine the location and repair. Anticipated time without Bus 8 will be 2 shifts. Additionally if asked, inform the Control Room that they should NOT cross tie buses 8 and 9 with a fault on Bus 8.
7. When asked as the WWM/FSS to investigate the failure of the "A" train of SBGT to auto start, provide a time compressed report (when prompted by the lead evaluator) that a lose wire was found between the auto start and "42" relay.
8. When asked as the WWM/FSS to investigate the high Main Condenser backpressure, provide a time compressed report (when prompted by the lead evaluator), that there is a crack in the "A" condenser casing which is allowing some air in-leakage. A work package will be generated to provide a temporary modification to repair the casing until the plant can be shutdown.
9. When asked as the RBAO to close CRD-56, insert key 11
10. When asked as the RBAO to close PCV-CRD-20, insert key 12. The local operation of this valve will insert all control rods.

OPERATOR ACTIONS
EVENT NUMBER 1

Crew Task Description:

Complete "Once/Week Pump Performance Testing" IAW OP 4160, "Turbine Generator Surveillance", section B.1.c → B.1.f. B1.a and B1.b are complete and local testing is not desired.

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CRS	Directs BOP to complete Once/Week Pump Performance Testing" IAW OP 4160, "Turbine Generator Surveillance", section B.1.c → B.1.f				
2.	BOP	Completes Once/Week Pump Performance Testing" IAW OP 4160, "Turbine Generator Surveillance", section B.1.c → B.1.f				
3.		• Tests the emergency bearing oil pump				
4.		• Tests the turbine lift pumps				
5.		• Verify pumps are available for automatic operation				
6.		• Record required data on VYOPF 4160.01				
7.	CREW	Human Performance Tools consistently utilized throughout event number 1.				

OPERATOR ACTIONS
EVENT NUMBER 2

Crew Task Description:
Respond to a Loss of DC-2AS

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognizes and reports the loss of DC-2AS				**ENTER KEY 1**
2.	CRS	Enters and directs actions of ON 3163, "Loss of DC-2AS"				
3.	CREW	Contacts the WWM/FSS to investigate the loss of DC-2AS				
4.	CRS	Established a fire watch to inspect the Cable Vault every 2 hours				
5.	CREW	With Electrical Maintenance concurrence, directs the "A" EDG control power be switched to its alternate source				
6.	CREW	Directs all breakers opened on DC-2AS				
7.	CRS	Enters TS LCO for the loss of "A" EDG control power and the establishment of a Cable Vault fire watch. • TS 3.10.B.1 (7 day) • TRM 3.10.B.2 (2 hour fire watch)				
8.	CREW	Human Performance Tools consistently utilized throughout event number 2.				

OPERATOR ACTIONS
EVENT NUMBER 3

Crew Task Description:
Respond to an upscale failure of the 'A' Feedwater Regulating valve controller

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognizes and reports rising RPV water level				**ENTER KEY 2**
2.	OATC	Shift RX VESSEL LEVEL MASTER CONTROLLER to manual by depressing the A/M pushbutton (immediate action)				
3.	OATC	Shift one or both FEEDWATER REG VLV FDW-12A(B) CONTROLLERS to manual by depressing the A/M pushbutton (immediate action)				
4.	CRS	Verifies the Master controller and "A" FRV controllers are in manual				
5.	CRS	Enters and directs actions IAW OT 3114, "Reactor High level"				
6.	CREW	Diagnoses that the "A" FRV Controller is failing upscale resulting in the "A" FRV fully opening resulting in a rise in water level				
7.	CREW	Contacts the WWM/FSS to investigate the cause of the "A" FRV controller failure.				
8.	OATC	Reports power, pressure, and level to the CRS once plant conditions stabilize.				
9.	OATC	Reports that a positive reactivity insertion resulted in a power rise above 100% RTP.				
10.	CRS	Enters and directs actions of OT 3110, "Positive Reactivity Insertion"				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
11.	CRS	Direct the OATC to shift RX VESSEL MASTER CONTROLLER to automatic				
12.	OATC	Shifts the RX VESSEL MASTER CONTROLLER to automatic as directed.				
13.	CRS	Brief the crew				
14.	CREW	Human Performance Tools consistently utilized throughout event number 3.				

OPERATOR ACTIONS
EVENT NUMBER 4

Crew Task Description:
Respond to the loss of Bus 8 and "A" SBGT failing to start

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognize and report the loss of 480V Bus 8				**ENTER KEY 3**
2.	OATC	Reports to the CRS a half scram on RPS channel "A" along with a power, pressure, and level report (management expectation)				
3.	CRS	Enters and directs actions IAW ON 3180, "Loss of Bus 8"				
4.		• Start all available drywell RRUs				
5.		• Respond to loss of RWCU				
6.		• Contact Chemistry concerning Stack Gas instrumentation lost and notify the ODCM compensatory actions.				
7.	CREW	Contacts the WWM/FSS to investigate the loss of Bus 8				
8.	BOP	Reports a PCIS Group 3 Isolation				
9.	BOP	Recognizes and reports that the "A" train of SBGT failed to auto start as expected. Confirms and initiates the automatic response by manually starting the "A" train of SBGT (EN-OP-115)				
10.	CREW	Contacts WWM/FSS to investigate the cause for "A" SBGT failing to auto start.				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
11.	BOP	Performs ON 3180 actions as directed				
12.		• Starts all available drywell RRUs				
13.		• Responds to a trip of RWCU				
14.		• Contacts Chemistry regarding trip of RWCU and ODCM compensatory actions for Stack Gas instrumentation being lost				
15.	CRS	Enters a 24 hour TS LCO for various equipment lost • "B" CS • "B" Loop RHR • "B" loop of containment cooling Enter applicable LCOs for: • "A" SBGT failure • PCIS loss of power for RCIC-15				
EVALUATOR NOTE:		Any TS LCO entered which leads to a 24 hour cold shutdown is acceptable for evaluation purposes. Other LCOs are less limiting on plant operations.				
16.	CRS	Brief the crew				
17.	CREW	Human Performance Tools consistently utilized throughout event number 4.				

OPERATOR ACTIONS
EVENT NUMBER 5

Crew Task Description:
Respond to High Condenser Backpressure

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognizes and reports rising Condenser backpressure				**ENTER KEY 4 (sets up for next event)** **ENTER KEY 7 (sets up for next event)** **ENTER KEY 5**
2.	CRS	Enters and directs action IAW OT 3120, "Condenser High Back Pressure"				
3.	CREW	Contacts WWM/FSS to investigate the loss of Main Condenser vacuum.				
4.	CRS	Directs the OATC to reduce reactor power at 10%RTP/minute using recirculation flow until Condenser backpressure remains less than 5.0inHgA OR core flow is reduced to 28.5-29.5 Mlbm/hour.				
5.	OATC	Reduces reactor power with recirculation flow as directed.				
EVALUATOR NOTE:		The intent of this event is to get a reactivity manipulation for the OATC. The power reduction will negate the adverse affect of the condenser air in-leakage, allowing it to stabilize. Once the evaluator is satisfied with the reactivity manipulation and/or implementation of OT 3120, the scenario can progress with event number 6.				
6.	CREW	Performs actions to support the down power reduction IAW OP 0105, "Reactor Operations"				
7.	CRS	Brief the crew				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
8.	CREW	Human Performance Tools consistently utilized throughout event number 3.				

OPERATOR ACTIONS
EVENT NUMBER 6

Crew Task Description:
Respond to a Hydraulic ATWS, failed Group 5 isolation, and failure of SLC pump

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognize and respond to "D" APRM failure				**ENTER KEY 6**
2.	**CREW CCT-1**	Recognize the failure of RPS Channel "B" to auto scram combined with a half scram on RPS Channel "A". **With the reactor at power and a full auto scram signal, manually scram the reactor. STANDARD: Actuate the manual scram pushbuttons, place the mode switch in SHUTDOWN, or actuate the ARI/RPT pushbuttons within 1 minute of reaching the Limiting Safety System Setting (LSSS for APRM Hi-Hi)**				
3.	OATC	Depresses the manual scram pushbuttons. Recognizes and reports a failure of the manual scram pushbuttons.				
4.	OATC	Depresses ARI/RPT pushbuttons. Recognizes and reports only partial rod insertion via ARI/RPT. Additionally, makes ATWS report to the CRS: • ALL Rods failed to insert • Power is >2% (give exact power when • PB-1 depressed on RX VESSEL MASTER CONTROLLER				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
5.	OATC	Injects SLC with reactor power remaining above 2%. Recognizes and reports that CU-18 and CU-68 did not isolate as expected. Manually shuts CU-18 and 68. Recognizes and reports that the "A" SLC pump tripped moments after starting.				
6.	CREW	Contacts WWM/FSS to investigate the cause of the "A" SLC pump tripping.				
7.	CRS	Confirms ARI/RPT and SLC injection as directed by EOP-2, "RPV ATWS Control"				
8.	**CREW** **CCT-2**	**During an ATWS with conditions met to perform power/level control TERMINATE AND PREVENT INJECTION into the RPV using appendix GG, until conditions are met to re-establish injection. STANDARD: completion of Terminate and prevent injection IAW OE 3107 Appendix GG within 5 minutes of loss of forced circulation**				
9.	**CREW** **CCT-3**	**With a reactor scram required and the reactor not shutdown, TAKE ACTION TO REDUCE POWER by injecting boron and/or inserting control rods, to prevent exceeding the primary containment design limits. STANDARD: Actions taken within 10 minutes of the scram failure to implement appropriate appendices and/or inject SLC. Only one method needs to be used. The method must result in successful control rod insertion or SLC injection**				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
10.	CRS	Enters and directs action from EOP-1, "RPV Control" and EOP-2, "RPV ATWS Control"				
11.		• Inhibit ADS				
12.		• Implement OE 3107, Appendix P				
13.		• Direct implementation of OE 3107, Rod Insertion appendices				
14.		• Terminate and prevent per OE 3107, Appendix GG.				
15.		• Maintain RPV water level -19 →90 inches using Feed and Condensate IAW OE 3107 Appendix GG.				
16.		• Maintain RPV pressure 800 →1000 psig using MHC/Bypass valves.				
17.	BOP	Perform EOP-2 actions as directed				
18.		• Inhibit ADS				
19.		• Perform OE 3107, Appendix P				
20.		• Terminate and Prevent IAW OE 3107, Appendix GG				
21.	OATC	Perform EOP-2 actions as directed				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
22.		• Control water level -19 →90 inches using feed and condensate **NOTE:** RCIC may be injecting at 82.5 inches. It is the discretion of the CREW to leave RCIC running or tripping it.				
23.		• Implement control rod insertion Appendices IAW OE 3107 (Appendix F, G, H, **BB**) **NOTE: The success path will be to have the RBAO manually open FCV-CRD-22 due to not having power. When this valve is open, control rods will insert assuming pressure is high enough in band (Appendix "BB".**				
24.		• Control RPV pressure 800→1000 psig using MHC/Bypass valves.				
25.	OATC	Inform CRS when control rod insertion is successful				
26.	CRS	When all control rods are inserted and SLC verified secured, exit EOP-2 and re-enter EOP-2. Direct water level band of 127→177 inches and pressure band 800 → 1000 psig.				
27.	CRS	Controls water level 127→177 inches and pressure 800→1000 psig.				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
28.	CRS	Classifies the event IAW AP 3125: • EAL SS2.1 **EAVALUATOR NOTE: This EAL classification may be evaluated is desired at the completion of the scenario.**				
29.	CRS	Brief the crew				
30.	CREW	Human Performance Tools consistently utilized throughout event number 6.				

SCENARIO 2 EVALUATOR NOTES:

Facility:	VERMONT YANKEE	Scenario No.:	3	Op Test No.:	**VY 2010**
Examiners:		Operators:		CRS -	
				OATC -	
				BOP -	

Initial Conditions: The plant is operating at 100% RTP. A seven day LCO is in effect for the "B" train of Standby Gas Treatment (SBGT) being INOPERABLE (TS 3.7.B.3.a)

Turnover: Maintain 100% RTP in conjunction with performing OP 0150, Section E, "Operations Department Weekly and Monthly Task Performance Listing", surveillance of swapping the TBCCW and RBCCW pumps IAW RP 2183 and OP 2182. VYOPF 0150.08 will be documented when the surveillances are completed. The TBCCW Heat Exchangers have been swapped and temperatures have stabilized.

Critical Tasks:

1. With a Primary system discharging into Secondary Containment and area radiation/temperature/water levels exceed Maximum Safe Operating Levels in more than one area, initiate an RPV-ED. **STANDARD**: Initiate RPV-ED within 5 minutes of area radiation/temperature/water levels exceeding Maximum Safe Operating Levels in more than one area.
2. When a leak is present, dispatch personnel to manually isolate associated PCIS valves that have failed to isolate automatically and manually from the Control Room. **STANDARD:** Direct I&C/Maintenance/AOs to manually isolate PCIS valves within 15 minutes of receipt of the isolation signal. **(Environmental considerations and power source may affect the time standard for this critical task).**

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N-BOP N- CRS	Monthly TBCCW/RBCCW pump swaps IAW OP 0150, OP 2182, and RP 4183
2	mfPC_2LR8294	TS- CRS	Respond to annunciator 4-M-3, "DWL SUMP VLV CLOSED" (alarm due to blown fuses for LRW-82 and LRW-94) (TS)
3	mfRR_07A	C-BOP	Respond to a failure of the inboard seal on the "A" Recirculation pump.
4	mfED_05B	C- ALL	Loss of Bus 7 (Off Normal event using OP 2143)
		R- OATC TS- CRS C- CRS	"B" Recirculation Pump Trip (OT) (TS)
5	mfEG_05A	M- ALL C- ALL	Trip of the "A" Stator Water Cooling pump resulting in the loss of ALL Stator Water Cooling → Turbine trip and Reactor Scram

6	mfHP_09	M- ALL	HPCI Steam Leak before HPCI-14
	mfRP_01A	C-OATC	Failure of Automatic Scram
	mfRP_01B		Failure of manual scram pushbuttons
	mfPC_1HP15 mfPC_1HP16	C- BOP C- CRS	Failure of HPCI to auto and manually isolate (PCIS Group VI failure)
	mfTC_12	C-OATC	Failure of bypass valves to open (at 600 psig)
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Vermont Yankee 2010 NRC Scenario #3

The crew will be directed to perform the OP 0150, Section E, "Operations Department Weekly and Monthly Task Performance Listing", surveillance of swapping the TBCCW and RBCCW pumps IAW RP 2183 and OP 2182. VYOPF 0150.08 will be documented when the surveillances are completed. The swap of the TBCCW heat exchangers will be turned over as being completed with all temperatures stabilized.

The crew will respond to 4-M-3, "DWL SUMP VLV CLOSED". After it is reported the cause of the valves closing is a blown fuse, The CRS will enter TS LCOs 3.6.C.2 (7 days) and 3.7.D.2/4.7.D.2 (close and deactivate a valve in the line containing the INOPERABLE PCIS valve and verify the line is isolated every 31 days).

The crew will respond to a loss of the inboard "A" Recirculation Pump seal IAW ON 3142. This will involve monitoring temperatures and pressures for the failed seal.

The crew will respond to a loss of Bus 7. The loss of Bus 7 will result in the trip of the "B" Recirculation Pump requiring entry into OT 3118, Recirculation Pump trip. The crew will take actions including a power reduction to 40-45% RTP. The CRS will address single loop operation Technical Specifications.

Following the power reduction, the crew will respond to a trip of the "A" Stator Water Cooling pump. They must realize that this will result in a complete loss of Stator Water Cooling. If actions are not taken in a timely manner (1 minute), the turbine will automatically trip. Direction will be provided by the CRS to manually trip the turbine and insert a manual scram within 1 minute of the "A" Stator Water Cooling pump trip. A failure of the automatic (in the event the crew does not trip the turbine within 1 minute) and manual scram pushbuttons will require the OATC to initiate ARI/RPT. All Control Rods will insert and the crew will address reactor plant parameters in EOP-1.

Following the immediate actions of OT 3100 and the order to control plant pressure and level in band, a break will occur in the HPCI Steam Line upstream of HPCI-14. Rising temperatures in the Reactor Building will result in entry in EOP-4, "Secondary Containment Control". The PCIS Group VI automatic isolation signal will fail as well as manual attempts to shut the valves from the Control Room. The crew will have to take action to contact support personnel to shut the valves locally within 15 minutes in an attempt to shut the PCIS valves with an automatic isolation signal failure **(CRITICAL TASK).** Bypass valves will fail to open at 600 psig to allow an RPV-ED to be evaluated.

As EOP-4 is entered, once the first area reaches its Maximum Safe Operating Limit, the steam leak will get larger. Once temperatures reach the Maximum Safe Operating Limit in more than one area (RB 252' and 280' elevations), and RPV-Emergency Depressurization will be performed IAW EOP-5, "RPV-ED" within 5 minutes **(CRITICAL TASK).**

SIMULATOR EVALUATION GUIDE

2010 NRC Examination

NRC Evaluators:

_____

_____

_____

ILO Candidates

BOP _____

OATC _____

BOP _____

Critical Task Performance: SAT UNSAT
(Circle One)

Date Administered: _____

Prepared by: _____ Date: _____
Lead Exam Developer

Reviewed by: _____ Date: _____
Operations Representative

Approved by: _____ Date: _____
Facility Reviewer

CREW BRIEF:

-Power level: 100% RTP

-Rod Sequence: Rapid Shutdown Sequence Latched **-Rod Group:** 53

-Equipment out of service and/or tagged or abnormalities:

1. "B" train of Standby Gas Treatment INOPERABLE

-Reason For Equipment out of Service or tagged:

1. "B" train of Standby Gas Treatment INOPERABLE due to failed fan motor. The fan is placed in Pull to Lock for Tagout.

-Applicable Tech Spec LCOs:

1. 3.7.B.3.a

EOOS Color:

Green

-Plant evolutions in progress/Scheduled Shift Evolutions:

1. Maintain 100% RTP
2. Perform the OP 0150, Section E, "Operations Department Weekly and Monthly Task Performance Listing" surveillances of
   - swap TBCCW and IAW RP 2183
   - swap RBCCW pumps IAW OP 2182
3. VYOPF 0150.08 will be documented when the surveillances are completed.
4. The swap of the TBCCW heat exchangers has been completed and all temperatures have stabilized.
5. Auto start test of the RBCCW pumps is NOT required.

SCENARIO SUMMARY:

See ES-D-1 for summary

TERMINATING CONDITION(S):

1. RPV-ED has been performed and water level is being controlled IAW EOP-1.

REFERENCES:

1. OP 0105, "Reactor Operations"
2. EN-OP-115, "Conduct of Operations"
3. DP 0166, "Operations Department Standards"
4. OP 2182, "RBCCW System"
5. RP 2183, "TBCCW System"
6. ARS 4-M-3, "DWL SUMP VLV CLOSED"
7. OP 2143, 480V Electrical Distribution System"
8. OPON-3142-01, "Recirculation Pump Seal Failure"
9. OT 3118, "Recirculation Pump Trip"
10. OT 3119, "Loss of Stator Water Cooling"
11. ON 3158, "High Reactor Building Temperatures/Levels"
12. OT 3100 "Reactor Scram"
13. EOP-1, "RPV Control"
14. EOP-4, "Secondary Containment Control"
15. EOP-5, "RPV Emergency Depressurization"
16. Technical Specifications

SIMULATOR OPERATOR INSTRUCTIONS

Simulator Set Up: 100% RTP

1. IC-803 on LOI Exam Load; RUN on scenario file "NRC Scenario 3"
2. Master FWLC setpoint set for 160 inches and displaying the "S" parameter
3. Individual FWLC controllers are displaying the "V" parameter
4. Master Recirculation Flow Controller selected for FINE adjust
5. Individual Recirculation controllers are displaying the "P" parameter
6. Rapid Shutdown Sequence available
7. Turnover checklist and TS tracking sheet filled out (VYAPF 0152.01 and 0152.02)
8. "B" SBGT fan is in Pull to lock

Discretionary Distracter Malfunctions/RFs/IOs:

No.	MF/RF/IO #	Severity	Ramp	REM #	Act. Time	Description
1.	mfPC_1HP15	Active		Preinsert		Failure of HPCI-15 to close
2.	mfPC_1HP16	Active		Preinsert		Failure of HPCI-16 to close
3.	mfRP_01A	Active		Preinsert		Failure of automatic scram
4.	mfRP_01B	Active		Preinsert		Failure of manual scram pushbuttons
5.	mfPC_2LR8294	Active		1	After weekly surveillances are complete	blown fuses for LRW-82 and LRW-94
6.	mfRR_07A	100%	60	2	After TS call for LRW PCIS valves	Inboard "A" Recirculation Pump Seal Failure
7.	mfED_05B	Active		3	After ON 3142 actions	Loss of Bus 7
8.	mfEG_05A	Active		4	After OT 3118 actions	Trip of the "A" Stator Water Cooling pump

9.	mfHP_09	10%	240	5	After OT 3100 immediate actions and level pressure bands of EOP-1 directed	HPCI Steam leak upstream of HPCI-14
10.	mfHP_09	50%	30	6	After 1 area reached Max Safe Operating Limit	HPCI Steam leak upstream of HPCI-14 (larger)
11.	rfEG_06	Ack		7	When requested by crew	Local Stator water cooling annunciator panel
12.	mfTC_12	Active		8	At 600 psig	Bypass Valves fail to open
13.	rfCD_08	OUT		9		Condensate Demineralizer "A" taken out of service during downpower
14.	rfCD_20	RESET		10		Condensate Demineralizer annunciator panel reset
15.	rfFW_04	BYPASS		11		"B" RFP trip on condensate pump switch

SIMULATOR OPERATOR INSTRUCTIONS
(Continued)

Additional Instructions:

1. When asked as the WWM/FSS to investigate the cause for the blown fuse provide a time compressed report (when prompted by the lead evaluator) that fuse F-21 was blown and a work package is being written to replace the fuse (CWD 1114)
2. When asked as the WWM/FSS to investigate the inboard seal failure, acknowledge the request. No additional reports will be made concerning the failure
3. When asked as the RBAO to verify seal purge flow to the "A" Recirculation pump, report that seal purge flow is normal and there are no abnormalities.
4. When the TBAO is contacted during the downpower to perform the following, insert the given key and make follow-up report:
    - Take Condensate Demineralizers out of service (**INSERT KEY 9** for the "A" Condensate Demineralizer)
    - Acknowledge Condensate Demineralizer annunciator panel **(INSERT KEY 10)**
    - Place "B" RFP trip on Condensate pump switch to bypass **(INSERT KEY 11)**
5. When asked as the WWM/FSS to investigate the loss of Bus 7, provide a time compressed report (when prompted by the lead evaluator) that there is a ground fault condition on Bus 7. Extensive troubleshooting will be required to determine the location and repair. Anticipated time without Bus 7 will be 2 shifts.
6. When asked as the WWM/FSS to investigate the failure of the "A" Stator Water Cooling pump, acknowledge and provide a time compressed report that the pump tripped on an overload condition. Troubleshooting will be required to determine the cause.
7. When asked as the TBAO acknowledge local annunciators at Stator Cooling alarm panel, **INSERT KEY 7.**
8. When asked as the WWM/FSS/FB Leader to investigate the Fire Alarm location, acknowledge and make a time compressed report that there is a large amount of steam coming from the HPCI Room and the environment should not be entered without appropriate Personal Protective equipment. Additionally, report there is no visual indication of a fire in the area.
9. When asked as the WWM/FSS to close HPCI-15 and HPCI-16, report that efforts are being made to coordinate with RP. The valves will remain open for the remainder of the scenario until AFTER the RPV-ED is performed and at the discretion of the lead evaluator. Additionally, steam was observed coming from the HPCI room by the RBAO.

OPERATOR ACTIONS
EVENT NUMBER 1

Crew Task Description:
Transfer running TBCCW and RBCCW pumps

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CRS	Directs swapping the TBCCW and RBCCW pumps IAW RP 2183 and OP 2182				
2.	BOP	Swaps the TBCCW and RBCCW pumps IAW RP 2183 and OP 2182				
3.		• Transfers RBCCW pumps IAW OP 2182, Section "D"				
4.		• Transfers TBCCW pumps IAW RP 2183, Section "H"				
5.	CRS	Documents VYOPF 0150.08 will be documented after the pumps are swapped				
6.	CREW	Human Performance Tools consistently utilized throughout event number 1.				

OPERATOR ACTIONS
EVENT NUMBER 2

Crew Task Description:
Respond to a Blown fuses for LRW-82 and LRW-94

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognizes and reports annunciator 4-M-3, "DWL SUMP VLV CLOSED"				**ENTER KEY 1**
2.	BOP	Informs the CRS that valve position indication is lost for LRW-82 and LRW-94				
3.	CREW	Contacts WWM/FSS to investigate the cause of the loss of valve position indication				
4.	BOP	Once the crew is informed the valves have lost solenoid power and subsequently shut due to a blown fuse, positions the control switch for LRW-82 and LRW-94 to shut to backup indications. (This shuts LRW-83 and LRW-95). The crew may observe that the IPOL Group 2 Sys 1 red indicating light will not be lit on CRP 9-5 due to blown fuse. **NOTE:** This is not procedurally driven however it's a basic operator fundamental of understanding the system.				
5.	CRS	Enters TS LCO loss of sampling capability and failed PCIS valves. • TS 3.6.C.2 (7 day) • TS 3.7.D.2 and 4.7.D.2				
6.	CREW	Human Performance Tools consistently utilized throughout event number 2.				

OPERATOR ACTIONS
EVENT NUMBER 3

Crew Task Description:
Respond to a failure of the "A" Recirculation pump inboard seal

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognizes and responds to Annunciator 4-C-2, "PUMP A INNER SEAL LKG HI/LO"				**ENTER KEY 2**
2.	CREW	Observes CRP 9-4 indications to support an inboard seal failure on the "A" Recirculation Pump: ▪ No. 2 (OUTBD) seal pressure approaching No. 1 (INBD) seal pressure ▪ Aeal leakage through No. 2 orifice increasing to ~1.1 gpm giving a PUMP A(B) INNER SEAL LKG HI/LO alarm (4-C-2) ▪ With the increase in leakage, seal cavity temperatures may decrease				
3.	CRS	Enters and directs action of OPON-3142-01, "Recirculation Pump Seal Failure • Monitor seal temperatures for the "A" Recirculation pump.				
4.	CREW	Monitors for potential outboard seal failure. Recognizes that if the outboard seal fails, they will not be able to monitor leakage with the sumps isolated.				
5.	CREW	Contacts RBAO to verify "A" Recirculation pump seal purge and check for any abnormalities.				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
6.	BOP	Monitors seal temperatures closely at an interval identified by the CRS (Allen Bradley Temperature Monitoring)				
7.	CRS	Brief the crew				
8.	CREW	Human Performance Tools consistently utilized throughout event number 3.				

OPERATOR ACTIONS
EVENT NUMBER 4

Crew Task Description:
Respond to a loss of Bus 7, "B" Recirculation Pump trip

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognizes and reports the loss of Bus 7				**ENTER KEY 3**
2.	CREW	Recognizes and reports the trip of the "B" Recirculation Pump				
3.	OATC	Monitor and reports power, pressure, level following the Recirculation Pump trip transient. **NOTE:** Water level will rise and approach the high level turbine trip setpoint. As long as water level is 160 inches at start of transient, the plant should stay online with no operator action.				
4.	CREW	Contacts WWM/FSS to investigate the cause of the loss of Bus 7				
5.	CREW	Recognizes the plant is outside the MELLLA region on the Power to Flow map.				
6.	CRS	Enters and supervises/directs actions of OT 3118, "Recirculation Pump Trip".				
7.		• Shut "B" Recirculation pump discharge valve RV-53B				
8.		• Down power reduction to 40-45% RTP using the rapid shutdown sequence.				
9.		• Secure a RFP IAW OP 0105				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
10.		• Reduce "A" Recirculation pump speed to 65-70%.				
11.		• After 5 minutes re-open discharge valve				
12.	OATC	Reduces reactor power using the rapid shutdown sequence to 40-45% RTP as directed. **NOTE:** This will be approximately rod 22-07 on rod group 49.				
13.	BOP	Performs actions of OT 3118 as directed				
14.		• Closes discharge valve RV-53B				
15.		• Secures RFP				
16.		• Re-opens discharge valve				
17.	OATC	Reduces speed of "A" Recirculation pump to 65-70% as directed.				
18.	BOP	Performs required actions and notifications IAW OP 0105 down power check list.				
19.	BOP	IAW ARS 7-D-7 and 7-D-8, places Generator Leads fan to the correct operating condition. **NOTE:** If this is not done, the alarms will cycle in and out based on being near the low flow setpoint.				
20.	CRS	Enters TS LCO for single loop operations. • TS 3.6.G.1				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
21.	CREW	Refers to OP 2143, "480V Electrical Distribution System", ARSs, and P&IDs to address the other Bus 7 loads lost.				
22.	CRS	Brief the crew				
23.	CREW	Human Performance Tools consistently utilized throughout event number 4.				

OPERATOR ACTIONS
EVENT NUMBER 5

Crew Task Description:

Respond to a trip of the "A" Stator Water Cooling pump and a subsequent loss of all Stator Water Cooling (Scram IAW OT-3100 and control the reactor plant IAW EOP-1)

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognizes and report annunciator 7-B-5, and 7-C-5.				**ENTER KEY 4**
2.	CREW	Recognizes a trip of the "A" Stator Water Cooling pump and a complete loss of Stator Water Cooling with the potential for a subsequent automatic turbine trip and reactor scram within 1 minute. **EVALUATOR NOTE:** The CRS may direct an attempt to restart the "A" Stator Water Cooling pump.				
3.	CRS	Enters and directs/verifies action of OT 3119, "Loss of Stator Water Cooling" • Directs the BOP to manually trip the turbine • Directs the OATC to manually scram the reactor				
4.	BOP	Depresses the MTS-1/MTS-3 pushbutton				
5.	OATC	Reports that the manual scram pushbuttons failed and an ARI/RPT was initiated to insert all control rods.				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
6.	CRS	Enter and direct actions of OT 3100, "Reactor Scram" and EOP-1, "RPV Control" • Direct RPV water level band of 127-177 inches with Feed and Condensate • Direct RPV pressure band of 800-1000 psig with MHC				
7.	OATC	When directed, insert a manual scram and take actions IAW OT 3100, "Reactor Scram". Make scram report to the CRS: • Mode Switch is in SHUTDOWN • Power <2% • All control rods are inserted • PB-1 depressed on MASTER FWLC • Manual scram pushbuttons failed and ARI/RPT inserted				
8.	CRS	Directs EOP-1, Table "A" automatic actions to be confirmed.				
9.	BOP	Report Power available to all AC buses				
10.	OATC	Inserts SRMs and IRMs to monitor Nuclear Instrumentation during the shutdown.				
11.	CRS	Brief the crew				
12.	CREW	Human Performance Tools consistently utilized throughout event number 5.				

OPERATOR ACTIONS
EVENT NUMBER 6

Crew Task Description:
Respond to HPCI Steam Line Leak and Failure of PCIS Group VI; Perform an RPV-ED

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognize and respond to the following annunciators/alarms: • CP 115-3 Control Room Fire Protection Panel ZONE 11 fire alarm (RB Panel) • 4-H-1, "STEAM LEAK DET PANEL TEMP HI"				**ENTER KEY 5**
EVALUATOR NOTE:		The crew may elect to NOT respond to the CP 115-3 alarm IAW OP 3020, "Fire Emergency Response Procedure" and OP-2186, "Fire Suppression Systems" once it becomes evident that the cause for the alarm is a steam leak.				
2.	CREW	Directs WWM/FSS/FB Leader to coordinate with RP to investigate fire and/or leak location and extent.				
3.	BOP	Recognize a steam leak in the HPCI System and that HPCI-15, HPCI-16 failed to isolate. Attempts to close HPCI by: • taking control switches on CRP 9-3 to close • taking the manual isolation control switch on CRP-9-3 to isolate Reports to the CRS that HPCI-15 and HPCI-16 failed to isolate automatically and manually from the Control Room.				
4.	CRS	Enters ON 3158, "High Reactor Building Temperatures/Levels"				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
5.	**CREW CCT-1**	**When a leak is present, dispatch personnel to manually isolate associated PCIS valves that have failed to isolate automatically and manually from the Control Room. STANDARD: Direct Maintenance to manually isolate PCIS valves within 15 minutes of receipt of the isolation signal.** **NOTE:** Radiological/environmental considerations and power source may affect the time standard for this critical task).				
6.	CREW	Recognizes rising temperatures in the Reactor Building (Channels 6, 8, 9, 12, 15, and 16).				**INSERT KEY 6** after an attempt is made to isolate HPCI-15 and HPCI-16 on CRP 9-3.
7.	OATC/ BOP	When directed, Anticipate and RPV-ED IAW EOP-1, override RC/OR-4 by rapidly depressurizing the RPV using bypass valves (Bypass Opening Jack) irrespective of the cooldown rate				**INSERT KEY 8** when pressure is at 600 psig.
8.	CRS	Verifies a reactor scram and entry into EOP-1 BEFORE any parameter reaches its MAX SAFE OPERATING LIMIT. **NOTE:** Channels 12 and 15 are the two areas that rise the quickest. See above for EOP-1 actions.				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
9.	**CREW CCT-2**	**With a Primary system discharging into Secondary Containment and area radiation/temperature/water levels exceed Maximum Safe Operating Levels in more than one area, initiate an RPV-ED. STANDARD: Initiate RPV-ED within 5 minutes of area radiation/temperature/water levels exceeding Maximum Safe Operating Levels in more than one area.**				
10.	CRS	Enters and directs actions of EOP-5, "RPV Emergency Depressurization". (Channels 12 and 15 exceed Max Safe Operating Limit)				
11.	CRS	Directs action IAW DP 0166 once WR level reaches 82.5 inches				
12.	BOP	When directed, open all SRVs				
13.	OATC	Restores and maintains RPV level >TAF using low pressure injection or condensate systems during the RPV-ED (Table "C")				
14.	CRS	Make E-Plan classification, EAL FS1.1				
15.	CREW	Human Performance Tools consistently utilized throughout event number 5.				

SCENARIO 3 EVALUATOR NOTES:

Facility:	VERMONT YANKEE	Scenario No.:	4	Op Test No.:	**VY 2010**
Examiners:		Operators:		CRS -	
				OATC -	
				BOP -	

Initial Conditions: Power is ~1% with a reactor startup in progress.

Turnover: OP 0105, "Reactor Operations", is complete thru Phase 2.C. The crew will be directed to perform a Turbine Chest warm-up IAW OP 0105 Phase 2.D. Step 1 and continue Reactor Startup (60 to 80 degree/hour heat up rate).

Critical Tasks:

1. When torus level cannot be maintained above 7 ft, perform RPV emergency depressurization. **STANDARD**: Initiate RPV-ED such that RPV pressure is < 50 psig when Torus level reaches 5.5 ft.
2. During an ATWS with Emergency Depressurization required, terminate and prevent injection into the RPV (using OE 3107, "EOP/SAG Appendices", Appendix GG) until conditions are met to re-establish injection. **STANDARD**: Terminate and prevent injection IAW Appendix GG such that no system other than SLC, CRD, and/or RCIC is/are injecting during the RPV-ED.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N- BOP N-CRS	Perform Turbine Chest warm-up.
2	N/A	R- OATC	Withdraw control rods to continue power ascension.
3	mfNM_03F	I- OATC I- CRS TS- CRS	IRM "F" fails upscale (TS).
4	rfPP_06	C- BOP C- CRS TS- CRS	Seismic Event resulting in a leak in the SLC Tank (TS) (Off Normal event using OP 3127)
	mfMS_09	C- BOP	Gland Seal Regulator Fails Closed
	mfSW_14A mfSW_21B	C--OATC	Failure of the standby TBCCW pump to auto start after running pump trips due to seismic event. (OT)
5	rfPP_06 mfED_17	M- ALL	Seismic Event (after shock)/Loss of Normal Power

	mfDG_09B	C- BOP	Failure of the "B" Emergency Diesel Generator breaker to auto close
	mfRP_01A mfRP_01B mfRD_022227 mfRD_021035 mfRD_023011 mfRD_021019	C- OATC C- CRS	Failure of manual scram; 4 control rods stuck out
6	mfPC_10	M- ALL	Leak in the Torus
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Vermont Yankee 2010 NRC Scenario #4

The crew will initiate Turbine Chest Warming and continue with the reactor startup, withdrawing control rods to continue with the power ascension. As the startup progresses, IRM "F" will fail upscale resulting in a rod withdrawal block and a half scram, requiring the crew to evaluate Tech Specs, and bypass the failed IRM.

The crew will be evaluated responding to a seismic event that causes a leak in the SLC tank and a trip of the running TBCCW/failure of the standby TBCCW pump to auto start. The actions of OP 3127, "Natural Phenomena" and EN-OP-115, "Conduct of Operations"/OT 3165, "Loss of TBCCW", will be taken to respond to the seismic event and failure of the standby pump to start. Technical Specifications will be consulted, revealing a 24-hour shutdown LCO (TS section 3.4). Also, the Gland Seal Regulator will fail closed requiring the crew to open the bypass valve IAW the ARS to maintain condenser backpressure.

A seismic aftershock will occur resulting in the Loss of Normal Power (LNP) and a break in the weld of the 'A' RHR suction line to the torus. The crew will be evaluated responding to the seismic event (OP 3127), Loss of Normal Power (OT 3122, "Loss of Normal Power") and failure of the "B" Emergency Diesel Generator breaker to automatically close. The breaker will be able to be closed by the operator in the Control Room. A failure of both automatic and manual scram capability exists. ARI/RPT initiation will result in successful rod insertion of all rods but 4 control rods which are stuck out.

A loss of high pressure injection from Feed and Condensate will result in direction to control level with EOP-2 Table "H" systems: Based on the low power history, the CRS may direct the use of RCIC or maximizing CRD. HPCI should not be needed

During the RPV-ED, an alternate injection system (EOP-2, Table "J") may be required although maximizing CRD flow may be enough to support rapid depressurization based on low power history.

Once the lowering torus level is noted, the crew will be evaluated on entry into and execution of EOP-3, "Primary Containment Control" and EOP-4, "Secondary Containment Control". The crew will also enter ON 3158, "Reactor Building High Level/Temperature", due to high RB water level. Because of the size of the leak, the crew will perform an RPV Emergency Depressurization **(CRITICAL TASK).** With an RPV-ED required during an ATWS condition, the crew will be required to terminate and prevent injection prior to the RPV-ED **(CRITICAL TASK).**

SIMULATOR EVALUATION GUIDE

2010 NRC Examination

NRC Evaluators:

_____

_____

_____

ILO Candidates

BOP _____

OATC _____

BOP _____

Critical Task Performance: SAT UNSAT
(Circle One)

Date Administered: _____

Prepared by: _____ Date: _____
Lead Exam Developer

Reviewed by: _____ Date: _____
Operations Representative

Approved by: _____ Date: _____
Facility Reviewer

CREW BRIEF:

-Power level: ~1% RTP, Summer operations

-Rod Sequence: A2 **-Rod Group:** 23

-Equipment out of service and/or tagged or abnormalities:

1. IRM "A"

-Reason For Equipment out of Service or tagged:

1. IRM "A" Detector sticking

-Applicable Tech Spec LCOs:

1. N/A

EOOS Color:

Green

-Plant evolutions in progress/Scheduled Shift Evolutions:

1. A plant startup and heat up are in progress. The goal for the remainder of the shift is to continue the startup IAW OP 0105, "Reactor Operations", Phase 2D, step 1 by performing the following CONCURRENTLY:
    - commence a steam chest warm up **(Phase 2D, step 1)**
    - continue rod withdrawals to establish MPR operability **(Phase 2D, step 2a →2b)**

SCENARIO SUMMARY:

See ES-D-1 for summary

TERMINATING CONDITION(S):

1. RPV-ED has been performed and water level is being controlled IAW EOP-2.

REFERENCES:

1. OP 0105, "Reactor Operations"
2. EN-OP-115, "Conduct of Operations"
3. DP 0166, "Operations Department Standards"
4. OP 2134, "Reactor Protections System"
5. ARS 5-N-2, "IRM CH B HI-HI/INOP"
6. OP 2131, "Intermediate Range Monitor Channels"
7. OP 3127, "Natural Phenomena"
8. OT 3165, "Loss of TBCCW"
9. ARS 7-K-9, "STM SEAL HDR PRESS LO"
10. AP 3125, "Emergency Plan Classification and Action Level Scheme"
11. OT 3122, "Loss of Normal Power"
12. OT 3100 "Reactor Scram"
13. EOP-1, "RPV Control"
14. EOP-2 "ATWS RPV Control"
15. EOP-3. "Primary Containment Control"
16. EOP-4, "Secondary Containment Control"
17. EOP-5, "RPV Emergency Depressurization"
18. ON 3158, "Reactor Building High Area Temperature/Water Level"
19. Technical Specifications
20. Technical Requirements Manual

SIMULATOR OPERATOR INSTRUCTIONS

Simulator Set Up:

1. IC-804 on LOI Exam Load; RUN on Scenario File "NRC Scenario 4"
2. Auxiliary FWLC setpoint set for 160 inches and displaying the "S" parameter
3. Master Recirculation Flow Controller selected for FINE adjust
4. Individual Recirculation controllers are displaying the "P" parameter (0.00)
5. A2 Rod Sequence available and mark up through Group 23 for the next control rod to be withdrawn
6. VYOPF 0105.05 filled out up to Phase 2D; OP 0105, Appendix "E" placekept up to Phase 2D.
7. Turnover checklist and TS tracking sheet filled out (VYAPF 0152.01 and 0152.02)

Discretionary Distracter Malfunctions/RFs/IOs:

No.	MF/RF/IO #	Severity	Ramp	REM #	Act. Time	Description
1.	mfRP_01B	Active		Preinsert		Failure to manual scram
2.	mfDG_09B	Active		Preinsert		Failure of the "B" EDG breaker from Auto closing
3.	mfNM_03F	100%		1	After reactivity manipulation and steam chest warmup	IRM "F" fails upscale
4.	rfPP_06	EVNT		2	After TS call for failed IRM	Seismic Event
5.	mfSL_03	15%		2		SLC Tank Leak
6.	mfSW_14A	Active		2	10 second delay	"A" TBCCW pump Trip
7.	mfSW_21B	Active		2	10 second delay	Failure of "B" TBCCW pump to Auto start
8.	mfMS_09	Active		2	20 second time delay	Failure of the Gland Seal Regulator
9.	rfPP_06	EVNT		3	After OP 3127 has been addressed first time	Seismic Event aftershock
10.	mfED_17	Active		3	5 second time delay	Loss of Off Site Power
11.	mfPC_10	65%	750	3		Torus leak

12.	mfRD_022227	Active		3		Stuck control rod 22-27
13.	mfRD_021035	Active		3		Stuck control rod 10-35
14.	mfRD_023011	Active		3		Stuck control rod 30-11
15.	mfRD_021019	Active		3		Stuck control rod 10-19
16.	rfCS_01	100	30	4		CS-8A CST suction valve
17.	rfCS_02	100	30	5		CS-8B CST suction valve

SIMULATOR OPERATOR INSTRUCTIONS
(Continued)

Additional Instructions:

1. When asked as the WWM/FSS to investigate the failed IRM "F", acknowledge and make a follow-up time compresses report that the failed IRM was due to a failure of the output amplifier. A Work Order is being generated to make repairs on IRM "F".

2. One minute after the first seismic event, call the Control Room as the TBAO on the Turbine Deck and report that you felt seismic activity on the Turbine Deck

3. When contacted as The Wilder Dam, maker a time compressed report that walkdowns of the Dams are in progress and there are no reports of structural damage associated with the seismic event.

4. When asked as the WWM/FSS to investigate the following, acknowledge and make a report that troubleshooting efforts are in progress. No additional information will be provided for these two equipment failures:
   - Failure of standby TBCCW pump to auto start
   - Failure of Gland Seal Regulator

5. After the order to perform OP 3127, Appendix "A" walkdowns is given to the AOs, make a time compressed report 5 minutes later from the FSS that there is a leak in the common SLC pump suction header. Additionally report that is can be isolated by shutting locked open valve SLC-11, "Standby Liquid Control Tank Outlet". When ordered to shut SLC-11, report that SLC-11 is shut and the leak has stopped.

6. When asked as the WWM/FSS to investigate the failure of the "B" EDG breaker to close, acknowledge and make a report that troubleshooting efforts are in progress. No additional information will be provided for this failure.

7. When asked as the WWM/FSS to investigate the Torus leak, acknowledge and make a report that there is a break in the 24inch weld on the "A" RHR Torus suction line and there is about 1 inch of water on the Torus basement floor and rising. Continue to make follow-up reports as requested concerning the rising water level on the Torus basement floor.

8. When asked as the FSS/RBAO to open CS-8A and CS-8B IAW OE 3107, Appendix "W", make a time compressed report 2 minutes (CS-8A) and 5 minutes (CS-8B) later that each of the valves are open.

OPERATOR ACTIONS
EVENT NUMBER 1,2

Crew Task Description:
Perform a Turbine Chest Warm up and continued power ascension

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CRS	Directs BOP to perform Turbine Chest Warmup OP 0105, Phase 2D, step 1.				
2.	BOP	Performs Turbine Chest Warmup as directed				
3.		Reset the Emergency Governor				
4.		Reset turbine Vacuum Trip MTS-1				
5.		Verify load limiter is latched				
6.		Check the No. 2 stop valve bypass is fully closed.				
7.		Partially open the No. 2 stop valve bypass control switch while the control valves are closed to equalize pressure across the turbine stop valves				
8.		After it is determined that the 60°F ΔT will not be exceeded, continue opening No. 2 stop valve bypass until all stop valves ramp open (T017 and T018 ERFIS points)				
9.	CRS	Initials and dates/time on VYOPF 0105.05 Phase 2D, step 1				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
10.	CRS	Directs continued power ascension using control rod withdrawal IAW A2 Rod Sequence				
11.	OATC	Withdraws control rods as directed IAW A2 rod sequence				
EVALUATOR NOTE: Once the required reactivity manipulation and normal evolution is observed, the scenario can move forward with event number 2.						
12.	CREW	Human Performance Tools consistently utilized throughout event number 1.				

OPERATOR ACTIONS
EVENT NUMBER 3

Crew Task Description:
Respond to a failure of the IRM channel "F" upscale

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	OATC	Recognize and respond to the following annunciators: • 5-D-3 • 5-L-1 • 5-L-2 • 5-N-2 • 5-N-3				**INSERT KEY 1**
2.	OATC	Reports to the CRS that there is a half scram on RPS channel "B" due to the "F" IRM failing upscale				
3.	CREW	Contact WWM/FSS to investigate the failure of IRM channel "F"				
4.	BOP	Observes local indications on CRP 9-12 and reports that IRM "F" is reading Hi and Hi-Hi.				
5.	CRS	Directs the "F" IRM be bypassed IAW ARS 5-N-2 OR OP 2131, section "C", Inoperable IRM.				
6.	OATC	Bypasses IRM channel "F" as directed (annunciators 5-D-3, 5-N-2, and 5-N-3 clear as expected)				
7.	CRS	Directs the half scram on RPS channel "B" be reset IAW ARS 5-N-2 and OP 2134, section "H".				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
8.	OATC	Resets the half scam on RPS "B" as directed. Annunciators 5-L-1 and 5-L-2 will clear as expected.				
9.		• PLACE the SCRAM RESET switch to the "Group 2 and 3" position				
10.		• PLACE the SCRAM RESET switch to the "Group 1 and 4" position				
11.		• PLACE the SCRAM RESET switch back to the Group 2 and 3 position				
12.		• Directs BOP to verify the following relays are Energized on CRP 9-15 and CRP 9-17				
13.	CRS	Consults Technical Specifications (TS) and Technical Requirements Manual (TRM). Enters TS LCO for tracking the "F" IRM channel IAW Table 3.1.1 and TRM Table 3.2.5.				
14.	CREW	Human Performance Tools consistently utilized throughout event number 2.				

OPERATOR ACTIONS
EVENT NUMBER 3

Crew Task Description:

Respond to a Seismic event, failure of the Gland Seal Regulator, Trip of the "A" TBCCW Pump and Failure of the "B" TBCCW pump to auto start

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognizes and reports annunciator 7-M-7, "SEISMIC MONITOR ALERT"				**INSERT KEY 2**
2.	BOP	Acknowledges annunciator and confirms an actual seismic event has occurred at the AR 117-1 reflash unit.				
3.	OATC	Responds to Annunciators 6-J-7. "TBCCW PUMP A/B TRIP" and 6-J-8, "TBCCW HDR PRESS LO".				
4.	OATC	Recognizes and report the trip of the "A" TBCCW pump and the failure of the "B" TBCCW pump to auto start. Performs immediate actions of OT 3165, "Loss of TBCCCW" and manually starts the "B" TBCCW pump.				
5.	CRS	Verifies/Directs immediate action of OT 3165 to manually start the "B" TBCCW pump.				
6.	BOP	Responds to annunciator 7-K-9, "STM SEAL HDR PRESS LO".				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
7.	BOP	Reports that seal steam pressure is low due to a suspected Gland Seal Regulator Failure. Recommends taking action IAW ARS 7-K-9 to throttle open MS-10. **EVALUATOR NOTE: In the event the crew fails to respond to the loss of seal steam IAW the ARS, they may diagnose this as High Condenser backpressure and thus respond IAW OT 3120, "Condenser High Backpressure". If this is the case, follow-up action step 4 will address MS-10.** **EVALUATOR NOTE: The longer it takes to address this issue, the more impact it will have on AOG and the 516 valve closing. This can also be addressed in OT 3120.**				
8.	CRS	Directs BOP to throttle open MS-10.				
9.	BOP	Throttles open MS-10 to raise seal steam pressure to above the alarm setpoint.				
10.	CREW	Contacts WWM/FSS to investigate the trip of the "A" TBCCW pump, failure of the "B" TBCCW pump to auto start, and the failure of the Gland Seal Regulator.				
11.	CRS	Enters and directs actions of OP 3127, "Natural Phenomena", step 6.				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
12.		Classify the event IAW AP 3125: ▪ EAL HA1.1 **EVALUATOR NOTE: This EAL classification may be evaluated if desired after the scenario is complete.**				
13.	CREW	Performs actions of OP 3127 as directed:				
14.		• Checks for control rod drifts				
15.		• Checks instrument air pressure				
16.		• Checks tank level indications				
17.		• Calls Wilder Dam				
18.		• Direct plant walkdowns using Appendix "A"				
EVALAUTOR NOTE: When asked as the STA to check Seismic Monitor Workstation to see if OBE was exceeded, inform the CRS that OBE was exceeded. **EVALAUTOR NOTE:** 5 minutes after Appendix "A" walkdowns have been directed, direct booth operator to call the Control Room, informing the CRS that there is a small leak in the SLC Tank (instruction number 5 on page 9)						
19.	CRS	Directs the FSS/RBAO to shut SLC-11 to isolate SLC tank leak.				
20.	CRS	Consults Technical Specifications (TS). Enters TS LCO 3.4.D and directs WWM/FSS to investigate the leak and make repairs. With SLC-11 shut, both SLC pumps are out of service (24 hour LCO)				
21.	CRS	Brief the crew				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
22.	CREW	Human Performance Tools consistently utilized throughout event number 3.				

OPERATOR ACTIONS
EVENT NUMBER 4

Crew Task Description:

Respond to a Seismic Event aftershock, Loss of Normal Power, failure of the "B" EDG breaker to auto close, Torus leak, ATWS (4 control rods out)

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
1.	CREW	Recognizes and reports annunciator 7-M-7, "SEISMIC MONITOR ALERT", shortly thereafter a Loss of Normal Power. **EVALUATOR NOTE:** Based on the plant transient, the CRS may not re-enter and direct actions of OP 3127.				**ENTER KEY 3**
2.	CRS	CRS Enters and directs actions from OT 3122, "Loss of Normal Power"				
3.	OATC	Reports that a reactor scram has occurred, manual scram failed, and ARI/RPT failed to insert four control rods Performs post scram actions				
4.		• Reports loss of Feed and Condensate				
5.		• Places Mode Switch in Shutdown				
6.		• Reports power <2%				
7.		• Monitors RPV water level using the Auxiliary FRV.				
8.	CREW	Recognizes and/or reports the MSIVs are closed				
9.	CRS	Enters and directs actions from EOP-1, RPV Control" and EOP-2, RPV ATWS Control":				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
10.		• Direct ADS Inhibited				
11.		• Directs the OATC to maintain RPV water level -19" to 177" using RCIC or HPCI. **EVALUATOR NOTE:** Based on low power history, RCIC should be directed and even at that, CRD should be enough to maintain RPV water level.				
12.		• Directs the OATC to maintain RPV pressure 800-1000 psig using SRVs/HPCI/RCIC.				
13.		• Directs Hydraulic ATWS Rod Appendices to be performed based on available resources **EVALUATOR NOTE:** Based on available resources and the fact the reactor is "shutdown" despite having four control rods not fully inserted, the CRS may not give this order at this time.				
14.	OATC	Controls RPV water level -19"-177 inches and RPV pressure 800-1000 psig as directed.				
15.	BOP	Performs immediate actions of OT 3122, Loss of Normal Power"				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
16.		Reports the status of the electric plant: • "A" EDG is carrying buses 4 and 9. • "B" has started but breaker has failed to close. • Performs OT 3122, step 3.c.1 to close the "B" EDG output breaker				
17.		• Start or verify operation of 2 SW pumps				
18.		• Restart station air compressors A & B.				
19.	CREW	Recognize and report EOP-4, "Secondary Containment Control", entry condition based on annunciators for high sump levels (4-L-4, 4-L-6, 4-M-4, and 4-M-6)				
20.	CREW	Recognize and report EOP-3, "Primary Containment Control", entry condition for lowering Torus water level. Additionally, report and respond to annunciator 5-F-5, "TORUS TROUBLE".				
21.	CREW	Contacts WWM/FSS to investigate the loss of Torus water level and rising sump levels in the Reactor Building				
22.	CRS	Enters and directs actions of EOP-3:				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
23.		• Direct EOP-3 Table "N" systems be lined up to maintain Torus water level using Appendix "W" preferably based on quick to lineup with high capacity.				
24.	BOP	Lines up Core Spray to fill the Torus using OE 3107, Appendix "W".				
25.	CRS	Enters and directs actions of EOP-4 and ON 3158, "Reactor Building High Area Temperature/Water Level"				
26.		• Operates/verifies operating all sump pumps as required				
27.	CREW	Reports that the loss rate from the Torus exceeds the makeup rate with Core Spray and based on the leak location, will not be able to maintain Torus level above 7 feet.				
28.	**CREW CCT-1**	**During an ATWS with Emergency Depressurization required, terminate and prevent injection into the RPV (using OE 3107, "EOP/SAG Appendices", Appendix GG) until conditions are met to re-establish injection. STANDARD: Terminate and prevent injection IAW Appendix GG such that no system other than SLC, CRD, and/or RCIC is/are injecting during the RPV-ED.**				

	POS	CANDIDATE ACTIONS/BEHAVIOR	S	U	N/O	COMMENTS
29.	**CREW** **CCT-2**	**When torus level cannot be maintained above 7 ft, perform RPV emergency depressurization.** **STANDARD: Initiate RPV-ED such that RPV pressure is < 50 psig when Torus level reaches 5.5 ft.**				
30.	BOP	Open all SRVs				
31.	CREW	Monitors RPV water level as follows: • ERFIS point WIDEM071, COMPENSATED RX LEVEL WIDE 70 down to 350 psig • From 350 psig down, ERFIS point SHDBB045, COMPENSATED RX LEVEL SHRD 73B, or ERFIS point SHDAB046, COMPENSATED RX LEVEL SHRD 73A				
32.	CRS	When RPV pressure drops <MSCP for 4 open SRVs (160 psig), using Table "H" systems. Control water level using Table "H" systems -19"-177 inches **EVALUATOR NOTE:** Based on low power history, CRD should be enough to maintain level.				
33.	OATC	Control RPV water level -19"-177" as directed.				
34.	CREW	Human Performance Tools consistently utilized throughout event number 3.				

SCENARIO 4 EVALUATOR NOTES: