

## **JOB PERFORMANCE MEASURE SETUP SHEET**

System: Administrative  
Time Critical: No  
Applicability: SRO  
Safety Function: 8 - Plant Service Systems  
Setting: Classroom / Simulator  
Validated: 10 minutes  
References: SOI-F15 Rev. 18  
Required Material SOI-F15 - Refueling And 360 Platforms  
Tasks: 234-521-04-02 Operate The Refueling Platform In Interlock Override  
046-550-04-04 Respond to Alarms Associated With the Refuel Bridge and  
Fuel Handling Bridge  
Task Standard: Determine actions required for Refuel Bridge PLC failure with fuel  
suspended and identify the safe location for the fuel.  
K/A Data: 2.1.36 Knowledge of procedures and limitations involved in core alterations.  
Importance Rating: RO 3.0 SRO 4.1  
2.1.42 Knowledge of new and spent fuel movement procedures.  
Importance Rating: RO 2.5 SRO 3.4

1. Instructions: Need copy of SOI-F15 - Refueling And 360 Platforms
2. Location / Method: Simulator or Control Room / Administrative performance.
3. Initial Condition: Plant is in Mode 5 with refueling operations in progress. A new fuel bundle is being moved from IFTS to Reactor location 17-38. IFTS carriage is now located in the FHB. A Refuel Platform PLC failure occurs and the Refuel Platform has stopped in the Cattle Chute. A reset of the computer was unsuccessful.
4. Initiating Cue: As the Refueling Supervisor, determine the correct procedure, authorization requirements, and storage location requirements to respond to/mitigate the Refuel Platform PLC failure.

**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

Determine the actions are required to move the Refuel Platform and authorization.

### **SOI-F15, Refueling And 360 Platforms**

#### 7.15 Operating The Refueling Platform In Interlock Override

#### NOTE

Except for testing, the Interlock Override Key Switch shall only be used in the event of a PLC failure to move the bridge and grappled components. The Interlock Override Key Switch shall only be used as directed by the Refueling Supervisor or Control Room Supervisor.

**Critical Step:** Operator determines that SOI-F15 Section 7.15 Operating The Refueling Platform In Interlock Override is appropriate. And the Refueling Supervisor or the Unit Supervisor must authorize override.

**Instructor Cue:** [Where can the new fuel bundle be placed?](#)

**Notes:** None

**SAT** \_\_\_      **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

## **Step 2**

Determine where the new fuel bundle can be placed.

### 7.15 Operating The Refueling Platform In Interlock Override

#### NOTE

The following conditions of the Fuel or Core Components are defined as 'safe' for the purposes of this instruction:

- Properly seated in the reactor vessel (only if all refueling interlocks are available).
- Properly seated in a designated storage location.
- Properly seated in the IFTS carriage with the carriage at the "AT CONTAINMENT" position with the Upender inclined.
- Properly seated in the IFTS carriage with the carriage at the "AT FUEL BUILDING" position with the Upender inclined.
- Fuel bundles in the Fuel Preparation Machines to their full down position.

7.15.3 IF a fuel bundle OR any other core component is hoisted, THEN PLACE the hoisted component to a safe condition as directed by the Refueling Supervisor.

#### **Critical Step:**

Operator determines that the fuel bundle must be properly seated in a designated storage location (RP-1)

#### **Instructor Cue:**

None

#### **Notes:**

When the Operator has identified the correct SOI Section, authorization requirements, and proper storage location, terminate the JPM.  
RP-1 is the Upper Containment Pool designation. The Fuel Movement Checklist usually designates 4 slots for free-move locations within RP-1.

SAT \_\_\_      UNSAT \_\_\_

**Comment(s):** \_\_\_\_\_

**Terminating Cue:** Operator determines that SOI-F15 section 7.15 has the steps to perform the movement and the Refueling Supervisor or Control Room Unit Supervisor can authorize the override and the bundle can be placed in RP-1 or designated storage location.

**Evaluation Results:**      SAT \_\_\_\_\_      UNSAT \_\_\_\_\_

**End Time** \_\_\_\_\_

## JPM CUE SHEET

|                                |  |
|--------------------------------|--|
| <p>INITIAL<br/>CONDITIONS:</p> | <ul style="list-style-type: none"><li>• Plant is in Mode 5, refueling operations are in progress.</li><li>• A new fuel bundle is being moved from IFTS to Reactor location 17-38.</li><li>• IFTS carriage is now located in the FHB.</li><li>• A Refuel Platform PLC failure occurs and the Refuel Platform has stopped in the Cattle Chute.</li><li>• A reset of the computer was unsuccessful.</li></ul> |
| <p>INITIATING CUE:</p>         | <p>As the Refueling Supervisor, determine the correct procedure, authorization requirements, and storage location requirements to respond to/mitigate the Refuel Platform PLC failure.</p>   |

## **JOB PERFORMANCE MEASURE SETUP SHEET**

System: Administrative  
Time Critical: No  
Applicability: SRO  
Safety Function: Administrative  
Setting: Classroom / Simulator  
Validated: 11 minutes  
References: NOP-LP-4011 Rev 09  
Required Material: NOP-LP-4011 FENOC Work Hour Control,  
Tasks: 343-501-03-03 Verify that the Shift is Manned Properly  
343-006-03-03 Call In Additional Personnel, as Necessary, Regardless of Discipline  
Task Standard: Determine that working hour limits of NOP-LP-4011, FENOC Work Hour Control, will be exceeded for ROs Corey and Dewey and NOT exceeded for Jeff.  
K/A Data: 2.1.5 Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc. Importance: SRO 3.9

1. Setup Instructions: Need copy of NOP-LP-4011 FENOC Work Hour Control
2. Location / Method: Classroom / Administrative
3. Initial Condition: You are the Shift Manager and the plant is at 100% rated thermal power. Today is 2/15/15. The day shift ATC RO (07:00 – 15:00) for 2/16/15 has called in sick. Three ROs are available to assume this vacancy on 2/16/15. The available RO replacements have the listed work hour history. All shifts include an additional 20 minutes turn-over time. EmpCenter is currently not available.
4. Initiating Cue: Determine if any of the available RO replacements are able to work the full 8 hour day shift on 2/16/15 without violating the 10CFR 26 Work Hour Limits specified in NOP-LP-4011, FENOC Work Hour Control. Explain why or why not, each RO is eligible to work. Document your findings below.

**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

Evaluate work hour history against requirements in NOP-LP-4011, FENOC Work Hour Control for RO Dewey.

**Standard:** Operator compares work hour history against NOP-LP-4011, FENOC Work Hour Control requirements of Section 4.2 for RO Dewey

**Critical Step:** Operator determines RO Dewey may not be called in because he will exceed 72 work hours in a 7 day period.

**Instructor Cue:** None

**Notes:** No more than 72 work hours in any 7-day or 168-hour period.

Hours worked from 2/10→2/15 = 68. Will exceed limit 4 hours into shift on 2/16.

SAT \_\_\_      UNSAT \_\_\_

**Comment(s):** \_\_\_\_\_

## Step 2

Evaluate work hour history against requirements in NOP-LP-4011, FENOC Work Hour Control for RO Jeff.

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Operator compares work hour history against NOP-LP-4011, FENOC Work Hour Control requirements of Section 4.2 for RO Jeff |
| <b>Critical Step:</b>  | Operator determines RO Jeff may be called in as he does not exceed any 10 CFR 26 Work Hour Ceiling Rules.                |
| <b>Instructor Cue:</b> | None   |
| <b>Notes:</b>          | Day 2/9 will roll off 7 day calendar. Hrs. worked from 2/10→2/15 = 58  |
| <b>SAT</b> ___         | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>     | _____  |

## Step 3

Evaluate work hour history against requirements in NOP-LP-4011, FENOC Work Hour Control for RO Corey.

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Operator compares work hour history against NOP-LP-4011, FENOC Work Hour Control requirements of Section 4.2 for RO Corey  |
| <b>Critical Step:</b>  | Operator determines RO Corey may not be called in because he will exceed 26 work hours in any 48-hour period <b>and/or would not have required 8 hours off between shifts.</b> |
| <b>Instructor Cue:</b> | None   |
| <b>Notes:</b>          | No more than 26 work hours in any 48-hour period.<br><br><b>Would exceed 26 in 48 after first 2 hrs. on shift on 2/16.</b>   |
| <b>SAT</b> ___         | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>     | _____  |

**Terminating Cue:** Operator determined that RO's Dewey and Corey are not eligible to be called in and RO Jeff is eligible to be called in.

**Evaluation Results:**        **SAT** \_\_\_\_\_        **UNSAT** \_\_\_\_\_

**End Time:** \_\_\_\_\_



**RO's Dewey, Jeff, and Corey are all 8-hour Operations Shift workers.**

| <b>Date</b>                  | <b>Dewey</b> | <b>Jeff</b> | <b>Corey</b> |
|------------------------------|--------------|-------------|--------------|
| 1/19/15<br>through<br>2/8/15 | Vacation     | Vacation    | Vacation     |
| 2/9/15                       | OFF          | 0700-1500   | 1500-2300    |
| 2/10/15                      | 0700-1900    | 0700-1900   | 1500-2300    |
| 2/11/15                      | 0700-1900    | 1100-2300   | OFF          |
| 2/12/15                      | 0700-1900    | 1500-2300   | OFF          |
| 2/13/15                      | 0900-1900    | 1500-2100   | 0700-1500    |
| 2/14/15                      | 0900-1900    | 0700-1500   | 1100-2300    |
| 2/15/15                      | 0700-1900    | 0700-1900   | 1200-2400    |
| 2/16/15                      | OFF          | OFF         | OFF          |

**JPM CUE SHEET**

|                                |  |
|--------------------------------|--|
| <p>INITIAL<br/>CONDITIONS:</p> | <ul style="list-style-type: none"><li>• You are the Shift Manager and the plant is at 100% rated thermal power.</li><li>• Today is 2/15/15.</li><li>• The day shift ATC RO (07:00 – 15:00) for 2/16/15 has called in sick.</li><li>• Three ROs are available to assume this vacancy on 2/16/15.</li><li>• The available RO replacements have the listed work hour history.</li><li>• All shifts include an additional 20 minutes turn-over time.</li><li>• <a href="#">EmpCenter is currently not available.</a></li></ul> |
| <p>INITIATING CUE:</p>         | <p>Determine if any of the available RO replacements are able to work the <a href="#">full</a> 8 hour day shift on 2/16/15 without violating the 10CFR 26 Work Hour Limits specified in NOP-LP-4011, FENOC Work Hour Control.</p> <p>Explain why or why not, each RO is eligible to work. Document your findings below.</p>  |

## **JOB PERFORMANCE MEASURE SETUP SHEET**

System: Administrative  
Time Critical: No  
Applicability: SRO  
Safety Function: Administrative  
Setting: Classroom / Simulator  
Validated: 28 minutes  
References: NOP-OP-1015 Rev 02, NOBP-OP-1015 Rev 02, NOBP-LP-4017 Rev 01, 10CFR20 Rev 2012  
Required Material: NOP-OP-1015 Event Notifications, NOBP-OP-1015 Event Notifications, NOBP-LP-4017 Preparation and Submittal of Licensee Event Reports, and 10CFR20, Standards For Protection Against Radiation, Subpart M, 20.2201 Reports of theft or loss of licensed material. & Appendix C, Quantities of Licensed Material Requiring Labeling  
Tasks: 341-513-03-02 Make Required Notifications to the NRC Operations Center via the ENS Within the Specified Time Frame  
341-641-03-02 Prepare an Event Notification Form  
Task Standard: Determine reportability requirements (Immediate Notification to NRC) for lost/ missing licensed material by reviewing NOBP-OP-1015 and 10CFR20.  
K/A Data: 2.4.30 Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator. Importance: SRO 4.1  
2.3.13 Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc. SRO 3.8

1. Setup Instructions: None
2. Location / Method: Classroom / Administrative
3. Initial Condition: You are the Shift Manager and the plant is at 100% rated thermal power.
  - A Radiation Protection Supervisor just delivered a condition report to the Control Room reporting a source is missing.
  - A search for the missing source was not successful.
  - The missing source has a concentration of 240,000  $\mu\text{Ci}$  of Cs-137.
4. Initiating Cue: Determine if any external reporting requirements to **Federal** regulatory agencies apply, **complete any required notifications and documentation.**

**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**

Review procedures to determine reportability requirements.

### **NOBP-OP-1015 Event Notifications**

Attachment 37: Notification R1.4: Lost, Stolen, or Missing Licensed Material

**Requirement:** 10 CFR 20.2201(a)(1)(i)  
RIS 2005-21

#### **§20.2201(a)(1)**

Each licensee shall report by telephone as follows:

- (i) Immediately after its occurrence becomes known to the licensee, any lost, stolen, or missing licensed material in an aggregate quantity equal to or greater than 1,000 times the quantity specified in appendix C to part 20 under such circumstances that it appears to the licensee that an exposure could result to persons in unrestricted areas; or
- (ii) Within 30 days after the occurrence of any lost, stolen, or missing licensed material becomes known to the licensee, all licensed material in a quantity greater than 10 times the quantity specified in appendix C to part 20 that is still missing at this time.

|                   |                                 |
|-------------------|---------------------------------|
| <b>Time Limit</b> | <b>Required Notification(s)</b> |
|-------------------|---------------------------------|

**IMMEDIATE**

Notify the NRC Operations Center via ENS immediately upon discovering any lost, stolen, or missing licensed material in a aggregate quantity equal or greater than 1,000 times the quantity specified in 10 CFR 20 Appendix C under such circumstances that it appears to the licensee that an exposure could result to persons in unrestricted areas. [10 CFR 20.2201(a)(1)(i)]

**4 HOURS**

Notify the NRC Operations Center via ENS within 4 hours upon the recovery of any lost, stolen, or missing licensed material that is equal to or greater than Category II levels, Category II material and levels are defined in the International Atomic Energy Agency, "Code of Conduct on the Safety and Security of Radioactive Sources" 2004, and the NRC proposed rule for the National Source Tracking of Sealed Sources (70FR 43646, July 28, 2005). [RIS 2005-21]

**JPM Step 1** continued on next page.

**JPM Step 1** continued:

**30 DAYS**

Notify the NRC Operations Center via ENS within 30 days after the occurrence of any lost, stolen, or missing licensed material in a quantity greater than 10 times the quantity specified in 10 CFR 20 Appendix C that is still missing at this time. [10 CFR 20.2201(a)(1)(ii)]

**Discussion:**

- For this report the term Immediately means within 4 hours of discovery [RIS 2005-21]

|                              |  |
|------------------------------|--|
| <b><u>Critical Step:</u></b> | Operator reviews 10CFR20 to determine if the quantity missing is equal or greater than 1,000 times the quantity specified in 10 CFR 20 Appendix C.                         |
| <b>Instructor Cue:</b>       | None   |
| <b>Notes:</b>                | If requested, provide Operator with a copy of 10CFR20. Operator will need to ascertain the value in App. C of Part 20 for Cs-137 to determine if notification is required. |
| <b>SAT</b> ___               | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>           | _____  |

**Step 2**

Determine Immediate Notification reportability is required.

|                              |  |
|------------------------------|--|
| <b><u>Critical Step:</u></b> | Operator determines that IMMEDIATE NOTIFICATION shall be made to the NRC Operations Center.  |
| <b>Instructor Cue:</b>       | None   |
| <b>Notes:</b>                | Notification to the Director, Ohio Department of Health is not a Critical Step for this JPM as Initiating Cue identified “Federal” agencies. |
| <b>SAT</b> ___               | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>           | _____  |

**Step 3**

Document required Notification.

**Critical Step:** Operator completes Event Notification Worksheet.

**Instructor Cue:** None

**Notes:** See attached Answer Key. Circled items are Critical.

Forms are located in E-Plan packets or in drawer in front of US Desk

Instructions for completing Worksheet are in NOP-OP-1015 Sect 4.2.2 and NOBP-OP-1015 Attachment 1.

SAT \_\_\_\_ UNSAT \_\_\_\_

**Comment(s):** \_\_\_\_\_

**Step 4**

Operator determines additional notification requirements.

Attachment 37: Notification R1.4: Lost, Stolen, or Missing Licensed Material

**30 DAYS**

Notify the NRC Operations Center via ENS within 30 days after the occurrence of any lost, stolen, or missing licensed material in a quantity greater than 10 times the quantity specified in 10 CFR 20 Appendix C that is still missing at this time. [10 CFR 20.2201(a)(1)(ii)]

|                        |   |
|------------------------|---|
| <b>Standard:</b>       | Operator determines that a 30 day notification is also required.  |
| <b>Instructor Cue:</b> | None  |
| <b>Notes:</b>          | The One Hour (Other) Notification for 10CFR73.71 is only applicable to a loss of any shipment of SNM or spent fuel and is not relevant to this JPM. |
| <b>SAT</b> ____        | <b>UNSAT</b> ____   |
| <b>Comment(s):</b>     | _____   |

**Terminating Cue:** Operator determined that missing quantity of material meets notification threshold and immediate notification to the NRC Operations Center is required.

**Evaluation Results:**        **SAT** \_\_\_\_\_    **UNSAT** \_\_\_\_\_

**End Time:**        \_\_\_\_\_

**REACTOR PLANT EVENT NOTIFICATION WORKSHEET**

**NRC OPERATION TELEPHONE NUMBER:** PRIMARY - 800-532-3469 or 301-846-5100  
 BACKUPS - [1<sup>st</sup>] 301-951-0550 or 800-449-3694 [2<sup>nd</sup>] 301-415-0550 [3<sup>rd</sup>] 301-415-0553

|  |  |                  |                                    |   |
|--|--|------------------|------------------------------------|---|
| NOTIFICATION DATE & TIME<br><i>Today / Now</i> | FACILITY OR ORGANIZATION<br><i>Perry</i> | UNIT<br><i>1</i> | NAME OF CALLER<br><i>Candidate</i> | CALL BACK NUMBER<br><i>Phone Number</i> |
|--|--|------------------|------------------------------------|---|

|   |                            |   |  |
|---|----------------------------|---|--|
| EVENT TIME AND ZONE<br><i>Now Eastern</i> | EVENT DATE<br><i>Today</i> | POWER/MODE BEFORE<br><i>100% / Mode 1</i> | POWER/MODE AFTER<br><i>100% / Mode 1</i> |
|---|----------------------------|---|--|

| EVENT CLASSIFICATIONS               |   | 1-Hr. Non-Emergency 10 CFR 50.72(b) (1) |   | 10 CFR 50.72(b) (1) (v)(A) Safe S/D Capability AINA |   |
|-------------------------------------|---|---|---|---|---|
| <input type="checkbox"/>            | GENERAL EMERGENCY GEN/AAEC                | <input type="checkbox"/>                | TS Deviation (50.54x) ADEV              | <input type="checkbox"/>                            | (v)(B) RHR Capability AINB  |
| <input type="checkbox"/>            | SITE AREA EMERGENCY SIT/AAEC              | 4-Hr. Non-Emergency 10 CFR 50.72(b) (2) |   | <input type="checkbox"/>                            | (v)(C) Control of Rad Release AINC  |
| <input type="checkbox"/>            | ALERT ALE/AAEC                            | <input type="checkbox"/>                | (i) TS Required S/D ASHU                | <input type="checkbox"/>                            | (v)(D) Accident Mitigation AIND   |
| <input type="checkbox"/>            | UNUSUAL EVENT UNU/AAEC                    | <input type="checkbox"/>                | (iv)(A) ECCS Discharge to RCS ACCS      | <input type="checkbox"/>                            | (xii) Offsite Medical AMED  |
| <input type="checkbox"/>            | 50.72 NON-EMERGENCY (see next columns)    | <input type="checkbox"/>                | (iv)(B) RPS Actuation (scram) ARPS      | <input type="checkbox"/>                            | (xiii) Loss Comm/Asmt/Resp ACOM   |
| <input type="checkbox"/>            | PHYSICAL SECURITY (73.71) DDDD            | <input type="checkbox"/>                | (xi) Offsite Notification APRE          | 60-Day Optional 10 CFR 50.73 (a)(1)                 |   |
| <input type="checkbox"/>            | MATERIAL/EXPOSURE B???                    | 8-Hr. Non-Emergency 10 CFR 50.72(b) (3) |   | <input type="checkbox"/>                            | Invalid Specified System Actuation AINV                                   |
| <input type="checkbox"/>            | FITNESS FOR DUTY HFIT                     | <input type="checkbox"/>                | (ii)(A) Degraded Condition ADEG         | Other Specified Requirement (Identify)              |   |
| <input checked="" type="checkbox"/> | OTHER UNSPECIFIED REQMT.(see last column) | <input type="checkbox"/>                | (ii)(B) Unanalyzed Condition AUNA       | <input type="checkbox"/>                            | 10 CFR 50.72(c) NONR  |
| <input type="checkbox"/>            | INFORMATION ONLY NINF                     | <input type="checkbox"/>                | (iv)(A) Specified System Actuation AESF | <input checked="" type="checkbox"/>                 | <b>10 CFR 20.2201(a)(1)(i) Lost, Stolen, or Missing Licensed Material</b> |

**DESCRIPTION**

Include: Systems affected, actuations and their initiating signals, causes, effect of event on plant, actions taken or planned, etc. (Continue on next page)

*At \_\_\_ on \_\_\_, 2015, the Perry Shift Manager received notice from the Radiation Protection group that a 240,000 microcurie source of Cs-137 was reported missing from its storage location and an immediate search was not successful in finding the source.*  
*Or similar wording*

# Answer Key

| NOTIFICATIONS       | YES                      | NO                                  | WILL BE                             | ANYTHING UNUSUAL OR NOT UNDERSTOOD?   | ESTIMATED RESTART DATE: (MM/DD/YYYY) | ADDITIONAL INFO ON NEXT PAGE?                                       |
|---------------------|--------------------------|-------------------------------------|-------------------------------------|---|--------------------------------------|---|
| NRC RESIDENT        | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> YES (Explain above) <input type="checkbox"/> NO |                                      |   |
| STATE(s)            | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO (Explain above) |                                      |   |
| LOCAL               | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |   |                                      |   |
| OTHER GOV AGENCIES  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | MODE OF OPERATION UNTIL CORRECTED:  |                                      |   |
| MEDIA/PRESS RELEASE | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <i>Mode 1</i>   | <i>N/A</i>                           | <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO |



**JPM CUE SHEET**

|                                |  |
|--------------------------------|--|
| <p>INITIAL<br/>CONDITIONS:</p> | <p>You are the Shift Manager and the plant is at 100% rated thermal power.</p> <ul style="list-style-type: none"><li>• A Radiation Protection Supervisor called the Control Room reporting a source is missing.</li><li>• A search for the missing source was not successful.</li><li>• The missing source has a concentration of 240,000 <math>\mu\text{Ci}</math> of Cs-137.</li></ul> |
| <p>INITIATING CUE:</p>         | <p>Determine if any external reporting requirements to <b>Federal</b> regulatory agencies apply, <b>complete any required notifications and documentation.</b></p>   |

## **JOB PERFORMANCE MEASURE SETUP SHEET**

System: P45 – Emergency Service Water System  
Time Critical: No  
Alternate Path: No  
Applicability: RO/SRO  
Safety Function: 2 - Reactor Water Inventory Control  
Setting: Plant (RRA)  
Validated: 53 minutes  
References: EOP-SPI 4.2 Rev 4  
Tasks: 205-545-05-04 Align RHR Loop B for Containment Flood Using ESW Pump B  
205-627-05-01 Lineup In-Plant Portion of RHR Loop B Flood Alternate Injection (ESW Pump B Running)  
Task Standard: Align RHR Loop B for Containment Flood Using ESW Pump B per EOP-SPI 4.2  
Required Material: EOP-SPI 4.2, RHR Loop B Flood Alternate Injection  
K / A Data: 295031 EA1.01 Ability to operate and/or monitor the following as they apply to Reactor Low Water Level: Low pressure coolant injection (RHR): Plant-Specific. RO 4.4\* / SRO 4.4\*  
EA1.08 Alternate injection systems: Plant-specific. RO 3.8 / SRO 3.9

1. Setup Instructions: None
2. Location / Method: Plant / Simulation
3. Initial Condition: A LOCA has occurred. The plant is operating in accordance with EOP-1 RPV Control. No injection systems are available. Alternate injection systems will be lined up. ESW Pump B is operating. The Div. 2 D/G is in secured status due to a governor failure and is not required. AC power is available.
4. Initiating Cue: The Field Supervisor directs you, as the in-plant operator, to coordinate with the Control Room to perform EOP-SPI 4.2, RHR Loop B Flood Alternate Injection using ESW Pump B and to start at Step 2.9. **When ready, it is desired to inject inside the shroud.**

**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

#### **EOP-SPI 4.2, RHR Loop B Flood Alternate Injection**

1.0 IF AC power is lost, THEN OPERATE all valves in this instruction locally.

2.9 AT AX 599' B/03, PERFORM the following:

2.9.1 CLOSE ESW Emg Inject to Rx Vsl Loop Drain 1P45-F578.

2.9.2 UNLOCK and OPEN ESW Emg Inject to Reactor Vessel Isol 1P45-F572.

#### NOTE

The following table provides handwheel torque limitations for the selected valve:

| Valve     | Gear Operator Model | Handwheel Torque |  |
|-----------|---------------------|------------------|--|
| 1P45-F573 | 18X-N-20            | 208 ft-lbs       |  |

2.9.3 UNLOCK and OPEN ESW Emg Inject to Reactor Vessel Isol approximately 260 turns 1P45-F573 to open the valve 20%. 1P45-F573

**Critical Step:** Operator simulates closing 1P45-F578, unlocking and opening 1P45-F572, and unlocking and opening 1P45-F573 260 turns.

**Instructor Cue:** As Operator explains how to operate each valves, they are in required positions.

**Notes:** AC power available given in Initial Conditions. Motor Operated Valves can be operated from Control Room.

SAT \_\_\_ UNSAT \_\_\_

**Comment(s):** \_\_\_\_\_

**Step 2**

**CAUTION**  
Cooling water will be secured to Division 2 Diesel Generator HX, ECC B HX, and RHR Loop B HXs and may be eliminated to FPCC B HX.

2.10 AT CC 574' C/05, CLOSE ECC HX B ESW Inlet 1P45-F536B.

|  |
|--|
| <p><b><u>Critical Step:</u></b> Operator simulates closing 1P45-F536B</p> <p><b>Instructor Cue:</b> Valve is closed</p> <p><b>Notes:</b> None</p> <p><b>SAT</b> ___ <b>UNSAT</b> ___</p> <p><b>Comment(s):</b> _____</p> |
|--|

**Step 3**

2.11 IF Division 2 Diesel Generator is NOT required to be operating, THEN SECURE ESW to Division 2 Diesel Generator as follows:

2.11.1 REFER TO SOI-R43 sections 6.2 & 6.3 to place Division 2 Diesel Generator in secured status.

2.11.2 AT DGB 620' A/02, Division 2 Diesel Generator Room, UNLOCK and CLOSE Div 2 Diesel HX ESW Outlet 1P45-F534B.

|  |
|--|
| <p><b><u>Critical Step:</u></b> Operator simulates unlocking and closing 1P45-F534B.</p> <p><b>Instructor Cue:</b> Valve 1P45-F534B is closed.<br/>When Operator reports field actions are complete,<br/>“Step 2.12 is complete and Step 2.13 ESW B Pump is verified running.”</p> <p><b>Notes:</b> Div 2 DG in secured status is given in Initial Conditions, Step 2.11.1 is complete. Step 2.14 is N/A.</p> <p><b>SAT</b> ___ <b>UNSAT</b> ___</p> <p><b>Comment(s):</b> _____</p> |
|--|

**Step 4**

3.0 WHEN directed to inject into the RPV, THEN INJECT via RHR B as follows:

|  |
|--|
| <p>NOTE<br/>ESW Pump B may trip on overcurrent when ESW B loop flow is less than 3000 gpm.</p> |
|--|

- 3.1 IF directed to inject outside the shroud, THEN THOTTLE SHUTDOWN COOLING B TO FDW SHUTOFF [AX 620' C/04, RHR Penetration Room B].
- 3.2 IF directed to inject inside the shroud, THEN OPERATE LPCI B INJECTION VALVE [C/O 620' 315°]. E12-F042B

|   |
|---|
| <p><b>Standard:</b> Step 3.1 is N/A.<br/>Operator contacts Control Room to open E12-F042B.</p> <p><b>Instructor Cue:</b> Control Room actions are complete, direct operator to perform Step 3.3.</p> <p><b>Notes:</b> Per Initial Conditions, AC power is available. E12-F042B can be operated from Control Room.</p> <p>SAT ___      UNSAT ___</p> <p><b>Comment(s):</b> _____</p> |
|---|

**Step 5**

- 3.3 AT CC 620' B/03, MCC EF1D07 Compartment XL, CLOSE RHR B HX'S ESW OUTLET VALVE, 1P45-F068B, disconnect. EF1D07 DISC XL
- 3.4 AT CC 620' B/03, MCC EF1D07 Compartment XL, PLACE Remote Shutdown control switch for RHR B HX's ESW Outlet Valve 1P45-F068B in CLOSE. EF1D07 DISC XL

|                              |   |
|------------------------------|---|
| <b><u>Critical Step:</u></b> | Operator simulates closing the disconnect and placing EF1D07 XL switch to CLOSE position.     |
| <b>Standard:</b>             | Notify control room 1P45-F068B is closed.   |
| <b>Instructor Cue:</b>       | 1. Initially, after MCC disconnect is closed, Red light on.<br>2. Green light on when closed. |
| <b>Notes:</b>                | Terminate JPM   |
| <b>SAT</b> ____              | <b>UNSAT</b> ____   |
| <b>Comment(s):</b>           | _____   |

**Terminating Cue:** ESW B is injecting per EOP-SPI 4.2

**Evaluation Results:** SAT \_\_\_\_ UNSAT \_\_\_\_

**End Time:** \_\_\_\_\_

## JPM CUE SHEET

|                                |  |
|--------------------------------|--|
| <p>INITIAL<br/>CONDITIONS:</p> | <ul style="list-style-type: none"><li>• A LOCA has occurred.</li><li>• The plant is operating in accordance with EOP-1 RPV Control.</li><li>• No injection systems are available.</li><li>• Alternate injection systems will be lined up.</li><li>• ESW Pump B is operating.</li><li>• The Div. 2 D/G is in secured status due to a governor failure and is not required.</li><li>• AC power is available.</li></ul> |
| <p>INITIATING CUE:</p>         | <p>The Field Supervisor directs you, as the in-plant operator, to coordinate with the Control Room to perform EOP-SPI 4.2, RHR Loop B Flood Alternate Injection using ESW Pump B and to start at Step 2.9.</p> <p>When ready, it is desired to inject inside the shroud.</p>   |

## **JOB PERFORMANCE MEASURE SETUP SHEET**

System: P54, Fire Protection  
Time Critical: No  
Alternate Path: Yes  
Applicability: RO/SRO  
Safety Function: 8 - Plant Service Systems  
Setting: Plant  
Validated: 25 minutes  
References: SOI- P54(WTR) Rev. 19  
Required Material SOI- P54(WTR) - Fire Protection System - Water  
Tasks: 286-519-04-01 Respond to a Fire  
286-570-05-04 Operate the Diesel Fire Service Pump With a Control Panel Failure  
Task Standard: Start the Diesel Fire Pump locally per SOI-P54(WTR).  
K/A Data: 209002 Ability to (a) predict the impacts of the following on the Fire Protection System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A2.08 Failure to actuate when required. Importance RO 3.8 / SRO 3.8.

1. Instructions: Need Key for Diesel Fire Pump Room
  
2. Location / Method: Plant / Simulation (non-RRA)
  
3. Initial Condition: The Plant entered ONI-P54 Fire. The Motor Fire pump is out of service, and the Diesel Fire Pump failed to start from the Control Room per SOI-P54(WTR) Step 4.2.3.a
  
4. Initiating Cue: Unit Supervisor directs you a Plant Operator to start the Diesel Fire Pump locally per SOI-P54(WTR) and start at step 4.2.3.b.

**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- P54(WTR) - Fire Protection System - Water**

##### 4.2 Fire Service Pumps Manual Startup

###### NOTES

- For Local Manual starts, the TEST position should be used for routine starting.
- Whenever the Diesel Fire Pump is started the Low Oil Pressure signal light may energize momentarily until engine builds up oil pressure.
- Initial startup of the Diesel Fire Service Pump, following significant maintenance on the Diesel Engine, will be controlled by the order and be in accordance with the Vendor Manual.
- The Diesel Fire Pump has a 5 second start delay. The start push-button must be held depressed for at least 5 seconds to seal-in the start signal. Once the start delay has been satisfied, the Diesel Fire Pump begins a series of crank cycles. A Failure To Start alarm indicates that the maximum allowable number of crank cycles has been used without the engine starting.

4.2.3.b IF it is desired to start the Diesel Fire Service Pump locally with the TEST function, THEN SELECT TEST on the control switch at H51-P101.

P54-C001

**Standard:** The Operator simulates selecting TEST on H51-P101.

**Instructor Cue:** The pump failed to start.

**Notes:** The operator may elect to not perform 4.2.3.b & go directly to 4.2.3.c.  
[JPM Steps 1 & 2 aren't required if operator goes directly to JPM Step 3 and it is done correctly.](#)

SAT \_\_\_      UNSAT \_\_\_

**Comment(s):** \_\_\_\_\_

## Step 2

- 4.2.3.c IF it is desired to start the Diesel Fire Service Pump locally in manual, THEN PERFORM the following: P54-C001
- 4.2.3.c.1 SELECT either of the following on the control switch at P101:
- MAN 1
  - MAN 2
- 4.2.3.c.2 DEPRESS AND HOLD the START push-button until the engine starts.

|                        |   |
|------------------------|---|
| <b>Standard:</b>       | The Operator simulates selecting MAN 1 or MAN 2 and depresses START button on H51-P101.                   |
| <b>Instructor Cue:</b> | The pump failed to start.   |
| <b>Notes:</b>          | JPM Steps 1 & 2 aren't required if operator goes directly to JPM Step 3 <u>and it is done correctly..</u> |
| <b>SAT</b> ___         | <b>UNSAT</b> ___  |
| <b>Comment(s):</b>     | _____   |

## Step 3

- 4.2.3.d IF a failure of H51-P101 has occurred, THEN REFER to Emergency Run of Diesel Fire Service Pump with Control Panel Failure to RUN the diesel.

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | The Operator proceeds to Section 7.5 of SOI-P54 Water. |
| <b>Instructor Cue:</b> | None   |
| <b>Notes:</b>          | None   |
| <b>SAT</b> ___         | <b>UNSAT</b> ___                                       |
| <b>Comment(s):</b>     | _____  |

#### **Step 4**

##### 7.5 Emergency Run of the Diesel Fire Service Pump with Control Panel Failure

**NOTE**

This section is to be used to start the Diesel Fire Service Pump P54-C001 in the event there is a failure of the Diesel Fire Service Pump Panel H51-P101.

7.5.1 VERIFY the control switch on H51-P101 is OFF.

P54-C001

**Critical Step:** The Operator simulates placing control switch in OFF.

**Instructor Cue:** Switch is in OFF.

**Notes:** None

**SAT** \_\_\_ **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

#### **Step 5**

7.5.2 TURN the fuel solenoid manual knob fully in the clockwise direction on Fuel Solenoid Control Valve (located on the southwest side of the engine above the throttle linkage).

P54-F5585

**Critical Step:** The Operator simulates turning fuel knob fully clockwise.

**Instructor Cue:** Fuel Knob is fully clockwise.

**Notes:** None

**SAT** \_\_\_ **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

## **Step 6**

7.5.3 OPEN the Diesel Cooling Wtr Reg Vlv Bypass.

P54-F623

**Critical Step:** The Operator simulates opening P54-F623.

**Instructor Cue:** P54-F623 is Open.

**Notes:** None

**SAT** \_\_\_ **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

## **Step 7**

7.5.4 RAISE the lever on either of the two starter contactors to Engage the starter.  
(located on the north side of the engine)

7.5.5 WHEN the engine is running, THEN RELEASE the lever.

**Critical Step:** The Operator simulates raising the lever on one of the starter contactors.  
After engine running releases lever.

**Instructor Cue:** Engine is starting,

Engine is running.

**Notes:** None

**SAT** \_\_\_ **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

**Step 8**

7.5.6 PLACE the following in START at H51-P029:

- Diesel Driven Fire Pump Area Supp Fan A M46-C009A
- Diesel Driven Fire Pump Area Supp Fan B M46-C009B

|                        |   |
|------------------------|---|
| <b>Standard:</b>       | The Operator simulates starting M46 fans.     |
| <b>Instructor Cue:</b> | Control switch in Start.<br>Fans are running. |
| <b>Notes:</b>          | Terminate the JPM                             |
| <b>SAT</b> ____        | <b>UNSAT</b> ____                             |
| <b>Comment(s):</b>     | _____   |

**Terminating Cue:** Diesel Fire Pump running.

**Evaluation Results:**        **SAT** \_\_\_\_\_    **UNSAT** \_\_\_\_\_

**End Time** \_\_\_\_\_

**JPM CUE SHEET**

|                                |  |
|--------------------------------|--|
| <p>INITIAL<br/>CONDITIONS:</p> | <ul style="list-style-type: none"><li>• The Plant entered ONI-P54 Fire.</li><li>• The Motor Fire pump is out of service, and the Diesel Fire Pump failed to start from the Control Room per step 4.2.3.a</li></ul> |
| <p>INITIATING CUE:</p>         | <p>Unit Supervisor directs you a Plant Operator to start the Diesel Fire Pump locally per SOI-P54(WTR) and start at step 4.2.3.b.</p>  |

## **JOB PERFORMANCE MEASURE SETUP SHEET**

System: R10 – Station Electrical  
Time Critical: No  
Alternate Path: No  
Applicability: RO/SRO  
Safety Function: 6 - Electrical  
Setting: Plant (Non-RRA)  
Validated: 36 minutes  
References: ONI-SPI F-6 Rev 1  
Tasks: 262-208-05-01 Perform Operation of Circuit Breakers and Disconnects  
262-519-01-04 Energize Class 1E and Non-Class 1E 480 Volt Buses  
From Their Normal or Alternate Sources  
262-525-01-04 Energize Class 1E and Non-Class 1E 480 Volt MCCs  
and Distribution Panels  
262-539-04-04 Assist in Off-Site Power Restoration  
Task Standard: Restore buses F1G and F2G per ONI-SPI-F6.  
Required Material: ONI-SPI F-6, F1G / F2G Restoration  
K / A Data: 295003 Ability to operate and/or monitor the following as they apply to  
Partial Or Complete Loss Of A.C. POWER: AA1.01 A.C. electrical  
distribution system. Importance RO 3.7 / SRO 3.8  
AA1.03 Systems necessary to assure safe plant shutdown. Importance  
RO 4.4\* / SRO 4.4\*  
Ability to determine and/or interpret the following as they apply to  
PARTIAL OR COMPLETE LOSS OF A.C. POWER: AA2.04 System  
lineups. Importance RO 3.5 / SRO 3.7

1. Setup Instructions: Complete the AS FOUND Breaker Line Up in ONI-SPI-F6, all breakers found closed with the exception of F1G10 & F2G07.
2. Location / Method: Plant / Simulation
3. Initial Condition: Plant is currently in Mode 3 following a scram due to Loss of Off Site Power. Unit 2 buses have not been restored. Bus L10, L11, and L12 are restored. Diesel Fire Pump is operating. ONI-SPI-F6 Initial Lineup, As-Found Breaker Line-up, and Bus Preparation sections are complete. D.C control power is available.
4. Initiating Cue: The Unit Supervisor directs you as a Plant Operator to restore buses F1G and F2G per ONI-SPI-F6.

**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-SPI F-6, F1G / F2G Restoration**

6.0 IF F2G is available to be restored, **THEN PERFORM** the following:

6.2 Bus F2G preparation is complete.

Bus F2G is de-energized

Bus L12 is energized

AS FOUND position of breaker, 13.8KV TO 480V XFMR L1203

LF-1-G TO F-1-G, 1R23-S007, is CLOSED

It is desired to energize Bus F2G from Bus F1G

THEN RESTORE Bus F2G from Bus F1G as follows:

**Critical Step:** The Operator steps through logic boxes 6.1 and 6.2 and determines Step 6.2 is correct, the other step will not work.

**Instructor Cue:** None.

**Notes:** Can not energize F1G from F2G since Unit 2 buses are not restored.

Under Guidelines, "Bus preparation can be done in any convenient order."

SAT \_\_\_ UNSAT \_\_\_

**Comment(s):** \_\_\_\_\_



**Step 2**

6.2.1 IF Bus F1G is de-energized, THEN REFER TO Step 7.0 and ENERGIZE Bus F1G.

7.0 IF F1G is available to be restored, THEN PERFORM the following:

|     |  |       |
|-----|--|-------|
| 7.1 | Bus F1G preparation is complete  |       |
|     | Bus F1G is de-energized  |       |
|     | Bus L12 is energized   |       |
|     | AS FOUND position of 13.8KV TO 480V XFMR LF-1-G TO F-1-G 1R23-S007 is CLOSED | L1203 |
|     | THEN RESTORE Bus F1G from LF-1-G Transformer as follows:                     |       |

7.1.1 IF DC control power is NOT available, THEN AT Unit 1 Turbine Power Complex 620' Bus L12, CLOSE breaker, 13.8KV TO 480V XFMR LF-1-G TO F-1-G, 1R23-S007. L1203

7.1.2 IF DC control power is available, THEN AT Bus F1G, Compartment F1G01, PERFORM the following:

7.1.2.a TAKE breaker control switch 1R22-S14 BUS L12 to TRIP/OPEN. L1203

7.1.2.b TAKE breaker control switch 1R22-S14 BUS L12 to CLOSED. L1203

7.1.3 CLOSE BRKR, MAIN SUPPLY BRKR FROM BUS L12. F1G03

|                              |  |
|------------------------------|--|
| <b><u>Critical Step:</u></b> | The Operator Simulates opening and then closing L1203 and then closing F1G03.  |
| <b>Instructor Cue:</b>       | Breakers open/closed as operator describes breaker operation.  |
| <b>Notes:</b>                | Step 7.1.1 is N/A as control power is available (given in Initial Conditions)<br><br>RED light may be on if L1203 is closed at time of JPM |
| <b>SAT</b> ___               | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>           | _____  |

### **Step 3**

7.3 WHEN Bus F1G is energized, THEN VERIFY the following in the AS FOUND condition:

- MCC F1G04, 1R24-S016. F1G04
- DIST PANEL F1G05, R25-S118. F1G05
- VENDOR WATER TREATMENT EQUIP MAIN DISCONNECT PANEL. F1G07

|                              |  |
|------------------------------|--|
| <b><u>Critical Step:</u></b> | The Operator describes and simulates closing F1G04, F1G05, and F1G07                                   |
| <b>Instructor Cue:</b>       | Breakers closed as operator describes breaker operation.<br>If asked, "Continue with F2G restoration." |
| <b>Notes:</b>                | None   |
| <b>SAT</b> ___               | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>           | _____  |

### **Step 4**

6.2.2 CLOSE breaker, F-1-G TO F-2-G TIE BREAKER. F1G10

|                              |   |
|------------------------------|---|
| <b><u>Critical Step:</u></b> | The Operator describes and simulates closing F1G10. |
| <b>Instructor Cue:</b>       | None.   |
| <b>Notes:</b>                | Unit 2 buses (L2202) are not restored.              |
| <b>SAT</b> ___               | <b>UNSAT</b> ___                                    |
| <b>Comment(s):</b>           | _____   |

### **Step 5**

6.3 WHEN Bus F2G is energized, THEN VERIFY the following in the AS FOUND condition:

- DIST PANEL F2G05, R25-S119. F2G05
- DIST PANEL F2G07, 2R25-S161 F2G07
- IF the fire system is Pressurized, THEN POSITION MOTOR FIRE SERVICE PUMP, P54-C002. F2G08

**Critical Step:** The Operator simulates closing F2G05 and F2G08

**Instructor Cue:** Breaker is closed.

**Notes:** F2G07 was OPEN on the AS FOUND Lineup

**SAT** \_\_\_ **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

### **Step 6**

8.0 IF the fire system is De-pressurized, THEN REFER TO SOI-P54(WTR) and PERFORM Fire Service Pumps Shutdown to Secured Status, for the following pumps:

- FIRE SERVICE JOCKEY PUMP. P54-C003
- MOTOR FIRE SERVICE PUMP. P54-C002

**Standard:** Step 8.0 is N/A, the fire system is pressurized.  
The Operator reviews his paperwork to verify no steps were inappropriately skipped.

**Instructor Cue:** None

**Notes:** Terminate the JPM when Motor Fire Service Pump breaker is closed.

**SAT** \_\_\_ **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

**Terminating Cue:** ONI-SPI-F6 Restoration of F1G / F2G is complete.

**Evaluation Results:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

**End Time** \_\_\_\_\_

## JPM CUE SHEET

|                                |   |
|--------------------------------|---|
| <p>INITIAL<br/>CONDITIONS:</p> | <ul style="list-style-type: none"><li>• Plant is currently in Mode 3 following a scram due to Loss of Off Site Power.</li><li>• Unit 2 buses have <u>not</u> been restored.</li><li>• Bus L10, L11, and L12 are restored.</li><li>• Diesel Fire Pump is operating.</li><li>• ONI-SPI-F6 Initial Lineup and Bus Preparation sections are complete.</li><li>• <a href="#">As-Found Breaker Line-up is attached.</a></li><li>• D.C control power is available.</li></ul> |
| <p>INITIATING CUE:</p>         | <p>The Unit Supervisor directs you as an Operator to restore buses F1G and F2G per ONI-SPI-F6.</p>  |

## **JOB PERFORMANCE MEASURE SETUP SHEET**

System: B21 Nuclear Steam Supply Shutoff System  
Time Critical: No  
Alternate Path: No  
Applicability: RO/SRO  
Safety Function: 3 - Reactor Pressure Control  
Setting: Simulator  
Validated: 12 minutes  
References: SOI-B21 Rev 18 & IOI-18 Rev 14  
Required Material IOI-18 Emergency Operating Procedure And Isolation Restoration, SOI-B21 Nuclear Steam Supply Shutoff, Automatic Depressurization and Nuclear Steam Supply Systems  
Tasks: 009-503-04-01 Reset Nuclear Steam Supply Shutoff System  
239-530-01-01 Close MSIV's from H13-P601  
Task Standard: Reset MSIV Isolation.  
K/A Data: 239001 Ability to (a) predict the impacts of the following on the Main And Reheat Steam System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A2.03 MSIV closure. Importance: RO 4.0 / SRO 4.2.  
A2.07 Main steam area high temperature or differential temperature high. Importance: RO 3.8 / SRO 3.9.  
A2.08 Low condenser vacuum. Importance: RO 3.6 / SRO 3.6.  
Ability to manually operate and/or monitor in the control room: A4.01 MSIV's. Importance: RO 4.2\* SRO 4.0

**JOB PERFORMANCE MEASURE SETUP SHEET cont.**

1. Simulator Setup Instructions: **(Reset simulator to IC-008 for 2015 ILO. Wait until ICS restarts then go to run and acknowledge and reset all annunciators, then place simulator in Freeze. Place simulator in run when operator is ready.)** Reset simulator to a full power IC. (Insert malfunction *MS09* for 2 seconds to cause MSIV isolation. Open condenser vacuum breakers 1N62F010A,B,C until condenser is at atmospheric pressure then reclose vacuum breakers.) or (run Schedule file *JPM B21-005* and insert Event 1) Place Mode Switch in SHUTDOWN after SRV's open on LLS. Override HPCS. Allow Turbine Building Temperature alarm clear (about 10 min). Control Rx pressure 800-1000 psig on SRVs. **Verify IOI-18 is erased.**
2. Location / Method: Simulator / Performance
3. Initial Condition: Reactor scrammed due to MSIV isolation on high Turbine Building Temperature. High temperature problem has been corrected. Plant is operating in ONI-C71 Reactor Scram and in IOI-18 EOP and Isolation Restoration.
4. Initiating Cue: The Unit Supervisor directs you as the Reactor Operator to **reset the** Main Steam Line Isolation IAW IOI-18.

**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

#### **IOI-18 - Emergency Operating Procedure And Isolation Restoration**

##### 4.7 Main Steam Line Isolation Restoration

4.7.1 IF required to restore a MAIN STEAM LINE ISOLATION, THEN REFER TO SOI-B21 and PERFORM Nuclear Steam Supply Shutoff System Reset.

**Standard:** The Operator determines that section 7.3 of SOI-B21 will be performed.

**Instructor Cue:** None

**Notes:** Operator may start at SOI-B21 Section 4.3.

SAT \_\_\_ UNSAT \_\_\_

**Comment(s):** \_\_\_\_\_



**Step 2**

**SOI-B21 - Nuclear Steam Supply Shutoff, Automatic Depressurization and Nuclear Steam Supply Systems**

7.3 Nuclear Steam Supply Shutoff System Reset

7.3.1 CONFIRM the following annunciators clear.

- MSL ISOL MAIN STEAM LINE FLOW HIGH
- MSL ISOL RX LEVEL LO L1
- BOP ISOL DW PRESS HIGH
- MSL ISOL TURBINE AREA TEMP HIGH
- MSL & RWCU ISOL STEAM TUNNEL TEMP HIGH
- BOP ISOL RX LEVEL LO L2

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | The Operator confirms the above listed annunciators are reset. |
| <b>Instructor Cue:</b> | None   |
| <b>Notes:</b>          | None   |
| <b>SAT</b> ___         | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>     | _____  |

**Step 3**

7.3.2 IF the MSL ISOL MAIN STEAM LINE PRESSURE LOW is in alarm, THEN VERIFY the Reactor Mode switch is NOT in RUN.

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | The Operator verifies MODE SWITCH is not in RUN. |
| <b>Instructor Cue:</b> | None   |
| <b>Notes:</b>          | None   |
| <b>SAT</b> ___         | <b>UNSAT</b> ___                                 |
| <b>Comment(s):</b>     | _____  |

#### **Step 4**

#### NOTE

Placing the following switches in BYPASS will actuate MAIN CONDENSER VACUUM LOW MSL ISOL BYP annunciator.

7.3.3 IF the MSL ISOL MAIN CONDENSER VACUUM LOW is in alarm, THEN PLACE the following in BYPASS:

- MSL ISOL CH A CNDR LOW VAC BYP 1B21H-S24A
- MSL ISOL CH B CNDR LOW VAC BYP 1B21H-S24B
- MSL ISOL CH C CNDR LOW VAC BYP 1B21H-S24C
- MSL ISOL CH D CNDR LOW VAC BYP 1B21H-S24D

**Critical Step:** The Operator places the above switches in BYPASS.

**Instructor Cue:** None

**Notes:** None

**SAT** \_\_\_ **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

## **Step 5**

7.3.4 VERIFY the following in CLOSE:

- MSL B INBD MSIV 1B21-F022B
- MSL D INBD MSIV 1B21-F022D
- MSL A INBD MSIV 1B21-F022A
- MSL C INBD MSIV 1B21-F022C
- MSL B OTBD MSIV 1B21-F028B
- MSL D OTBD MSIV 1B21-F028D
- MSL A OTBD MSIV 1B21-F028A
- MSL C OTBD MSIV 1B21-F028C

**Critical Step:** The Operator places the above switches in CLOSE.

**Instructor Cue:** None

**Notes:** None

**SAT** \_\_\_ **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

## **Step 6**

7.3.5 DEPRESS the following:

- MSL & NS4 INBD ISOL SEAL IN RESET 1B21H-S33
- MSL & NS4 OTBD ISOL SEAL IN RESET 1B21H-S32

**Critical Step:** The Operator depresses S33 and S32.

**Instructor Cue:** None

**Notes:** None

**SAT** \_\_\_ **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

**Step 7**

7.3.6 CONFIRM the following annunciators clear:

- MSIV CLOSE SIGNAL RECEIVED
- MSIV ISOL MANUAL
- INBD/OTBD NS4 MAN ISOL RECEIVED

|                        |   |
|------------------------|---|
| <b>Standard:</b>       | The Operator confirms the annunciators clear. |
| <b>Instructor Cue:</b> | None  |
| <b>Notes:</b>          | None  |
| <b>SAT</b> ____        | <b>UNSAT</b> ____                             |
| <b>Comment(s):</b>     | _____   |

**Step 8**

7.3.7 IF required, THEN RESTORE isolated systems, REFER TO IOI-18, Emergency Operating Procedure And Isolation Restoration.

|                        |   |
|------------------------|---|
| <b>Standard:</b>       | The Operator asks the Unit Supervisor if MSIV's are to be opened. |
| <b>Instructor Cue:</b> | MSIV's will not be restored at this time.                         |
| <b>Notes:</b>          | Terminate the JPM.  |
| <b>SAT</b> ____        | <b>UNSAT</b> ____   |
| <b>Comment(s):</b>     | _____   |

**Terminating Cue:** Nuclear Steam Supply Shutoff System Reset.

**Evaluation Results:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

**End Time** \_\_\_\_\_

## JPM CUE SHEET

|                                |   |
|--------------------------------|---|
| <p>INITIAL<br/>CONDITIONS:</p> | <ul style="list-style-type: none"><li>• Reactor scrammed due to an MSIV isolation on high Turbine Building Temperature.</li><li>• High temperature problem has been corrected.</li><li>• Plant is operating in ONI-C71 Reactor Scram and in IOI-18 EOP and Isolation Restoration.</li></ul> |
| <p>INITIATING CUE:</p>         | <p>The Unit Supervisor directs you as the Reactor Operator to <a href="#">reset from</a> the Main Steam Line Isolation IAW IOI-18.</p>  |

## **JOB PERFORMANCE MEASURE SETUP SHEET**

System: C11 – Rod Control & Information System  
Time Critical: No  
Alternate Path: Yes  
Applicability: RO/SRO  
Safety Function: 1 - Reactivity Control  
Setting: Simulator  
Validated: 28 minutes  
References: SOI-C11(RCIS) Rev 29, SVI-C11-T1003A Rev 18, ARI-H13-P680-0005 Rev 15, & ONI-C11-2 Rev 8  
Tasks: 214-521-04-01 Respond to an Uncoupled Control Rod  
214-504-01-01 Perform a Rod Over Travel Check (Control Rod Coupling)  
214-538-02-01 Perform Control Rod Exercise Test  
214-505-01-01 Respond to RCIS Alarms  
Task Standard: Perform control rod exercise test per SVI-C1-T1003A and respond to uncoupled control rod by recoupling control rod IAW Rx Engineering Action Plan.  
Required Material: SOI-C11(RCIS) Rod Control And Information System  
SVI-C11-T1003A, Control Rod Exercise (Part 1)  
ARI-H13-P680-0005-D9, ROD OVERTRAVEL  
ONI-C11-2, Uncoupled Control Rod  
Special Maneuver Control Rod Movement Sheet  
K / A Data: 201005 A2.12 Ability to (a) predict the impacts of Rod uncoupled on the Rod Control And Information System (RCIS); and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations. BWR-6. RO 3.77 / SRO 3.8  
A4.01 Ability to manually operate and/or monitor in the control room: Operator control module (lights and push buttons): IR: RO 3.7 SRO 3.7  
A4.02 Rod display module (lights and push buttons): IR: RO 3.7 SRO 3.7

1. Setup Instructions: Select any full power IC. Insert *Malfunction* RD02R2659. Ensure SOI-C11(RCIS) sections 7.1, 7.4, & 7.6 are erased. Check/adjust Cycle and Startup Number on Special Maneuver Sheet. **(For 2015 ILO Exam, reset simulator to IC-005. Load schedule file JPM-C11\_505\_RO and event file JPM-C11\_505\_RO) Obtain a full core display printout on day of exam to include with SVI for Prereqs.**
2. Initial Condition: The Plant is at power. SVI-C11-T1003A, Control Rod Exercise (Part 1) is due. SVI-C11-T1003A PERQUISITES were completed last shift. Reactivity brief has been performed.
3. Initiating Cue: The Unit Supervisor directs you, as a Reactor Operator, to perform SVI-C11-T1003A, Control Rod Exercise (Part 1). **Perform SVI in the order listed in Attachment 1.**

**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

#### **SVI-C11-T1003A, Control Rod Exercise (Part 1)**

##### 5.0 SURVEILLANCE INSTRUCTION

##### 5.1 Surveillance Test

1. OBTAIN the Reactor Operator's "Test Start Approval" signature on the Test Cover Sheet/Surveillance Order.

**Standard:** Operator reviews the surveillance and **verifies** the Reactor Operator's "Test Start Approval" signature on the Test Cover Sheet

**Instructor Cue:** **None**

**Notes:** **No stall flow data is required as marked in the PREREQUISITES**

**SAT** \_\_\_      **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_



**Step 2**

2. IF performing Mode 1 or 2 Control Rod Operability testing, THEN PERFORM the following for each rod NOT at position 48. OTHERWISE MARK sub-steps 5.1.2.a through 5.1.2.e as NA.
  - a. INSERT control rod one notch AND VERIFY position indication follows rod motion. (EP-121 EO, EC, FS / EP-123 EO, EC, FS / EP-138 EC)
  - b. WITHDRAW control rod to as-found position AND VERIFY rod settles at this notch position. (EP-120 EO, EC, FS / EP-122 EO, EC, FS)
  - c. VERIFY position indication follows rod motion.
  - d. RECORD results on Attachment 1 for each respective control rod tested.
  - e. INITIAL completion on Attachment 1.

|                        |   |
|------------------------|---|
| <b>Standard:</b>       | Operator evaluates order of performance.  |
| <b>Instructor Cue:</b> | If Operator commences surveillance at step 5.1.2, direct operator to perform test in order listed on Attachment 1.                        |
| <b>Notes:</b>          | P&L # 4 allows Steps 5.1.2 & 5.1.3 to be performed in any order.<br><br>No control rods are at intermediate positions. Step 5.1.2 is N/A. |
| <b>SAT</b> ____        | <b>UNSAT</b> ____   |
| <b>Comment(s):</b>     | _____   |

**Step 3**

2. IF performing Mode 1 or 2 Control Rod Operability testing, THEN PERFORM the following for all rods at position 48. OTHERWISE MARK sub-steps 5.1.3.a through 5.1.3.f as NA.
  - a. INSERT control rod one notch AND VERIFY position indication follows rod motion. (EP-121 EO, EC, FS / EP-123 EO, EC, FS / EP-138 EC)
  - b. WITHDRAW control rod AND VERIFY. (EP-120 EO, EC, FS / EP-122 EO, EC, FS)
    - Rod does NOT over travel.
    - Drive water flow decreases to approx. zero, Ø.
  - c. VERIFY position indication follows rod motion.
  - d. PERFORM a coupling check as follows:
    - 1) IF stall flow data is required, THEN PERFORM the following: OTHERWISE MARK sub-steps a) and b) as NA.
      - a) USING a continuous withdraw signal to PERFORM a coupling check.
      - b) ALLOW flow to stabilize AND RECORD the withdraw stall flow on Attachment 1.
    - 2) IF stall flow data is NOT required, THEN PERFORM a coupling check.
  - e. RECORD results on Attachment 1 for each respective control rod tested.
  - r. INITIAL completion on Attachment 1.

|                        |   |
|------------------------|---|
| <b>Critical Step:</b>  | Operator selects and inserts control rod 22-59 one notch. |
| <b>Instructor Cue:</b> | None  |
| <b>Notes:</b>          | None  |
| <b>SAT</b> ____        | <b>UNSAT</b> ____   |
| <b>Comment(s):</b>     | _____   |

**Step 4**

- b. WITHDRAW control rod AND VERIFY. (EP-120 EO, EC, FS / EP-122 EO, EC, FS)
- Rod does NOT over travel.
  - Drive water flow decreases to approx. zero,  $\emptyset$ .
- c. VERIFY position indication follows rod motion.

|                              |  |
|------------------------------|--|
| <b><u>Critical Step:</u></b> | Operator withdraws control rod 22-59 one notch.  |
| <b>Standard</b>              | Operator verifies control rod does not over-travel and Drive water decreases to $\sim 0$ , and position indication follows rod motion. |
| <b>Instructor Cue:</b>       | None   |
| <b>Notes:</b>                | None   |
| <b>SAT</b> ____              | <b>UNSAT</b> ____  |
| <b>Comment(s):</b>           | _____  |

**Step 5**

- d. PERFORM a coupling check as follows:
  - 1) IF stall flow data is required, THEN PERFORM the following:  
OTHERWISE MARK sub-steps a) and b) as NA.
    - a) USING a continuous withdraw signal to PERFORM a coupling check.
    - b) ALLOW flow to stabilize AND RECORD the withdraw stall flow on Attachment 1.
  - 2) IF stall flow data is NOT required, THEN PERFORM a coupling check.
- e. RECORD results on Attachment 1 for each respective control rod tested.
- r. INITIAL completion on Attachment 1.

|                              |   |
|------------------------------|---|
| <b><u>Critical Step:</u></b> | Operator performs a coupling check by giving control rod 22-59 a notch withdrawal signal. |
| <b>Standard:</b>             | Operator records data and initials Attachment 1.  |
| <b>Instructor Cue:</b>       | None  |
| <b>Notes:</b>                | No stall flow data is required as marked in the PREREQUISITES                             |
| <b>SAT</b> ____              | <b>UNSAT</b> ____   |
| <b>Comment(s):</b>           | _____   |

## Step 6

2. IF performing Mode 1 or 2 Control Rod Operability testing, THEN PERFORM the following for all rods at position 48. OTHERWISE MARK sub-steps 5.1.3.a through 5.1.3.f as NA.
  - a. INSERT control rod one notch AND VERIFY position indication follows rod motion. (EP-121 EO, EC, FS / EP-123 EO, EC, FS / EP-138 EC)

|                        |   |
|------------------------|---|
| <b>Critical Step:</b>  | Operator selects and inserts control rod 26-59 one notch. |
| <b>Instructor Cue:</b> | None  |
| <b>Notes:</b>          | None  |
| <b>SAT</b> ____        | <b>UNSAT</b> ____   |
| <b>Comment(s):</b>     | _____   |

## Step 7

- b. WITHDRAW control rod AND VERIFY. (EP-120 EO, EC, FS / EP-122 EO, EC, FS)
    - Rod does NOT over travel.
    - Drive water flow decreases to approx. zero,  $\emptyset$ .
  - c. VERIFY position indication follows rod motion.

|                              |  |
|------------------------------|--|
| <b><u>Critical Step:</u></b> | Operator withdraws control rod 26-59 one notch.  |
| <b>Standard</b>              | Operator verifies control rod does not over-travel and Drive water decreases to $\sim 0$ , and position indication follows rod motion. |
| <b>Instructor Cue:</b>       | None   |
| <b>Notes:</b>                | Rod will not over travel until coupling check is performed.  |
| <b>SAT</b> ____              | <b>UNSAT</b> ____  |
| <b>Comment(s):</b>           | _____  |

**Step 8**

- d. PERFORM a coupling check as follows:
- 1) IF stall flow data is required, THEN PERFORM the following:  
OTHERWISE MARK sub-steps a) and b) as NA.
    - a) USING a continuous withdraw signal to PERFORM a coupling check.
    - b) ALLOW flow to stabilize AND RECORD the withdraw stall flow on Attachment 1.
  - 2) IF stall flow data is NOT required, THEN PERFORM a coupling check.

|                              |   |
|------------------------------|---|
| <b>Standard:</b>             | Operator performs a coupling check by giving control rod 26-59 a notch withdrawal signal. |
| <b><u>Critical Step:</u></b> | Operator recognizes control rod over traveled.  |
| <b>Standard:</b>             | Operator refers to ARI for Rod Over Travel.   |
| <b>Instructor Cue:</b>       | None  |
| <b>Notes:</b>                | None  |
| <b>SAT</b> ____              | <b>UNSAT</b> ____   |
| <b>Comment(s):</b>           | _____   |

**Step 9**

**ARI-H13-P680-0005-D9 ROD OVERTRAVEL**

4.0 **SUBSEQUENT OPERATOR ACTION**

- 4.1 DEPRESS the ROD UNCOUPLED pushbutton.
- 4.2 DETERMINE which rod is uncoupled by observing the red LED on the Rod Status Display.
- 4.3 REFER TO ONI-C11-2, Uncoupled Control Rod.

|                        |   |
|------------------------|---|
| <b>Standard:</b>       | Operator confirms control rod 26-59 is uncoupled by performing ARI subsequent Actions and refers to ONI-C11-2.  |
| <b>Instructor Cue:</b> | When operator informs US/Crew of ONI-C11-2 entry, as the US, declare entry into ONI-C11-2.<br><br><a href="#">Direct operator to perform Immediate and Supplemental Actions of ONI-C11-2.</a> |
| <b>Notes:</b>          | None  |
| <b>SAT</b> ____        | <b>UNSAT</b> ____   |
| <b>Comment(s):</b>     | _____   |

**Step 10**

**ONI-C11-2, UNCOUPLED CONTROL ROD**

4.0 SUPPLEMENTAL ACTIONS

4.1 CONTACT the Reactor Engineer.

4.2 IF the Periodic Log is available, THEN DETERMINE if the following have been exceeded:

- Local power limits
- Gross power limits

|                        |   |
|------------------------|---|
| <b>Standard:</b>       | Operator contacts Reactor Engineering to inform them that control rod 26-59 is uncoupled.       |
| <b>Instructor Cue:</b> | Respond as Reactor Engineer<br>Inform Operator that the Shift Engineer will run a Periodic Log. |
| <b>Notes:</b>          | None  |
| <b>SAT</b> ____        | <b>UNSAT</b> ____   |
| <b>Comment(s):</b>     | _____   |



## **Step 11**

4.3 IF in Mode 1, THEN PERFORM the following:

4.3.1 DECLARE the control rod inoperable.

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Operator informs US to declare control rod 26-59 inoperable. |
| <b>Instructor Cue:</b> | I will declare control rod 26-59 inoperable.                 |
| <b>Notes:</b>          | None   |
| <b>SAT</b> ___         | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>     | _____  |

## **Step 12**

4.3.2 INSERT the control rod to the position from which it was withdrawn.

|                              |  |
|------------------------------|--|
| <b><u>Critical Step:</u></b> | Operator gives control rod 26-59 a single notch insert signal.   |
| <b>Instructor Cue:</b>       | None   |
| <b>Notes:</b>                | Annunciator ROD OVERTRAVEL will clear when rod is inserted.<br><br>Operator should insert control rod to Position 46. However, operator may insert rod to position 48 and stop until he obtains Plan from Rx Engineer then inserts rod to notch 46 and notch 44. |
| <b>SAT</b> ___               | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>           | _____  |

### **Step 13**

- 4.3.3 DIRECT the Reactor Engineer to develop an action plan for control rod recoupling.
- 4.3.4 IMPLEMENT the action plan for control rod recoupling.

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Operator directs the Reactor Engineer to develop an action plan to recouple control rod 26-59. |
| <b>Instructor Cue:</b> | As Reactor Engineer, give Operator Special Maneuver Sheet for recoupling control rod.          |
| <b>Notes:</b>          | None   |
| <b>SAT</b> ___         | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>     | _____  |

### **Step 14**

#### SPECIAL MANEUVER CONTROL ROD MOVEMENT SHEET

Step 1 – Insert Control Rod 26-59 in the single notch insert mode to position 44

|                              |  |
|------------------------------|--|
| <b><u>Critical Step:</u></b> | Operator inserts control rod 26-59 to position 44.   |
| <b>Instructor Cue:</b>       | None   |
| <b>Notes:</b>                | Driver – Verify malfunction RD02R2659 is deleted.<br><br>Operator should de-select and reselect control rod 26-59 when at position 44. (SOI-C11(RCIS) P&L 2.6) |
| <b>SAT</b> ___               | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>           | _____  |

**Step 15**

SPECIAL MANEUVER CONTROL ROD MOVEMENT SHEET

Step 2 – Withdraw Control Rod 26-59 in the single notch withdrawal mode to position 48 then perform a coupling check.

|                              |   |
|------------------------------|---|
| <b><u>Critical Step:</u></b> | Operator withdraws control rod 26-59 to position 48 then perform a coupling check.                            |
| <b>Instructor Cue:</b>       | When operator reports control rod was recoupled, inform operator that JPM is complete                         |
| <b>Notes:</b>                | Operator should annotate the uncoupled and recoupled rod in the Comments area of the Data Package Cover Sheet |
| <b>SAT</b> ____              | <b>UNSAT</b> ____   |
| <b>Comment(s):</b>           | _____   |

**Terminating Cue:** Control Rod Exercise Surveillance has been performed on control rod 26-59 and control rod was recoupled.

**Evaluation Results:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

**End Time:** \_\_\_\_\_

# SPECIAL MANEUVER CONTROL ROD MOVEMENT SHEET

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FTI-B0002

CYCLE 15

SEQUENCE A2

STARTUP NUMBER 121

| MOVEMENT AUTHORIZATIONS   |            |       |
|---|------------|-------|
| STEP AND CONDITIONS   | RX ENG     | DATE  |
| Step 1, 2, & 3 – Insert Control Rod 26-59 in the single notch insert mode to position 44  | <i>RXF</i> | Today |
| Step 4 – Withdraw Control Rod 26-59 in the single notch withdrawal mode to position 48 then perform a coupling check  | <i>RXF</i> | Today |
| Step 5 – If recoupling of Control Rod 26-59 is successful, no further action is necessary. If recoupling of Control Rod 26-59 is not successful, then insert Control Rod 26-59 to position 00 | <i>RXF</i> | Today |
|   |            |       |
|   |            |       |
|   |            |       |
|   |            |       |
|   |            |       |
|   |            |       |
|   |            |       |
|   |            |       |
|   |            |       |
|   |            |       |

| STEP | ROD   | FROM | TO | R.O. INITIAL | C.V. INITIAL | COMMENTS                                    |
|------|-------|------|----|--------------|--------------|---|
| 1    | 26-59 | "OT" | 48 |              |              |   |
| 2    | 26-59 | 48   | 46 |              |              |   |
| 3    | 26-59 | 46   | 44 |              |              |   |
| 4    | 26-59 | 44   | 48 |              |              | Perform a coupling check                    |
| 5    | 26-59 | 48   | 00 |              |              | Contingency if recoupling is not successful |
|      |       |      |    |              |              |   |
|      |       |      |    |              |              |   |
|      |       |      |    |              |              |   |
|      |       |      |    |              |              |   |
|      |       |      |    |              |              |   |
|      |       |      |    |              |              |   |
|      |       |      |    |              |              |   |
|      |       |      |    |              |              |   |
|      |       |      |    |              |              |   |
|      |       |      |    |              |              |   |
|      |       |      |    |              |              |   |

RX ENG.: APPROVAL *R. X. Boss* / Today  
DATE

CONCURRENCE *S. M. Manager* / Today  
DATE

**JPM CUE SHEET**

|                                |   |
|--------------------------------|---|
| <p>INITIAL<br/>CONDITIONS:</p> | <ul style="list-style-type: none"><li>• The Plant is at power.</li><li>• SVI-C11-T1003A, Control Rod Exercise (Part 1) is due.</li><li>• SVI-C11-T1003A PERQUISITES were completed last shift.</li><li>• Reactivity brief has been performed.</li></ul> |
| <p>INITIATING CUE:</p>         | <p>The Unit Supervisor directs you, as a Reactor Operator, to perform SVI-C11-T1003A, Control Rod Exercise (Part 1).</p> <p><a href="#">Perform SVI in the order listed in Attachment 1.</a></p>  |

## **JOB PERFORMANCE MEASURE SETUP SHEET**

System: C71 – Reactor Protection System  
Time Critical: No  
Alternate Path: No  
Applicability: RO/SRO  
Safety Function: 7 - Instrumentation  
Setting: Simulator  
Validated: 18 minutes  
References: SOI-C71 Rev 20  
Tasks: 212-545-04-01 Bypass RPS Functions in RPS Channel A/C  
Task Standard: Bypass RPS Channels A/C & B/D automatic scrams per SOI-C71  
Required Material: SOI-C71, RPS Power Supply Distribution  
K / A Data: 212000 K4.12 Knowledge of REACTOR PROTECTION SYSTEM design feature(s) and/or interlocks which provide for the following:  
Bypassing of selected SCRAM signals (manually and automatically):  
Plant-Specific. RO 3.9 / SRO 4.1

1. Setup Instructions: Reset simulator to **IC-009 for 2015 ILO Exam**. Obtain RPS jumper package from the tool storage area in front of SM desk.
  
2. Location / Method: Simulator/Performance
  
3. Initial Condition: The plant is shut down for a refueling outage and is in Mode 4. Under vessel work is scheduled to commence next shift. The work schedule directs bypassing of RPS automatic scrams prior to commencing under vessel work. A PLCO for RPS OPERABILITY has been generated.
  
4. Initiating Cue: The Unit Supervisor directs you, the Reactor Operator to perform SOI-C71 Sections 7.6 & 7.7 to bypass RPS Channels A/C and B/D automatic scrams.

**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-C71, RPS POWER SUPPLY DISTRIBUTION**

##### 7.6 Bypass of RPS Channel A/C

###### 7.6.1 CONFIRM the following:

- Plant is in Mode 4 or 5.
- With exception of those withdrawn control rods meeting the requirements of T.S. 10.4 or 3.10.6, all other control rods are inserted to position 00.

###### 7.6.2 VERIFY one or more the following administrative controls are initiated as appropriate:

- PLCO for RPS OPERABILITY.
- Daily Surveillance Requirement Sheet to confirm control rods inserted to position 00 periodically.
- Prevention of control rod withdrawal verified by a second licensed operator, or other technically qualified member of the plant staff, and logged in the Narrative Log.
- Tagging in accordance with Clearance Program.

**Standard:** Operator confirms the plant is in Mode 4 and checks all rods at 00

**Instructor Cue:** If asked, a Daily Surveillance Requirement Sheet will be generated after RPS channels are bypassed.

**Notes:** PLCO generated given in **Initial Conditions** for Step 7.6.2

SAT \_\_\_      UNSAT \_\_\_

**Comment(s):** \_\_\_\_\_

**Step 2**

- 7.6.3 PLACE INST VOL LEVEL HI SCRAM BYPASS CH A keylock switch in BYPASS to insert a Rod Block. 1C71-S4A
- 7.64 CONFIRM Rod Withdraw Block is indicated on RCIS Rod Motion Display.

|                              |   |
|------------------------------|---|
| <b><u>Critical Step:</u></b> | Operator places INST VOL LEVEL HI SCRAM BYPASS CH A keylock switch in BYPASS to insert a Rod Block. |
| <b>Standard:</b>             | Operator confirms Rod Withdraw Block red light is illuminated on P680                               |
| <b>Instructor Cue:</b>       | None  |
| <b>Notes:</b>                | None  |
| <b>SAT</b> ___               | <b>UNSAT</b> ___  |
| <b>Comment(s):</b>           | _____   |

**Step 3**

- 7.6.5 IF desired to bypass RPS logic channel A on 1H13-P691, THEN USING concurrent verification, INSTALL dedicated jumper on RPS 'A' TEST JACK PANEL 1H13P0691 jacks X1 and 03T.

|                              |   |
|------------------------------|---|
| <b><u>Critical Step:</u></b> | Operator installs jumper on RPS 'A' TEST JACK PANEL 1H13P0691 jacks X1 and 03T. |
| <b>Instructor Cue:</b>       | I am your Concurrent Verifier.  |
| <b>Notes:</b>                | None  |
| <b>SAT</b> ___               | <b>UNSAT</b> ___  |
| <b>Comment(s):</b>           | _____   |



#### **Step 4**

7.6.6 IF desired to bypass RPS logic channel C on 1H13-P693, THEN USING concurrent verification, INSTALL dedicated jumper on RPS 'C' TEST JACK PANEL 1H13P0693 jacks 4X1 and 23T.

|                              |  |
|------------------------------|--|
| <b><u>Critical Step:</u></b> | Operator installs jumper on RPS 'C' TEST JACK PANEL 1H13P0693 jacks 4X1 and 23T. |
| <b>Instructor Cue:</b>       | I am your Concurrent Verifier.   |
| <b>Notes:</b>                | None   |
| <b>SAT</b> ___               | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>           | _____  |

#### **Step 5**

7.6.7 DOCUMENT Concurrent Verification of required components.

7.6.8 HANG the following dedicated Labels:

- REACTOR MODE SWITCH stating, "RPS Automatic Scrams are disabled".
- INST VOL LEVEL HI SCRAM BYPASS CH A keylock switch stating, "Keylock has been placed in BYPASS in accordance with SOI-C71 to provide a Rod Block".
- RPS A and C Jumpers stating, "RPS Automatic Scrams are disabled".

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Operator hangs labels on Mode Switch and Inst Vol key lock switch. |
| <b>Instructor Cue:</b> | None   |
| <b>Notes:</b>          | None   |
| <b>SAT</b> ___         | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>     | _____  |

#### **Step 6**

7.7 Bypass of RPS Channel B/D

7.7.1 CONFIRM the following:

- Plant is in Mode 4 or 5.
- With exception of those withdrawn control rods meeting the requirements of T.S. 10.4 or 3.10.6, all other control rods are inserted to position 00.

7.7.2 VERIFY one or more the following administrative controls are initiated as appropriate:

- PLCO for RPS OPERABILITY.
- Daily Surveillance Requirement Sheet to confirm control rods inserted to position 00 periodically.
- Prevention of control rod withdrawal verified by a second licensed operator, or other technically qualified member of the plant staff, and logged in the Narrative Log.
- Tagging in accordance with Clearance Program.

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Operator confirms the plant is in Mode 4 and checks all rods at 00 |
| <b>Instructor Cue:</b> | None   |
| <b>Notes:</b>          | PLCO generated given in <b>Initial Conditions</b> for Step 7.7.2   |
| <b>SAT</b> ____        | <b>UNSAT</b> ____  |
| <b>Comment(s):</b>     | _____  |

**Step 7**

7.7.3 PLACE INST VOL LEVEL HI SCRAM BYPASS CH B keylock switch in BYPASS to insert a Rod Block. 1C71-S4B

7.7.4 CONFIRM Rod Withdraw Block is indicated on RCIS Rod Motion Display.

|                              |   |
|------------------------------|---|
| <b><u>Critical Step:</u></b> | Operator places INST VOL LEVEL HI SCRAM BYPASS CH B keylock switch in BYPASS to insert a Rod Block. |
| <b>Standard:</b>             | Operator confirms Rod Withdraw Block red light is illuminated on P680                               |
| <b>Instructor Cue:</b>       | None  |
| <b>Notes:</b>                | Rod Withdraw Block red light previously illuminated   |
| <b>SAT</b> ___               | <b>UNSAT</b> ___  |
| <b>Comment(s):</b>           | _____   |

**Step 8**

7.7.5 IF desired to bypass RPS logic channel B on 1H13-P692, THEN USING concurrent verification, INSTALL dedicated jumper on RPS 'B' TEST JACK PANEL 1H13P0692 jacks 2X1 and 13T.

|                              |  |
|------------------------------|--|
| <b><u>Critical Step:</u></b> | Operator installs jumper on RPS 'B' TEST JACK PANEL 1H13P0692 jacks 2X1 and 13T. |
| <b>Instructor Cue:</b>       | I am your Concurrent Verifier.   |
| <b>Notes:</b>                | None   |
| <b>SAT</b> ___               | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>           | _____  |

## **Step 9**

7.7.6 IF desired to bypass RPS logic channel D on 1H13-P694, THEN USING concurrent verification, INSTALL dedicated jumper on RPS 'D' TEST JACK PANEL 1H13P0694 jacks 6X1 and 33T.

**Critical Step:** Operator installs jumper on RPS 'D' TEST JACK PANEL 1H13P0694 jacks 6X1 and 33T.

**Instructor Cue:** I am your Concurrent Verifier.

**Notes:** None

**SAT** \_\_\_      **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

## **Step 10**

7.7.7 DOCUMENT Concurrent Verification of required components.

7.7.8 HANG the following dedicated Labels:

- REACTOR MODE SWITCH stating, "RPS Automatic Scrams are disabled".
- INST VOL LEVEL HI SCRAM BYPASS CH A keylock switch stating, "Keylock has been placed in BYPASS in accordance with SOI-C71 to provide a Rod Block".
- RPS A and C Jumpers stating, "RPS Automatic Scrams are disabled".

**Standard:** Operator hangs label on Inst Vol key lock switch.

**Instructor Cue:** None

**Notes:** None

**SAT** \_\_\_      **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

**Terminating Cue:** RPS jumpers installed in test jack panels on P691, P692, P 693, & P694 to bypass RPS automatic scrams.

**Evaluation Results:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

**End Time:** \_\_\_\_\_

## JPM CUE SHEET

|                                |  |
|--------------------------------|--|
| <p>INITIAL<br/>CONDITIONS:</p> | <ul style="list-style-type: none"><li>• The plant is shut down for a refueling outage and is in Mode 4.</li><li>• Under vessel work is scheduled to commence next shift.</li><li>• The work schedule directs bypassing of RPS automatic scrams prior to commencing under vessel work.</li><li>• A PLCO for RPS OPERABILITY has been generated.</li></ul> |
| <p>INITIATING CUE:</p>         | <p>The Unit Supervisor directs you, the Reactor Operator to perform SOI-C71 Sections 7.6 &amp; 7.7 to bypass RPS Channels A/C and B/D automatic scrams.</p>  |

## **JOB PERFORMANCE MEASURE SETUP SHEET**

System: E51, Reactor Core Isolation Cooling  
Time Critical: No  
Alternate Path: Yes  
Applicability: RO/SRO  
Safety Function: 2 - Reactor Water Inventory Control  
Validated: 10 minutes  
References: SOI-E51 Rev 32  
Required Material: SOI-E51, Reactor Core Isolation Cooling System  
Tasks: 217-565-04-01 Control RPV Level with RCIC Operating in the Injection Mode  
Task Standard: Lineup RCIC to control RPV level per SOI-E51  
K/A Data: 217000 K3.01 Knowledge of the effect that a loss or malfunction of the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) will have on following: Reactor water level. Importance: RO 3.7 / SRO 3.7  
A4.05 Ability to manually operate and/or monitor in the control room: Reactor water level. Importance: RO 4.1 / SRO 4.1

1. Setup Instructions:

- **Reset simulator to IC-007 for 2015 ILO Exam.** With RHR A running is Suppression Pool Cooling.
- **Leave simulator in FREEZE until ICS falls through, then go to RUN, acknowledge/reset annunciators, then Place simulator back in FREEZE**
- Place yellow switch caps on HPCS Pump and Injection valve.
- **Place simulator in RUN as operator is being read the Initial Conditions.**

2. Location / Method: Simulator / Perform

3. Initial Condition: The unit is scrammed and is operating IAW ONI-C71-1, Reactor Scram. RPV level is less than 178 inches and slowly lowering. HPCS is tagged out for maintenance. Feedwater has been lost. RPV level band is 178” to 219”. RHR A is running in Suppression Pool Cooling.

4. Initiating Cue: The Unit Supervisor directs you manually initiate the Reactor Core Isolation Cooling System (RCIC) **in accordance with SOI-E51**, then restore and maintain RPV level into the directed band.

**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-E51, Reactor Core Isolation Cooling System**

##### 4.3 Manual Initiation from Standby Readiness

###### NOTES

- Manual initiation of RCIC will actuate an automatic trip of the Main Turbine and Reactor Feed Pump Turbines.
- An automatic initiation of ECC and ESW will occur upon manual initiation of RCIC. If desired, a manual startup of ECC and ESW may be performed in accordance with the applicable SOI prior to RCIC Initiation.

4.3.1 INITIATE an evacuation from the following:

- Reactor Building Annulus
- Containment.

4.3.1 REFER TO SVI-D23-T1213, Suppression Pool Average Temperature, and COMMENCE monitoring suppression pool temperature.

**Standard:** Candidate announces evacuation of containment and annulus.  
Candidate checks on performance of SVI-D23-T1213.

**Instructor Cue:** Shift Engineer is performing SVI-D23-T1213

**Notes:** None

**SAT** \_\_\_ **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_



**Step 2**

4.3.3 ARM AND DEPRESS the RCIC MAN INIT.

1E51A-S37

4.3.4 (ECC A Loop Startup)

4.3.5 (ESW A Loop Startup)

4.3.6 Verify RCIC system achieves the same configuration as an Automatic Initiation From Standby Readiness.

**Critical Task:** Candidate recognizes the failure of RCIC to manual initiate and takes actions to startup RCIC.

**Standard:** Candidate informs Unit Supervisor that RCIC did not initiate.

**Instructor Cue:** If Candidate does not continue on to “Startup From Standby Readiness”, or verify auto actions by using “ Automatic Startup From Standby Readiness”, ask Candidate what he/she suggests.

If necessary to cue operator, direct his to continue with procedure and inject with RCIC.

**Notes:** Per NOP-OP-1002, Conduct of Operations, “Take manual actions (in accordance with procedure direction, if available) when automatic actions do not occur. Verify and report automatic system actuations or response, which include operator actions if the plant has not responded as expected.”

Candidate should transition to SOI-E51 Section 4.4, Manual Startup from Standby Readiness (Injection)

OR

Perform Step 4.3.6 to verify RCIC achieves same configuration as automatic initiation.

Section 4.2 will ‘verify’ same valves are manipulated as Section 4.4.

SAT \_\_\_ UNSAT \_\_\_

**Comment(s):** \_\_\_\_\_

### **Step 3**

#### 4.4 Manual Startup from Standby Readiness (Injection)

4.4.3 REFER TO SOI-P42 and PERFORM an ECC Loop A Manual Startup.

4.4.4 VERIFY the RHR A HEAD SPRAY ISOL is closed. 1E12-F023

4.4.5 VERIFY the RCIC PUMP CST SUCTION VALVE is open. 1E51-F010

**Standard:** Candidate observes ECC Loop A is running and verifies 1E12-F023 is closed and 1E51-F010 is open

**Instructor Cue:** None

**Notes:** Steps 4.4.1 and 4.4.2 were previously performed in Section 4.3.

**SAT** \_\_\_      **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

### **Step 4**

4.4.6 TAKE the RCIC TURBINE GLAND SEAL COMP to START. 1E51-C004

**Standard:** Candidate starts RCIC Gland Seal Compressor.

**Instructor Cue:** None

**Notes:** None

**SAT** \_\_\_      **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

**Step 5**

4.4.7 TAKE RCIC STEAM SHUTOFF, to OPEN to roll the RCIC Turbine.

1E51-F045

|                              |                            |
|------------------------------|----------------------------|
| <b><u>Critical Step:</u></b> | Candidate opens 1E51-F045. |
| <b>Instructor Cue:</b>       | None                       |
| <b>Notes:</b>                | None                       |
| <b>SAT</b> ____              | <b>UNSAT</b> ____          |
| <b>Comment(s):</b>           | _____                      |

**Step 6**

|       |   |
|-------|---|
| 4.4.8 | RCIC flow is < 120 gpm                      |
|       | RCIC Pump discharge pressure is > 125 psig  |
|       | THEN VERIFY RCIC PUMP MIN FLOW VALVE opens. |

1E51-F019

|                        |   |
|------------------------|---|
| <b>Standard:</b>       | Candidate observes RCIC suction on the CST. |
| <b>Instructor Cue:</b> | None  |
| <b>Notes:</b>          | Step 4 is N/A                               |
| <b>SAT</b> ____        | <b>UNSAT</b> ____                           |
| <b>Comment(s):</b>     | _____                                       |

**Step 7**

4.4.9 TAKE the RCIC INJECTION VALVE to OPEN.

1E51-F013

|                              |                            |
|------------------------------|----------------------------|
| <b><u>Critical Step:</u></b> | Candidate opens 1E51-F013. |
| <b>Instructor Cue:</b>       | None                       |
| <b>Notes:</b>                | None                       |
| <b>SAT</b> ___               | <b>UNSAT</b> ___           |
| <b>Comment(s):</b>           | _____                      |

**Step 8**

4.4.10 WHEN the RCIC STEAM SHUTOFF is open, VERIFY the following valves automatically close: 1E51-F045

- RCIC TURB CNDS TO CRW FIRST SHUTOFF 1E51-F004
- RCIC TURB CNDS TO CRW SECOND SHUTOFF 1E51-F005
- RCIC ST SUPP FIRST DRN SHUTOFF 1E51-F025
- RCIC ST SUPP SECOND DRN SHUTOFF 1E51-F026

4.4.11 CHECK the RCIC INJ CHECK VALVE valve disc open.

1E51-F066

|                        |   |
|------------------------|---|
| <b>Standard:</b>       | Candidate verifies positions of valves insteps 4.4.10 & 4.4.11. |
| <b>Instructor Cue:</b> | None  |
| <b>Notes:</b>          | None  |
| <b>SAT</b> ___         | <b>UNSAT</b> ___  |
| <b>Comment(s):</b>     | _____   |

**Step 9**

4.4.12 ADJUST RCIC PUMP FLOW CONTROL UNTIL the desired RCIC flow is reached. 1E51-R600

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Candidate verifies the RCIC PUMP FLOW CONTROL, 1E51-R600, is in the AUTO with a setpoint of 700 gpm. |
| <b>Instructor Cue:</b> | None   |
| <b>Notes:</b>          | None   |
| <b>SAT</b> ____        | <b>UNSAT</b> ____  |
| <b>Comment(s):</b>     | _____  |

**Step 10**

4.4.13 PRIOR to lowering RCIC flow to < 350 gpm, PLACE the RCIC PUMP FLOW CONTROL in MANUAL. 1E51-R600

|                        |   |
|------------------------|---|
| <b>Standard:</b>       | As RPV level is restored, Candidate lowers the RCIC PUMP FLOW CONTROL, 1E51-R600, in AUTO to a setpoint of >350 gpm.  |
| <b>Instructor Cue:</b> | After the Candidate establishes flow to the RPV, confirms proper RCIC system operation, and is restoring RPV water level, as the Unit Supervisor, inform the Candidate that you will assign another operator to monitor RCIC operation and RPV water level. |
| <b>Notes:</b>          | RCIC flow becomes unstable with flow Controller in AUTO at flows less than 350 gpm  |
| <b>SAT</b> ____        | <b>UNSAT</b> ____   |
| <b>Comment(s):</b>     | _____   |

**Terminating Cue:** RCIC is injecting into the RPV and restoring water level.

**Evaluation Results:** SAT \_\_\_\_ UNSAT \_\_\_\_

**End Time** \_\_\_\_

## JPM CUE SHEET

|                                |   |
|--------------------------------|---|
| <p>INITIAL<br/>CONDITIONS:</p> | <ul style="list-style-type: none"><li>• The unit is scrammed and is operating ONI-C71-1, Reactor Scram.</li><li>• RPV level is less than 178 inches and slowly lowering.</li><li>• HPCS is tagged out for maintenance.</li><li>• Feedwater has been lost.</li><li>• RPV level band is 178” to 219”.</li><li>• RHR A is running in Suppression Pool Cooling.</li></ul> |
| <p>INITIATING CUE:</p>         | <p>The Unit Supervisor directs you manually initiate the Reactor Core Isolation Cooling System (RCIC), then restore and maintain RPV level into the directed band.</p>  |

## JOB PERFORMANCE MEASURE SETUP SHEET

System: Main Generator System  
Time Critical: No  
Alternate path: Yes  
Applicability: RO/SRO  
Safety Function: 6 - Electrical  
Setting: Simulator  
Validated: 23 minutes  
References: IOI-3 Rev 53 and SOI-N32 Rev 24  
Task Standard: Synchronize the main generator to the grid IAW IOI-3 and perform required actions for high vibrations.  
Task #: 245-504-01-01 Parallel Generator  
245-516-01-01 Transfer from the Manual Voltage Regulator to the Automatic Voltage Regulator  
245-501-01-01 Monitor Generator Operation  
068-508-04-01 Trip Main Turbine  
Required Material: IOI-3, Power Changes (**marked-up copy**)  
K / A Data: 262001 A4.04 Ability to manually operate and/or monitor in the control room: Synchronizing and paralleling of different A.C. Supplies RO 3.6 / SRO 3.7

1. Simulator Setup Instructions: Reset simulator to a startup IC. (**IC-006 for 2015 ILO**) Reactor power established so 2.5 bypass valves are open. Generator Synchronization per **IOI-003 complete up to step 4.3.37. Switching Order for operator is complete through Step 10.** High Vib on Bearing 9 and 10 set at 13.5 and 14 ramp over 1 minute from normal readings to be inserted once Generator is synchronized and all bypass valves are closed. Automatic Turbine Trip is disabled. (Insert following *overrides* on event 2, ZA1N31R0019 to 13.8 in 60, ZA1N31R0020 to 14.1 in 67, ZA1N31R0002\_9 to 13.8 in 60, & ZA1N31R0002\_10 to 14.1 in 67. Insert *malfunction* 1H13P6807AB13 after 25 to 3 on event 2. Insert *malfunction* 1H13P6807AB12 to 1. Insert *malfunction* YC01. **or run schedule file JPM-N41-02**) Bump Load Set down slightly to get synchroscope rotating counterclockwise.
2. Initial Condition: IOI-003 Section 4.3 Generator Synchronization is complete through step 4.3.37. ICS has not been tracking properly. The ICS engineer has been notified.
3. Initiating Cue: The Unit Supervisor directs you as the Reactor Operator to complete Generator Synchronization in accordance with IOI-003 starting at step 4.3.38. A Switching order has been obtained from WCC.

**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

#### **IOI-3, Power Changes**

#### 4.3 Generator Synchronization

4.3.38 CLOSE the GEN FIELD BREAKER.

**Critical Step:** Operator closes the Generator Field Breaker.

**Instructor Cue:** None

**Notes:** None

**SAT** \_\_\_      **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

### Step 2

4.3.39 CLOSE the EXCITER FIELD BREAKER.

**Critical Step:** Operator closes the Exciter Field Breaker.

**Instructor Cue:** None

**Notes:** None

**SAT** \_\_\_      **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_



### Step 3

- 4.3.40 OBSERVE indication of voltage on GEN. FIELD VOLTS.  
1N51-R011
- 4.3.41 OBSERVE indication of voltage on all three phases of GEN VOLTS.  
1N41-R013, R014, R015
- 4.3.42 ADJUST the MAN. VOLT. ADJUST to increase generator terminal voltage to 22 kV and a Main Transformer output voltage of 345 kV.

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Operator observes voltage indication on field volts and all three phases.<br>Operator adjusts Manual voltage to obtain required volts. |
| <b>Instructor Cue:</b> | None   |
| <b>Notes:</b>          | None   |
| <b>SAT</b> ___         | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>     | _____  |

### Step 4

- 4.3.43 IF the AUTO VOLTAGE REGULATOR is available, THEN PERFORM the following:
  - 4.3.43.a ADJUST the AUTO. VOLT. ADJUST to Zero the REG TRANSFER DIFF VOLTS.
  - 4.3.43.b TRANSFER the VOLTAGE REGULATOR to the AUTO position.

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Operator zero's differential volts and then transfers the voltage regulator to AUTO. |
| <b>Instructor Cue:</b> | None   |
| <b>Notes:</b>          | The voltage regulator must be held in RAISE for ~20 seconds for it to respond.       |
| <b>SAT</b> ___         | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>     | _____  |

**Step 5**

NOTES

- It is normally desirable to show Generator Megawatts, N41EA223, on Computer Display 2.
- GEN BRKR S-610-PY-TIE and S-611-PY-TIE are closed as directed by the switching order.
- To minimize operation at low turbine load, the steps for connecting the main generator to the grid and picking up initial generator load should be performed in an unhurried manner but without unnecessary delay.
- The indicating lights above the synchroscope monitor the same generator phase as the synchroscope and will be brightest when the synchroscope pointer is at the 12 o'clock position. They shall not be used as alternative indication when synchronizing the generator.
- The generator is protected by a synchronization monitoring circuit. It may be necessary to repeat Steps 4.3.46 and 4.3.47 to achieve synchronization within the allowance of the synchronization monitoring circuit.

4.3.44 MAKE a PA announcement to alert personnel in the Transmission Yard that the Main Generator Breakers will be closed.

**Standard:** Operator makes a PA announcement.

**Instructor Cue:** None

**Notes:** None

**SAT** \_\_\_ **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

## **Step 6**

4.3.45 TURN the SYNC. SELECT. SWITCH to the position of the first GEN BRKR to be closed as directed by the switching order.

- S-610-PY-TIE
- S-611-PY-TIE

**Critical Step:** Operator selects S611 with Sync Select Switch.

**Instructor Cue:** None

**Notes:** Switching Order directs closing S611 first.

**SAT** \_\_\_      **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

## **Step 7**

4.3.7 MATCH the incoming voltage with running voltage using the AUTO. VOLT. ADJUST. or the MAN. VOLT. ADJUST.

**Critical Step:** Operator matches the Incoming and Running voltage with Auto Voltage Regulator.

**Instructor Cue:** None

**Notes:** None

**SAT** \_\_\_      **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

## **Step 8**

4.3.47 ADJUST the turbine load selector UNTIL the synchroscope pointer is rotating slowly clockwise.

|                              |  |
|------------------------------|--|
| <b><u>Critical Step:</u></b> | Operator adjusts Load Select to adjust turbine speed to get synch scope moving slow in fast direction.   |
| <b>Instructor Cue:</b>       | None   |
| <b>Notes:</b>                | Load Select is used to adjust Turbine Speed.<br>If operator is too aggressive in adjusting turbine speed, all bypass valves may close momentarily. |
| <b>SAT</b> ___               | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>           | _____  |

## **Step 9**

4.3.48 WHEN the synchroscope pointer is rotating clockwise AND is approximately the width of the pointer before the 12 o'clock position, THEN CLOSE GEN BRKR.

- S-610-PY-TIE
- S-611-PY-TIE

|                              |   |
|------------------------------|---|
| <b><u>Critical Step:</u></b> | Operator closes breaker S611 to parallel the generator. |
| <b>Instructor Cue:</b>       | None  |
| <b>Notes:</b>                | None  |
| <b>SAT</b> ___               | <b>UNSAT</b> ___  |
| <b>Comment(s):</b>           | _____   |

**Step 10**

4.3.49 INCREASE the turbine LOAD SELECTOR UNTIL Bypass Valve 1 is fully closed.

**Critical Step:** Operator raises turbine load to close all bypass valves.

**Instructor Cue:** None

**Notes:** Simulator driver to verify **Event 2** initiates for High Vibrations once all bypass valves are closed and S611 is closed.

SAT \_\_\_ UNSAT \_\_\_

**Comment(s):** \_\_\_\_\_

**Step 11**

4.3.50 SELECT OFF on the SYNC SELECT SWITCH.

4.3.51 ADJUST Main Generator voltage to bring generator megavars to zero.

**CAUTION**

If exhaust hood temperature is greater than 125°F, the generator load should be slowly increased until the exhaust hood temperature stabilizes at less than 125°F.

4.3.52 WHILE increasing load, ADJUST the turbine LOAD SELECTOR to maintain the turbine LOAD SET approximately 120 MWe above generator output.

**Standard:** Operator places sync select switch in OFF, adjusts generator voltage and raises LOAD SET.

**Instructor Cue:** None

**Notes:** Simulator driver to verify **Event 2** initiates for High Vibrations once all bypass valves are closed and S611 is closed.

**SAT** \_\_\_      **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

## **Step 12**

Operator responds to turbine high vibration alarm, TURB/GEN/EXCTR VIB P823, 1H13-P680-07 window B13.

### **ARI-H13-P680-0007-B13**

#### 2.0 AUTOMATIC ACTION

|  |
|--|
| The trip is enabled                    |
| 3 seconds have elapsed since the alarm |
| The Main Turbine Generator trips.      |

### **NOP-OP-1002, Conduct of Operations**

#### 4.10 Transient Response

##### 4.10.3 Automatic System Response Versus Manual Actions

4. If automatic actions fail to occur when required, it is the responsibility of the operator to take manual actions to perform the system or component function. Pump or component auto start failures and ESF signal failures are examples where operators are expected to take manual action.

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Operator determines High Vibrations on Bearings 9 and 10 at greater than 12 mils.<br><br>Trip of the Main Turbine is required. |
| <b>Instructor Cue:</b> | High Vibration trip is enabled.<br>After Turbine is Tripped Announce Entry to ONI-N32 Turbine Trip.                            |
| <b>Notes:</b>          | Indicators N31-R019 and N31-R020 will indicate vibrations of 13.5 and 14 mils respectively.                                    |
| <b>SAT</b> ____        | <b>UNSAT</b> ____  |
| <b>Comment(s):</b>     | _____  |

**Step 13**

Operator trips the turbine by depressing the turbine TRIP pushbutton.

|  |
|--|
| <p><b><u>Critical Step:</u></b>      Operator Trips the Main Turbine.</p> <p><b>Instructor Cue:</b>      None</p> <p><b>Notes:</b>                  None</p> <p><b>SAT</b> ____      <b>UNSAT</b> ____</p> <p><b>Comment(s):</b> _____</p> |
|--|

**Terminating Cue:** Generator / Turbine manually tripped due to high vibrations.

**Evaluation Results:** SAT \_\_\_\_      UNSAT \_\_\_\_

**End Time** \_\_\_\_\_



**JPM CUE SHEET**

|                                |   |
|--------------------------------|---|
| <p>INITIAL<br/>CONDITIONS:</p> | <ul style="list-style-type: none"><li>• IOI-003 Section 4.3 Generator Synchronization is complete through step 4.3.37</li><li>• ICS has not been tracking properly.</li><li>• The ICS engineer has been notified.</li></ul>                               |
| <p>INITIATING CUE:</p>         | <ul style="list-style-type: none"><li>• The Unit Supervisor directs you as the Reactor Operator to complete Generator Synchronization in accordance with IOI-003 starting at step 4.3.38.</li><li>• Switching Order has been obtained from WCC.</li></ul> |



## JOB PERFORMANCE MEASURE SETUP SHEET

System: T23 – Primary Containment  
Time Critical: No  
Alternate Path: No  
Applicability: RO/SRO  
Safety Function: 9 - Radioactivity Release  
Setting: Simulator/Control Room  
Validated: 15 minutes  
References: ONI-SPI E-1 Rev 0, SOI-M14 Rev 24, and SOI-M40 Rev 9  
Tasks: 344-544-04-02 Implement Containment/FHB Closure  
Task Standard: Perform control room actions for containment / Fuel Handling Building closure per ONI-SPI E11  
Required Material: ONI-SPI E-1, Containment/Fuel Handling Building Closure  
SOI-M14, Containment Vessel And Drywell Purge System  
SOI-M40, Fuel Handling Building Ventilation System  
K / A Data: 288000 K.5.01 Knowledge of the operational implications of the following concepts as they apply to Plant Ventilation Systems:  
Importance: RO 3.1 / SRO 3.2  
A4.01 Ability to manually operate and/or monitor in the control room: Start and stop fans. Importance: RO 3.1 / SRO 2.9

1. Setup Instructions: Reset simulator to **IC-009 for 2015 ILO Exam**. Insert Schedule file **T23\_005**. Cycle M14-C001A switch several times to clean contacts.
2. Location / Method: Simulator/Performance
3. Initial Condition: The Plant is in Mode 4 at the start of a refuel outage outage. The containment equipment hatch is being removed. A leak has developed in the spent fuel pool and pool level is lowering. The Unit Supervisor is operating in ONI-ZZZ-7, Contingency Plans and has determined that Containment/FHB Closure is to be established per ONI-SPI E-1. Another operator is performing EOP-SPI E-1 Step 1 and another operator is starting AEGT ventilation per ONI-SPI E-1 Step 2.2. Outside ambient temperature is 50°F.
4. Initiating Cue: The Unit Supervisor directs you establish a Ventilation Boundary per ONI-SPI E-1, Containment/Fuel Handling Building Closure.

**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

#### **ONI-SPI E-1, Containment/Fuel Handling Building Closure**

2.0 ESTABLISH a Ventilation Boundary as follows:

2.1 AT H13-P800, REFER TO SOI-M14 and VERIFY the M14 system is shutdown.

**Standard:** Operator reviews ONI-SPI E-1, observes M14 running and refers to SOI-M14.

**Instructor Cue:** None

**Notes:** M14, Containment Vessel & Drywell Purge is running and will need to be shut down.

**SAT** \_\_\_      **UNSAT** \_\_\_

**Comment(s):** \_\_\_\_\_

**Step 2**

**SOI-M14, Containment Vessel And Drywell Purge System**

6.1 Intermittent Mode Shutdown

- 6.1.1 IF containment integrity is relaxed, THEN REFER TO PAP-1925 and ENSURE the Containment/Fuel Handling Building Closure requirements are understood.
- 6.1.2 CONTACT Radiation Protection prior to changes in system lineup, due to the potential to affect airborne activity levels or natural radon levels.

|  |
|--|
| <p><b>Standard:</b> Operator informs RP of changing ventilation.</p> <p><b>Instructor Cue:</b> None</p> <p><b>Notes:</b> Step 6.1.1 is N/A.</p> <p><b>SAT</b> ___ <b>UNSAT</b> ___</p> <p><b>Comment(s):</b> _____</p> |
|--|

**Step 3**

- 6.1.3 PLACE the offgoing CNTMT PURGE SUPP FAN control switch in OFF.  
1M14-C001A

|  |
|--|
| <p><b><u>Critical Step:</u></b> Operator places the 1M14-C001A CNTMT PURGE SUPP FAN control switch in OFF.</p> <p><b>Instructor Cue:</b> None</p> <p><b>Notes:</b> None</p> <p><b>SAT</b> ___ <b>UNSAT</b> ___</p> <p><b>Comment(s):</b> _____</p> |
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#### **Step 4**

6.1.3 PLACE the offgoing CNTMT PURGE EXH FAN control switch in OFF.  
1M14-C003A

|                              |   |
|------------------------------|---|
| <b><u>Critical Step:</u></b> | Operator places the 1M14-C003A CNTMT PURGE EXH FAN control switch in OFF. |
| <b>Instructor Cue:</b>       | None  |
| <b>Notes:</b>                | None  |
| <b>SAT ___</b>               | <b>UNSAT ___</b>  |
| <b>Comment(s):</b>           | _____   |

#### **Step 5**

6.1.5 TAKE the following valve control switches to CLOSE:

- CNTMT PURGE SUPP OTBD ISOL DMPR 1M14-F040
- CNTMT PURGE SUPP BYP SECOND ISOL DMPR 1M14-F195
- CNTMT PURGE SUPP BYP FIRST ISOL DMPR 1M14-F190
- CNTMT & DW EXH OTBD ISOL DMPR 1M14-F090
- CNTMT PURGE EXH BYP FIRST ISOL DMPR 1M14-F205
- CNTMT PURGE EXH BYP SECOND ISOL DMPR 1M14-F200

|                              |                                   |
|------------------------------|-----------------------------------|
| <b><u>Critical Step:</u></b> | Operator closes the above dampers |
| <b>Instructor Cue:</b>       | None                              |
| <b>Notes:</b>                | None                              |
| <b>SAT ___</b>               | <b>UNSAT ___</b>                  |
| <b>Comment(s):</b>           | _____                             |

## **Step 6**

6.1.6 IF supply fans were running in flow control mode due to removed containment equipment hatch or overridden open personnel air lock doors, THEN CLOSE K-1-D Breaker #27, (1R25-S053).

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Operator directs NLO to close K-1-D Breaker #27.   |
| <b>Instructor Cue:</b> | None   |
| <b>Notes:</b>          | Driver: When directed to K-1-D Breaker #27, wait appropriate amount of time then insert <b>Event 10</b> and report back to Operator. |
| <b>SAT</b> ___         | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>     | _____  |

## **Step 7**

6.1.7 PERFORM independent verification of the required components.

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Operator Completes 1 <sup>st</sup> part of IV Sheet and returns to ONI-SPI E-1 |
| <b>Instructor Cue:</b> | Another Operator will perform IV.  |
| <b>Notes:</b>          | None   |
| <b>SAT</b> ___         | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>     | _____  |

**Step 8**

**ONI-SPI E-1, Containment/Fuel Handling Building Closure**

2.2 AT H13-P800, REFER TO SOI-M15 and VERIFY that at least one of the following is in operation:

- AEGT A FAN 1M15-C001A
- AEGT B FAN 1M15-C001B

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Step 2.2 is N/A  |
| <b>Instructor Cue:</b> | None   |
| <b>Notes:</b>          | Another operator is handling Step 2.2 is given in Initial Conditions |
| <b>SAT</b> ___         | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>     | _____  |

**Step 9**

2.3 AT H13-P904, REFER TO SOI-M40 and VERIFY that two of the following are in operation:

- FHB HVAC EXH FAN A 0M40-C002A
- FHB HVAC EXH FAN B 0M40-C002B
- FHB HVAC EXH FAN C 0M40-C002C

|                        |   |
|------------------------|---|
| <b>Standard:</b>       | Operator observes 2 Fuel Handling Building exhaust fans operating |
| <b>Instructor Cue:</b> | None  |
| <b>Notes:</b>          | None  |
| <b>SAT</b> ___         | <b>UNSAT</b> ___  |
| <b>Comment(s):</b>     | _____   |



**Step 10**

2.4 AT H13-P904, REFER TO SOI-M40 and VERIFY that the following are stopped:

- FHB HVAC SUPP FAN A 0M40-C001A
- FHB HVAC SUPP FAN B 0M40-C001B

|                        |  |
|------------------------|--|
| <b>Standard:</b>       | Operator observes 1 Fuel Handling Building supply fan is operating and refers to SOI-M40 to shut it down |
| <b>Instructor Cue:</b> | None   |
| <b>Notes:</b>          | None   |
| <b>SAT</b> ___         | <b>UNSAT</b> ___   |
| <b>Comment(s):</b>     | _____  |

**Step 11**

**SOI-M40, Fuel Handling Building Ventilation System**

6.2 Supply Fan Shutdown

- 6.2.1 NOTIFY Radiation Protection prior to any changes in M40 system lineup.
- 6.2.2 TAKE the offgoing FHB HVAC SUPP FAN to STOP. M40-C001A
- 6.2.3 PERFORM Independent Verification of the required components.
- 6.2.4 IF outside ambient temperature is <40°F,

|                              |   |
|------------------------------|---|
| <b>Standard:</b>             | Operator notifies RP and performs Independent Verification after fan is shutdown. |
| <b><u>Critical Step:</u></b> | Operator stops FHB HVAC SUPP FAN A - M40-C001A                                    |
| <b>Instructor Cue:</b>       | Another Operator will complete the IV   |
| <b>Notes:</b>                | Step 6.2.4 is N/A   |
| <b>SAT</b> ___               | <b>UNSAT</b> ___  |
| <b>Comment(s):</b>           | _____   |

**Terminating Cue:** Containment Vessel and Drywell Purge system is shut down and the Fuel Handling Building Supply fans are shutdown.

**Evaluation Results:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

**End Time:** \_\_\_\_\_

## JPM CUE SHEET

|                                |   |
|--------------------------------|---|
| <p>INITIAL<br/>CONDITIONS:</p> | <ul style="list-style-type: none"><li>• The Plant is in Mode 4 at the start of a refuel outage.</li><li>• The containment equipment hatch is being removed.</li><li>• A leak has developed in the spent fuel pool and pool level is lowering.</li><li>• The Unit Supervisor is operating in ONI-ZZZ-7, Contingency Plans and has determined that Containment/FHB Closure is to be established per ONI-SPI E-1.</li><li>• Another operator is performing EOP-SPI E-1 Step 1 and another operator is starting AEGT ventilation per ONI-SPI E-1 Step 2.2.</li><li>• Outside ambient temperature is 50°F.</li></ul> |
| <p>INITIATING CUE:</p>         | <p>The Unit Supervisor directs you establish a Ventilation Boundary per ONI-SPI E-1, Containment/Fuel Handling Building Closure.</p>  |