

JOB PERFORMANCE MEASURE SETUP SHEET

System: B21 - Main and Reheat Steam System
Time Critical: No Alternate Path: No
Safety Function: 3 – Reactor Pressure Control Applicability: RO/SRO
Setting: Simulator Validated: 15 minutes
References: SOI-B21 Rev 17
Tasks: 239-530-01-01 Close MSIVs from H13-P601
Task Standard: Slow close MSIV's on MS line 'A' per SOI-B21
Required Materials: SOI-B21
K / A Data: 239001, Main and Reheat Steam System, A4.01 Ability to manually operate in the control room: MSIV's RO 4.2*/ SRO 4.0

1. Setup Instructions: Reset simulator to IC-28 with Reactor Power less than 75%. All MSIVs open.

If/when candidate identifies correct procedure (SOI-B21, Section 6.2) provide him/her with a YELLOW copy of the procedure.

2. Location / Method: Simulator / performance

3. Initial Condition: Plant conditions are as found. There is a small instrument line crack on Main Steam Line 'A' between the Inboard and Outboard MSIV.

4. Initiating Cue: The Unit Supervisor directs you as a Reactor Operator to slow close the 'A' Inboard and Outboard MSIVs.

Start Time: _____ End Time: _____

Candidate: _____

JPM BODY SHEET

Standard: Performer obtains or simulates obtaining all materials, procedures, tools, keys, radios, etc... before performing task.

Standard: Performer follows management expectations with regards to safety and communication standards.

Step 1**SOI-B21 - Nuclear Steam Supply Shutoff, Automatic Depressurization and Nuclear Steam Supply Systems****6.2 Slow Closure of Main Steam Isolation Valves**

6.2.1 IF closing one MSIV at power, THEN REVIEW the Precautions and Limitations of IOI-3.

Standard: Verifies Reactor Power less than 75%.

Instructor Cue: None

Notes: IOI-3 Precaution states limit maximum thermal reactor power to 75% with one main steam line out of service.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 2

6.2.2 IF slow closing MSL A OTBD MSIV, 1B21-F028A THEN PERFORM the following:

6.2.2.a PLACE the MSL A OTBD MSIV in TEST. 1B21-F028A

<u>Critical Step:</u>	Operator places the MSL A OTBD MSIV in TEST.
Instructor Cue:	None
Notes:	Closing an MSIV may cause a perturbation in Rx level/feedwater. If so, inform Candidate that another operator will control feedwater.
SAT ____	UNSAT ____
Comment(s): _____	

Step 3

6.2.2.b DEPRESS AND HOLD the MSL A OTBD MSIV TEST. 1B21H-S4A

6.2.2.c CONFIRM the MSL A OTBD MSIV closes. 1B21-F028A

<u>Critical Step:</u>	Operator depresses and holds 1B21H-S4A, verifies 1B21-F028A indicates closed.
Instructor Cue:	None
Notes:	None
SAT ____	UNSAT ____
Comment(s): _____	

Step 4

6.2.2.d PLACE the MSL A OTBD MSIV in CLOSE. 1B21-F028A

<u>Critical Step:</u>	Operator places MSL A OTBD in close.
Instructor Cue:	None
Notes:	When taking switch from TEST through AUTO to CLOSE, the RED light may illuminate momentarily depending how quickly the Candidate manipulates the switch. This is <u>not</u> a failure as long as the TEST pushbutton remains depressed and the MSIV control switch is placed in CLOSE.
SAT ____	UNSAT ____
Comment(s): _____	

Step 5

6.2.2.e RELEASE the MSL A OTBD MSIV TEST. 1B21H-S4A

Standard:	Operator releases 1B21H-S4A.
Instructor Cue:	None
Notes:	If Operator releases switch to early and MSIV strokes open JPM is a failure.
SAT ____	UNSAT ____
Comment(s): _____	

Step 6

6.2.6 IF slow closing MSL A INBD MSIV, 1B21-F022A THEN PERFORM the following:

6.2.6.a PLACE the MSL A INBD MSIV in TEST. 1B21-F022A

Critical Step: Operator places the MSL A INBD MSIV in TEST.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 7

6.2.6.b DEPRESS AND HOLD the MSL A INBD MSIV TEST. 1B21H-S3A

6.2.6.c CONFIRM the MSL A INBD MSIV closes. 1B21-F022A

Critical Step: Operator depresses and holds 1B21H-S3A, verifies 1B21-F022A indicates closed.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 8

6.2.2.d PLACE the MSL A INBD MSIV in CLOSE. 1B21-F022A

Critical Step: Operator places MSL A INBD in close.**Instructor Cue:** None**Notes:** None**SAT** ____ **UNSAT** ____**Comment(s):** _____**Step 9**

6.2.2.e RELEASE the MSL A INBD MSIV TEST. 1B21H-S3A

Standard: Operator releases 1B21H-S3A**Instructor Cue:** None**Notes:** If Operator releases switch to early and MSIV strokes open JPM is a failure.**SAT** ____ **UNSAT** ____**Comment(s):** _____**Terminating Cue:** Main Steam Line 'A' Inboard and Outboard MSIVs have been slow closed.**Evaluation Results:** SAT ____ UNSAT ____**End Time:** ____

JPM CUE SHEET

INITIAL CONDITIONS:	Plant conditions are as found. There is a small instrument line crack on Main Steam Line 'A' between the Inboard and Outboard MSIV.
INITIATING CUE:	The Unit Supervisor directs you as a Reactor Operator to slow close the 'A' Inboard and Outboard MSIVs.

JOB PERFORMANCE MEASURE SETUP SHEET

System: B21, Primary Containment Isolation System / Nuclear Steam Supply Shut-Off

Time Critical: No Alternate Path: Yes

Safety Function: 5 – Containment Integrity Applicability: RO/SRO

Setting: Simulator Validated: 10 minutes

References: SOI-B21 Rev 17

Required Material: SOI-B21, Nuclear Steam Supply Shutoff, Automatic Depressurization and Nuclear Steam Supply Systems

Task: 009-506-04-01 – Isolate Balance of Plant (Manual Initiation of NS4)

Task Standard: Perform a Manual NS4 BOP Inboard Isolation per SOI-B21 sect 4.4

K / A Data: 223002 Primary Containment Isolation System /Nuclear Steam Supply Shut-Off: A2.03 Ability to (a) predict the impact of a System Logic Failure on the Primary Containment Isolation System / Nuclear Steam Supply Shut-Off; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations. RO 3.0 / SRO 3.3

1. Setup Instructions: Reset simulator to a shutdown IC. Shutdown caused by a Rx Scram due to a Loss of FW, RPV level < L2 with a failure of NS4 Inboard logic to activate (1B21N682B and C). Allow RCIC and HPCS to operate to control level and pressure. In addition, valves 1P50-F140 and 1G41-F140 fail to close in auto so that the operator must take the switches to close. Insert malfunctions mv05_1p50f0140, mv05_1g41f0140, bs01_1b21n0682b, and bs01_1b21n0682c. Insert malfunctions **TC04A** through **G** to '0'. **For 2015 NRC Exam, reset simulator to IC-36 (malfunctions included in IC).**

If/when candidate identifies correct procedure (SOI-B21, Section 4.4) provide him/her with a YELLOW copy of the procedure.

2. Location / Method: Simulator / performance
3. Initial Condition: Reactor was scrammed due to a loss of Feedwater, Reactor Level is as indicated. NS4 Inboard system failed to isolate on the Level 2 initiation signal. Another Operator is controlling Reactor Level and Pressure. Pressure control is on SRVs and RCIC due to a failure of the Steam Bypass Valves.
4. Initiating Cue: The Unit Supervisor directs you as a Reactor Operator to perform Manual Initiation of the Inboard Nuclear Steam Supply Shutoff System and verify isolation.

Start Time: _____ End Time: _____

Candidate: _____

JPM BODY SHEET

Standard: Performer obtains or simulates obtaining all materials, procedures, tools, keys, radios, etc... before performing task.

Standard: Performer follows management expectations with regards to safety and communication standards.

Step 1**SOI-B21 Nuclear Steam Supply Shutoff, Automatic Depressurization and Nuclear Steam Supply Systems****4.4 Manual Initiation of the Nuclear Steam Supply Shutoff System**

4.4.1 Closing ONLY the MSIVs,
THEN ARM AND DEPRESS either of
the following pairs simultaneously:

4.4.2 Closing the Main Steam Isolation
Valves
Closing the Outboard Balance of Plant
Isolation Valves

Standard: Steps 4.1.1 and 4.1.2 are N/A

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 2

4.4.3

Closing the Main Steam Isolation Valves

Closing the Inboard Balance of Plant Isolation Valves

THEN ARM AND DEPRESS the following pushbuttons simultaneously:

- NS4 Manual Isolation CH B
- NS4 Manual Isolation CH C

1B21-S25A

1B21-S25D

Critical Step: Operator Arms and Depresses 1B21-S25B and 1B21-S25C.**Instructor Cue:** None**Notes:** Operator may Arm and Depress pushbuttons A and D also if doing from memory. Should notify the Unit Supervisor that MSIVs will also isolate.

SAT ____ UNSAT ____

Comment(s): _____**Step 3**

Operator verifies a complete isolation for the initiation signal.

Critical Step: Operator verifies a complete isolation for the initiation signal.
Operator discovers 1P50-F140 and 1G41-F140 failed to isolate.**Instructor Cue:** None**Notes:** None

SAT ____ UNSAT ____

Comment(s): _____

Step 4

Operator isolates valves at panels: 1P50-F140 at 1H13 –P800 and 1G41-F140 at 1H13-P870.

<u>Critical Step:</u>	Operator isolates: 1P50-F140 at 1H13-P800 and 1G41-F140 at 1H13-P870.
Instructor Cue:	None
Notes:	None
SAT ____	UNSAT ____
Comment(s): _____	

Step 5

4.4.4 DISARM the following:

- NS4 Manual Isolation CH A 1B21-S25A
- NS4 Manual Isolation CH B 1B21-S25B
- NS4 Manual Isolation CH C 1B21-S25C
- NS4 Manual Isolation CH D 1B21-S25D

Standard:	Operator disarms isolation switches
Instructor Cue:	None
Notes:	If Operator performs steps from memory he will not disarm the NS4 Isolation switches
SAT ____	UNSAT ____
Comment(s): _____	

Terminating Cue: Inboard BOP Isolation complete.

Evaluation Results: SAT____ UNSAT____

End Time: _____

JPM CUE SHEET

INITIAL CONDITIONS:	<ul style="list-style-type: none">• Reactor was scrammed due to a loss of Feedwater,• Reactor Level is as indicated.• NS4 Inboard system failed to isolate on the Level 2 initiation signal.• Another Operator is controlling Reactor Level and Pressure.• Pressure control is on SRVs and RCIC due to a failure of the Steam Bypass Valves.
INITIATING CUE:	The Unit Supervisor directs you as a Reactor Operator to perform Manual Initiation of the Inboard Nuclear Steam Supply Shutoff System and verify isolation.

JOB PERFORMANCE MEASURE SETUP SHEET

System: B33, Reactor Recirculation

Time Critical: No Alternate Path: Yes

Safety Function: 1 – Reactivity Control Applicability: RO

Setting: Simulator Validated: 5 minutes

References: SOI-B33 Rev 34, ARI-H13-P680-0004 Rev 22 & ONI-C51 Rev 26

Required Material: SOI-B33 - Reactor Recirculation System
 ONI-C51 - Unplanned Change In Reactor Power Or Reactivity
 ARI-H13-P680-0004, Recirc Flow Control

Tasks: 202-511-01-01 Change Reactor Power using the Reactor Recirc System
 202-525-01-01 Monitor the Operation of the Reactor Recirc System
 202-560-04-01 Respond to Automatic Flow Demand Limiter (AFDL) in Control Alarm

Task Standard: Raise Reactor power using Recirc flow and take actions to lockup FCV's when APRM A failure occurs.

K/A Data: 202001 Recirculation System - Ability to (a) predict the impacts of the following on the Recirculation System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A2.05 Inadvertent recirculation flow decrease. Importance RO 3.6 / SRO 3.8. A2.25 Recirculation flow control valve lockup: Plant- Specific. Importance: RO 3.3 SRO 3.3

1. Simulator Setup Instructions: Set Reactor power to 90%. Insert Malfunction *NM04A*, (APRM channel A output failure), to 125% ramped over 2 minutes. **(For 2015 ILO: Load and reset to IC 27. Load Schedule JPM B33-502 & Event JPM B33. Then taking annunciator joy stick on P601-18 to SILENCE will trigger event)**
2. Location / Method: Simulator / performance
3. Initial Condition: Earlier in the shift, Reactor Power was lowered to 90% for surveillance testing which is now complete. The reactivity brief was completed prior to lowering power.
4. Initiating Cue: The Unit Supervisor directs you as the Reactor Operator at the controls to raise Reactor Power to 95% initially, then 1%/hr until at 100% power using flow.

Start Time _____ End Time _____

Operator _____
 RJT – 05/15/14

JPM BODY SHEET

Standard: Performer obtains or simulates obtaining all materials, procedures, tools, keys, radios, etc... before performing task.

Standard: Performer follows management expectations with regards to safety and communication standards.

Step 1**SOI-B33 - Reactor Recirculation System****7.7 Reirc Flow Control in Loop Manual**

7.7.1 CONFIRM RCIRC LOOP FLOW CONTROL is in MAN. 1B33-K603A

7.7.2 CONFIRM RCIRC LOOP FLOW CONTROL is in MAN. 1B33-K603B

Standard: The Operator confirms Loop Flow Control is in MANUAL.

Instructor Cue: None

Notes: This information is also on an Operator Aid on H13-P680.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 2

7.7.3 PERFORM the following concurrently as required for the desired Recirc Flow:

- ADJUST RCIRC LOOP FLOW CONTROL with the slide switch.
1B33-K603A
- ADJUST RCIRC LOOP FLOW CONTROL with the slide switch.
1B33-K603B

Critical Step: The Operator raises Reactor Power using flow control valve slide switches.

Instructor Cue: None

Notes: After the Operator adjusts A FCV the first time, take annunciator joy stick on P601-18 to SILENCE to trigger Event 1.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 3

Operator receives AFDL IN CONTROL, alarm and investigates.

ARI-H13-P680-0004- E9 AFDL IN CONTROL

3.0 IMMEDIATE OPERATOR ACTION

3.1 IF the alarm is due to APRM A or E failed upscale, THEN PERFORM the following:

3.1.1 VERIFY reactor power has NOT increased.

Critical Step: The Operator observes AFDL in Control Alarm and that APRM A is failing upscale.

Operator verifies problem is APRM A failure

Instructor Cue: If requested inform operator to take immediate actions per the ARI.

Notes: While doing APRM observation after commencing power increase, the Operator may observe APRM A failing prior to alarm. If so, the Instructor Cue is the same.

SAT ____ UNSAT ____

Comment(s): _____

Step 4

3.1.2 ARM and DEPRESS HPU A SHUTDOWN pushbutton.

3.1.3 ARM and DEPRESS HPU B SHUTDOWN pushbutton.

Critical Step: The Operator arms and depresses HPU A and B shutdown pushbuttons.

Instructor Cue: None

Notes: When Operator shuts down the HPUs, terminate the JPM.

SAT ____ **UNSAT** ____

Comment(s): _____

Terminating Cue: HPU A and B HPU's shutdown.

Evaluation Results: SAT ____ UNSAT ____

End Time _____

JPM CUE SHEET

INITIAL CONDITIONS:	Earlier in the shift, Reactor Power was lowered to 90% for surveillance testing which is now complete. The reactivity brief was completed prior to lowering power.
INITIATING CUE:	The Unit Supervisor directs you as the Reactor Operator at the controls to raise Reactor Power to 95% initially, then 1%/hr until at 100% power using flow.

JOB PERFORMANCE MEASURE SETUP SHEET

System:	C51 (SRM)	
Time Critical:	No	Alternate Path: Yes
Safety Function:	7 - Instrumentation	Applicability: RO/SRO
Setting:	Simulator	Validated Time: 21 Minutes
References:	SOI-C51(SRM) Rev 6 and IOI-2 Rev 27	
Required Material:	SOI-C51(SRM) - Source Range Monitoring System	
Task:	215-503-04-01 Bypass an SRM Channel 215-510-04-01 Respond to Stuck SRM Detector 215-505-01-01 Withdraw an SRM Detector	
Task Standard:	Perform SRM detector withdrawal per SOI-C51, identify SRM C is stuck, and bypass a SRM channel per SOI-C51(SRM) then direct I&C to de-energize the detector.	
K/A Data:	215004. Source Range Monitor System; A1.01 Ability to predict and/or monitor changes in parameters associated with operating the Source Range Monitor (SRM) System controls including: Detector position RO 3.0 / SRO 3.1, A1.02 Reactor power indication RO 3.6 / SRO 3.7, A2.03 Ability to (a) predict the impacts of the following on the Source Range Monitor (SRM) System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Stuck detector RO 3.0 / SRO 3.3, & A4.04 Ability to manually operate and/or monitor in the control room: SRM drive control switches RO 3.2 / SRO 3.3	

JOB PERFORMANCE MEASURE SETUP SHEET

1. Simulator Setup Instructions: Reset simulator to a startup IC. (IC-34 for 2015 ILO exam) & insert Schedule file JPM-C51-501.
Drive all SRM's in for 30 seconds.
Insert *malfunction nm10C* and set *malfunction nm10C* to 2 to 3 points greater than the 'initial value' in the malfunction popup window.
SRM C will be stuck at mid position. SRM's A, B and D at mid position per IOI-2 during start up.
Mode switch in STARTUP.
IRM's on range 7 or greater.
If/when candidate identifies correct procedure, provide him/her with entire copy SOI-C51(SRM)
Do NOT go to RUN until ICS falls through and cue has been read to the Candidate.
Driver/other RO to Range IRM's as necessary during performance of JPM.
2. Location / Method: Simulator / performance
3. Initial Condition: Reactor start-up in progress per IOI-2, Hot Startup. Neutron flux is as indicated on IRM instruments. It was identified that SRM's have not been withdrawn per IOI-2 Section 4.3 Step 29 as required. Another RO is ranging IRM'S.
4. Initiating Cue: The Unit Supervisor directs you as a Reactor Operator to withdraw the SRM's in accordance with SOI-C51 (SRM).

This JPM update RJT – 7/05/14.

Start Time _____ End Time _____

Operator _____

JPM BODY SHEET

Standard: Performer obtains or simulates obtaining all materials, procedures, tools, keys, radios, etc... before performing task.

Standard: Performer follows management expectations with regards to safety and communication standards.

Step 1**SOI-C51(SRM) - Source Range Monitoring System****7.1 SRM Detector Withdrawal****7.1.1 DEPRESS POWER ON to energize the drives.****NOTES**

RETRACT PERMIT backlit indicates that SRM counts are ≥ 100 cps and that a rod block will NOT occur when the detector is withdrawn.

An Individual withdrawal may be accomplished by selecting a single SRM.

7.1.2 SELECT all SRMs to be withdrawn:

- IF SRM A is to be withdrawn, THEN DEPRESS SRM A SELECT.
- IF SRM B is to be withdrawn, THEN DEPRESS SRM B SELECT.
- IF SRM C is to be withdrawn, THEN DEPRESS SRM C SELECT.
- IF SRM D is to be withdrawn, THEN DEPRESS SRM D SELECT.

Critical Step: Operator turns power on and selects SRM's to withdraw.

Instructor Cue: None

Notes: Operator should not withdraw all SRM's at the same time.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 2**NOTE**

SRM withdrawal may be stopped at any point by depressing DRIVE OUT/DRIVING OUT.

7.1.3 Momentarily depress DRIVE OUT/DRIVING OUT to begin SRM withdrawal.

Critical Step: Selects driving out to commence withdrawal of SRM's.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 3

7.1.4 WHEN the OUT lights for SRMs being withdrawn are on, THEN DEPRESS DRIVE OUT/DRIVING OUT to stop SRM withdrawal.

Critical Step: Operator depresses Driving Out to stop withdrawal, notices SRM C is not out, check of SRM count rate indicates A, B and D are out and C did not move.

Instructor Cue: None

Notes: SRM's A, B and D will have OUT lights illuminated.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 4

7.1.5 DE-SELECT all selected SRMs:

- IF SRM A is selected, THEN DEPRESS SRM A SELECT.
- IF SRM B is selected, THEN DEPRESS SRM B SELECT.
- IF SRM C is selected, THEN DEPRESS SRM C SELECT.
- IF SRM D is selected, THEN DEPRESS SRM D SELECT.

Standard: Operator deselects A, B and D SRM's.

Instructor Cue: After informed of SRM C stuck, have operator perform actions for Stuck Detector.

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 57.5 Stuck SRM Detector**NOTES**

A stuck detector may be indicated by any of the following:

- Neutron flux indication does not change as expected when detector movement is attempted.
- The IN light does not go off when withdrawal from the full in position is attempted.
- The OUT light does not go off when insertion from the full out position is attempted.

If the drive motor is not moving the drive tube, then detector status lights may change state even though no detector movement takes place.

7.5.1 **VERIFY** the following to ensure that power is available to the detector drive motor:

CAUTION

If Reactor power is increased while the stuck detector's high voltage power supply is energized, then detector burnout may result.

- POWER ON pushbutton is backlit green.
- SRM & IRM Drive Control Cabinet disconnect is closed. F1E14-27
- Drive fuses intact at 1H22-P008.

Standard: Operator confirms power on backlit, calls for assistance to check disconnect and fuses.

Instructor Cue: Disconnect F1E14-27 is closed and fuses intact.

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 6

7.5.2 ATTEMPT to move the detector in the opposite direction.

Standard: Operator Depresses driving in for SRM C. Depresses driving in to stop insertion when realizes detector is not moving.

Instructor Cue: None

Notes: Operator may use SOI-C51(SRM) Section 7.2 (insert) to try to move the detector.

SAT ____ UNSAT ____

Comment(s): _____

Step 7

7.5.3 IF necessary to prevent a Rod Block or Scram, THEN BYPASS the SRM channel.

7.3 Bypassing SRM Channel

NOTES

- If the Mode Switch is NOT in RUN, the BYPASS half of DISC/BYPASS backlights white on the SOURCE RANGE MONITOR on 1H13-P680-6C.
- The BYPASSED SRM CH A(B, C, D) light on the applicable Startup Range Rad Mon Panel, 1H13-P669 (P670, P671, P672) comes on when the SRM is bypassed.
- If the failed SRM Channel caused any trips or alarms, those trips and/or alarms clear and may be reset once the SRM is bypassed.
- The: “BYPASS, DNSC, PERIOD, UPSC ALM OR INOP, and UPSC TRIP” SRM status lights cannot energize with the Mode Switch in RUN.

7.3.1 DECLARE the Bypassed SRM Channel inoperable.

7.3.2 PLACE NEUTRON MONITOR BYPASS SRM in the position of the affected SRM Channel. 1C51A-S5 CH C

Critical Step: Operator Bypasses SRM C.

Instructor Cue: SRM C is Inoperable, Bypass SRM Channel C

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 8

- 7.5.4 IF the detector remains stuck during reactor startup, THEN DIRECT I&C to deenergize the high voltage power supply.
- 7.5.5 The detector is capable of being driven. The detector has been deenergized. THEN RESUME Normal operation, including control rod movement, as permitted by Technical Specifications.

Critical Step: Operator Directs I&C to de-energize high voltage power supply to SRM C.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 9

- 7.1.6 DEPRESS POWER ON to de-energize the drives.

Standard: Operator Informs Unit Supervisor when SRM C is de-energized. Should De-select SRM C and de-energize the drive.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Terminating Cue: SRM C bypassed and I&C dispatched to de-energize.

Evaluation Results: SAT ____ UNSAT ____

End Time _____

JPM CUE SHEET

INITIAL CONDITIONS:	<ul style="list-style-type: none">• Reactor startup in progress per IOI-2, Hot Startup.• Neutron flux is as indicated on IRM instruments.• It was identified that SRM's have not been withdrawn per IOI-2 Section 4.3 Step 29 as required.
INITIATING CUE:	The Unit Supervisor directs you as the Reactor Operator to withdraw the SRM's in accordance with SOI-C51 (SRM).

JOB PERFORMANCE MEASURE SETUP SHEET

System: E21, LPCS

Time Critical: No Alternate Path: No

Safety Function: 4 - Heat Removal From the Core Applicability: RO/SRO

Setting: Simulator Validated Time: 31 Minutes

References: ONI-E12-2 Rev 32 & SOI-E21- Rev 28

Required Material: ONI-E12-2 - Attachment 2 - Loss Of Alternate Methods Of Shutdown Cooling
SOI-E21- Low Pressure Core Spray System

Task: 205-521-01-01 Monitor the RHR System
205-578-04-01 Recover from Loss of Shutdown Cooling
239-514-04-01 Operate SRV's

Task Standard: Establish Alternate Shutdown Cooling using the Suppression Pool Feed and Bleed method per ONI-E12-2, Loss of Decay Heat Removal Attachment 2 and maintain cooldown rate $\leq 100^{\circ}\text{F/hr}$.

K/A Data: 209001 Low Pressure Core Spray System – A4 .01 Ability to manually operate and/or monitor in the control room: Core spray pump. – RO 3.8 / SRO 3.6 & A4.03 Injection valves RO 3.7 / SRO 3.6, & 295021 Loss of Shutdown Cooling: AA1.04 Ability to operate and/or monitor the following as they apply to Loss Of Shutdown Cooling: Alternate heat removal methods. RO 3.7 / SRO 3.7

1. **Simulator Setup Instructions:** Reset simulator to a Mode 3 IC, with pressure ≤ 100 psig & RPV level at $\sim 240 - 250''$ Place RHR A and B in suppression pool cooling. Pressure control on SRV's with MSIV's shut. (Reset to **IC-32 for ILO exam**). **Place yellow switch cap on RHR C pump. Give Candidate Marked up copy of Attachment 2.**
2. **Location / Method:** Simulator / performance
3. **Initial Condition:** The Reactor is in Mode 3. The normal Shutdown Cooling lineup can not be established and the main condenser is not available. Both RHR A and B loops are operating in Suppression Pool Cooling. Reactor pressure is being controlled by another operator and is on SRV's. The Unit Supervisor is in ONI-E12-2. The Shift Engineer is performing SVI-B21-T1176 and will monitor for Vessel filled indications.
4. **Initiating Cue:** The Unit Supervisor directs you as a Reactor Operator to establish Alternate Shutdown Cooling using the Suppression Pool Feed and Bleed method per ONI-E12-2, Loss of Decay Heat Removal Attachment 2.

Start Time _____ End Time _____

Operator _____

JPM BODY SHEET

Standard: Performer obtains or simulates obtaining all materials, procedures, tools, keys, radios, etc... before performing task.

Standard: Performer follows management expectations with regards to safety and communication standards.

Step 1**ONI-E12-2 - Attachment 2 - Loss Of Alternate Methods Of Shutdown Cooling**

- 7.0 IF performing Suppression Pool feed and bleed, THEN PERFORM the following:
- 7.1 NOTIFY Radiation Protection.
- 7.2 NOTIFY Chemistry.
- 7.3 EVACUATE the Containment.
- 7.4 IF Suppression Pool Temperature is > 95°F, THEN REFER TO the Suppression Pool Cooling Startup Hardcard and VERIFY an available loop of RHR in Suppression Pool Cooling.

Standard: Candidate reviews Attachment 2 and proceeds to Step 7.0.
Candidate Notifies RP and Chemistry, & evacuates containment. Checks RHR A and B are in Suppression Pool Cooling.

Instructor Cue: None

Notes: Per Initial Conditions, RHR A and B are in Suppression Pool Cooling.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 2

7.5 VERIFY the following valves closed:

• INBD MSIV	1B21- F022A
• INBD MSIV	1B21- F022B
• INBD MSIV	1B21- F022C
• INBD MSIV	1B21- F022D
• OTBD MSIV	1B21- F028A
• OTBD MSIV	1B21- F028B
• OTBD MSIV	1B21- F028C
• OTBD MSIV	1B21- F028D
• MSL DRN & MSIV BYP INBD ISOL	1B21-F016
• MSL DRN & MSIV BYP OTBD ISOL	1B21-F019
• RX HEAD TO DW SECOND VENT VALVE	1B21-F001
• RX HEAD TO DW FIRST VENT VALVE	1B21-F002
• RX HEAD TO MSL A VENT VALVE	1B21-F005
• SHUTDOWN COOLING OTBD SUCT ISOL	1E12-F008
• SHUTDOWN COOLING INBD SUCT ISOL	1E12-F009
• RHR A SHUTDOWN CLG SUCT	1E12-F006A
• RHR B SHUTDOWN CLG SUCT	1E12-F006B
• RHR & RCIC ST SUPP INBD ISOL.	1E51-F063
• RHR & RCIC ST SUPP OTBD ISOL.	1E51-F064
• RHR & RCIC ST SUPP WARM UP ISOL.	1E51-F076

Critical Step: Operator verifies the above valves closed.

Instructor Cue: If asked, B21-F001 and E12-F008 were verified closed prior to down-powering.

Notes: 1B21-F005, 1E51-F063, & 1E51-F064 are open and will need to be closed.

SAT ____ UNSAT ____

Comment(s): _____

Step 3

7.6 IF SRV's are available for use, THEN VERIFY OPEN two SRVs.

Standard: Operator verifies / opens 2 SRV's

Instructor Cue: None

Notes: 2 SRV's already open for pressure control.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 4

7.7 IF SRV's are NOT available for use, THEN PERFORM the following:

Standard: Step 7.7 is N/A.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 5**NOTE**

One RHR Loop in Suppression Pool Cooling and another ECCS system injecting into the vessel is the preferred lineup.

7.8 PLACE at least one injection system in the test return mode in the order listed:

- REFER TO SOI-E21 and START LPCS in the Test Mode. 1E21-C001
- REFER TO SOI-E12 and PERFORM RHR C Loop Flush /Test Mode Startup. 1E12-C001C

Standard: Candidate refers to SOI-E21 to START LPCS in the Test Mode

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 6

SOI-E21- Low Pressure Core Spray System

7.3 LPCS Test Mode Startup

- 7.3.1 VERIFY the LPCS & RHR A WATER LEG PUMP is in operation.
1E21-C002
- 7.3.2 VERIFY SPCU is NOT in operation through the Suppression Pool Return Line Bypassing RHR A.
- 7.3.3 NOTIFY Radiation Protection that a Suppression Pool evolution will be conducted, so the survey frequency may be increased as necessary.
- 7.3.4 REFER TO SOI-P42 to STARTUP ECC Loop A.
- 7.3.5 VERIFY the LPCS System is in Standby Readiness.

Standard: Candidate performs Steps 7.3.1 – 7.3.5.

Instructor Cue: Role play as RP for notification

Notes: ECC Loop A already in operation.

SAT	UNSAT
1	0
0	1
0	0
1	1

Comment(s):

Step 7

- | | | |
|-------|---|---------------------|
| 7.3.6 | TAKE the LPCS PUMP control switch to START. | 1E21-C001 |
| 7.3.7 | THROTTLE OPEN the LPCS TEST VALVE TO SUPR POOL UNTIL LPCS Pump flow is 2600-3500 gpm. | 1E21-F012 1E21-R600 |

Critical Step: Candidate starts the LPCS pump and throttles flow to 2600-3500 gpm.

Instructor Cue: None

Notes: None

SAT	UNSAT
1	0
0	1

Comment(s):

Step 8

- 7.3.8 RECORD opening of LPCS TEST VALVE TO SUPR POOL in the Plant Narrative Log. 1E21-F012
- 7.3.9 WHEN flow exceeds 1380 gpm, THEN VERIFY the LPCS PUMP MIN FLOW VALVE closes. 1E21-R600 1E21-F011
- 7.3.10 IF flow drops to 1350 gpm, THEN VERIFY the LPCS PUMP MIN FLOW VALVE opens. 1E21-R600 1E21-F011

Standard:	Candidate completes LPCS startup and returns to ONI-E12-2 Attachment 2.
Instructor Cue:	Another operator will record in the Narrative Log.
Notes:	None
SAT ____	UNSAT ____
Comment(s): _____	

Step 9**ONI-E12-2 - Attachment 2 - Loss Of Alternate Methods Of Shutdown Cooling**

- 7.9 WHILE cooling down the RPV, MONITOR temperature and pressure. SVI-B21-T1176

Standard:	Step 7.9 is being performed by Shift Engineer per initial conditions.
Instructor Cue:	Shift Engineer is performing SVI-B21-T1176
Notes:	None
SAT ____	UNSAT ____
Comment(s): _____	

Step 10**CAUTION**

Injecting to the RPV with the RPV head removed will result in considerable equipment wetting and widespread contamination in the containment.

7.10 SELECT one of the following lineups to inject to the RPV

- LPCS, Step 7.11
- RHR C, Step 7.12
- RHR A or B, Step 7.13

Standard: Candidate selects LPCS since RHR C is tagged out and RHR A & B are in Suppression Pool Cooling.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 11

7.11 IF using LPCS, THEN PERFORM the following:

7.11.1 THROTTLE the following:

- LPCS INJECTION VALVE 1E21-F005
- LPCS TEST VALVE TO SUPR POOL 1E21-F012

UNTIL the following are met:

- RPV level rises at approximately 10" per minute until water level is above the Main Steam Lines.
- cooldown rate is <100°F/hr.

Critical Step: Candidate throttles 1E21-F005 and 1E21-F012 to obtain up to 10" per minute level rise and monitors cooldown rate.

Instructor Cue: Role play as Shift Engineer and inform candidate when RPV level is at MSL.

Notes: It should take ~ 3 to 4 minutes to fill to MSL. Cooldown rate should not be a challenge during flood-up. The 6 min ΔT may indicate > 100°F but cooldown would be secured prior to lowering RPV temp by 100°F.

RPV level will be at MSLs when suppression pool level is stabilized.

SAT ____ UNSAT ____

Comment(s): _____

Step 12

7.11.2 WHEN the RPV is filled, THEN THROTTLE the following to control cooldown rate:

- LPCS INJECTION VALVE 1E21-F005
- LPCS TEST VALVE TO SUPR POOL 1E21-F012

Critical Step: Candidate throttles 1E21-F005 and 1E21-F012 to maintain cooldown rate < 100°F/hour

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 13

7.12 IF using RHR C, THEN PERFORM the following:

7.13 IF using RHR A OR B, THEN PERFORM the following:

7.14 REFER TO the Suppression Pool Cooling Startup Hardcard and VERIFY all available loops of RHR NOT needed for injection in Suppression Pool Cooling.

Standard: Steps 7.12, 7.13, & 7.14 are N/A.

Instructor Cue: None

Notes: RHR A & B already in Suppression Pool Cooling.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 14

7.15 Additional cooling capacity is required.

The reactor vessel head is installed.

THEN OPEN a third SRV.

Standard: Steps 7.15 & 7.16 are NA

Instructor Cue: Additional cooling capacity is not required.

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 15**CAUTION**

If RHR HX's OUTLET VALVE is fully closed under degraded voltage conditions, a locked rotor condition may occur which may result in blown fuses.

7.17 MAINTAIN Suppression Pool temperature between 70°F and 95°F.

Critical Step: Controls Suppression Pool Temperature between 70 to 95 °F.

Instructor Cue: None

Notes: Candidate will need to increase suppression pool cooling using RHR B to control SP temperature.

Terminate JPM at this point

SAT ____ **UNSAT** ____

Comment(s): _____

Terminating Cue: LPCS is injecting into the RPV with a cooldown rate of less than 100 degrees per hour, RHR A & RHR B are in Pool Cooling maintaining 70 to 95 degrees.

Evaluation Results: **SAT**____ **UNSAT**____

End Time _____

JPM CUE SHEET

<p>INITIAL CONDITIONS:</p>	<ul style="list-style-type: none">• The Reactor is in Mode 3.• The normal Shutdown Cooling lineup can not be established and the main condenser is not available.• Both RHR A and B loops are operating in Suppression Pool Cooling.• Reactor pressure is being controlled by another operator and is on SRV's.• The Unit Supervisor is in ONI-E12-2.• The Shift Engineer is performing SVI-B21-T1176 and will monitor for Vessel filled indications.
<p>INITIATING CUE:</p>	<p>The Unit Supervisor directs you as a Reactor Operator to establish Alternate Shutdown Cooling using the Suppression Pool Feed and Bleed method per ONI-E12-2, Loss of Decay Heat Removal Attachment 2.</p>

JOB PERFORMANCE MEASURE SETUP SHEET

System: G33 - Reactor Water Cleanup
 Time Critical: No Alternate Path: Yes
 Safety Function: 2 - Reactor Water Inventory Control Applicability: RO/SRO
 Setting: Simulator Validated Time: 32 Minutes
 References: SOI-G33 Rev 38
 Required Material: SOI-CG33, Reactor Water Cleanup System
 Task: 204-504-01-01 Blowdown/Dump RWCU to the Main Condenser
 Task Standard: Restore RPV level to band of 192-200" using RWCU blowing-down to main condenser.
 K/A Data: 204000, Reactor Water Cleanup System: A4.08 Ability to manually operate and/or monitor in the control room: Reactor water level, Importance: RO 3.4 / SRO 3.4

1. Setup Instructions: Reset simulator to **IC 35**

If/when candidate identifies correct procedure (SOI-G33, Section 7.4) provide him/her with a YELLOW copy of the procedure.

2. Location / Method: Simulator / Performance

3. Initial Condition: Preparations for plant startup in progress. RWCU was just restarted is in Normal Recirculation Mode following an inadvertent Δ Flow isolation. The Δ Flow problem has been corrected. Also, F/D 'A' is in service.

4. Initiating Cue: Unit Supervisor directs you the Reactor Operator to lineup RWCU to blowdown to the main condenser and lower RPV level to 192 to 200 inches.

Start: _____ **Stop:** _____

Candidate: _____

JPM BODY SHEET

Standard: Performer obtains or simulates obtaining all materials, procedures, tools, keys, radios, etc... before performing task.

Standard: Performer follows management expectations with regards to safety and communication standards.

Step 1**SOI-CG33, Reactor Water Cleanup System****7.4 RWCU Blowdown/Dump to the Main Condenser When RPV is at Atmospheric Pressure****Cautions**

Seven cautions listed

7.4.1 NOTIFY Chemistry that water is to be discharged to the Main Condenser AND SPECIFY whether it will be filtered or unfiltered.

7.4.2 NOTIFY Radiation Protection of the following:

- That water is to be discharged to the Main Condenser AND SPECIFY whether it will be filtered or unfiltered.
- To perform actions specified in PYBP-RPS-0016, Radiation Protection Response to Changing Plant Conditions.

Standard: Operator reviews CAUTIONS and makes notifications.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 2

7.4.3 IF NOT operating in accordance with RWCU Temperature Control for Reduced Feedwater Temperature, THEN THROTTLE the RWCU HX OUTLET THROTTLE VALVE closed UNTIL RWCU INLET FLOW just starts to lower.
1G33-F042

Critical Step: Operator adjusts 1G33-F042 until RWCU INLET FLOW starts to lower.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 3

7.4.4 ADJUST the RWCU BLWDN TO CNDR/RW VLV to 0 to close. 1G33-F033

Standard: Operator ensures 1G33-F033 is closed.

Instructor Cue: None

Notes: 1G33-F033 should already be closed.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 4

7.4.5 TAKE the RWCU BLWDN HDR OTBD ISOL to OPEN at 1H13-P881.
1G33-F034

7.4.6 TAKE the RWCU BLWDN HDR INBD ISOL to OPEN at 1H13-P882.
1G33-F028.

Critical Step: Operator opens 1G33-F034 and 1G33-F028.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 5

7.4.7 NOTIFY Radiation Protection that the blowdown/dump will commence

Standard: Operator makes notification.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 6**NOTE**

The blowdown may commence when 1G33-F046 is opened; the blowdown rate will be equivalent to the leakage past 1G33-F033.

7.4.8 TAKE the RWCU DUMP TO MAIN CNDR STOP VALVE to OPEN.

1G33-F046

Critical Step: Operator open 1G33-F046.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 7**NOTE**

Blowdown flow > 100 gpm increase the potential for RWCU Regenerative Heat Exchanger voiding.

7.4.9 ADJUST the RWCU BLWDN TO CNDR/RW VALVE tapeset to achieve a
blowdown flow between 35 gpm and 350 gpm. 1G33- R606

Standard: Operator adjusts tapeset to establish blowdown flow.

Instructor Cue: None

Notes: Operator will need to adjust tapeset to 100% and wait for a few seconds for valve to open. With these conditions, valve will only pass ~ 35 gpm. Operator will need to establish blowdown flow greater than CRD inlet flow (~60 gpm) to establish lowering trend on RPV level. Step 7.4.14 will need to be performed.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 8

7.4.10 IF necessary to prevent a low pressure condition upstream of RWCU BLWDN TO CNDR/RW VALVE, THEN THROTTLE one of the following valves further in the close direction

- RWCU HX OUTLET THROTTLE VALVE 1G33-F042
- RWCU HX SHELL SIDE BYPASS VALVE 1G33-F107

Standard: Operator may adjust 1G33-F042.

Instructor Cue: None

Notes: Steps 7.4.11 & 7.4.12 are N/A.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 9

7.4.13 IF in normal RWCU operation, THEN THROTTLE RWCU HX OUTLET THROTTLE VALVE to maintain the following: 1G33-F042

- RWCU F/D FLOW in accordance with Normal Operations/Data
- RWCU INLET FLOW in accordance with Normal Operations/Data

Standard: Operator may adjust 1G33-F042.

Instructor Cue: None

Notes: No adjustment should be necessary

SAT ____ **UNSAT** ____

Comment(s): _____

Step 10

7.4.14 IF the ability to use a blowdown flow rate >80gpm is desired, THEN PERFORM the following WHILE maintaining appropriate system flow limitations:

7.4.14.a ADJUST the RWCU BLWDN TO CNDR/RW VLV to 0 to close 1G33-F033.
1G33-R606

7.4.14.b THROTTLE the RWCU DUMP ORIFICE BYPASS VALVE to permit increased blowdown flow.

1G33-F031

7.4.14.c ADJUST the RWCU BLWDN TO CNDR/RW VALVE tapeset to achieve a blowdown flow between 35 gpm and 350 gpm.

1G33-R606

Critical Step: Operator closes G33-F033, throttles open G33-F031, then adjusts G33-F033 to achieve > CRD inlet flow to obtain lowering RPV level trend.

Instructor Cue: None

Notes: Step 7.4.14.d is N/A

Terminate JPM when RPV level in band or satisfied with lowering RPV level trend.

SAT ____ **UNSAT** ____

Comment(s): _____

Terminating Cue: Candidate is restoring/has restored RPV level to 192-200" band.

Evaluation Results: SAT ____ UNSAT ____

End Time: _____

JPM CUE SHEET

<p>INITIAL CONDITIONS:</p>	<ul style="list-style-type: none">• Preparations for plant startup in progress.• RWCU was just restarted is in Normal Recirculation Mode following an inadvertent Δ Flow isolation.• The Δ Flow problem has been corrected.• Also, F/D 'A' is in service.
<p>INITIATING CUE:</p>	<p>Unit Supervisor directs you the Reactor Operator to lineup RWCU to blowdown to the main condenser and lower RPV level to 192 to 200 inches.</p>

JOB PERFORMANCE MEASURE SETUP SHEET

System: M15 – Annulus Exhaust Gas Treatment
 Time Critical: No
 Alternate Path: Yes
 Applicability: RO/SRO
 Safety Function: 9 - Radioactivity Release
 Setting: Simulator
 Validated: 15 minutes (with time compression)
 References: SOI-M15 Rev 11
 ARI-H13-P800-0001 Rev 7
 Tasks: 261-503-02-01 Shift Operating Trains
 261-507-01-01 Respond to Alarms
 Task Standard: Shift AEGTS trains per SOI-M15 and respond to flow problem.
 Required Material: SOI-M15, ANNULUS EXHAUST GAS TREATMENT SYSTEM
 K / A Data: 261000 A4 - Ability to manually operate and/or monitor in the control room: A4.03 Fan. Importance RO 3.0 / SRO 3.0. A4.07 System flow. Importance RO 3.1 / SRO 3.2.

1. Simulator Setup Instructions: Reset simulator to any IC with AEGTS A running and perform the following:
 Insert malfunction cp03_1m15c0001b to 20% on Event 11.
 Make a snapshot. Following the last performance of this JPM, delete the snapshot.
 For 2015 ILO Exam, Load Schedule File JPM-M15-001. Verify Event File JPM-M15-001 loads.

 If/when candidate identifies correct procedure (SOI-M15, Section 7.1) provide him/her with a YELLOW copy of the procedure.
2. Location / Method: Simulator / performance
3. Initial Condition: Plant conditions are as is.
4. Initiating Cue: Unit Supervisor directs you a Reactor Operator to shift Annulus Exhaust Gas Treatment System trains per SOI-M15 to equalize run time.

Start Time _____ End Time _____

Operator _____

New JPM to be placed in FITS after NRC exam.

JPM BODY SHEET

Standard: Performer obtains or simulates obtaining all materials, procedures, tools, keys, radios, etc... before performing task.

Standard: Performer follows management expectations with regards to safety and communication standards.

Step 1**SOI-M15 - Annulus Exhaust Gas Treatment System****7.1 Shifting Operating Trains**

7.1.1 IF Backup DW Purge is in operation, THEN NOTIFY the Chemistry Unit to sample in accordance with REC-0104.

7.1.2 TAKE the offgoing AEGT ELEC HT COIL to STOP.

1M15-D001A

Critical Step: Operator takes 1M15-D001A to STOP position.

Instructor Cue: None

Notes: Step 7.1.1 is N/A

SAT ____ **UNSAT** ____

Comment(s): _____

Step 2

- 7.1.3 WHEN five minutes has elapsed since stopping the offgoing AEGT ELEC HT COIL,
THEN PLACE the oncoming AEGT FAN in ON. 1M15-C001B

Critical Step: Operator places AEGT FAN B in ON position after 5 minutes has elapsed.

Instructor Cue: None

Notes: Time compression may be used if desired.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 3

- 7.1.4 TAKE the oncoming AEGT ELEC HT COIL to START.

M16-D001B

Critical Step: Operator starts B heater.

Instructor Cue: None

Notes: After starting the fan, the Operator must wait until the B low flow alarm is reset before starting the heater as the heater will not energize until the fan is up to speed.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 4

7.1.5 WHEN 1 to 2 minutes have elapsed since starting the oncoming AEGT FAN, THEN CONFIRM annulus pressure is maintained between 0.75" and 1.0" H₂O vacuum.

- ANNULUS DIFF PRESSURE RECORDER 1M15-R016A
- ANNULUS DIFF PRESSURE RECORDER 1M15-R016B

7.1.6 CONFIRM the oncoming ANNULUS EXH FAN FLOW LOW annunciator window is reset. 1H13-P800-1 A1

7.1.7 DECLARE the offgoing AEGT FAN inoperable in accordance with T.S. 3.6.4.3.

Standard: Operator waits two minutes and confirms dampers have repositioned and Annulus ΔP within band.
Operator informs US of AEGT B fan inoperability.

Instructor Cue: The AEGT fan has been declared inoperable per TS 3.6.4.3.

Notes: The off-going fan is declared INOP while holding the switch in OFF.

SAT ____ **UNSAT** ____

Comment(s): _____

zd1m15c000a1(0)=1 → True in ON
 zd1m15c000a1(1)=1 → True in STOP/STBY/ON
 zd1m15c000a1(0)=0 → True in ON/STBY
 zd1m15c000a1(0)=1 → False in STOP
 zd1m15c000a1(2)=0 → True in STOP/STBY
 zd1m15c000a1(2)=0 → False in ON
 zd1m15c000a1(2)=1 → True in ON – False in STOP/STBY
 zd1m15c000a1(1)=1 → True in STOP – False in STBY/ON

Step 5

- 7.1.8 HOLD the offgoing AEGT FAN in STOP. 1M15-C001A.
- 7.1.9 WHEN 1 to 2 minutes have elapsed since stopping the offgoing AEGT FAN, THEN CONFIRM the following:
- Annulus pressure is maintained between 0.75" and 1.0" H₂O vacuum on ANNULUS DIFF PRESSURE RECORDER. 1M15-R016A 1M15-R016B
 - Operating ANNULUS EXH FAN FLOW LOW annunciator is reset. 1H13-P800-1 D1
- 7.1.10 RELEASE the offgoing switch AEGT FAN to STBY. 1M15-C001A

Critical Step: Operator holds AEGT fan A in STOP for 1 to 2 minutes and confirms Annulus ΔP in band and annunciator is reet, then places switch in STBY.

Instructor Cue: None

Notes: Fifteen seconds after switch is returned to STBY, fan B will develop low flow and annunciator 1H13-P800-1 D1 will alarm.

DRIVER: Verify Event 11 activates when switch is returned to STBY.

If NLO is dispatched to check flow locally, report flow is at 1550 scfm. (M15-K060A).

Operator may complete procedure section. If so, IV will be completed by another operator.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 6**ARI-H13-P800-0001-A1 ANNULUS EXH FAN A FLOW LOW****4.0 SUBSEQUENT OPERATOR ACTION****4.1 REFER TO SOI-M15 and SHIFT operating trains from B to A.**

Standard: Operator reviews ARI and recommends shifting AEGT trains back to A.

Instructor Cue: After operator recommends shifting AEGT trains, direct shifting trains.
If operator does not recommend action, ask him what he recommends.

Notes: The low flow will cause B heaters to turn off automatically.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 7

SOI-M15 - Annulus Exhaust Gas Treatment System

7.1 Shifting Operating Trains

7.1.1 IF Backup DW Purge is in operation, THEN NOTIFY the Chemistry Unit to sample in accordance with REC-0104.

7.1.2 TAKE the offgoing AEGT ELEC HT COIL to STOP.

1M15-D001B

Standard: Operator takes 1M15-D001B to STOP position.

Instructor Cue: None

Notes: Step 7.1.1 is N/A
Heater will already be OFF due to low flow.

SAT	UNSAT
<p>1. $\neg \text{is_a_dog}(\text{sam})$</p> <p>2. $\neg \text{is_a_dog}(\text{sam}) \vee \text{is_a_dog}(\text{sam})$</p> <p>3. $\text{is_a_dog}(\text{sam})$</p>	<p>1. $\text{is_a_dog}(\text{sam})$</p> <p>2. $\neg \text{is_a_dog}(\text{sam})$</p> <p>3. $\text{is_a_dog}(\text{sam}) \vee \neg \text{is_a_dog}(\text{sam})$</p>

Comment(s):

Step 8

7.1.3 WHEN five minutes has elapsed since stopping the offgoing AEGT ELEC HT COIL,
THEN PLACE the oncoming AEGT FAN in ON. 1M15-C001A

Critical Step: Operator places AEGT FAN A in ON position after 5 minutes has elapsed.

Instructor Cue: None

Notes: Time compression may be used if desired.

SAT	UNSAT
------------	--------------

Comment(s):

Step 9

7.1.4 **TAKE** the oncoming AEGT ELEC HT COIL to START.

M16-D001A

Critical Step: Operator starts A heater.

Instructor Cue: None

Notes: Operator must wait a few seconds between starting the fan and starting the heater as the heater will not energize until the fan is up to speed.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 10

7.1.5 WHEN 1 to 2 minutes have elapsed since starting the oncoming AEGT FAN, THEN CONFIRM annulus pressure is maintained between 0.75" and 1.0" H2O vacuum.

- ANNULUS DIFF PRESSURE RECORDER 1M15-R016A
- ANNULUS DIFF PRESSURE RECORDER 1M15-R016B

7.1.6 CONFIRM the oncoming ANNULUS EXH FAN FLOW LOW annunciator window is reset. 1H13-P800-1 A1

7.1.7 DECLARE the offgoing AEGT FAN inoperable in accordance with T.S. 3.6.4.3.

Standard: Operator waits ~two minutes and confirms Annulus ΔP within band. Operator informs US of AEGT B fan inoperability.

Instructor Cue: The AEGT fan has been declared inoperable per TS 3.6.4.3.

Notes: The off-going fan is declared inop while holding the switch in OFF.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 11

- 7.1.8 HOLD the offgoing AEGT FAN in STOP. 1M15-C001B.
- 7.1.9 WHEN 1 to 2 minutes have elapsed since stopping the offgoing AEGT FAN, THEN CONFIRM the following:
- Annulus pressure is maintained between 0.75" and 1.0" H₂O vacuum on ANNULUS DIFF PRESSURE RECORDER. 1M15-R016A 1M15-R016B
 - Operating ANNULUS EXH FAN FLOW LOW annunciator is reset. 1H13-P800-1 A1
- 7.1.10 RELEASE the offgoing switch AEGT FAN to STBY. 1M15-C001B

Critical Step: Operator holds AEGT fan B in STOP for 1 to 2 minutes and confirms Annulus ΔP , then places switch in STBY.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 12

7.1.1 CONFIRM the following for the offgoing AEGT train:

- AEGT RCIRC DAMPER closes 1M15- F070B
- AEGT EXH DAMPER opens 1M15- F080B

7.1.2 IF the offgoing AEGT FAN amber LOCA override is NOT illuminated.

7.1.3 PERFORM independent verification of the required components.

Standard: Operator confirms positions of AEGT dampers.
Step 7.1.2 is N/A
Operator requests IV.

Instructor Cue: IV will be performed by another operator.

Notes: Terminate the JPM.

SAT ____ **UNSAT** ____

Comment(s): _____

Terminating Cue: AEGT train A is running and train B is in standby.

Evaluation Results: SAT ____ UNSAT ____

End Time _____

JPM CUE SHEET

INITIAL CONDITIONS:	Plant conditions are as is.
INITIATING CUE:	Unit Supervisor directs you a Reactor Operator to shift Annulus Exhaust Gas Treatment System trains per SOI-M15 to equalize run time

JOB PERFORMANCE MEASURE SETUP SHEET

System: R10 – Station Electrical Distribution
 Time Critical: No Alternate Path: No
 Safety Function: 6 - Electrical Applicability: RO/SRO
 Setting: Simulator Validated Time: 9 Minutes
 References: IOI-3 Rev 51 & SOI-R10 (13KV) Rev 7
 Required Material: IOI-3 - Power Changes
 SOI-R10 (13KV) - Plant Electrical System (13KV)
 Task: 262-529-01-01 Lineup the Electrical Distribution System (Shift from Normal Power to Startup Power)
 Task Standard: Transfer station 13Kv buses from Aux Transformer to Startup Transformer
 K/A Data: 262001, A.C. Electrical Distribution – A4.01 Ability to manually operate and/or monitor in the control room: All breakers and disconnects (including available switch yard): Plant-Specific Importance: RO 3.4 SRO 3.7

1. Setup Instructions: **Reset simulator to IC-33 Insert Schedule file JPM-R10_501 and Event file JPM-R10_501.** Open IOI-3 to Step 4.9.8 and set out. – Evaluator- when ready to trigger malfunction, take annunciator joystick on P601-18 to SILENCE.

If/when candidate identifies correct procedure & attachments (SOI-R10(13KV), Attachments 17 & 18) provide him/her with a YELLOW copy of the procedure.

2. Location / Method: Simulator / Performance
3. Initial Condition: Plant shutdown is in progress.
4. Initiating Cue: Unit Supervisor directs you the Reactor Operator to perform IOI-3, Step 4.9.8 to transfer station loads.

Start: _____ **Stop:** _____

Candidate: _____

JPM BODY SHEET

Standard: Performer obtains or simulates obtaining all materials, procedures, tools, keys, radios, etc... before performing task.

Standard: Performer follows management expectations with regards to safety and communication standards.

Step 1**IOI-3 - Power Changes**4.9 Generator Separation from the Grid

4.9.8 TRANSFER station electrical loads from the Auxiliary Transformer to the Startup Transformer. SOIR10 (13KV)

Standard: Operator reviews IOI-3 Step 4.9.8 and determines that loads will be transferred from U1 Aux to U1 S/U transformer. And refers to SOI-R10 (13KV).

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 2**SOI-R10 (13KV) - Plant Electrical System (13KV)****7.1 Transferring 13KV Busses**

7.1.1 PERFORM the appropriate attachment(s) determined from the table below:

	TO TRANSFER BUS (AND ITS LOADS)	PERFORM CHECKLIST ATTACHMENT	
NA <input type="checkbox"/>	L10, 1R22-S001	19	
NA <input type="checkbox"/>	L11, 1R22-S002	17	
NA <input type="checkbox"/>	L12, 1R22-S003	18	
NA <input type="checkbox"/>	L20, 2R22-S001	20	

Standard: Operator determines checklists 17 & 18 are needed.

Instructor Cue: None

Notes: These two checklists can be done in any order.

After first bus is transferred insert malfunction by taking annunciator joystick on P601-18 to SILENCE.

SAT ____ **UNSAT** ____

Comment(s): _____

Step 3**ATTACHMENT 17 - Transferring Bus L11 Checklist**

1. VERIFY AUXILIARY TRANSFER switch in AUTO at Long Response Benchboard, 1H13-P870.

Standard: Operator verifies Auxiliary Transfer switch in AUTO.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 4

2. IF transferring Bus L11 from Bus L10 to Unit 1 Auxiliary Transformer, 110-PY-B, THEN PERFORM the following:

Standard: Operator determines Step 2 is N/A.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 5

3. IF transferring Bus L11 from Unit 1 Auxiliary Transformer, 110-PY-B, to Bus L10, THEN PERFORM the following:
- 3.a. VERIFY Bus L10 energized per Attachment 1, BUS L10 ENERGIZATION CHECKLIST.

Standard: Operator obtains Attachment 1 and determines Bus L10 is energized.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 6**NOTE**

With AUXILIARY TRANSFER switch in AUTO, Brkr L1102, NORMAL SUPPLY BRKR (TO BUS L11), will automatically open when Brkr L1006, START-UP SUPPLY BRKR (TO BUS L11), closes.

- 3.b. CLOSE START-UP SUPPLY BRKR (TO BUS L11), at 1H13-P870. Brkr L1006.
- 3.c. VERIFY OPEN NORMAL SUPPLY BRKR (TO BUS L11), at 1H13-P870. Brkr L1102

Critical Step: Operator closes breaker L1006.

Instructor Cue: None

Notes: Breaker L1102 will automatically open when L1006 is closed.
Step 4 is N/A

SAT ____ **UNSAT** ____

Comment(s): _____

Step 7**ATTACHMENT 18 - Transferring Bus L12 Checklist**

1. VERIFY AUXILIARY TRANSFER switch in AUTO at Long Response Benchboard, 1H13-P870.

Standard: Operator verifies Auxiliary Transfer switch in AUTO.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 8

2. IF transferring Bus L12 from Bus L10 to Unit 1 Auxiliary Transformer, 110-PY-B, THEN PERFORM the following:

Standard: Operator determines Step 2 is N/A.

Instructor Cue: None

Notes: None

SAT ____ **UNSAT** ____

Comment(s): _____

Step 9

3. IF transferring Bus L12 from Unit 1 Auxiliary Transformer, 110-PY-B, to Bus L10, THEN PERFORM the following:
- 3.a. VERIFY Bus L10 energized per Attachment 1, BUS L10 ENERGIZATION CHECKLIST.

Standard: Operator obtains Attachment 1 and determines Bus L10 is energized.

Instructor Cue: None

Notes: Operator previously performed Attachment 10

SAT ____ **UNSAT** ____

Comment(s): _____

Step 10**NOTE**

With AUXILIARY TRANSFER switch in AUTO, Brkr L1202, NORMAL SUPPLY BRKR (TO BUS L12), will automatically open when Brkr L1009, START-UP SUPPLY BRKR (TO BUS L12), closes.

- 3.b. CLOSE START-UP SUPPLY BRKR (TO BUS L12), at 1H13-P870. Brkr L1009.
- 3.c. VERIFY OPEN NORMAL SUPPLY BRKR (TO BUS L12), at 1H13-P870. Brkr L1202

Critical Step: Operator closes breaker L1009 AND manually opens L1202.

Instructor Cue: None

Notes: Breaker L1202 will NOT automatically open when L1009 is closed.
Step 4 is N/A

Terminate the JPM

SAT ____ **UNSAT** ____

Comment(s): _____

Terminating Cue: Candidate transfers buses L11 & L12 from the Unit 1 Aux Transformer to the Unit 1 Startup Transformer and manually opens breaker L1202.

Evaluation Results: SAT_____ UNSAT_____

End Time: _____

JPM CUE SHEET

INITIAL CONDITIONS:	Plant shutdown is in progress.
INITIATING CUE:	Unit Supervisor directs you the Reactor Operator to perform IOI-3, Step 4.9.8 to transfer station loads.