

Facility: <u>Grand Gulf Nuclear Station</u>		Date of Examination: <u>2/3/2020</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: <u>GGNS 2/2020</u>

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R, N	<b>Determine Core Flow</b> , given plant parameters, system status or events determine actual Reactor Core Flow.  GJPM-OPS-2/2020-AR1 2.1.7 (4.4)
Conduct of Operations	R, D	<b>Reactor Water Level Determination</b> , The operator will evaluate plant conditions at the Remote Shutdown Panel to determine Narrow Range reactor water level and the status of injection sources.  GJPM-OPS-2/2020-AR2 2.1.25 (3.9)
Radiation Control	R, D	<b>Emergency Exposure Limits</b> , The operator will evaluate a condition involving abnormally high radiological conditions and determine actions required to administratively control the dose received by determining who authorizes dose extensions in various situations.  GJPM-OPS-2/2020-AR3 2.3.4 (3.2)
Emergency Plan	R, N	<b>Loss of Shutdown Cooling, Time to 200°F</b> , given plant status and parameters determine the time to 200 on a loss of Shutdown Cooling.  GJPM-OPS-2/2020-AR4 2.4.11 (3.4/3.6)

NOTE: All items (five total) are required for SROs. RO applicants require only four items unless they are retaking only the administrative topics (which would require all five items).

\* Type Codes and Criteria:

(C)ontrol room, (S)imulator, or Class(R)oom	
(D)irect from bank ( $\leq 3$ for ROs; $\leq 4$ for SROs and RO retakes)	(2)
(N)ew or (M)odified from bank ( $\geq 1$ )	(2)
(P)revious 2 exams ( $\leq 1$ , randomly selected)	(0)

Facility: <u>Grand Gulf Nuclear Station</u>		Date of Examination: <u>2/3/2020</u>
Examination Level: RO <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>	Operating Test Number: <u>GGNS 2/2020</u>

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R, D	<b>Determine Reportability</b> , This task is to use corporate procedures and given plant conditions to determine the reportability and complete applicable notification form  GJPM-OPS-2/2020-AS1 2.1.20 (4.6)
Conduct of Operations	R, D	<b>Determine Penetration Isolation Requirements</b> , given failure of penetration isolation valve failure, determine Tech Spec action and requirements for isolating.  GJPM-OPS-2/2020-AS2 2.1.7 (4.7)
Equipment Control	R, D	<b>Tagout Removal Approval</b> , given a protective tagging removal, verify restored positions and information.  GJPM-OPS-2/2020-AS3 2.2.15 (4.3) – 2.2.15 (4.3) – 2.2.41 (3.9)
Radiation Control	R, D	<b>Authorize Emergency Exposure</b> , given plant status and events in progress, determine appropriate radiation exposure limits.  GJPM-OPS-2/2020-AS4 2.3.4 (3.7)
Emergency Plan	R, N	<b>Emergency Classification</b> , given plant status and parameters determine the correct emergency classification.  GJPM-OPS-2/2020-AS5 2.4.41 (4.6)

NOTE: All items (five total) are required for SROs. RO applicants require only four items unless they are retaking only the administrative topics (which would require all five items).

\* Type Codes and Criteria:

(C)ontrol room, (S)imulator, or Class(R)oom	
(D)irect from bank ( $\leq 3$ for ROs; $\leq 4$ for SROs and RO retakes)	(4)
(N)ew or (M)odified from bank ( $\geq 1$ )	(1)
(P)revious 2 exams ( $\leq 1$ , randomly selected)	(0)



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020AR1

**2-2020 AR1**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020AR1

JPM Title: Determine Core Flow

Facility Number: N/A NEW  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	April Hargrave / Benny White	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Determine Core Flow

<input checked="" type="checkbox"/> New	<input type="checkbox"/> Modified	<input type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 15 Min

Setting: Classroom  
 Type: RO  
 Task: CRO-B33-10  
 K&A: 2.1.7, (4.4)  
 2.1.25, (3.9)  
 Safety Function: Reactivity Control (1)  
 10CFR 55.45(a) (5)  
 Performance: Perform  
 Reference(s): 05-1-02-III-3,  
 05-1-02-III-6  
 Handout(s) 05-1-02-III-3,  
 05-1-02-III-6  
 # Manipulations: N/A  
 # Critical Steps: 2

### Simulator Setup/Required Plant Conditions:

- NONE

### Safety Concerns:

- NONE

## Determine Core Flow

### Task Standard:

- Calculates actual core flow
- Performs plot on Power to Flow map
- Using procedure 05-1-02-III-3 and 05-1-02-III-6 the operator determines actual core flow to be 56.8 mlbm/hr and performs correct plot on Power to Flow Map.

## Determine Core Flow

### Initial Condition(s):

The plant is operating at rated conditions when crew determines a Jet Pump #5 and #6 failure.  
Current indications:

- RECIRC PMP A/B DRIVING FLO
  - A – 29,700 gpm
  - B – 27,100 gpm
- TOT JP FLO
  - 60 mlbm/hr
- CAL JP FLO
  - A – 0.8 mlbm/hr
  - C – 2.0 mlbm/hr
- CYCLOPS Jet Pump Flow indication:
  - #5 – 0.8 mlbm/hr
  - #6 – 0.8 mlbm/hr
- Reactor Power
  - 68.7%

### Initiating Cue(s):

- CRS has directed you to determine actual core flow and plot on PF map.

## Determine Core Flow

### Notes to Evaluator:

- Remember to record Start time on page 7.

### Task Overview: (Detailed description of task)

- Using procedures 05-1-02-III-3 and 05-1-02-III-6, the operator will use the provided indications to determine actual core flow.

## Determine Core Flow

Critical tasks are underlined, *italicized*, and denoted by an (\*)

**NOTE:** The sequence of the following steps is critical unless otherwise noted.

Remember to record Start time

Step 1: 05-1-02-III-3, 5.9
<input type="checkbox"/> <b>IF</b> cause is determined to be possible Jet Pump failure, <b><u>THEN REFER</u></b> to ONEP 05-1-02-III-6, Jet Pump Anomalies
<u>Standard:</u> The operator Refers to 05-1-02-III-6, Jet Pump Anomalies
<u>Cue:</u> <b>None.</b>
<u>Notes:</u> <div style="text-align: right;">SAT / UNSAT</div>
Step 2: 05-1-02-III-3, 3.5
<input type="checkbox"/> <b>VERIFY</b> Thermal Limits are met. Accuracy of Total Core Flow indication <u>May</u> need evaluation.
<u>Standard:</u> The operator determines actual core flow by using information located in the NOTE above step 3.5 of 05-1-02-III-3.
<u>Cue:</u> <b>None.</b>
<u>Notes:</u> <div style="text-align: right;">SAT / UNSAT</div>



## Step 3: 05-1-02-III-3, 3.5 NOTE

- ☐ Core flow May be calculated by summing the indicated flow of the two affected Jet Pumps obtained from Cyclops computer **AND** subtracting this value twice from the total indicated Jet Pump flow.

**Standard:** The operator determines actual core flow by using information located in the NOTE above step 3.5 of 05-1-02-III-3.

**Cue:** None.

**Notes:**

SAT / UNSAT

## Step 4: 05-1-02-III-3, 3.5 NOTE Calculation

- ☐\* Calculates actual core flow.

Jet pump #5 flow 0.8 mlbm/hr + Jet pump #6 flow 0.8 mlbm/hr = 1.6 mlbm/hr

TOT JP FLO 60 mlbm/hr - 1.6 mlbm/hr - 1.6 mlbm/hr = 56.8 mlbm/hr

**Standard:** The operator determines actual core flow by using information located in the NOTE above step 3.5 of 05-1-02-III-3 to be 56.8 mlbm/hr

**Cue:** None.

**Notes:**

SAT / UNSAT

## Step 4: 05-1-02-III-3, Figure 1

☐\* Performs plot on Power to Flow map.

**Standard:** With the given information the operator performs a plot on the Power to flow map Figure 1 and determines to be in the MELLLA + REGION. (+/- 2 mlbm/hour on either side and +/- 2% power on either side.)

**Cue:** **None.**

**Notes:** **Attached is a Figure 1 KEY.**

SAT / UNSAT

Operator: _____ License: RO / SRO Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>Calculates actual core flow</li> <li>Performs plot on Power to Flow map</li> <li>Using procedure 05-1-02-III-3 and 05-1-02-III-6 the operator determines actual core flow to be 56.8 mlbm/hr and performs correct plot on Power to Flow Map.</li> </ul>		
<u>JPM Results (circle one):</u> <div style="display: inline-block; width: 150px; text-align: center;"> <b>SAT</b> </div> <div style="display: inline-block; width: 150px; text-align: center;"> <b>UNSAT</b> </div>		
<u>Follow-up Questions:</u>          		
<u>Follow-up Question Response:</u>          		
<u>Comments / Feedback:</u>          		

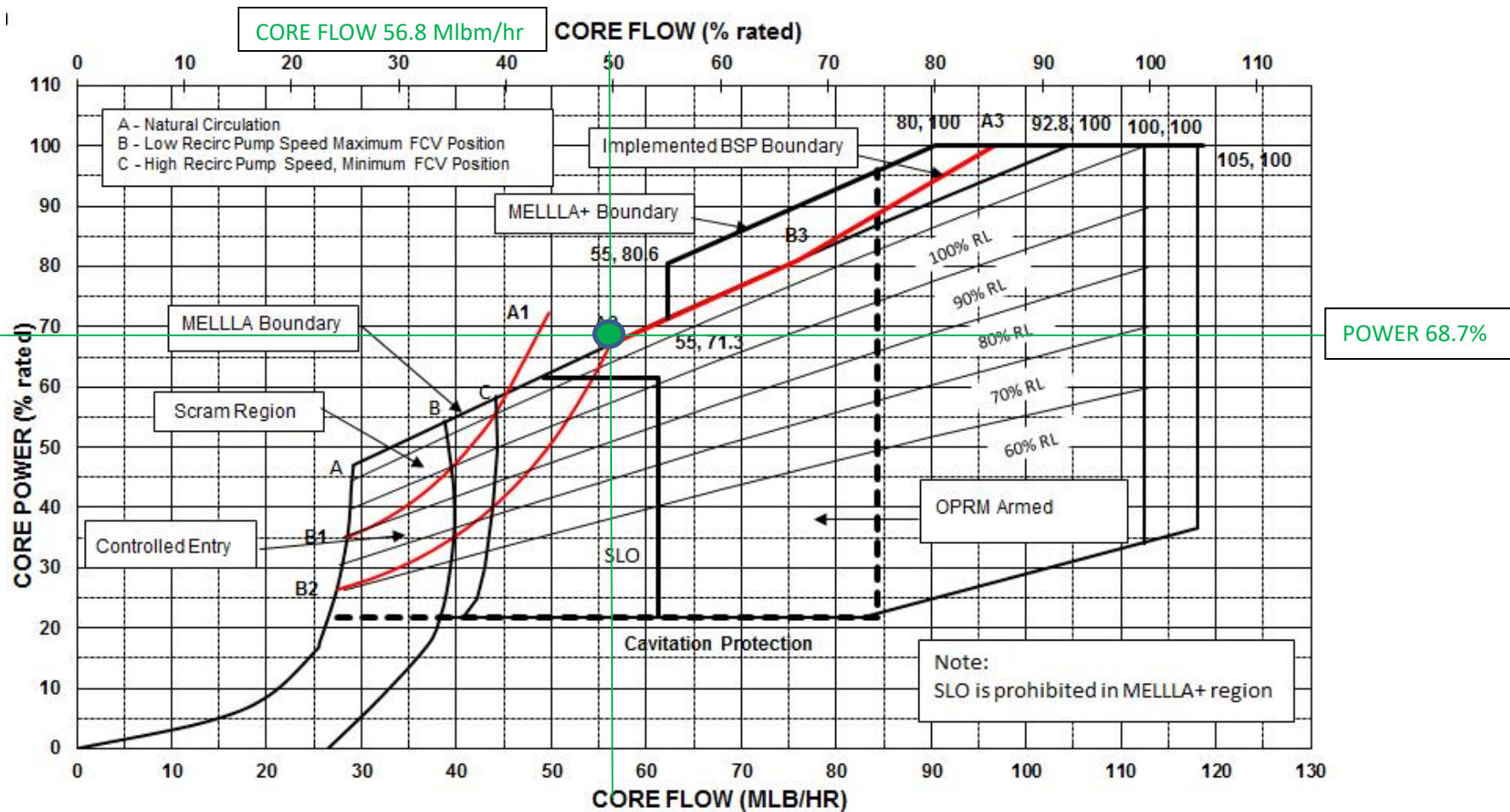
Title: Reduction in Recirculation System Flow Rate	No.: 05-1-02-III-3	Revision: 118	Page: 16
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Figure 1

KEY, DO NOT GIVE TO STUDENT

**GGNS C22 Power/Flow Map for Normal Feedwater Temperature**

This map is only valid for Normal Feedwater temperature which is defined as the value of Normal Feedwater temperature down to ten degrees F. below that value. For temperatures below that range refer to Figure 2 "GGNS C22 Power/Flow Map for Reduced Feedwater Temperature".



**Give this page to the student**

**Initial Condition(s):**

The plant is operating at rated conditions when crew determines a Jet Pump #5 and #6 failure.  
Current indications:

- RECIRC PMP A/B DRIVING FLO
  - A – 29,700 gpm
  - B – 27,100 gpm
- TOT JP FLO
  - 60 mlbm/hr
- CAL JP FLO
  - A – 0.8 mlbm/hr
  - C – 2.0 mlbm/hr
- CYCLOPS Jet Pump Flow indication:
  - #5 – 0.8 mlbm/hr
  - #6 – 0.8 mlbm/hr
- Reactor Power
  - 68.7%

**Initiating Cue(s):**

- CRS has directed you to determine actual core flow and plot on PF map.



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020AR2

**2-2020 AR2**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020AR2

JPM Title: Reactor Water Level  
Determination

Facility Number: GJPM-OPS-AON05  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	April Hargrave / Benny White	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Reactor Water Level Determination

<input type="checkbox"/> New	<input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 15 Min

Setting: Classroom  
 Type: RO  
 Task: CRO-C61-OFFNORM-5  
 K&A: 2.1.25 (3.9/4.2); 2.4.34 – (4.2/4.1)  
 Safety Function: NA  
 10CFR 55.45(a) (5)  
 Performance: Perform  
 Reference(s): 05-1-02-II-1 (Shutdown from the Remote Shutdown Panel)  
 Handout(s): 05-1-02-II-1 (Shutdown from the Remote Shutdown Panel)  
 Photo of RSP level and pressure indication (attached)  
 # Manipulations: N/A  
 # Critical Steps: 2  
 Low Power: No  
 Emergency/Abnormal: **YES**  
 RCA entry: No  
 Engineered Safety Function: No

### Simulator Setup/Required Plant Conditions:

- None

### Safety Concerns:

- None

## Reactor Water Level Determination

### Task Standard(s):

- Determine Narrow Range reactor water level is 59.0"
- Determines that RCIC is not running and not injecting water to the reactor
- Determines the HPCS is not injecting to the reactor since the E22-F004 (HPCS injection valve) closed on Wide Range reactor water Level 8 (53.5")
- Determines Narrow Range reactor water level is 59", that RCIC is not injecting to the reactor and HPCS is not injecting to the reactor



## Reactor Water Level Determination

### Initial Condition(s):

- The Control Room has been evacuated per 05-1-02-II-1 (Shutdown from the remote Shutdown Panel).
- An Alert has been declared for the Control Room Evacuation.
- The Condensate/Feedwater system is not available for inventory control.
- All actions for Control Room Evacuation has been completed.
  - Reactor Mode Switch is in SHUTDOWN
  - All control rods are inserted
  - MSIV's are closed
  - RCIC is initiated
  - HPCS is initiated
- NO 05-1-02-II-1 attachments are installed.
- All SRV's are currently CLOSED and reactor pressure is stable.
- You report to the Remote Shutdown Panel to establish reactor water level.

### Initiating Cue(s):

- The CRS directs you to determine Narrow Range reactor water level and the status of HPCS and RCIC
- Use the attached image for current plant conditions.
- Consider only the given plant conditions.

## Reactor Water Level Determination

### Notes:

- None

### Task Overview:

- The operator will evaluate plant conditions at the Remote Shutdown Panel to determine Narrow Range reactor water level and the status of injection sources.

## Reactor Water Level Determination

Critical tasks are underlined, italicized, and denoted by an (\*)

NOTE: The sequence of the following steps is critical unless otherwise noted.

Remember to record Start time

Step 1: 05-1-02-II-1 Attachment 1	
<input type="checkbox"/> * <u>Determine Narrow Range reactor water level is 59.0"</u>	
<u>Standard:</u>	Identify correct Narrow Range Level.
<u>Cue:</u>	None.
<u>Notes:</u>	Narrow Range level between 57" and 60" is acceptable.
SAT / UNSAT	

Step 2: 05-1-02-II-1 Attachment 1	
<input type="checkbox"/> * <u>Determines that RCIC is not running and not injecting water to the reactor</u>	
<u>Standard:</u>	Determines the status of RCIC
<u>Cue:</u>	None.
<u>Notes:</u>	
SAT / UNSAT	

Step 3:	
<input type="checkbox"/> * <u>Determines the HPCS is not injecting to the reactor since the E22-F004 (HPCS injection valve) closed on Wide Range reactor water Level 8 (53.5")</u>	
<u>Standard:</u>	Determines the status of HPCS
<u>Cue:</u>	None.
<u>Notes:</u>	<p>HPCS is not monitored or controllable from the RSP. If reactor water level fails to Wide Range reactor Level 2 (-41.6"), E22-F004 will open and HPCS will begin to inject to the reactor. The operator will need to determine this from memory of system operation as there are no references at the RSP to determine the status of HPCS.</p> <p>To meet the critical task, the operator need only state that HPCS and RCIC is not injecting to the reactor.</p> <p style="text-align: right;">SAT / UNSAT</p>

Operator: _____	License: RO / SRO	Date: _____
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>Determine Narrow Range reactor water level is 59.0"</li> <li>Determines that RCIC is not running and not injecting water to the reactor</li> <li>Determines the HPCS is not injecting to the reactor since the E22-F004 (HPCS injection valve) closed on Wide Range reactor water Level 8 (53.5")</li> <li>Determines Narrow Range reactor water level is 59", that RCIC is not injecting to the reactor and HPCS is not injecting to the reactor</li> </ul>		
<u>JPM Results (circle one):</u> <b>SAT</b> <b>UNSAT</b>		
<u>Follow-up Questions:</u>		
<u>Follow-up Question Response:</u>		
<u>Comments / Feedback:</u>		

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**Initial Condition(s):**

- The Control Room has been evacuated per 05-1-02-II-1 (Shutdown from the remote Shutdown Panel).
- An Alert has been declared for the Control Room Evacuation.
- The Condensate/Feedwater system is not available for inventory control.
- All actions for Control Room Evacuation has been completed.
  - Reactor Mode Switch is in SHUTDOWN
  - All control rods are inserted
  - MSIV's are closed
  - RCIC is initiated
  - HPCS is initiated
- NO 05-1-02-II-1 attachments are installed.
- All SRV's are currently CLOSED and reactor pressure is stable.
- You report to the Remote Shutdown Panel to establish reactor water level.

**Initiating Cue(s):**

- The CRS directs you to determine Narrow Range reactor water level and the status of HPCS and RCIC
- Use the attached image for current plant conditions.
- Consider only the given plant conditions.





Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020AR3

**2-2020 AR3**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020AR3

JPM Title: Emergency Exposure Limits

Facility Number: GJPM-OPS-AEM11  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	April Hargrave / Benny White	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date



## Emergency Exposure Limits

<input type="checkbox"/> New	<input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 15 Min

Setting: Classroom  
 Type: RO  
 Task: CRO-ADMIN-15  
 K&A: Generic 2.3.4: 3.2/3.7  
 Safety Function: N/A  
 10CFR 55.45(a) (5)  
 Performance: Perform  
 Reference(s): EN-RP-201 Dosimetry Administration  
 Handout(s) EN-RP-201 Dosimetry Administration  
 # Manipulations: N/A  
 # Critical Steps: 3

### Simulator Setup/Required Plant Conditions:

- None

### Safety Concerns:

- None

## Emergency Exposure Limits

### Task Standard:

- Determine total dose to limit.
- Determine total stay time prior to exceeding limit.
- Determine that per EN-RP-201, the individuals supervisor recommends and the Radiation Protection Manager Approves
- Determines the correct stay time for this task is 3.75 hours to remain below the current limit. Also determines Radiation Protection Manager approval is required to exceed this dose per procedure.

**Initial Condition(s):**

- Max expected dose rate for 166' elevation containment area where the job will be conducted is 200 mrem/hr.
- Your current year-to-date exposure TEDE is 1250 mrem and you have no undocumented quarters in the current year.

**Initiating Cue(s):**

- The CRS directs you to enter containment to vent the RHR 'A' system using E12-F107A and E12-F108A and remain there until completely vented.
- No authorization has been granted to exceed the current limit.
- Considering only TEDE, calculate the maximum stay time before the current Administrative exposure limit is exceeded.
- Who must authorize exceeding the exposure limit for this task up to 3000 mrem per year?

## Emergency Exposure Limits

### Notes to the Evaluator:

- Remember to record Start time on page 8.

### Task Overview:

- The operator will evaluate a condition involving radiological conditions and determine actions required to administratively control the dose received by determining total stay time with current exposure.
- Determines approval requirements for exceeding the limit.

## Emergency Exposure Limits

Critical tasks are underlined, *italicized*, and denoted by an (\*)

NOTE: The sequence of the following steps is critical unless otherwise noted.

Remember to record Start time

Step 1: Calculation, EN-RP-201 5.3 [3]

☐\* Determine total dose to limit.

$$2,000 \text{ mrem (exposure limit)} - 1250 \text{ mrem (ytd exposure)} = 750 \text{ mrem}$$

Standard: Determines the correct dose limit for normal operations with no emergency declared and correct dose to be received before the exposure limit is exceeded.

Cue: None

Notes:

SAT / UNSAT

Step 2: Calculation

☐\* Determine total stay time prior to exceeding limit.

$$\frac{750 \text{ mrem}}{200 \text{ mrem}} = 3.75 \text{ hours}$$

Standard: Determines the correct stay time before the exposure limit is exceeded.

Cue:

Notes:

SAT / UNSAT

Step 3: EN-RP-201 section 5.4

☐\* Determine that per EN-RP-201, the individuals supervisor recommends and the Radiation Protection Manager Approves

Standard: Determines Radiation Protection Manager Approves up to 3000 mrem per year.

Cue:

Notes:

SAT / UNSAT

Operator: _____ License: RO / SRO Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>Determine total dose to limit.</li> <li>Determine total stay time prior to exceeding limit.</li> <li>Determine that per EN-RP-201, the individuals supervisor recommends and the Radiation Protection Manager Approves</li> <li>Determines the correct stay time for this task is 3.75 hours to remain below the current limit. Also determines Radiation Protection Manager approval is required to exceed this dose per procedure.</li> </ul>		
<u>JPM Results (circle one):</u> <div style="display: inline-block; width: 150px; text-align: center;"> <b>SAT</b> </div> <div style="display: inline-block; width: 150px; text-align: center;"> <b>UNSAT</b> </div>		
<u>Follow-up Questions:</u>          		
<u>Follow-up Question Response:</u>          		
<u>Comments / Feedback:</u>          		

**Give this page to the student**

**Initial Condition(s):**

- Max expected dose rate for 166' elevation containment area where the job will be conducted is 200 mrem/hr.
- Your current year-to-date exposure TEDE is 1250 mrem.

**Initiating Cue(s):**

- The CRS directs you to enter containment to vent the RHR 'A' system using E12-F107A and E12-F108A and remain there until completely vented.
- No authorization has been granted to exceed the current limit.
- Considering only TEDE, calculate the maximum stay time before the current Administrative exposure limit is exceeded.
- Who must authorize exceeding the exposure limit for this task up to 3000 mrem per year?





Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020AR4

**2-2020 AR4**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020AR4

JPM Title: Loss of Shutdown Cooling,  
Time to 200°F Determination

Facility Number: N/A NEW  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	April Hargrave / Benny White	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Loss of Shutdown Cooling, Time to 200°F Determination

<input checked="" type="checkbox"/> New	<input type="checkbox"/> Modified	<input type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 15 Min

Setting: Classroom  
 Type: RO  
 Task: CRO-E12-11  
 K&A: 2.4.11 (3.4/3.6)  
 Safety Function: Heat Removal from the Core  
 10CFR 55.45(a) (5)  
 Performance: Perform  
 Reference(s): 05-1-02-III-1  
 Handout(s) 05-1-02-III-1  
 # Manipulations: N/A  
 # Critical Steps: 1

### Simulator Setup/Required Plant Conditions:

- NONE

### Safety Concerns:

- NONE

## **Loss of Shutdown Cooling, Time to 200°F Determination**

### Task Standard:

- Determines figure 4 is to be used to determine time to 200°F.
- Determines Pre-Shuffle 150°F line is to be used.
- Using given information, determines time to boil is approximately 0.4 hours.
- Determines figure 7 is to be used to determine time to TAF.
- Determines Pre-Shuffle lines are to be used.
- Using given information, determines time to TAF is approximately 9 hours.

## Loss of Shutdown Cooling, Time to 200°F Determination

### Initial Condition(s):

On day 5 of a refueling outage the following conditions exist:

- Reactor Cavity Pool is being drained for Drywell Head Removal.
- Reactor water level is being maintained 95" to 100" Upset Range.
- Reactor coolant temperature is 140°F.
- RHR A is lined up and providing shutdown cooling through the E12-F053A (RHR A SHUTDN CLG RTN TO FW).
- RHR B and ADHR are unavailable.
- RWCU is available.

### Initiating Cue(s):

- RHR pump 'A' trips on overcurrent
- Determine the time available before reactor coolant temperature reaches 200°F.
- Determine the time to for reactor water level to reach TAF.

## Loss of Shutdown Cooling, Time to 200°F Determination

### Notes to Evaluator:

- Remember to record Start time on page 5.

### Task Overview: (Detailed description of task)

- This task has the student to estimate time to reach 200°F following loss of shutdown cooling and determine time to TAF.

Critical tasks are underlined, *italicized*, and denoted by an (\*)

**NOTE: The sequence of the following steps is critical unless otherwise noted.**

### Remember to record Start time

Step 1: 05-1-02-III-1, Attachment 1

☐\* Determines figure 4 is to be used to determine time to 200°F.

**Standard:** The operator determines using procedure 05-1-02-III-1 Attachment I, Figure 4 due to current water level is 85" to 90" on Upset Range. The bottom of the Main Steam lines are located at 101" vessel level. Therefore, Figure 4 should be used at 12 inches below Main Steam Lines.

**Cue:** None.

**Notes:**

SAT / UNSAT

## Step 2: 05-1-02-III-1, Attachment 1

☐\* Determines Pre-Shuffle 150°F line is to be used.

**Standard:** The operator determines using procedure 05-1-02-III-1 Attachment I, Figure 4 Pre-Shuffle line is to be used due to current conditions states that Reactor Cavity drain down is in progress for drywell head removal. Therefore no fuel has been moved and pre-shuffle lines must be used. The 150°F lines are to be used due to current temp is 140°F and the student should use the most conservative line.

**Cue:** None.

**Notes:**

SAT / UNSAT

## Step 3: 05-1-02-III-1, Attachment 1

☐\* Using given information, determines time to boil is approximately 0.4 hours.

**Standard:** The operator determines using procedure 05-1-02-III-1 Attachment I, Figure 4 that there are 0.4 hours or 24 minutes (+/- 0.08 hours or 5 minutes) to 200°F.

**Cue:** None.

**Notes:**

SAT / UNSAT

## Step 4: 05-1-02-III-1, Attachment 1

☐\* Determines figure 7 is to be used to determine time to TAF.

**Standard:** The operator determines using procedure 05-1-02-III-1 Attachment I, Figure 7 due to current water level is 85" to 90" on Upset Range. The bottom of the Main Steam lines are located at 101" vessel level. Therefore, Figure 7 should be used at 12 inches below Main Steam Lines.

**Cue:** None.

**Notes:**

SAT / UNSAT

## Step 5: 05-1-02-III-1, Attachment 1

☐\* Determines Pre-Shuffle lines are to be used.

**Standard:** The operator determines using procedure 05-1-02-III-1 Attachment I, Figure 7 Pre-Shuffle lines are to be used due to current conditions states that Reactor Cavity drain down is in progress for drywell head removal. Therefore no fuel has been moved and pre-shuffle lines must be used.

**Cue:** None.

**Notes:**

SAT / UNSAT

## Step 6: 05-1-02-III-1, Attachment 1

☐\* Using given information, determines time to TAF is approximately 9 hours.

Standard: The operator determines using procedure 05-1-02-III-1 Attachment I, Figure 7 that there 9 hours (+/- 1.0 hours) to TAF.

Cue: None.

Notes:

SAT / UNSAT



### Loss of Shutdown Cooling, Time to 200°F Determination

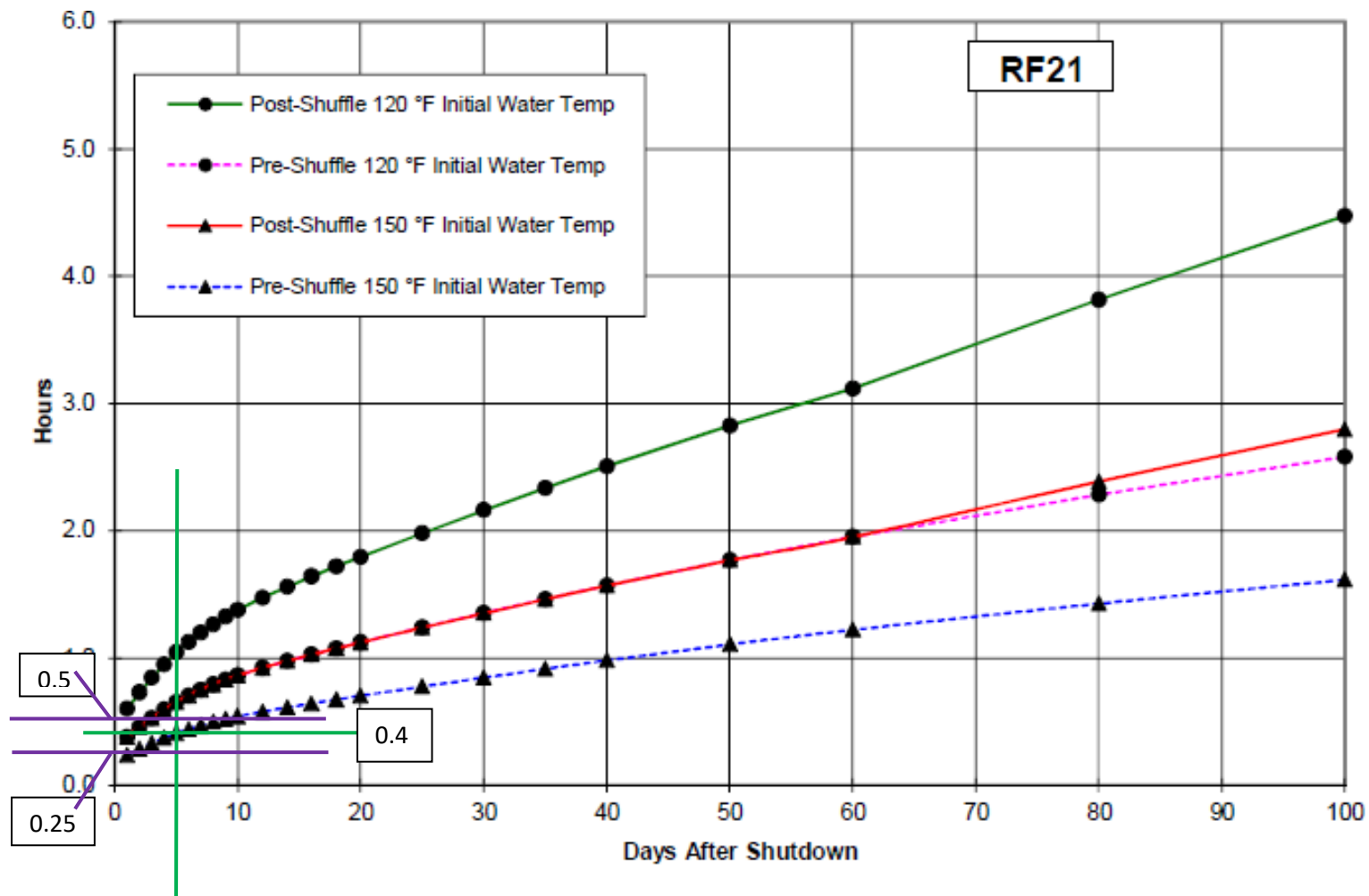
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 15 Min
--	---	-------------------------

Operator: _____ License: RO / SRO Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>Determines figure 4 is to be used to determine time to 200°F.</li> <li>Determines Pre-Shuffle 150°F line is to be used.</li> <li>Using given information, determines time to boil is approximately 0.4 hours.</li> <li>Determines figure 7 is to be used to determine time to TAF.</li> <li>Determines Pre-Shuffle lines are to be used.</li> <li>Using given information, determines time to TAF is approximately 9 hours.</li> </ul>		
<u>JPM Results</u> (circle one):	<b>SAT</b>	<b>UNSAT</b>
<u>Follow-up Questions:</u>		
<u>Follow-up Question Response:</u>		
<u>Comments / Feedback:</u>		

## GRAND GULF NUCLEAR STATION

## OFF-NORMAL EVENT PROCEDURE

05-1-02-III-1	Revision: 047
Attachment I	Page 10 of 8



**Figure 4: Time for Reactor Vessel to reach 200°F for Initial Water Level 12 in Below Main Steam Line**

## GRAND GULF NUCLEAR STATION

## OFF-NORMAL EVENT PROCEDURE

05-1-02-III-1	Revision: 047
Attachment I	Page 11 of 8

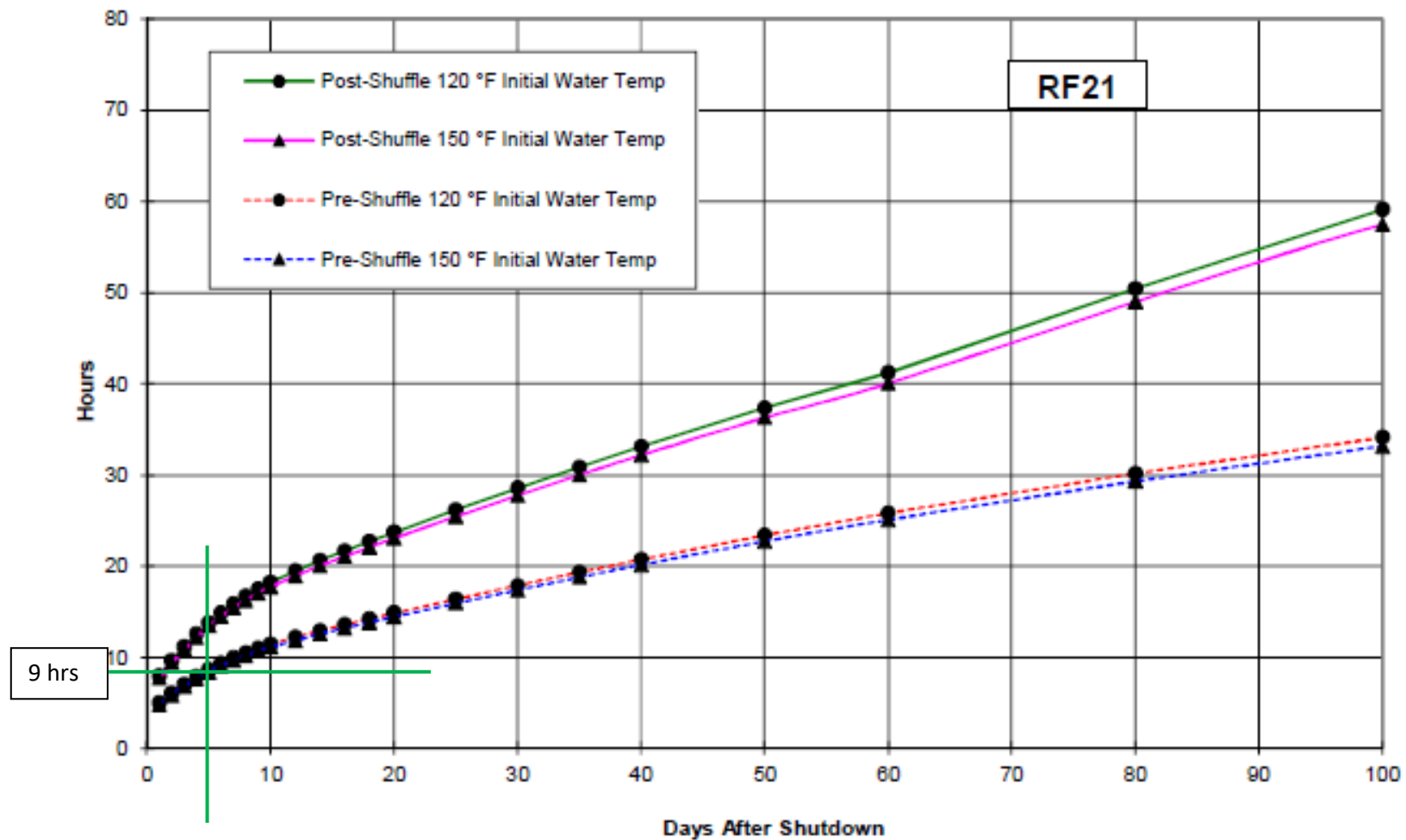


Figure 7: Time to TAF from 12 in Below Main Steam Line

**Give this page to the student**

**Initial Condition(s):**

On day 5 of a refueling outage the following conditions exist:

- Reactor Cavity Pool is being drained for Drywell Head Removal.
- Reactor water level is being maintained 95" to 100" Upset Range.
- Reactor coolant temperature is 140°F.
- RHR A is lined up and providing shutdown cooling through the E12-F053A (RHR A SHUTDN CLG RTN TO FW).
- RHR B and ADHR are unavailable.
- RWCU is available.

**Initiating Cue(s):**

- RHR pump 'A' trips on overcurrent
- Determine the time available before reactor coolant temperature reaches 200°F.
- Determine the time to for reactor water level to reach TAF.



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020AS1

**2-2020 AS1**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020AS1

JPM Title: Determine Reportability

Facility Number: GJPM-OPS-AAD07  
(If Bank or Modified from Bank)

<b>Prepared By:</b>		
	Exam Developer	Date
<b>Ops Review:</b>		
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>		
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>		
	Project Lead or Exam Team Lead	Date

## Determine Reportability

<input type="checkbox"/> New	<input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 10 Min

Setting: Classroom  
 Type: SRO  
 Task: SRO-M&S-011  
 K&A: 2.1.20 4.6, 2.1.1 4.2  
 Safety Function: N/A  
 PRA Applicability: HPCS is listed as #16 on System Importance to CDF  
 10CFR 55.45(a) (5)  
 Performance: Actual  
 Reference(s): EN-LI-108, Event Notification and Reporting  
 EN-OP-133, Operations Notifications  
 EN-OP-133-02, GGNS Operations Notifications  
 Handout(s) EN-LI-108, Event Notification and Reporting  
 EN-OP-133, Operations Notifications  
 EN-OP-133-02, GGNS Operations Notifications  
 # Manipulations: N/A  
 # Critical Steps: 2

### Simulator Setup/Required Plant Conditions:

- NONE

### Safety Concerns:

- NONE

## **Determine Reportability**

### Task Standard:

- Determines the ECCS (HPCS) injection due to a valid signal is a 4 hour reportable event reportable to the NRC Operations Center.
- Completes Attachment 1 of EN-OP-133-02 IAW with attached key.

## Determine Reportability

### Initial Condition(s):

- The plant is in Mode 3.
- RCIC is OOSVC and isolated.
- Shutdown Cooling A was being aligned for operation.
- While aligning Shutdown Cooling A, an error caused flow to be diverted to the Suppression Pool via the minimum flow valve.
- As reactor water level decreased, RHR isolations and a reactor scram signal initiated at Reactor Level 3.
- Reactor water level dropped to -45 inches Wide Range before the inventory reduction was terminated by the successful RHR isolation.
- High Pressure Core Spray initiated during the event and restored level to the normal band.
- Current reactor parameters:
  - water level is +30 inches and stable
  - Reactor pressure 30 psig
  - Core Flow 0 Mlbm/hr
  - Reactor Temp 259°F

### Initiating Cue(s):

- You are the Shift Manager.
- Determine the MOST limiting reportability of this incident
- Complete Attachment 1 of EN-OP-133-02
- Another SRO will complete the **On-Shift Evaluation**.



## Determine Reportability

### Notes to Evaluator:

- Remember to record Start time on page 6

### Task Overview: (Detailed description of task)

- This task is to incorporate procedures and given plant conditions to determine the reportability and complete applicable notification form.

**Critical tasks are underlined, *italicized*, and denoted by an (\*)**

**NOTE: The sequence of the following steps is critical unless otherwise noted.**

*Remember to record Start time*

Step 1: EN-OP-133-02 & EN-LI-108	
<input type="checkbox"/>	Reviews EN-OP-133-02 and EN-LI-108 for notification criteria and determines the relationship of plant conditions to conditions listed as reportable; the associated time frames and who is notified.
<u>Standard:</u>	Candidate reviews EN-OP-133-02 and EN-LI-108 for notification criteria and determines the relationship of plant conditions to conditions listed as reportable, the associated time frames and who is notified.
<u>Cue:</u>	None
<u>Notes:</u>	
<b>SAT / UNSAT</b>	

## Step 2: EN-OP-133-02 &amp; EN-LI-108

- ☐ \* Determines the ECCS (HPCS) injection due to a valid signal is a 4 hour reportable event reportable to the NRC Operations Center.

**Standard:** Candidate determines the initiation of HPCS to mitigate an event and resulting injection to the RPV is a 4 hour reportable event reportable to the NRC Operations Center in accordance with EN-OP-133-02 Attachment 2 item II.2 per 10 CFR 50.72(b)(2)(iv)(A).

The candidate should also recognize that a RPS actuation with the reactor NOT critical and also a CTMT isolation signal in more than one system due to a level 2 signal is an 8 hour reportable event.

**Cue:** None

**Notes:** The candidate may use the Quick Reference Table.

SAT / UNSAT

## Step 3: EN-OP-133-02 Attachment 1

- ☐ \* Completes Attachment 1 of EN-OP-133-02.

**Standard:** Candidate completes Attachment 1 IAW attached KEY

**Cue:** If asked inform student that the CR number is CR-GGN-2019-0000  
  
Another SRO will perform LCO requirements and ON-Shift Evaluation.

**Notes:** Highlighted areas are required on Attached Key.

SAT / UNSAT

## Determine Reportability

<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 15 Min
--	---	-------------------------

Operator: _____ License: RO / SRO      Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>• Determines the ECCS (HPCS) injection due to a valid signal is a 4 hour reportable event reportable to the NRC Operations Center.</li> <li>• Completes Attachment 1 of EN-OP-133-02 IAW with attached key.</li> </ul>		
<u>JPM Results</u> (circle one):	<b>SAT</b>	<b>UNSAT</b>
<u>Follow-up Questions:</u>          <u>Follow-up Question Response:</u>          <u>Comments / Feedback:</u>          		

## Grand Gulf Nuclear Station Operations Notifications

Attachment 1 **KEY DO NOT GIVE TO  
STUDENT**

Page 1 of 1

## Operational Event (Typical)

CR# \_\_\_\_\_

Date: \_\_\_\_\_

Brief Description of Condition: Automatic initiation of HPCS to restore level. Actual or required ECCS injection due to a valid signal

LCO Required: Yes: \_\_\_\_\_ No: \_\_\_\_\_

LCO Number: \_\_\_\_\_

Rx Power: 0 MWt 0 MWeAverage. Power Range Monitor (APRM) Flux: 0 %Rx Mode (circle) 1 2 3 4 5Rx Level: 30 Core Flow: 0 % Rx Pressure: 30 Rx Temperature: 259°F

Duty Manager Notified: \_\_\_\_\_

Date / Time: \_\_\_\_\_

On-duty Shift Manager: \_\_\_\_\_

On-shift Evaluation Required: Yes \_\_\_\_\_ No \_\_\_\_\_

(Required for all operational type occurrences such as scrams, inadvertent actuations, safety/relief valve (SRV) lifts, ECCS injections, etc.)

## On-Shift Evaluation

LIST equipment / systems which were automatically or manually started: \_\_\_\_\_

LIST ANY safety system components which should have activated but did not: \_\_\_\_\_

Systems injecting: \_\_\_\_\_

Rx Pressure at time of injection: \_\_\_\_\_

Flow Rate: \_\_\_\_\_ GPM

Source Water Temperature: \_\_\_\_\_

Duration of injection: \_\_\_\_\_

If SRVs lifted, LIST EACH SRV and RECORD the number of times EACH lifted: \_\_\_\_\_

LIST other equipment / systems that were available and could have performed the same function as the ones that were inoperable at the start of the event or that failed during the event. \_\_\_\_\_

Effect of the event on safety or operating parameters: RECORD changes in pertinent parameters. GETARS or SENTINEL can be used to document data. (Example – Record changes in reactor coolant temperature if SDC is lost.) \_\_\_\_\_

If any safety related equipment was operated beyond its design specifications, LIST components effected. \_\_\_\_\_

Parameters exceeded or value operated at: \_\_\_\_\_

Length of time operated above design limits: \_\_\_\_\_

Date / Time conditions restored to normal: \_\_\_\_\_

**Give this page to the student**

**Initial Condition(s):**

- The plant is in Mode 3.
- RCIC is OOSVC and isolated.
- Shutdown Cooling A was being aligned for operation.
- While aligning Shutdown Cooling A, an error caused flow to be diverted to the Suppression Pool via the minimum flow valve.
- As reactor water level decreased, RHR isolations and a reactor scram signal initiated at Reactor Level 3.
- Reactor water level dropped to -45 inches Wide Range before the inventory reduction was terminated by the successful RHR isolation.
- High Pressure Core Spray initiated during the event and restored level to the normal band.
- Current reactor parameters:
  - water level is +30 inches and stable
  - Reactor pressure 30 psig
  - Core Flow 0 Mlbm/hr
  - Reactor Temp 259°F

**Initiating Cue(s):**

- You are the Shift Manager.
- Determine the MOST limiting reportability of this incident
- Complete Attachment 1 of EN-OP-133-02
- Another SRO will complete the **On-Shift Evaluation**.



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020AS2

**2-2020 AS2**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020AS2

JPM Title: Determine Penetration  
Isolation Requirements

Facility Number: GJPM-OPS-AAD16  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	Ronnie Walters / Brandon Meyer	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Determine Penetration Isolation Requirements

<input type="checkbox"/> New	<input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 10 Min

Setting: Classroom  
 Type: SRO  
 Task: SRO-ADMIN-48, SRO-M&S-5, SRO-NO-16  
 K&A: 2.2.15 (3.9/4.3), 2.2.40 (3.4/4.7), 2.2.41 (3.5/3.9)  
 Safety Function: N/A  
 10CFR 55.45(a) (5)  
 Performance: Actual  
 Reference(s): EN-OP-102 (Protective and Caution Tagging)  
 02-S-01-17 (Control of Limiting Conditions for Operation)  
 UFSAR Table 6.2-49 (Attached)  
 E1240-03 (SPCU Isolation Valve Electrical Schematic)  
 E0300 (Fuse Tabulation)  
 M-1099 (SPCU P&ID)  
 Technical Specification 3.6.1.3  
 Handout(s): EN-OP-102  
 02-S-01-17 (Control of Limiting Conditions for Operation)  
 E1240-03 (SPCU Isolation Valve Electrical Schematic)  
 E0300 page 91 (Fuse Tabulation, P60)  
 M1099 (SPCU P&ID)  
 04-1-01-P60-1 (SPCU SOI)  
 UFSAR Table 6.2-49 sheet 8 of 17 (Attached)  
 Technical Specifications  
 # Manipulations: N/A  
 # Critical Steps: 1

## **Determine Penetration Isolation Requirements**

### Simulator Setup/Required Plant Conditions:

- None

### Safety Concerns:

- None

### Task Standard(s):

- The operator identifies valves 1P60F009, 1P60F011, and 1P60F034 must be closed.
- The operator identifies 1P60F009 must be deactivated by removing fuse 1P60F016.



## Determine Penetration Isolation Requirements

### Initial Condition(s):

- The plant is in Mode 1.
- Suppression Pool Cleanup System is shut down.
- 1P60F010, SPCU RTN FM CNDS PC FLTRS has failed in the open position.

### Initiating Cue(s):

- As CRS you are tasked to determine the action necessary to satisfy the Tech Spec requirements in accordance with plant procedures.

## Determine Penetration Isolation Requirements

### Notes to Evaluator:

- None

### Task Overview: (Detailed description of task)

- The operator will determine the proper tagout to meet Tech Spec Action requirements for INOP valve P60-F010.

**Critical tasks are underlined, *italicized*, and denoted by an (\*)**

**NOTE: The sequence of the following steps is critical unless otherwise noted.**

*Remember to record Start time*

Step 1: Technical Specification 3.6.1.3 Action A	
<input type="checkbox"/>	The operator must determine the required Tech Spec Action is to isolate the affected penetration flow path in accordance with TS 3.6.1.3 Action A.1.
Standard:	Determines the required action is TS 3.6.1.3 Action A.1.
Cue:	None
Notes:	
SAT / UNSAT	

## Step 2: 02-S-01-17 step 6.11.1

☐ \* The operator determines valves 1P60F009, F011, and F034 must be closed.

**Standard:** The operator must determine the failed valve is the inboard boundary for the affected penetration and the penetration must be isolated using the outboard valve boundaries for the penetration. Determines the appropriate isolation valves for the penetration using UFSAR Table 6.2-49. P&ID M1099 may also be used. Determines 1P60F010, the failed valve, is the inboard isolation valve; therefore, outboard isolation valves 1P60F009, F011, and F034 must be closed.

**Cue:**           None

**Notes:**

SAT / UNSAT

## Step 3: 02-S-01-17 step 6.11.4

☐ \* The operator determines fuse 1P60F016 must be removed to electrically deactivate 1P60F009.

**Standard:** The operator, using E1240-03, determines fuse 1P60F016 must be removed to deactivate 1P60F009. The operator, then using E300, determines Fuse 1P60F016 is the fuse labeled fuse #34 located in 1H13P871 bay G.

**Cue:** If the operator states he would deactivate 1P60F009 only by closing the local air supply isolation valve, as the Shift Manager direct the student to determine the method to electrically deactivate 1P60F009.

**Notes:** 02-S-01-17 step 6.11.4 states:

**WHEN** isolating Primary Containment, Secondary Containment, **OR** Drywell penetrations to meet action statements of LCOs 3.6.1.3, 3.6.4.2 and 3.6.5.3, **USE** the following guidance to de-activate automatic valves:

For air-operated valves, **PULL** the associated fuse **OR CLOSE** actuator air isolation valve.

**SAT / UNSAT**

Operator: _____ License: RO / SRO Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>The operator identifies valves 1P60F009, 1P60F011, and 1P60F034 must be closed.</li> <li>The operator identifies 1P60F009 must be deactivated by removing fuse 1P60F016.</li> </ul>		
<u>JPM Results (circle one):</u> <div style="display: inline-block; width: 150px; text-align: center;"> <b>SAT</b> </div> <div style="display: inline-block; width: 150px; text-align: center;"> <b>UNSAT</b> </div>		
<u>Follow-up Questions:</u>		
<u>Follow-up Question Response:</u>		
<u>Comments / Feedback:</u>		

**Give this page to the student**

**Initial Condition(s):**

- The plant is in Mode 1.
- Suppression Pool Clean Up System is shut down.
- 1P60F010, SPCU RTN FM CNDS PC FLTRS has failed in the open position.

**Initiating Cue(s):**

- As CRS you are tasked to determine the action necessary to satisfy the Tech Spec requirements in accordance with plant procedures.

GG  
UFSAR

TABLE 6.2-49 (Cont.)

Penetration No.	Description	Type Test	Inboard Isolation Barrier Barrier Description/ Valve No. (Note 15)	Notes	Outboard Isolation Barrier Barrier description/ Valve No. (Note 15)	Notes
77	RHR heat exchanger A relief valve discharge to suppression pool	A,C	E12F103A E12F073A-A E12F055A	3 3,6,10,11,22 6,10,11,22	Closed system Closed system	3 7 7
78	Spare	A	Welded Cap	-	-	-
79	Spare	A	Welded Cap	-	-	-
80	Spare	A	Welded Cap	-	-	-
81	Reactor recirc. post- accident sampling	A,C	B33F126-B	-	B33F125-A	-
82	ILRT - drywell pressuri- zation/depressurization	C C	Flexitallic gasket M61F010	20 10	Flexitallic gasket	20
83	RWCU return to feedwater	A,C	G33F040-B G33F075	- 10	G33F039-A G33F055	- 10
84	Drywell and containment chemical waste sump pumps discharge	A,C	P45F098-B	-	P45F099-A	-
85	Suppression pool cleanup return	A,C	P60F010-B	30	P60F009-A P60F011 P60F034	- 10 10
86	Demineralized water supply to containment	A,C	P21F018-B P21F390	-	P21F017-A	-
87	RWCU pump suction from recirculation loops	A,C	G33F001-B G33F252-B	- -	G33F004-A G33F002 G33F267	- 10
88	RWCU pump discharge to RWCU heat exchanger	A,C	G33F053-B G33F263 G33F077	-  10	G33F054-A G33F061	- 10
89	Standby service water supply A	C	P41F169A	6,10	P41F159A-A P41F163A	6,10 6,10
90	Standby service water return A	C	P41F168A-A	6,10	P41F160A-A	6,10
91	Standby service water return B	C	P41F168B-B	6,10	P41F160B-B	6,10
92	Standby service water supply B	C	P41F169B	6,10	P41F159B-B P41F163B	6,10 6,10

TABLE 6.2-49 (Cont.)

NOTES

1. Penetration is sealed by a blind flange or door with double O-ring seals, double expandable seals, double gasket seals or a weld. These seals are leakage rate tested by pressurizing between the seals or gaskets. Because the guard pipe inspection ports inboard seal is a weld, Type B testing is not required.
2. The personnel air lock volume is pressurized to primary containment peak accident pressure and tested periodically as given in the Technical Specifications. During the air lock test, tie downs are installed on the inner door since normal locking mechanisms are not designed to withstand a differential pressure across the door in the reverse direction in excess of 5 psig. Pressurizing the lock barrel also tests the lock mechanical and electrical penetrations.
3. Globe valve may be tested in the reverse direction. The difference in seating/unseating force due to reversing the direction of test is insignificant compared to the force applied on the stem to seat the disc as the valve is closed in the normal manner. In addition, for most valves, including MSIVs, reverse testing is a conservative test since the test pressure tends to unseat the disc.
4. MSIV seat leakage rate shall not exceed Technical Specification leakage limits.
5. Double-walled bellows assembly is tested by pressurizing between the double walls.
6. System remains water filled and designed to operate post LOCA.
7. The redundant containment isolation provisions for this penetration consist of an isolation valve and a closed system outside containment which is in compliance with 10 CFR 50, Appendix A, GDC 54 and with U.S. NRC Standard Review Plan 6.2.4, Containment Isolation Provisions, Paragraph II.6.e. SRP 6.2.4, Paragraph II.6.e allows the use of a single isolation valve outside containment. A single active failure can be accommodated. The closed system is missile protected, seismic Category 1, Safety Class 2, and has a temperature and pressure rating in excess of that for the containment. As stated in SRP 6.2.4, paragraph II.6.e, the closed system outside containment should be leak tested, unless it can be shown that the system integrity is being maintained during normal plant operations.
8. Relief valve tested in reverse direction; overpressure device for a closed system. Conservative test; test pressure tends to unseat disc. Tested in correct direction during Type A test.
9. Globe valve may be tested in the reverse direction. The difference in unseating force due to reversing the direction of test is insignificant compared to the force applied on the stem to seat the disc as the valve is closed in the normal manner.
10. This valve does not meet the criteria of 10 CFR 50, Appendix J, for designation as a containment isolation valve that is required to be Type C tested. It is not Type C tested.
11. System is sealed from the primary containment atmosphere because its line terminates below the water level of the suppression pool, and the isolation valve is tested with water when applicable. Leakage is not included in 0.60 L Type B and C test totals.  
a
12. Butterfly valve tested in reverse direction. This is the conservative direction, based on tests performed on a specimen valve.
13. This instrument line is designed to remain functional in the Post-Accident environment. It consists of a closed instrument and line outside containment which is missile protected, Seismic Category 1, Safety Class 2 and has temperature and pressure rating in excess of that for the containment. The containment isolation provisions are in accordance with NRC Regulatory Guide 1.11 and consist of a single isolation valve outside containment, which is capable of remote operation by the operator in the control room, and a flow restricting orifice. The instrument line is left open to containment pressure during Type A tests.



TABLE 6.2-49 (Cont.)

NOTES

29. Valve and penetration were previously tested with water. As stated in MP&L letter AECM-83/0540, dated September 12, 1983, this penetration does not meet the requirements of a strict application of the NRC single active failure criterion for water filled systems. Future testing will be with air at  $P_a$ , 11.5 psig, and the leakage will be added to the 0.60La Type B and C test totals.
30. This valve is a flexible-wedge gate valve with a test connection between the wedge discs. Credit can be taken for the inboard disc performing an inboard isolation function for the test connection valve. This inboard disc may be tested in the reverse direction. An analysis has demonstrated that pressure applied in the accident direction does not deflect the disc off the seat face due to the available stem thrust preload. Due to this wedging effect, the application of low pressure in either direction will not cause deflection from the seats. As a result, any leakage measured during testing in the reverse direction can be attributed to other variables such as seat face imperfections, incorrect torque switch settings, etc. Therefore, testing at low pressure in the reverse direction is considered an equivalent test method.

System Fuse Number	Circuit Class	Rated Amps	Type	Primary Part Number	Description	Alternate Part Number	Panel	Terminal Location	Schematic/Sht
1P52F005	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P872H	TB-B FUSE 05	E1239/07
1P52F010	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P871H	TB-B FUSE 03	E1239/07
1P52F011	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P871H	TB-B FUSE 04	E1239/07
1P52F161144FA	Q	MSCP	480VAC	D14NT	CHASE/SHAWMUT MSCP TYPE N		1BP21B		E1239/05
1P52F161144FB	Q	MSCP	480VAC	D14NT	CHASE/SHAWMUT MSCP TYPE N		1BP21B		E1239/05
1P52F161144FC	Q	MSCP	480VAC	D14NT	CHASE/SHAWMUT MSCP TYPE N		1BP21B		E1239/05
1P52F195-74	Q	0.30	120VAC	FRN0.3	BUSSMANN DUAL ELEMENT TD	BSMN FRNR0.3	1B611-G2		E1239/05
1P52F195-CPT	Q	0.80	120VAC	FRN0.8	BUSSMANN DUAL ELEMENT TD	BSMN FRNR0.8	1B611-G2		E1239/05
1P52FC002A-CPT	N	0.80	120VAC	FRN0.8	BUSSMANN DUAL ELEMENT TD	BSMN FRNR0.8	1B131-E2		E0239/03
1P53F002	N	3.00	120VAC	KAB3	BUSSMANN TRON RECTIFIER FAST ACT		1H13-P850	4-26	E1229/06
1P53F003	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P872G	TB-C FUSE 23	E1229/06
1P53F003-74	Q	0.30	120VAC	FRN0.3	BUSSMANN DUAL ELEMENT TD	BSMN FRNR0.3	1B541-I4		E1229/10
1P53F003-CPT	Q	0.80	120VAC	FRN0.8	BUSSMANN DUAL ELEMENT TD	BSMN FRNR0.8	1B541-I4		E1229/10
1P53F004	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P872G	TB-C FUSE 24	E1229/06
1P53F005	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P871G	TB-C FUSE 23	E1229/06
1P53F006	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P871G	TB-C FUSE 24	E1229/06
1P53F007	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P872G	TB-C FUSE 30	E1229/06
1P53F007-74	Q	0.30	120VAC	FRN0.3	BUSSMANN DUAL ELEMENT TD	BSMN FRNR0.3	1B631-L1		E1229/11
1P53F007-CPT	Q	0.80	120VAC	FRN0.8	BUSSMANN DUAL ELEMENT TD	BSMN FRNR0.8	1B631-L1		E1229/11
1P53F008	N	3.00	120VAC	KTNR3	BUSSMANN LIMITRON FAST-ACTING	BSMN KTNR3	1P53MIR040		E1229/06
1P53F1612-174N	Q	1.00	125VDC	KAB1	BUSSMANN TRON RECTIFIER FAST ACT		1A6-12		E1229/01
1P53F1612-174P	Q	1.00	125VDC	KAB1	BUSSMANN TRON RECTIFIER FAST ACT		1A6-12		E1229/01
1P53F1612-CLN	Q	15.00	125VDC	KAB15	BUSSMANN TRON RECTIFIER FAST ACT		1A6-12		E1229/01
1P53F1612-CLP	Q	15.00	125VDC	KAB15	BUSSMANN TRON RECTIFIER FAST ACT		1A6-12		E1229/01
1P53F1612-TRN	Q	35.00	125VDC	KAB35	BUSSMANN TRON RECTIFIER FAST ACT		1A6-12		E1229/01
1P53F1612-TRP	Q	35.00	125VDC	KAB35	BUSSMANN TRON RECTIFIER FAST ACT		1A6-12		E1229/01
1P53F163147FA	Q	MSCP	480VAC	D14NT	CHASE/SHAWMUT MSCP TYPE N		1BP21B		E1229/11
1P53F163147FB	Q	MSCP	480VAC	D14NT	CHASE/SHAWMUT MSCP TYPE N		1BP21B		E1229/11
1P53F163147FC	Q	MSCP	480VAC	D14NT	CHASE/SHAWMUT MSCP TYPE N		1BP21B		E1229/11
1P53FC003-74	Q	0.30	120VAC	FRN0.3	BUSSMANN DUAL ELEMENT TD	BSMN FRNR0.3	1B642-F5		E1229/15
1P53FC003-CPT	Q	0.80	120VAC	FRN0.8	BUSSMANN DUAL ELEMENT TD	BSMN FRNR0.8	1B642-F5		E1229/15
1P60F001	N	3.00	125VDC	KAB3	BUSSMANN TRON RECTIFIER FAST ACT		1H22-P178	4-16-P	E1240/07
1P60F002	N	3.00	125VDC	KAB3	BUSSMANN TRON RECTIFIER FAST ACT		1H22-P178	4-16-N	E1240/07
1P60F003	N	3.00	120VAC	KAB3	BUSSMANN TRON RECTIFIER FAST ACT		1H22-P178	2-13	E1240/07
1P60F004	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P872G	TB-C FUSE 33	E1240/07
1P60F005	N	3.00	120VAC	KAB3	BUSSMANN TRON RECTIFIER FAST ACT		1H22-P178	2-7	E1240/07
1P60F006	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P871G	TB-C FUSE 35	E1240/07
1P60F007	N	3.00	120VAC	KAB3	BUSSMANN TRON RECTIFIER FAST ACT		1H22-P178	2-8	E1240/07
1P60F008	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P871G	TB-C FUSE 32	E1240/07
1P60F009	N	3.00	120VAC	KAB3	BUSSMANN TRON RECTIFIER FAST ACT		1H22-P178	2-14	E1240/07
1P60F010	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P872G	TB-C FUSE 34	E1240/07
1P60F011	N	3.00	120VAC	KAB3	BUSSMANN TRON RECTIFIER FAST ACT		1H22-P178	2-15	E1240/07
1P60F012	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P872G	TB-C FUSE 35	E1240/07
1P60F013	N	3.00	120VAC	KAB3	BUSSMANN TRON RECTIFIER FAST ACT		1H22-P178	2-9	E1240/07
1P60F014	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P871G	TB-C FUSE 33	E1240/07
1P60F015	N	3.00	120VAC	KAB3	BUSSMANN TRON RECTIFIER FAST ACT		1H22-P178	2-10	E1240/07
1P60F016	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P871G	TB-C FUSE 34	E1240/07
1P60F017	N	3.00	120VAC	KAB3	BUSSMANN TRON RECTIFIER FAST ACT		1H22-P178	2-16	E1240/07
1P60F018	Q	3.00	120VAC	MIN3	BUSSMANN INDICATOR TYPE		1H13-P872G	TB-C FUSE 36	E1240/07



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020AS3

**2-2020 AS3**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020AS3

JPM Title: Tagout Removal Approval

Facility Number: GJPM-OPS-AAD09  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	Ronnie Walters / Brandon Meyer	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Tagout Removal Approval

<input type="checkbox"/> New	<input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 20 Min

Setting: Classroom  
 Type: SRO  
 Task: SRO-ADMIN-48, SRO-M&S-5  
 K&A: 2.2.13 (4.1/4.3), 2.2.15 (3.9/4.3), 2.2.41 (3.5/3.9)  
 10CFR 55.45(a) (5)  
 Safety Function: Equipment Control  
 Performance: Actual  
 Reference(s): EN-OP-102 (Protective and Caution Tagging)  
 04-1-01-E51-1 (Reactor Core Isolation Cooling System (RCIC) SOI)  
 E-1185- 9, 10, 14 (RCIC Electrical Schematics)  
 M-1083B (RCIC P&ID)  
 Handout(s): EN-OP-102  
 04-1-01-E51-1  
 E-1185- 9, 10, 14  
 M-1083B  
 Tagout Tags Sheet (Attached)  
 # Manipulations: N/A  
 # Critical Steps: 1

### Simulator Setup/Required Plant Conditions:

- None

### Safety Concerns:

- None

## Tagout Removal Approval

### Task Standard(s):

- The operator identifies restoration sequence for electrical breakers for MOVs should precede restoration of MOV handswitch tags.
- The operator indentifies the tagout incorrectly restores RCIC steam supply isolation valves 1E51F063 and F064 OPEN, without slowly warming the steam supply lines per EN-OP-102.

## Tagout Removal Approval

### Initial Condition(s):

- The plant is at rated power.
- RCIC steam supply was tagged out of service 18 hours ago for diagnostic (VIPER) testing of 1E51F064.
- RCIC steam supply line pressure is now 0 psig on 1H13P601 indicator 1E51R602.
- Work has been completed.
- 1E51F064 has been fully and satisfactorily retested, and the LCO for TS 3.6.1.3 for 1E51F064 has been cleared. An LCO for TS 3.5.3 for RCIC steam supply being isolated remains active.
- The clearance has been released by the tagout holder.

### Initiating Cue(s):

- As CRS you are tasked to:
  - Ensure appropriate restoration positions and instructions are determined in accordance with procedures and/or plant drawings, and
  - Ensure appropriate restoration sequences are entered on the tagout.
- Document any identified errors for restored positions and/or removal sequences by marking up the tagging forms provided.

## Tagout Removal Approval

### Notes to Evaluator:

- Remember to record Start time on page 8.

### Task Overview: (Detailed description of task)

- The operator will determine the proper tagout restoration positions and sequence for the associated RCIC components.

**Critical tasks are underlined, *italicized*, and denoted by an (\*)**

**NOTE: The sequence of the following steps is critical unless otherwise noted.**

*Remember to record Start time*

Step 1: EN-OP-102 step 5.18[1], third bullet	
<input type="checkbox"/> The candidate must determine the correct tag restored position for each tagged component (refer to tagout tag listing).	
Standard:	Determines the appropriate restored position.
Cue:	NONE
Notes:	<p>In general, RCIC must be warmed at a rate of <math>\leq 90^{\circ}\text{F}</math> per hour to limit thermal stress on piping and components. Also, steam supply valves must be opened slowly to limit steam flow below the RCIC steam line flow isolation setpoint, unless the trip function has been defeated. RCIC steam supply valves 1E51F063, F064, and F076 should be restored as CLOSED before beginning warming per SOI 04-1-01-E51-1 section 4.1.</p> <p>If the candidate elects to leave the restored positions for 1E51F063 and 1E51F064 as OPEN with explicit restoration instructions to warm RCIC per 04-1-01-E51-1 section 4.1 as the method of restoring the valves OPEN, this is acceptable.</p> <p style="text-align: right;">SAT / UNSAT</p>

## Step 2: EN-OP-102 step 5.18[1], fourth bullet

- ☐ The operator must determine the correct tag removal sequence for each tagged component (refer to tagout tag listing).

Standard: Determines the appropriate removal sequence.

Cue: NONE

Notes: In general, electrical power for valves will be restored and tags removed from breakers and fuses, then handswitches will be aligned and handswitch tags removed last. Also, it would be typical to remove the local tag on a MOV before restoring the valve's breaker, but in this case there are no local handwheel tags, since 1E51F063 and F076 are inaccessible in the drywell and VIPER testing 1E51F064 is prohibitive of a handwheel tag.

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Step 3: EN-OP-102 step 5.18[1], third and fourth bullets

☐ \* The Operator documents the following:

Tags must be removed from valve electrical supply breakers and restored before removing tags from handswitches.

Standard: Documents corrections.

Cue:

**Notes:** Corrections listed are the minimum required to prevent adverse plant effects. Any corrections that demonstrate an equivalent understanding is acceptable.

Electrical power for a MOV must be restored before its respective handswitch is restored to enable remote position indication and control function for the handswitch.

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Step 4: EN-OP-102 step 5.18[1], third and fourth bullets

☐ \* The Operator documents the following:

Restored positions for 1E51F063 AND/OR 1E51F076 and 1E51F064 must be closed, OR adequate removal instructions are added to warm RCIC per 04-1-01-E51-1 section 4.1 as the method for restoring 1E51F063 and 1E51F064 open.

Standard: Documents corrections.

Cue: NONE

Notes: Corrections listed are the minimum required to prevent adverse plant effects. Any corrections that demonstrate an equivalent understanding is acceptable.

RCIC steam lines must be warmed per section 4.1 of SOI 04-1-01-E51-1 to prevent excessive thermal stress on piping and components and to prevent RCIC steam flow high isolation actuation, unless bypassed. For RCIC steam line warming, initial SOI position of 1E51F063, F064, and F076 is fully closed. As such, if the candidate specifies restored positions for these valves as CLOSED, before RCIC is warmed, this is acceptable.

Similarly, if the candidate elects to leave the listed restored positions for 1E51F063 and 1E51F064 as OPEN with explicit restoration instructions to warm RCIC per 04-1-01-E51-1 section 4.1 as the method of restoring the valves OPEN, this is acceptable.

The task is complete when the operator determines the adequacy for this Tagout.

SAT / UNSAT

Operator: _____ License: RO / SRO Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>The operator identifies restoration sequence for electrical breakers for MOVs should precede restoration of MOV handswitch tags.</li> <li>The operator indentifies the tagout incorrectly restores RCIC steam supply isolation valves 1E51F063 and F064 OPEN, without slowly warming the steam supply lines per EN-OP-102.</li> </ul>		
<u>JPM Results (circle one):</u> <div style="display: inline-block; width: 30%; text-align: center;"> <b>SAT</b> </div> <div style="display: inline-block; width: 30%; text-align: center;"> <b>UNSAT</b> </div>		
<u>Follow-up Questions:</u>          		
<u>Follow-up Question Response:</u>          		
<u>Comments / Feedback:</u>          		


**Give this page to the student**

**Initial Condition(s):**

- The plant is at rated power.
- RCIC steam supply was tagged out of service 18 hours ago for diagnostic (VIPER) testing of 1E51F064.
- RCIC steam supply line pressure is now 0 psig on 1H13P601 indicator 1E51R602.
- Work has been completed.
- 1E51F064 has been fully and satisfactorily retested, and the LCO for TS 3.6.1.3 for 1E51F064 has been cleared. An LCO for TS 3.5.3 for RCIC steam supply being isolated remains active.
- The clearance has been released by the tagout holder.

**Initiating Cue(s):**

- As CRS you are tasked to:
  - Ensure appropriate restoration positions and instructions are determined in accordance with procedures and/or plant drawings, and
  - Ensure appropriate restoration sequences are entered on the tagout.
- Document any identified errors for restored positions and/or removal sequences by marking up the tagging forms provided.

	<b>NUCLEAR MANAGEMENT MANUAL</b>	NON-QUALITY RELATED	EN-OP-102-01	REV.14
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<b>Protective and Caution Tagging Forms &amp; Checklist</b>				

## ATTACHMENT 9.2

## TAGOUT COVER SHEET

**Clearance:** MANUAL

**Tagout:** 1CXX-1 E51-001 – 1E51F064

### Component to be worked:

1E51F064 RCIC STM SPLY DRWL OTBD ISOL

### Description:

THIS TAGOUT WILL ISOLATE THE RCIC STEAM SUPPLY TO PERFORM VIPER TESTING ON 1E51F064

TEST AND MAINTENANCE TAGS ARE BEING USED FOR 1E51F064 SINCE IT WILL BE OPERATED FOR ELECTRICAL MAINTENANCE

### Placement Inst:

HANG TAGS IN SEQUENCE LISTED. 1E51F063 AND 1E51F076 HANDWHEELS ARE NOT BEING TAGGED LOCALLY DUE TO THEY ARE INACCESSIBLE (IN THE DRYWELL).

### Hazards:

HIGH ENERGY SYSTEM.

RCIC STEAM PIPING WILL BE EXTREMELY HOT.

### Restoration Inst:


CLEAR TAGOUT FIRST.

AFTER TAGOUT HAS BEEN CLEARED, THEN PLACE RCIC SYSTEM IN STANDBY MODE PER SOI 04-1-01-E51-1 SECTION 4.1.

Attribute Description	Attribute Value
HIGH ENERGY SYSTEM CONCERNS	YES - SEE TAGOUT HAZARDS
TECH SPEC IMPACT?	LCO 1-TS-XX-0001
COMPENSATORY ACTIONS REQUIRED?	NO
SCAFFOLD REQUIRED	NO
WALKDOWN COMPLETE	YES
TAGOUT PREPARE ISSUES:	NO

Work Order Number	Description
XX357XX	PERFORM DIAGNOSTIC TESTING (VIPER) FOR 1E51F064

Status	Description	User	Verification Date
Prepared	Prepared	Taw Jackson	2/1/20XX
Technical Reviewed	Reviewed	John T. Chance	2/2/20XX
Approved	Approved	George W. McLintock	2/3/20XX
Tags Verified Hung	Tags Verified Hung	Tim Knox	2/15/20XX
Removal Approved	Removal Approved		
Tags Verified Removed	Tags Verified Removed		

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**ATTACHMENT 9.3**
**TAGOUT TAGS SHEET**

CLEARANCE: MANUAL

TAGOUT: 1CXX-1 E51-001 – 1E51F064

Tag Serial No.	Tag Type	Equipment Equipment Description Equipment Location	Place. Seq.	Placement Configuration	Place. 1st Verif Date/Time	Place. 2nd Verif Date/Time	Rest. Seq.	Restoration Configuration	Rest. 1st Verif Date/Time	Rest. 2nd Verif Date/Time	Placement/ Removal Tag Notes
0001	Danger	1-E51 –IBISSW-1E51M620 *RCIC STM LINE WARMUP VLV 1E51F076 *C0A-166 -0C503-	1	AUTO AFTER CLOSED	Hoge, Tom 2/15/20XX 05:00	Knox, Tim 2/15/20XX 05:35	1	AUTO AFTER CLOSED			
0002	Danger	1-E51 –IBISSW-1E51M609 *RCIC STM SPLY DRWL INBD ISOL 1E51F063 *C0A-166 -0C503-	1	CLOSE	Hoge, Tom 2/15/20XX 05:05	Knox, Tim 2/15/20XX 05:40	1	OPEN			
0003	Danger	1-E51 –IBISSW-1E51M610 *RCIC STM SPLY DRWL OTBD ISOL 1E51F064 *C0A-166 -0C503-	1	CLOSE	Hoge, Tom 2/15/20XX 05:10	Knox, Tim 2/15/20XX 05:45	1	OPEN			
0009	Danger	1-E51 –CTKBRK- 52-163138 * RCIC STM LINE WARMUP VLV 1E51F076 *A08-119 -1A207-	2	OFF	Bow, Bill 2/15/20XX 06:15	Sims, Matt 2/15/20XX 07:15	2	CLOSED			
0010	Danger	1-E51 –CTKBRK- 52-163134 * RCIC STM SPLY DRWL INBD ISOL 1E51F063 *A08-119 -1A207-	2	OFF	Bow, Bill 2/15/20XX 06:20	Sims, Matt 2/15/20XX 07:20	2	CLOSED			
0011	Test and Maint	1-E51 –CTKBRK- 52-153129 * RCIC STM SPLY DRWL OTBD ISOL 1E51F064 *A07-119 -1A208-	2	OFF	Bow, Bill 2/15/20XX 06:25	Sims, Matt 2/15/20XX 07:25	2	CLOSED			



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020AS4

**2-2020 AS4**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020AS4

JPM Title: Emergency Exposure Limits

Facility Number: GJPM-OPS-AEM03  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	Ronnie Walters / Brandon Meyer	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Emergency Exposure Limits

<input type="checkbox"/> New	<input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 15 Min

Setting: Classroom  
 Type: SRO  
 Task: SRO-A&E-015  
 K&A: Generic 2.3.4 (3.7)  
 Safety Function: N/A  
 10CFR 55.45(a) (5)  
 Performance: Perform  
 Reference(s): 10-S-01-1 (Activation of the Emergency plan)  
 10-S-01-17 (Emergency Personnel Exposure Control)  
 EN-RP-201 (Dosimetry Administration)  
 Handout(s) 10-S-01-1 (Activation of the Emergency plan)  
 10-S-01-17 (Emergency Personnel Exposure Control)  
 EN-RP-201 (Dosimetry Administration)  
 EAL Flow Charts  
 # Manipulations: N/A  
 # Critical Steps: 4

### Simulator Setup/Required Plant Conditions:

- NONE

### Safety Concerns:

- NONE



## **Emergency Exposure Limits**

### Task Standard:

- Determines that the station meets the threshold for an Unusual Event ONLY
- Determines expected final exposure following the task
- Determines the administrative dose limits and extension process of EN-RP-201 (Dosimetry Administration) is applicable.
- Determines that the Plant General Manager and Radiation Protection Manager must approve the dose extension to 3532 mrem during an Unusual Event.

## Emergency Exposure Limits

### Initial Condition(s):

- The plant is at 55% power.
- There are high radiation levels in containment.
- Max expected radiation exposure for containment is 14,000 mrem/hr.
- Offgas flow is 75 cfm
- Computer point D173001 has been in alarm for 70 minutes.
- Computer point D173002 has been in alarm for 5 minutes.
- Offgas Pre-treatment radiation monitor is reading 1250 mR/hr.
- An operator qualified to perform a task in containment to mitigate the radiation concern has a current year-to-date exposure TEDE of 32 mrem.
- The site Emergency Plan has been activated for the current conditions

### Initiating Cue(s):

- You are the Shift Manager and are to determine the requirements to send the qualified operator into containment to mitigate the radiation concern.
- The task will take 15 minutes inside containment.
- Who must approve the exposure limits for this task considering only TEDE?
- What is the Emergency Classification?
- Determine the expected final exposure following the task?

## Emergency Exposure Limits

### Notes to Evaluator:

- Remember to record Start time on page 8.

### Task Overview: (Detailed description of task)

- The operator will evaluate a condition involving abnormally high radiological conditions and determine actions required to administratively control the dose received by determining who authorizes dose extensions in various situations.

Critical tasks are underlined, *italicized*, and denoted by an (\*)

**NOTE: The sequence of the following steps is critical unless otherwise noted.**

Remember to record Start time

Step 1: 10-S-01-1 EAL Flowchart	
<input type="checkbox"/> * <u>Determines that the station meets the threshold for an Unusual Event ONLY</u>	
<p><u>Standard:</u> Determines the correct Emergency Classification as Unusual Event SU9 or AU1.</p>	
<p><u>Cue:</u>           None</p>	
<p><u>Notes:</u></p> <p style="text-align: right;">SAT / UNSAT</p>	

## Step 2: Calculation

☐\* Determines expected final exposure following the task.

$$\frac{14,000 \text{ mrem}}{\text{hr}} \times \frac{1 \text{ hr}}{60 \text{ min}} \times 15 \text{ min} = 3,500 \text{ mrem} + 32 \text{ mrem} = 3,532 \text{ mrem}$$

Standard: Determines the correct exposure.

Cue: None

Notes:

SAT / UNSAT

## Step 3: 10-S-01-17 section 6.1.2

☐\* Determines the administrative dose limits and extension process of EN-RP-201 (Dosimetry Administration) is applicable.

Standard: Determines that the normal dose extension process applies unless an ALERT or above is declared.

Cue: None

Notes:

SAT / UNSAT

## Step 4: EN-RP-201 section 5.4

- ☐\* Determines that the Radiation Protection Manager and General Manager Plant Operations (Plant General Manager) must approve the exposure for this task using table in section 5.4 of EN-RP-201.

Standard: Determines correct approval requirements.

Cue: None

Notes:

***Remember to record stop time***

SAT / UNSAT

Operator: _____ License: RO / SRO Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>Determines that the station meets the threshold for an Unusual Event ONLY</li> <li>Determines expected final exposure following the task</li> <li>Determines the administrative dose limits and extension process of EN-RP-201 (Dosimetry Administration) is applicable.</li> <li>Determines that the Plant General Manager and Radiation Protection Manager must approve the dose extension to 3532 mrem during an Unusual Event.</li> </ul>		
<u>JPM Results (circle one):</u> <div style="display: inline-block; width: 150px; text-align: center;"> <b>SAT</b> </div> <div style="display: inline-block; width: 150px; text-align: center;"> <b>UNSAT</b> </div>		
<u>Follow-up Questions:</u>          		
<u>Follow-up Question Response:</u>          		
<u>Comments / Feedback:</u>          		

**Give this page to the student**

**Initial Condition(s):**

- The plant is at 55% power.
- There are high radiation levels in containment.
- Max expected radiation exposure for containment is 14,000 mrem/hr.
- Offgas flow is 75 cfm
- Computer point D173001 has been in alarm for 70 minutes.
- Computer point D173002 has been in alarm for 5 minutes.
- Offgas Pre-treatment radiation monitor is reading 1250 mR/hr.
- An operator qualified to perform a task in containment to mitigate the radiation concern has a current year-to-date exposure TEDE of 32 mrem.
- The site Emergency Plan has been activated for the current conditions

**Initiating Cue(s):**

- You are the Shift Manager and are to determine the requirements to send the qualified operator into containment to mitigate the radiation concern.
- The task will take 15 minutes inside containment.
- Who must approve the exposure limits for this task considering only TEDE?
- What is the Emergency Classification?
- Determine the expected final exposure following the task?



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020AS5

**2-2020 AS5**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020AS5

JPM Title: Emergency Event  
Classification

Facility Number: N/A NEW  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	Ronnie Walters / Brandon Meyer	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date



## Emergency Event Classification

<input checked="" type="checkbox"/> New	<input type="checkbox"/> Modified	<input type="checkbox"/> Direct from bank
<input checked="" type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 15 Min

Setting: Classroom  
Type: SRO  
Task: SRO-A&E-015  
K&A: 2.4.41 – 2.9/4.6  
Safety Function: Emergency Procedures/Plan  
 10CFR 55.45(a) (5)  
Performance: Actual  
Reference(s): 10-S-01-1  
Handout(s): EAL flow charts from 10-S-01-1  
 10-S-01-1 (available)  
# Manipulations: N/A  
# Critical Steps: 1

### Simulator Setup/Required Plant Conditions:

- This JPM will be performed after the simulator scenario.

### Safety Concerns:

- None

## Emergency Event Classification

### Task Standard(s):

- Within 15 minutes, classifies the event as:
  - for SCENARIO #1 an **ALERT** per **EAL FA1-(RC1 or RC3)**
  - for SCENARIO #2 a **SITE AREA EMERGENCY** per **EAL SS3**
  - for SCENARIO #3 a **SITE AREA EMERGENCY** per **EAL FS1-(FC2 and RC1)**
  - for SCENARIO #4 an **ALERT** per **EAL FA1-(RC1 or RC3)**

## Emergency Event Classification

### Initial Condition(s):

*Only the initial conditions for the specific scenario performed by the student as CRS will be given to the student.*

Based on the scenario you just participated in:

- Scenario #1 – LOCA
  - Feedwater Line break in Turbine Building
  - Emergency Depressurization due to low reactor water level
  - Loss of 4160 V bus 16AB
- Scenario #2 – Main Turbine Trip
  - ATWS
  - ESF Transformer 21 lockout
- Scenario #3 – LOCA
  - Loss of 4160 V bus 13AD
  - Loss of all RPV level indication
  - Emergency Depressurization due to loss of level indication
- Scenario #4 – LOCA
  - Feedwater Line break in Drywell
  - Reactor Recirc line break in the Drywell
  - HPCS Suction line break
  - Emergency Depressurization due to low Suppression Pool water level

### Initiating Cue(s):

- Classify the event.
- This JPM is time critical.

## Emergency Event Classification

Notes to Evaluator:

- Only the initial conditions for the specific scenario performed by the student as CRS is to be given to the student.

**Task Overview:** (Detailed description of task)

- An event classification JPM is required of all licensed SROs not qualified as an Emergency Director in accordance with the Emergency Preparedness Plan.

**Critical tasks are underlined, *italicized*, and denoted by an (\*)**

Remember to record Start time

Step 1: 10-S-01-1	
<input type="checkbox"/> * For Scenario #1 <u>Classify the event as a ALERT</u>	
<input type="checkbox"/> * For Scenario #2 <u>Classify the event as a SITE AREA EMERGENCY</u>	
<input type="checkbox"/> * For Scenario #3 <u>Classify the event as a SITE AREA EMERGENCY</u>	
<input type="checkbox"/> * For Scenario #4 <u>Classify the event as an ALERT</u>	
<p><u>Standard:</u> For Scenario #1: EAL FA1-(RC1 or RC3) (ALERT)</p> <p>For Scenario #2: EAL SS3 (SITE AREA EMERGENCY)</p> <p>For Scenario #3: EAL FS1-(FC2 &amp; RC1) (SITE AREA EMERGENCY)</p> <p>For Scenario #4: EAL FA1-(RC1 or RC3) (ALERT)</p>	
<u>Cue:</u>	None
<u>Notes:</u>	
SAT / UNSAT	



**Give this page to the student**

**for Scenario # 1 only**

**Initial Condition(s):**

- Based on the scenario you just participated in:
  - LOCA
  - Feedwater Line break in Turbine Building
  - Emergency Depressurization due to low reactor water level
  - Loss of 4160 V bus 16AB

**Initiating Cue(s):**

- Classify the event.
- This JPM is time critical.

**Give this page to the student**

**for Scenario # 2 only**

**Initial Condition(s):**

- Based on the scenario you just participated in:
  - Main Turbine Trip
  - ATWS
  - ESF Transformer 21 lockout

**Initiating Cue(s):**

- Classify the event.
- This JPM is time critical.

**Give this page to the student**

**for Scenario # 3 only**

**Initial Condition(s):**

- Based on the scenario you just participated in:
  - LOCA
  - Loss of 4160 V bus 13AD
  - Loss of all RPV level indication
  - Emergency Depressurization due to loss of level indication

**Initiating Cue(s):**

- Classify the event.
- This JPM is time critical.



**Give this page to the student**

**for Scenario # 4 only**

**Initial Condition(s):**

- Based on the scenario you just participated in:
  - Feedwater Line break in Drywell
  - Reactor Recirc line break in the Drywell
  - HPCS Suction line break
  - Emergency Depressurization due to low Suppression Pool water level

**Initiating Cue(s):**

- Classify the event.
- This JPM is time critical.

Facility: <b>Grand Gulf Nuclear Station</b>		Date of Examination: <b>2/03/2020</b>
Exam Level: <b>RO</b> <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test No.: <b>GGNS 2-2020</b>

Control Room Systems* ( <b>8 for RO</b> ); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
S1 – Transfer Recirculation Pumps to Slow Speed (GJPM-OPS-2-2020S1) 202001 A2.04 & A4.01 (3.7)	<b>A-D-S</b>	1
S2 – Retest MSIV Slow Closure (GJPM-OPS-2-2020S2) 239001 A2.11 (4.1)	<b>A-D-P-S</b>	3
S3 – Performing HPCS Quarterly Functional Test (GJPM-OPS-2-2020S3) 209002: A1.01 (3.6); A4.01 (3.7)	<b>A-D-S-EN</b>	4
S4 – Secure Containment Spray and Align for RPV Injection (GJPM-OPS-2-2020S4) 226001 A2.20 (3.7) & A4.07 (3.5)	<b>L-M-S-EN</b>	5
S5 – Rotate CCW Pumps (GJPM-OPS-2-2020S5) 400000 A2.01 (3.3) & A4.01 (3.1)	<b>A-D-S</b>	8
S6 – Place Standby Gas Treatment System in STANDBY Mode (GJPM-OPS-2-2020S6) 261000 A2.13 (3.4) & A4.03 (3.0)	<b>L-N-S-EN</b>	9
C1 – Defeat Feed Pump Level 9 Trips (GJPM-OPS-2-2020CR1) 259001 A3.10 (3.4)	<b>D-C-L</b>	2
S7 – Transfer RPS B to Normal Power Source and RPS A to Alternate Power Source ( <b>RO ONLY</b> ) (GJPM-OPS-2-2020S7) 212000 A2.19 (3.8) & A4.14 (3.8)	<b>D-S</b>	7
In-Plant Systems* ( <b>3 for RO</b> ); (3 for SRO-I); (3 or 2 for SRO-U)		
P1 – RPS Motor Generator Startup (GJPM-OPS-2-2020P1) 212000 A2.01 (3.7) & A1.01 (2.8)	<b>D</b>	7
P2 – Align Fire Water to RHR 'C' per EP Attachment 26 (GJPM-OPS-2-2020P2) 286000 A1.05 (3.2)	<b>D-E-L-R</b>	8
P3 – HPCS Diesel Generator Emergency Shutdown (GJPM-OPS-2-2020P3) 264000 A4.04 (3.7)	<b>A-E-N</b>	6
<p>* All <b>RO</b> and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>		
* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path	<b>A</b>	<b>4-6 / 4-6 / 2-3 (5)</b>
(C)ontrol room	<b>C</b>	<b>----- (1)</b>
(D)irect from bank	<b>D</b>	<b>≤ 9 / ≤ 8 / ≤ 4 (8)</b>
(E)mergency or abnormal in-plant	<b>E</b>	<b>≥ 1 / ≥ 1 / ≥ 1 (2)</b>
(EN)gineered safety feature	<b>EN</b>	<b>≥ 1 / ≥ 1 / ≥ 1 (control room sys) (3)</b>
(L)ow-Power / Shutdown	<b>L</b>	<b>≥ 1 / ≥ 1 / ≥ 1 (3)</b>
(N)ew or (M)odified from bank including 1(A)	<b>N-M</b>	<b>≥ 2 / ≥ 2 / ≥ 1 (3)</b>
(P)revious 2 exams	<b>P</b>	<b>≤ 3 / ≤ 3 / ≤ 2 (randomly selected) (1)</b>
(R)CA	<b>R</b>	<b>≥ 1 / ≥ 1 / ≥ 1 (1)</b>
(S)imulator	<b>S</b>	<b>(7)</b>

## JPM Description:

### S1 – Transfer Recirculation Pumps to Slow Speed (GJPM-OPS-2-2020S1) 202001 A2.04 & A4.01 (3.7)

- This task is to transfer Reactor Recirculation Pumps to slow speed per IOI - 2, 03-1-01-2, Power Operations Attachment IV section 8.8.6 and 8.8.7. Upon transfer to slow speed and reopening of both Recirculation Flow Control Valves to 50%, both Reactor Recirculation Pumps will trip to OFF. With the Reactor Mode Switch in RUN at power and no Reactor Recirculation Pumps operating, entry into the Reduction in Recirculation Flow ONEP 05-1-02-III-3, Immediate Operator Actions step 2.1.2 will be required to insert a Manual Reactor Scram.
- Placing the Reactor Mode Switch to Shutdown will NOT insert Control Rods requiring alternate actions to insert the Control Rods by either arming and depressing the Manual Scram pushbuttons OR Initiating ATWS ARI/RPT which will depressurize the Scram Air Header.

### S2 – Retest MSIV Slow Closure (GJPM-OPS-2-2020S2) 239001 A2.11 (4.1)

- This task is to perform a slow closure on MSIV B21-F028A.
- Following the closure of the MSIV, recognize High - High temperature in Main Steam Tunnel without Group 1 MSIV isolation. Applicant should manually close all remaining MSIVs (7) using handswitches on P601 panel to isolate the steam leak.
- At initial power level Main Steam Line Drains should be closed with the exception of B21-F019, INBD MSL DR OTBD DR VLV which has another valve in the line already closed B21-F016, INBD MSL DR INBD DR VLV.

### S3 – Performing HPCS Quarterly Functional Test (GJPM-OPS-2-2020S3) 209002: A1.01 (3.6); A4.01 (3.7)

- This task requires the ability to manually start the only ECCS-qualified high pressure injection system.
- This task demonstrates the ability to operate HPCS in the "test return" mode, which puts HPCS flow in a loop from and to the Suppression Pool, one of its two suction sources. HPCS is operated in this mode for surveillance and post-maintenance testing.
- As HPCS is placed in the test return mode the system will experience a failure to initiate and a failure to inject once manually initiated. This will require to arm and depress the initiation pushbutton and then manually open the E22-F004.

S4 – Secure Containment Spray and Align for RPV Injection  
(GJPM-OPS-2-2020S4) 226001 A2.20 (3.7) & A4.07 (3.5)

- This task is to secure RHR systems from Containment Spray and align them for injection into the RPV during a LOCA. During the performance one RHR system will not provide sufficient flow to raise RPV water level and the second RHR system will have a failure of E12-F042 LPCI injection valve to open requiring the use of an alternate injection path through E12-F053. Realignment of RHR from Containment Spray to LPCI mode is directed from the Emergency Procedures when there is not Adequate Core Cooling. Use of Shutdown Cooling lines for injection to the RPV from RHR is allowed per the Emergency Procedures and attachments are provided to facilitate this evolution.

S5 – Rotate CCW Pumps  
(GJPM-OPS-2-2020S5) 400000 A2.01 (3.3) & A4.01 (3.1)

- This task is to rotate CCW Pumps per SOI. During the evolution, a trip will occur on one of the operating CCW pumps requiring the restart of the non-operating CCW pump per the Loss of CCW ONEP.

S6 – Place Standby Gas Treatment System in STANDBY Mode  
(GJPM-OPS-2-2020S6) 261000 A2.13 (3.4) & A4.03 (3.0)

- This task is to place one Standby Gas Treatment System in STANDBY Mode after an automatic initiation signal on Radiation that is still present.

C1 – Defeat Feed Pump Level 9 Trips  
(GJPM-OPS-2-2020CR1) 259001 A3.10 3.4/3.4

- This task defeats the High Reactor Water Level trip of the Reactor Feed Pumps, which under certain conditions is directed by the EOPs to maintain adequate core cooling.

S7 – Transfer RPS B to Normal Power Source and RPS A to Alternate Power Source **(RO ONLY)**  
(GJPM-OPS-2-2020S7) 212000 A2.19 (3.8) & A4.14 (3.8)

- This task is to align RPS B power to be supplied from its Normal source, the Motor Generator Set, and to align RPS A power to be supplied from its Alternate source, 480V ESF breaker 52-154204.

P1 – RPS Motor Generator Startup  
(GJPM-OPS-2-2020P1) 212000 A2.01 (3.7) & A1.01 (2.8)

- This task is to perform a startup of the RPS Motor Generator and align the RPS Bus to the Normal Supply per the SOI.

P2 – Align Fire Water to RHR 'C' per EP Attachment 26  
(GJPM-OPS-2-2020P2) 286000 A1.05 (3.2)

- This task simulates routing and connecting fire hoses from hose stations to test connections on ECCS injection piping in the Auxiliary Building.

P3 – HPCS Diesel Generator Emergency Shutdown  
(GJPM-OPS-2-2020P3) 264000 A4.04 (3.7)

- This task simulates an auto start of HPCS Diesel Generator with a subsequent oil system failure requiring the operator to EMERGENCY STOP (trip) the HPCS D/G. The Control Room switch and local Emergency Stop switch will not work, the operator must use other means to stop the EDG. Per P81 SOI the lay shaft handle on each diesel engine must be manipulated to stop the EDG.

Facility: <b>Grand Gulf Nuclear Station</b>		Date of Examination: <b>2/03/2020</b>
Exam Level: RO <input type="checkbox"/> <b>SRO-I</b> <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test No.: <b>GGNS 2-2020</b>

Control Room Systems* (8 for RO); ( <b>7 for SRO-I</b> ); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
S1 – Transfer Recirculation Pumps to Slow Speed (GJPM-OPS-2-2020S1) 202001 A2.04 & A4.01 (3.7)	<b>A-D-S</b>	1
S2 – Retest MSIV Slow Closure (GJPM-OPS-2-2020S2) 239001 A2.11 (4.1)	<b>A-D-P-S</b>	3
S3 – Performing HPCS Quarterly Functional Test (GJPM-OPS-2-2020S3) 209002: A1.01 (3.6); A4.01 (3.7)	<b>A-D-S-EN</b>	4
S4 – Secure Containment Spray and Align for RPV Injection (GJPM-OPS-2-2019S4) 226001 A2.20 (3.7) & A4.07 (3.5)	<b>L-M-S-EN</b>	5
S5 – Rotate CCW Pumps (GJPM-OPS-2-2020S5) 400000 A2.01 (3.3) & A4.01 (3.1)	<b>A-D-S</b>	8
S6 – Place Standby Gas Treatment System in STANDBY Mode (GJPM-OPS-2-2020S6) 261000 A2.13 (3.4) & A4.03 (3.0)	<b>L-N-S-EN</b>	9
C1 – Defeat Feed Pump Level 9 Trips (GJPM-OPS-2-2020CR1) 259001 A3.10 (3.4)	<b>D-C-L</b>	2
<b>In-Plant Systems*</b> (3 for RO); ( <b>3 for SRO-I</b> ); (3 or 2 for SRO-U)		
P1 – RPS Motor Generator Startup (GJPM-OPS-2-2020P1) 212000 A2.01 (3.7) & A1.01 (2.8)	<b>D</b>	7
P2 – Align Fire Water to RHR 'C' per EP Attachment 26 (GJPM-OPS-2-2020P2) 286000 A1.05 (3.2)	<b>D-E-L-R</b>	8
P3 – HPCS Diesel Generator Emergency Shutdown (GJPM-OPS-2-2020P3) 264000 A4.04 (3.7)	<b>A-E-N</b>	6
<p>* All RO and <b>SRO-I</b> control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>		
* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path	<b>A</b>	4-6 / <b>4-6</b> / 2-3 <b>(5)</b>
(C)ontrol room	<b>C</b>	----- <b>(1)</b>
(D)irect from bank	<b>D</b>	≤ 9 / ≤ <b>8</b> / ≤ 4 <b>(7)</b>
(E)mergency or abnormal in-plant	<b>E</b>	≥ 1 / ≥ <b>1</b> / ≥ 1 <b>(2)</b>
(EN)gineered safety feature	<b>EN</b>	≥ 1 / ≥ <b>1</b> / ≥ 1 (control room sys) <b>(3)</b>
(L)ow-Power / Shutdown	<b>L</b>	≥ 1 / ≥ <b>1</b> / ≥ 1 <b>(3)</b>
(N)ew or (M)odified from bank including 1(A)	<b>N-M</b>	≥ 2 / ≥ <b>2</b> / ≥ 1 <b>(3)</b>
(P)revious 2 exams	<b>P</b>	≤ 3 / ≤ <b>3</b> / ≤ 2 (randomly selected) <b>(1)</b>
(R)CA	<b>R</b>	≥ 1 / ≥ <b>1</b> / ≥ 1 <b>(1)</b>
(S)imulator	<b>S</b>	<b>(6)</b>

## JPM Description:

### S1 – Transfer Recirculation Pumps to Slow Speed (GJPM-OPS-2-2020S1) 202001 A2.04 & A4.01 (3.7)

- This task is to transfer Reactor Recirculation Pumps to slow speed per IOI - 2, 03-1-01-2, Power Operations Attachment IV section 8.8.6 and 8.8.7. Upon transfer to slow speed and reopening of both Recirculation Flow Control Valves to 50%, both Reactor Recirculation Pumps will trip to OFF. With the Reactor Mode Switch in RUN at power and no Reactor Recirculation Pumps operating, entry into the Reduction in Recirculation Flow ONEP 05-1-02-III-3, Immediate Operator Actions step 2.1.2 will be required to insert a Manual Reactor Scram.
- Placing the Reactor Mode Switch to Shutdown will NOT insert Control Rods requiring alternate actions to insert the Control Rods by either arming and depressing the Manual Scram pushbuttons OR Initiating ATWS ARI/RPT which will depressurize the Scram Air Header.

### S2 – Retest MSIV Slow Closure (GJPM-OPS-2-2020S2) 239001 A2.11 (4.1)

- This task is to perform a slow closure on MSIV B21-F028A.
- Following the closure of the MSIV, recognize High - High temperature in Main Steam Tunnel without Group 1 MSIV isolation. Applicant should manually close all remaining MSIVs (7) using handswitches on P601 panel to isolate the steam leak.
- At initial power level Main Steam Line Drains should be closed with the exception of B21-F019, INBD MSL DR OTBD DR VLV which has another valve in the line already closed B21-F016, INBD MSL DR INBD DR VLV.

### S3 – Performing HPCS Quarterly Functional Test (GJPM-OPS-2-2020S3) 209002: A1.01 (3.6); A4.01 (3.7)

- This task requires the ability to manually start the only ECCS-qualified high pressure injection system.
- This task demonstrates the ability to operate HPCS in the "test return" mode, which puts HPCS flow in a loop from and to the Suppression Pool, one of its two suction sources. HPCS is operated in this mode for surveillance and post-maintenance testing.
- As HPCS is placed in the test return mode the system will experience a failure to initiate and a failure to inject once manually initiated. This will require to arm and depress the initiation pushbutton and then manually open the E22-F004.

S4 – Secure Containment Spray and Align for RPV Injection  
(GJPM-OPS-2-2020S4) 226001 A2.20 (3.7) & A4.07 (3.5)

- This task is to secure RHR systems from Containment Spray and align them for injection into the RPV during a LOCA. During the performance one RHR system will not provide sufficient flow to raise RPV water level and the second RHR system will have a failure of E12-F042 LPCI injection valve to open requiring the use of an alternate injection path through E12-F053. Realignment of RHR from Containment Spray to LPCI mode is directed from the Emergency Procedures when there is not Adequate Core Cooling. Use of Shutdown Cooling lines for injection to the RPV from RHR is allowed per the Emergency Procedures and attachments are provided to facilitate this evolution.

S5 – Rotate CCW Pumps  
(GJPM-OPS-2-2020S5) 400000 A2.01 (3.3) & A4.01 (3.1)

- This task is to rotate CCW Pumps per SOI. During the evolution, a trip will occur on one of the operating CCW pumps requiring the restart of the non-operating CCW pump per the Loss of CCW ONEP.

S6 – Place Standby Gas Treatment System in STANDBY Mode  
(GJPM-OPS-2-2020S6) 261000 A2.13 (3.4) & A4.03 (3.0)

- This task is to place one Standby Gas Treatment System in STANDBY Mode after an automatic initiation signal on Radiation that is still present.

C1 – Defeat Feed Pump Level 9 Trips  
(GJPM-OPS-2-2020CR1) 259001 A3.10 3.4/3.4

- This task defeats the High Reactor Water Level trip of the Reactor Feed Pumps, which under certain conditions is directed by the EOPs to maintain adequate core cooling.

P1 – RPS Motor Generator Startup  
(GJPM-OPS-2-2020P1) 212000 A2.01 (3.7) & A1.01 (2.8)

- This task is to perform a startup of the RPS Motor Generator and align the RPS Bus to the Normal Supply per the SOI.



P2 – Align Fire Water to RHR 'C' per EP Attachment 26  
(GJPM-OPS-2-2020P2) 286000 A1.05 (3.2)

- This task simulates routing and connecting fire hoses from hose stations to test connections on ECCS injection piping in the Auxiliary Building.

P3 – HPCS Diesel Generator Emergency Shutdown  
(GJPM-OPS-2-2020P3) 264000 A4.04 (3.7)

- This task simulates an auto start of HPCS Diesel Generator with a subsequent oil system failure requiring the operator to EMERGENCY STOP (trip) the HPCS D/G. The Control Room switch and local Emergency Stop switch will not work, the operator must use other means to stop the EDG. Per P81 SOI the lay shaft handle on each diesel engine must be manipulated to stop the EDG.



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020C1

**2-2020 C1**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020C1

JPM Title: Defeat Feed Pump  
Level 9 Trips

Facility Number: GJPM-OPS-EOP006  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	Johnnie Clack / Mark Watts	10/14/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Defeat Feed Pump Level 9 Trips

### JPM Attributes:

<input type="checkbox"/> New	<input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 10 Min

Setting: Control Room  
 Type: RO  
 Task: CRO-EP-006  
 K&A: 259001 A3.10 3.4/3.4  
 Safety Function: 2 – Reactor Water Inventory Control System  
 10CFR 55.45(a) (5)  
 Performance: Simulated  
 Reference(s): 05-S-01-EP-1/Attachment 6  
 Handout(s) 05-S-01-EP-1 Attachment 6  
 # Manipulations: 4  
 # Critical Steps: 4  
 Low Power: **YES**  
 Emergency/Abnormal: **YES**  
 RCA entry: No  
 Engineered Safety Function: No

### Simulator Setup/Required Plant Conditions:

- Control Room operating panels and backpanel P612 is accessible, with permission from the Shift Manager to panels for inspection only.

### Safety Concerns:

- Possible electric shock while inspecting interior of panels – Do not break the plane of any panels (student should use an appropriate indicating device to identify component/connection locations).

## **Defeat Feed Pump Level 9 Trips**

### Task Standard:

- Removes relay 1C34A-K7J.
- Removes relay 1C34A-K7G.
- Removes relay 1C34A-K7A.
- Removes relay 1C34A-K7F.
- The Reactor Feed Pump Level 9 trips are defeated in accordance with 05-S-01-EP-1, Attachment 6 steps 2.1 thru 2.4.

## Defeat Feed Pump Level 9 Trips

<b>Initial Condition(s):</b>
------------------------------

- |  |
|--|
| <ul style="list-style-type: none"><li>• EOP's have been entered.</li></ul> |
|--|

<b>Initiating Cue(s):</b>
---------------------------

- |  |
|--|
| <ul style="list-style-type: none"><li>• You have been directed to perform steps 2.1 through 2.4 of EP Attachment 6.</li><li>• Another operator will complete the remaining steps of this attachment when directed.</li></ul> |
|--|

## Defeat Feed Pump Level 9 Trips

### Notes to Evaluator:

- RFPT reset controls and indications are on P680.
- Panel P612 is in the Main Control Room

### Task Overview: (Detailed description of task)

- This task defeats the High Reactor Water Level trip of the Reactor Feed Pumps, which under certain conditions is directed by the EOPs to maintain adequate core cooling.

## Defeat Feed Pump Level 9 Trips

Critical tasks are underlined, *italicized*, and denoted by an (\*)

NOTE: The sequence of the following steps is critical unless otherwise noted.

*Remember to record Start time*

Step 1: 05-S-01-EP-1, Attachment 6, step 2.1

☐ \* **REMOVE** *relay 1C34A-K7J.*

**Standard:** Candidate removed relay relay 1C34A-K7J from Main Control Room panel 1H13-P612 Bay B (3<sup>rd</sup> row from top, 1<sup>st</sup> relay from left.)

**Cue:** Relay 1C34A-K7J is removed.

**Notes:**

SAT / UNSAT

Step 2: 05-S-01-EP-1, Attachment 6, step 2.2

☐ \* **REMOVE** *relay 1C34A-K7G.*

**Standard:** Candidate removed relay relay 1C34A-K7G from Main Control Room panel 1H13-P612 Bay B (3<sup>rd</sup> row from top, 2<sup>nd</sup> relay from left.)

**Cue:** Relay 1C34A-K7G is removed.

**Notes:**

SAT / UNSAT

## Step 3: 05-S-01-EP-1, Attachment 6, step 2.3

☐ \* **REMOVE relay 1C34A-K7A.**

**Standard:** Candidate removed relay relay 1C34A-K7A from Main Control Room panel 1H13-P612 Bay B (2<sup>nd</sup> row from top, 1<sup>st</sup> relay from left.)

**Cue:** Relay 1C34A-K7A is removed.

**Notes:**

SAT / UNSAT

## Step 4: 05-S-01-EP-1, Attachment 6, step 2.4

☐ \* **REMOVE relay 1C34A-K7F.**

**Standard:** Candidate removed relay relay 1C34A-K7F from Main Control Room panel 1H13-P612 Bay B (3<sup>rd</sup> row from top, 3<sup>rd</sup> relay from left.)

**Cue:** Relay 1C34A-K7F is removed.

If candidate attempts to enter the P680 panel area, inform the candidate that another operator will perform the remainder of the attachment.

**Notes:**

***Remember to record stop time***

SAT / UNSAT



Operator: _____ License: RO / SRO Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>Removes relay 1C34A-K7J.</li> <li>Removes relay 1C34A-K7G.</li> <li>Removes relay 1C34A-K7A.</li> <li>Removes relay 1C34A-K7F.</li> <li>The Reactor Feed Pump Level 9 trips are defeated in accordance with 05-S-01-EP-1, Attachment 6 steps 2.1 thru 2.4.</li> </ul>		
<u>JPM Results (circle one):</u> <div style="display: inline-block; width: 150px; text-align: center;"> <b>SAT</b> </div> <div style="display: inline-block; width: 150px; text-align: center;"> <b>UNSAT</b> </div>		
<u>Follow-up Questions:</u>          		
<u>Follow-up Question Response:</u>          		
<u>Comments / Feedback:</u>          		

**Give this page to the student**

**Initial Condition(s):**

- EOP's have been entered.

**Initiating Cue(s):**

- You have been directed to perform steps 2.1 through 2.4 of EP Attachment 6.
- Another operator will complete the remaining steps of this attachment when directed.



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020S1

**2-2020 S1**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020S1

JPM Title: Transfer Recirculation Pumps to slow speed

Facility Number: N/A  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	April Hargrave / Benny White	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Transfer Recirculation Pumps to Slow Speed

### JPM Attributes:

<input type="checkbox"/> New	<input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input checked="" type="checkbox"/> Alternate Path	Validation Time: 15 min

Setting: Simulator  
 Type: RO  
 Task: CRO-B33-NORMAL 001  
 K&A: 202001 A4.01 (3.7/3.7); A4.02 (3.5/3.4)  
 295001 AA1.01 (3.5/3.6); AA1.02 (3.3/3.3)  
 Safety Function: 1 – Reactivity Control  
 10CFR55.45(a) (2); (3); (5); (7)  
 Performance: Perform  
 Reference(s): 03-1-01-2 SU, Rev 176  
 04-1-01-B33-1, Rev 172  
 04-1-02-1H13-P680, Rev 244  
 05-1-02-III-3, Rev 118  
 05-1-02-I-1, Rev 133  
 Handout(s) 03-1-01-2, Attachment IV  
 04-1-01-B33-1, Section 4.3  
 # Manipulations: 6  
 # Critical Steps: 6  
 Emergency/Abnormal: **YES**  
 RCA entry: No  
 Engineered Safety Function: No

### Simulator Setup/Required Plant Conditions:

- Reset Simulator to IC-118
- Ensure the following :
  - Rod Line is <65%
  - Reactor Power is <40%
  - Insert Override di\_1c71m602, P680/11E Mode Switch in **RUN**
  - Mark up 03-1-01-2, Attachment IV to step 8.8.6

## **Transfer Recirculation Pumps to Slow Speed**

### Safety Concerns:

- NONE

### Task Standard:

- Closes Both Recirculation A AND B Flow Control Valves (FCV's) to MIN ED position using RECIRC A(B) FLO CONT on 1H13-P680.
- Simultaneously depresses TRANS TO LFMG pushbutton on TRANS TO LFMG/START handswitch for Recirc Pump A AND B on 1H13-P680.
- Opens Recirculation FCVs to their MAXIMUM position, and CHECK flow balance between Loops WHILE monitoring Recirc Pump performance on 1H13-P680.
- Actions have been taken to insert a manual reactor scram following a trip of both Reactor Recirculation Pumps to off without permission of CRS or referring to procedures.
- ARMs and simultaneously depresses Manual SCRAM pushbuttons.
- Depresses the ALL RODS pushbutton on 1H13-P680 to confirm all rods in.

## Transfer Recirculation Pumps to Slow Speed

### Initial Condition(s):

- The plant is operating at  $\approx 43\%$  power shutting down the reactor per 03-1-01-2, Power Operations IOI, Attachment IV.
- OPRMs are all operable.
- LFMGs are available.
- Tech Spec 3.3.1.1 Action J.1 is NOT in effect.

### Initiating Cue(s):

- The CRS directs you to perform step 8.8.6 of Attachment IV of 03-1-01-2, then transfer Reactor Recirculation Pumps to Slow Speed in accordance with section 4.3 Of SOI 04-1-01-B33-1.
- Another operator will respond to all other alarms.

## Transfer Recirculation Pumps to Slow Speed

### Notes to Evaluator:

- All controls will be from panel P680 in the Main Control Room.
- Remember to record Start time on page 17.

### Task Overview: (Detailed description of task)

- This task is to transfer Reactor Recirculation Pumps to slow speed per IOI - 2, 03-1-01-2, Power Operations Attachment IV section 8.8.6 and 8.8.7. Upon transfer to slow speed and reopening of both Recirculation Flow Control Valves to 50%, both Reactor Recirculation Pumps will trip to OFF. With the Reactor Mode Switch in RUN at power and no Reactor Recirculation Pumps operating, entry into the Reduction in Recirculation Flow ONEP 05-1-02-III-3, Immediate Operator Actions step 2.1.2 will be required to insert a Manual Reactor Scram.
- Placing the Reactor Mode Switch to Shutdown will NOT insert Control Rods requiring alternate actions to insert the Control Rods by either arming and depressing the Manual Scram pushbuttons OR Initiating ATWS ARI/RPT which will depressurize the Scram Air Header.

## Transfer Recirculation Pumps to Slow Speed

Critical tasks are underlined, *italicized*, and denoted by an (\*)

Step 1: 03-1-01-2, Att. IV step 8.8.6	
<input type="checkbox"/> * <b><i><u>CLOSE Both Recirculation A AND B Flow Control Valves (FCV's) to MIN ED position using RECIRC A(B) FLO CONT on 1H13-P680.</u></i></b>	
<u>Standard:</u>	Recirculation A <b>AND</b> B Flow Control Valves (FCV's) are in MIN ED position.  Step 1a    FCV A in MIN ED _____  Step 1b    FCV B in MIN ED _____
<u>Cue:</u>	None.
<u>Notes:</u>	Sequence of closing FCV's is NOT CRITICAL.  If asked to initial the step in 03-1-01-2 Attachment IV step 8.8.6, MARK the step as complete when the applicant completes the action.  Initialing the IOI is NOT CRITICAL.  Applicant may inform CRS of NOTE in 03-1-01-2 Att. IV about Feedwater Heater isolations.  Inform the applicant another operator will perform the actions of the Loss of Feedwater Heating ONEP if an isolation occurs
SAT / UNSAT	



Step 2: 03-1-01-2 Att. IV step 8.8.7  
04-1-01-B33-1, Step 4.3.1

☐ Verifies Prerequisites are complete:

- (1) LFMG sets available
- (2) Recirc Loop A(B) FLO CONT are at MIN ED position in MANUAL
- (3) Reactor Feedwater flow is stable greater than 4.5 mlbm/hr flow
- (4) Reactor power stable **AND** less than +40 percent **AND** Reactor power/flow are below 65 percent load line
- (5) **IF** entry into the Controlled Entry Region of Figure 1 is anticipated **AND** TS 3.3.1.1, Action J.1 is in effect,  
**THEN ENSURE** that the requirements for Controlled Entry Region operation are met per 3.2.13 **AND** 03-1-01-2.

**Standard:** Prerequisites are verified complete.

**Cue:** None.

**Notes:** Applicant may inform CRS of NOTE in 04-1-01-B33-1 step 4.3.2 about Feedwater Heater isolations

Inform the applicant another operator will perform the actions of the Loss of Feedwater Heating ONEP if an isolation occurs.

IF applicant informs CRS of CAUTION, acknowledge CAUTION.

Requirements for Controlled Entry Region are met.

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Step 3: 04-1-01-B33-1, Step 4.3.2 1

☐\* **SIMULTANEOUSLY DEPRESS TRANS TO LFMG pushbutton on TRANS TO LFMG/START handswitch for Recirc Pump A **AND** B on 1H13-P680.**

**Standard:** Simultaneously depresses the Recirc pump A and B TRANS TO LFMG pushbuttons on P680.

**Cue:** **None.**

**Notes:** **None**

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## Step 4 04-1-01-B33-1, Step 4.3.2.1 (a - f)

☐ CHECK the following on 1H13-P680:

- (1) CB-5A, RECIRC PMP A FDR, 252-1103 OPENS
- (2) CB-5B, RECIRC PMP B FDR, 252-1205 OPENS
- (3) RECIRC PUMP A **AND** RECIRC PUMP B AMPS DECLINE
- (4) RECIRC PUMP A RPM & RECIRC PUMP B RPM STARTS DECLINING
- (5) CB-1A, LFMG A DRIVE MTR FDR 152-1308 CLOSES
- (6) CB-1B, LFMG B DRIVE MTR FDR 152-1411 CLOSES

**Standard:** Observes the following:

- \_\_\_ CB-5A, RECIRC PMP A FDR, 252-1103 OPENS
- \_\_\_ CB-5B, RECIRC PMP B FDR, 252-1205 OPENS
- \_\_\_ RECIRC PUMP A **AND** RECIRC PUMP B AMPS DECLINE
- \_\_\_ RECIRC PUMP A RPM & RECIRC PUMP B RPM STARTS DECLINING
- \_\_\_ CB-1A, LFMG A DRIVE MTR FDR 152-1308 CLOSES
- \_\_\_ CB-1B, LFMG B DRIVE MTR FDR 152-1411 CLOSES

**Cue:** None

**Notes:** The Recirc Pumps are operating in Slow Speed.

**SAT / UNSAT**

Step 5: 04-1-01-B33-1, Step 4.3.2.2

- ☐ **When** Recirc Pumps A & B slow down to 360 - 450 rpm, then ENSURE LFMG A & LFMG B FDR 252-1103A AND 252-1205A, CLOSE.

Standard: Observes LFMG A & LFMG B FDR 252-1103A AND 252-1205A, CLOSE.

Cue: **None.**

Notes: **H13-P680 section 3C.**

**SAT / UNSAT**

Step 6: 04-1-01-B33-1, Step 4.3.2.3

- ☐\* **OPEN** Recirculation FCVs to their MAXIMUM position, and CHECK flow balance between Loops WHILE monitoring Recirc Pump performance on 1H13-P680.

**Standard:** Opens Recirculation Flow Control Valves (FCVs) to their MAXIMUM position.

Step 6a FCV A \_\_\_\_\_

Step 6b FCV B \_\_\_\_\_

See NOTES Below.

**Cue:** None.

**Notes:** 1H13-P680 section 3D

**When BOTH Recirculation FCVs are at 50% valve position the Low Frequency Motor Generators (LFMGs) will trip to OFF.**

CB-1A, LFMG A DRIVE MTR FDR 152-1308 OPEN

CB-1B, LFMG B DRIVE MTR FDR 152-1411 OPEN

CB-2A, LFMG A FDR 252-1103A OPEN

CB-2B, LFMG B FDR 252-1205A OPEN

**Opening the Recirculation FCVs is an acceptable two handed operation. They should be moving the valves in Slow Detent.**

**The Recirculation Pumps tripping will begin the Alternate Path.**

**SAT / UNSAT**

Step 7: 04-1-02-1H13-P680, annunciators  
3A-A4; 3A-A10; 3A-E5; 3A-E8

☐ **OBSERVES AND REPORTS** the following Annunciators on 04-1-02-1H13-P680:

3A-A4 RECIRC PMP A LO SP AUTO XFER NOT AVAIL  
3A-A10 RECIRC PMP B LO SP AUTO XFER NOT AVAIL  
3A-E5 LFMG A OVERLD/TRIP  
3A-E8 LFMG B OVERLD/TRIP

Recirculation Pumps A and B have tripped to Off.

Standard: Reports trip of both Recirc Pumps to OFF.

Cue: None.

Notes: Annunciators 1H13-P680-3A-A4; A10; E5 and E8.

Indication of Recirculation Pump circuit breakers in on  
1H13-P680 section 3C.

SAT / UNSAT

Alternate Path begins with the next step, designated by "AP".

**AP Step 8: 05-1-02-III-3 step 2.1/2.1.2**

- ☐\* Upon recognition of No Recirculation Loops in operation with the Reactor Mode Switch in RUN, immediately **PLACE** the reactor mode switch in the SHUTDOWN position.

Standard: Places Reactor Mode Switch to SHUTDOWN.

Cue: None

Notes: This action inserts a manual reactor scram.

SAT / UNSAT

**AP Step 9: 05-1-02-I-1 step 2.1**

- ☐ CONFIRM all Control Rods are fully inserted.

Standard: Confirms all Control Rods have **NOT** fully inserted.

Cue: None

Notes: Applicant will depress the ALL RODS on 1H13 P680 and observe the following on the full core display:  
 (1) all green LEDs illuminated for control rods  
 OR/AND  
 (2) all control rod position indications indicate "--"

SAT / UNSAT

**AP Step 10: 05-1-02-I-1 step 2.4**

- ☐\* *If a "Failure to De-energize" ATWS occurs, THEN ARM and simultaneously DEPRESS Manual SCRAM pushbuttons.*

**Standard:** Arms and Depresses at least 1 - RPS DIV 1 **OR** DIV 3 **AND** 1 - RPS DIV 2 **OR** DIV 4 Manual SCRAM pushbutton.

**Cue:** None

**Notes:** These pushbuttons are not required by logic to be depressed simultaneously. As long as one from each RPS channel A and B is initiated a Full Scram will occur.

If Step 11 is performed this step is N/A and NOT Critical.

SAT / UNSAT

**AP Step 11: 05-1-02-I-1 step 2.5.2**

- ☐\* *Initiate ARI/RPT.*

**Standard:** Arms and Depresses ATWS ARI/RPT MANUAL TRIP Channel 1 and Channel 2 pushbuttons.

**Cue:** None

**Notes:** 1H13-P680 section 3C

This action will initiate the ATWS ARI system to depressurize the Scram Air Header.  
If Step 10 is performed this step is N/A and NOT Critical.

SAT / UNSAT



**AP Step 12: 05-1-02-I-1 step 2.1**

☐\* CONFIRM all Control Rods are fully inserted.

**Standard:** Confirms all Control Rods have fully inserted by **depressing** the ALL RODS pushbutton on 1H13-P680 and observe the following on the full core display:  
 (1) all green LEDs illuminated for control rods  
 OR/AND  
 (2) all control rod position indications indicate "--"

**Cue:** None

**Notes:** Applicant will depress the ALL RODS on 1H13 P680 and observe the following on the full core display:  
 (1) all green LEDs illuminated for control rods  
 OR/AND  
 (2) all control rod position indications indicate "--"

**SAT / UNSAT**

<b>AP Step 13: 05-1-02-I-1 step 2.2</b>	
<input type="checkbox"/>	CONFIRM Reactor power decreasing.
<u>Standard:</u>	Observes Reactor power decreasing on APRMs and IRMs.
<u>Cue:</u>	None
<u>Notes:</u>	<p>Inform applicant the JPM is TERMINATED</p> <p><i>Remember to record stop time</i></p> <p>SAT / UNSAT</p>

## Transfer Recirculation Pumps to Slow Speed

<input type="checkbox"/> Time Critical	<input checked="" type="checkbox"/> Alternate Path	Validation Time: 15 Min
--	--	-------------------------

Operator: _____ License: RO / SRO      Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>Closes Both Recirculation A AND B Flow Control Valves (FCV's) to MIN ED position using RECIRC A(B) FLO CONT on 1H13-P680.</li> <li>Simultaneously depresses TRANS TO LFMG pushbutton on TRANS TO LFMG/START handswitch for Recirc Pump A AND B on 1H13-P680.</li> <li>Opens Recirculation FCVs to their MAXIMUM position, and CHECK flow balance between Loops WHILE monitoring Recirc Pump performance on 1H13-P680.</li> <li>Actions have been taken to insert a manual reactor scram following a trip of both Reactor Recirculation Pumps to off without permission of CRS or referring to procedures.</li> <li>ARMs and simultaneously depresses Manual SCRAM pushbuttons.</li> <li>Depresses the ALL RODS pushbutton on 1H13-P680 to confirm all rods in.</li> </ul>		
<u>JPM Results (circle one):</u> <div style="display: inline-block; margin-left: 100px;">SAT</div> <div style="display: inline-block; margin-left: 100px;">UNSAT</div>		
<u>Follow-up Questions:</u>          		
<u>Follow-up Question Response:</u>          		
<u>Comments / Feedback:</u>          		

**Give this page to the student**

**Initial Condition(s):**

- The plant is operating at  $\approx 40\%$  power shutting down the reactor per 03-1-01-2, Power Operations IOI, Attachment IV.
- OPRMs are all operable.
- LFMGs are available.
- Tech Spec 3.3.1.1 Action J.1 is NOT in effect.

**Initiating Cue(s):**

- The CRS directs you to perform step 8.8.6 of Attachment IV of 03-1-01-2, then transfer Reactor Recirculation Pumps to Slow Speed in accordance with section 4.3 Of SOI 04-1-01-B33-1.
- Another operator will respond to all other alarms.



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020S2

**2-2020 S2**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020S2

JPM Title: Retest MSIV Slow Closure

Facility Number: GJPM-OPS-2017S2

(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	April Hargrave / Benny White	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Retest MSIV Slow Closure

### JPM Attributes:

<input type="checkbox"/> New	<input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input checked="" type="checkbox"/> Alternate Path	Validation Time: 10 Min

Setting: Simulator  
 Type: RO  
 Task: CRO-B21-SU/SD-001  
 K&A: 239001: A2.11 (4.1/4.3); A3.01 (4.2/4.1); A4.01 (4.2/4.0)  
 Safety Function: 3 - Reactor Pressure Control  
 PRA Applicability: Accident Type Contribution to Core Damage Frequency - Break Outside Containment  
 10CFR 55.45(a) (3); (4); (8)  
 Performance: Perform  
 Reference(s): 04-1-01-B21-1, Rev. 55, Nuclear Boiler System  
 05-1-02-III-5, Rev. 53, Automatic Isolations  
 EN-OP-120, Rev. 2, Operator Fundamentals Program  
 Handout(s): 04-1-01-B21-1 Step 5.4  
 # Manipulations: 11  
 # Critical Steps: 10  
 Low Power: No  
 Emergency/Abnormal: **YES**  
 RCA entry: No  
 Engineered Safety Function: No

### Previous 2 NRC Exams (2017 randomly selected)

#### Simulator Setup/Required Plant Conditions:

- Reset Simulator to IC-136

**OR**

- Create event 1 **iodib21m603a(1)==1**
- Insert malfunction **ms066d** to **50.00** - Steam Leak in Aux Bldg Tunnel: MSL D
- Insert remote function **ATT09** to **DONE** - Defeating all MSIV and MSL Drain Isolation Interlocks
- Icon on 1H13-P680 right side PDS Operator Guide - **EP4 Initial**

## Retest MSIV Slow Closure

### Safety Concerns:

- None

### Task Standard:

- Placed handswitch for B21-F028A on 1H13-P601 to the TEST position
- Depressed and held the MSIV TEST pushbutton until B21-F028A indicates full closed
- Placed B21-F028A handswitch to the CLOSE position, then released MSIV TEST P/B
- Manually closed the following MSIVs:
  - B21-F028B, MSL B CTMT OTBD ISOL
  - B21-F028C, MSL C CTMT OTBD ISOL
  - B21-F028D, MSL D CTMT OTBD ISOL
  - B21-F022A, MSL A DRWL INBD ISOL
  - B21-F022B, MSL B DRWL INBD ISOL
  - B21-F022C, MSL C DRWL INBD ISOL
  - B21-F022D, MSL D DRWL INBD ISOL

## Retest MSIV Slow Closure

### Initial Condition(s):

- Plant is approximately 55% power during initial startup after refueling outage
- MSIV, B21-F028A, was reworked during the outage

### Initiating Cue(s):

- Control Room Supervisor directs you to perform a slow closing of MSIV B21-F028A, using 04-1-01-B21-1, Nuclear Boiler System SOI, section 5.4
- After MSIV B21-F028A reaches full closed, place handswitch for B21-F028A to the CLOSE position for data collection



## **Retest MSIV Slow Closure**

### Notes to Evaluator:

- All controls and indications for this task are on panel P601

### Task Overview: (Detailed description of task)

- This task is to perform a slow closure on MSIV B21-F028A.
- Following the closure of the MSIV, applicant should recognize High - High temperature in Main Steam Tunnel without Group 1 MSIV isolation. Applicant should manually close all remaining MSIVs (7) using handswitches on P601 panel to isolate the steam leak.
- At initial power level Main Steam Line Drains should be closed with the exception of B21-F019, INBD MSL DR OTBD DR VLV which has another valve in the line already closed B21-F016, INBD MSL DR INBD DR VLV.

## Retest MSIV Slow Closure

Critical tasks are underlined, *italicized*, and denoted by an (\*)

**NOTE:** The sequence of the following steps is critical unless otherwise noted.

*Remember to record Start time on page 12*

Step 1: 04-1-01-B21-1, Step 5.4.2 a	
<input type="checkbox"/> * <b><u>PLACE</u></b> <i>associated MSIV handswitch on 1H13-P601 to TEST</i>	
<b><u>Standard:</u></b>	Placed handswitch for B21-F028A on 1H13-P601 to the TEST position.
<b><u>Cue:</u></b>	None
<b><u>Notes:</u></b>	1H13-P601 section 19C
<b>SAT / UNSAT</b>	

Step 2: 04-1-01-B21-1, Step 5.4.2 a	
<input type="checkbox"/> * <b><u>DEPRESS</u></b> <i>MSIV TEST pushbutton. Holding pushbutton slow closes valve fully.</i>	
<b><u>Standard:</u></b>	Depressed and held the MSIV TEST pushbutton until B21-F028A indicates full closed, indicated by green light on and red light off.
<b><u>Cue:</u></b>	None
<b><u>Notes:</u></b>	1H13-P601 section 19C
<b>SAT / UNSAT</b>	

Step 3: 04-1-01-B21-1, Step 5.4.2 b

☐\* ***IF desired, WHEN MSIV is fully CLOSED, PLACE MSIV handswitch from TEST to CLOSE, THEN RELEASE pushbutton.***

**Standard:** After B21-F028A reaches the full closed position, placed B21-F028A handswitch to the CLOSE position, then releases MSIV TEST P/B.

**Cue:** None

**Notes:** When handswitch is placed in the CLOSE position, a steam line break will occur inside the Auxiliary Building Steam Tunnel.

**SAT / UNSAT**

**SIMULATOR OPERATOR - ENSURE EVENT 1 ACTUATES.**

Alternate Path begins with the next step, designated by "AP".
---

<b>AP Step 4: EN-OP-120, Step 5.1.1 b (10), Control</b>
---

<input type="checkbox"/> Recognize a valid Group 1 MSIV isolation signal.
---

<b><u>Standard:</u></b> Recognized a Group 1 MSIV isolation signal by observing the following four alarms:
--

- |   |
|---|
| <ul style="list-style-type: none"> <li>• P601-18A(19A)-A3 and A4, MSL PIPE TNL CH-A (B,C,D) TEMP HI/INOP</li> </ul> |
|---|

<b><u>Cue:</u></b> If asked, indication on 1H13-P632 TJRS-R608 Point 1 indicates 260°F
--

<b><u>Notes:</u></b> Applicant may look at PDS Operator Guide EP4 Initial and notice point for Steam Tunnel Temperature in alarm
--

SAT / UNSAT
-------------

**AP Step 4: EN-OP-120, Step 5.1.1 b (10), Control**

☐ Recognize Group 1 MSIV isolation did not occur.

**Standard:** Recognized all remaining (7) MSIVs are open

- B21-F028B, MSL B CTMT OTBD ISOL
- B21-F028C, MSL C CTMT OTBD ISOL
- B21-F028D, MSL D CTMT OTBD ISOL
- B21-F022A, MSL A DRWL INBD ISOL
- B21-F022B, MSL B DRWL INBD ISOL
- B21-F022C, MSL C DRWL INBD ISOL
- B21-F022D, MSL D DRWL INBD ISOL

Indication of MSIVs open is red lights on, green lights off

**Cue:** If applicant reports a failure of a Group 1 isolation; respond as the CRS, “I understand failure of Group 1 isolation;”

**Also if asked the ATC will place the Mode Switch to shutdown.**

**Notes:**

Applicant may report EP-4 entry condition. If reported EP-4 entry, acknowledge the report.

**SAT / UNSAT**

**AP** Step 6: EN-OP-120, Step 5.1.1 b (10), & 05-1-02-III-5,  
Step 2.1

☐\* Place all remaining MSIV handswitches (7) to the CLOSE position.

**Standard:** Placed the following remaining MSIV handswitches (7) to the CLOSE position:

\_\_\_\_\_ B21-F028B, MSL B CTMT OTBD ISOL  
 \_\_\_\_\_ B21-F028C, MSL C CTMT OTBD ISOL  
 \_\_\_\_\_ B21-F028D, MSL D CTMT OTBD ISOL  
 \_\_\_\_\_ B21-F022A, MSL A DRWL INBD ISOL  
 \_\_\_\_\_ B21-F022B, MSL B DRWL INBD ISOL  
 \_\_\_\_\_ B21-F022C, MSL C DRWL INBD ISOL  
 \_\_\_\_\_ B21-F022D, MSL D DRWL INBD ISOL

Indication of MSIVs closed is green light on, red light off

**Cue:**           **None**

**Notes:**       Per EN-OP-120, Step 5.1.1 b (10)

**ENSURE** appropriate manual action is taken when automatic systems do not actuate when required or when the equipment has not responded as expected.

**SAT / UNSAT**

**AP** Step 7: EN-OP-120, Step 5.1.1 b (10), & 05-1-02-III-5,  
Step 2.1

☐ Place the following MSL Drain handswitches to the CLOSE position.

- B21-F019, INBD MSL DR OTBD DR VLV
- B21-F067A, OTBD MSL A DR VLV (should be closed based on initial power)
- B21-F067B, OTBD MSL B DR VLV (should be closed based on initial power)
- B21-F067C, OTBD MSL C DR VLV (should be closed based on initial power)
- B21-F067D, OTBD MSL D DR VLV (should be closed based on initial power)
- B21-F016, INBD MSL DR INBD DR VLV (should be closed based on initial power)

Standard: Placed the following MSL Drain valve handswitches to the CLOSE position:

\_\_\_\_\_ B21-F019, INBD MSL DR OTBD DR VLV

Indication of MSL Drain Valves closed is green light on, red light off

Cue:           **None**

Notes:

These valves should already be closed due to initial power level. B21-F019 has another valve (B21-F016) in the line closed therefore would NOT be critical.

**EVALUATOR TERMINATE JPM after all MSIVs (8) MSIVs handswitches are in the closed position.**

Only 7 valves are required to be manually closed due to one was closed per the SOI retest.

**RECORD STOP TIME ON NEXT PAGE**

**SAT / UNSAT**

## Retest MSIV Slow Closure

<input type="checkbox"/> Time Critical	<input checked="" type="checkbox"/> Alternate Path	Validation Time: 10 Min
--	--	-------------------------

Operator: _____ License: RO / SRO      Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>Placed handswitch for B21-F028A on 1H13-P601 to the TEST position</li> <li>Depressed and held the MSIV TEST pushbutton until B21-F028A indicates full closed</li> <li>Placed B21-F028A handswitch to the CLOSE position, then released MSIV TEST P/B</li> <li>Manually closed the following MSIVs:               <ul style="list-style-type: none"> <li>B21-F028B, MSL B CTMT OTBD ISOL</li> <li>B21-F028C, MSL C CTMT OTBD ISOL</li> <li>B21-F028D, MSL D CTMT OTBD ISOL</li> <li>B21-F022A, MSL A DRWL INBD ISOL</li> <li>B21-F022B, MSL B DRWL INBD ISOL</li> <li>B21-F022C, MSL C DRWL INBD ISOL</li> <li>B21-F022D, MSL D DRWL INBD ISOL</li> </ul> </li> </ul>		
<u>JPM Results (circle one):</u> <b>SAT</b> <b>UNSAT</b>		
<u>Follow-up Questions:</u>		
<u>Follow-up Question Response:</u>		
<u>Comments / Feedback:</u>		



**Give this page to the applicant**

**Initial Condition(s):**

- Plant is approximately 55% power during initial startup after refueling outage
- MSIV, B21-F028A, was reworked during the outage

**Initiating Cue(s):**

- Control Room Supervisor directs you to perform a slow closing of MSIV B21-F028A, using 04-1-01-B21-1, Nuclear Boiler System SOI, section 5.4
- After MSIV B21-F028A reaches full closed, place handswitch for B21-F028A to the CLOSE position for data collection



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020S3

**2-2020 S3**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020S3

JPM Title: Performing HPCS Quarterly  
Functional Test

Facility Number: GJPM-OPS-E2217  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	April Hargrave / Benny White	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Performing HPCS Quarterly Functional Test

<input type="checkbox"/> New	<input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input checked="" type="checkbox"/> Alternate Path	Validation Time: 15 Min

Setting: Simulator  
 Type: RO  
 Task: CRO-E22-008, 010  
 K&A: 209002: A1.01-3.6/3.7; A4.01 - 3.7/3.7  
 Safety Function: 4 – Heat Removal from Reactor Core  
 PRA Applicability: HPCS system is #16 on System Importance to CDF  
 10CFR 55.45(a) (3); (4); (5); (7)  
 Performance: Perform  
 Reference(s): 06-OP-1E22-Q-0005, Rev. 130  
 EN-OP-120, Rev. 2  
 02-S-01-43, Rev 7  
 Handout(s) 06-OP-1E22-Q-0005  
 # Manipulations: 5  
 # Critical Steps: 4  
 Low Power: No  
 Emergency/Abnormal: **YES**  
 RCA entry: No  
 Engineered Safety Function: **YES**

### Simulator Setup/Required Plant Conditions:

- Reset Simulator to IC-120
- Run Schedule File **GJPM-OPS-2-2020S3**
- Ensure HPCS MOV test switch in TEST. HPCS system OOSVC lit.
- Verify flags are on the following alarm:
  - P601-16A-H5, HPCS SYS OOSVC
- Verify status light is on:
  - HPCS MOV IN TEST STATUS

## Performing HPCS Quarterly Functional Test

### Safety Concerns:

- None

### Task Standard:

- The HPCS pump is started for full test return flow, Suppression Pool to Suppression Pool, IAW 06-OP-1E22-Q-0005, when both Main Feed Pumps trip and HPCS fails to auto initiate. Student must recognize the failed initiation (-41.6 inches Wide Range Reactor Water Level) and manually initiate HPCS. Then the student must recognize the failure to inject and manually open E22-F004 (HPCS Injection Valve) prior to wide range reactor water level reaching -160 inches.

## Performing HPCS Quarterly Functional Test

### Initial Condition(s):

- 06-OP-1E22-Q-0005, HPCS Quarterly Functional Test, Attachment 1 is in progress at step 5.2.2 t.
- SSW C is in STANDBY
- All Prerequisites are met
- Reactor power is at approximately 100%
- You are filling the position of CRO

### Initiating Cue(s):

- The CRS directs you to continue with 06-OP-1E22-Q-0005, HPCS Quarterly Functional Test, Attachment 1.

## Performing HPCS Quarterly Functional Test

### Notes to Evaluator:

- All controls and indications for this task are on panel 1H13-P601 and P870.

### Task Overview: (Detailed description of task)

- This task requires the ability to manually start the only ECCS-qualified high pressure injection system.
- This task demonstrates the ability to operate HPCS in the "test return" mode, which puts HPCS flow in a loop from and to the Suppression Pool, one of its two suction sources. HPCS is operated in this mode for surveillance and post-maintenance testing.
- As HPCS is placed in the test return mode the system will experience a failure to initiate and a failure to inject once manually initiated. This will require to arm and depress the initiation pushbutton and then manually open the E22-F004.

## Performing HPCS Quarterly Functional Test

Critical tasks are underlined, *italicized*, and denoted by an (\*)

**NOTE:** The sequence of the following steps is critical unless otherwise noted.

Remember to record Start time on page 13

Step 1: 06-OP-1E22-Q-0005, Att. 1 Step 5.2.2 t

☐ **PLACE** the SSW DIV 3 MOV TEST switch in the TEST position.

Standard: Places the SSW DIV 3 MOV TEST switch in the TEST position

Cue: None

Notes:

SAT / UNSAT

Step 2: : 06-OP-1E22-Q-0005, Att. 1 Step 5.2.2 u

☐ **OBSERVE** that "SSW DIV 3 MOVS IN TEST MODE" annunciator, 1H13-P870-5A-G2, Alarms

Standard: Observes that "SSW DIV 3 MOVS IN TEST MODE" annunciator, 1H13-P870-5A-G2, Alarms.

Cue: None

Notes:

SAT / UNSAT

Step 3: 06-OP-1E22-Q-0005, Att. 1 Step 5.2.2 v

☐ **OBSERVE** that SSW D3 MOV IN TEST STATUS light energizes.

Standard: Observes that SSW D3 MOV IN TEST STATUS light energizes

Cue: **None**

Notes:

SAT / UNSAT

Step 4: 06-OP-1E22-Q-0005, Att. 1 Step 5.2.2 w

☐ ***\*START HPCS pump using HPCS PUMP handswitch AND VERIFY HPCS pump starts***

Standard: Operator starts the HPCS Pump utilizing its handswitch on P601 and observes pump indicating lights shows a pump start

Cue: **If requested, "Pre-start checks on the HPCS pump are completed satisfactory."**

**If operator wants to perform a plant announcement for starting HPCS pump, respond that all announcements have been made**

Notes:

SAT / UNSAT



Step 5: 06-OP-1E22-Q-0005, Att. 1 Step 5.2.2 w

☐ **VERIFY** the following has occurred:

- (1) F012, HPCS MIN FLO TO SUPP POOL, OPENS as discharge pressure indicated on PI-R601, HPCS PMP DISCH PRESS, increases above 130 psig.
- (2) HPCS Room Cooler Fan has started **USING** indication above HPCS PMP RM CLR T51-B001 handswitch on Panel 1H13-P870-5C.
- (3) SSW LOOP C (HPCS SSW) on Panel 1H13-P870-5C started automatically

Standard:

- (1) F012, HPCS MIN FLO TO SUPP POOL, OPENS as discharge pressure indicated on PI-R601, HPCS PMP DISCH PRESS, increases above 130 psig.
- (2) HPCS Room Cooler Fan has started **USING** indication above HPCS PMP RM CLR T51-B001 handswitch on Panel 1H13-P870-5C.
- (3) SSW LOOP C (HPCS SSW) on Panel 1H13-P870-5C started automatically. Student verifies P41-F011 (PSW FROM CCW HX) and P41-C002C (HPCS SVC WTR PMP (LOOP C) is running.

Cue:      **None.**Notes:**SAT / UNSAT**

Step 6: 06-OP-1E22-Q-0005, Att. 1 Step 5.2.2 x

☐ **OPEN** FX019Standard: Operator request a plant operator to open E22-FX019Cue: **When requested to open E22-FX019, report the valve is open.**Notes:

SAT / UNSAT

Step 7: 06-OP-1E22-Q-0005, Att. 1 Step 5.2.2 y

☐ ***\*THROTTLE F023 as necessary to achieve a flow of approximately 7193 gpm (tolerance: >7176 to 7225 gpm) as indicated on HPCS PUMP FLOW indicator 1E22-FI-R603***Standard: Operator opens E22-F023 to achieve desired flow.

Cue: **Upon reactor scram, give scram report,**

1. **“Mode switch is in Shutdown**
2. **Reactor Water Level is -20” Wide Range and lowering,**
3. **All rods are in.**
4. **‘B’ Feedwater line break in the Drywell”**

If candidate moves toward P680 to respond to alarms, notify that another operator will respond to the P680.

Notes:

- **As F023 starts to open, a trip of both reactor feed pumps will occur. This will result in a failed initiation of HPCS.**
- **The operations contained in the remainder of this JPM are not contained in the HPCS surveillance or SOI.**

SAT / UNSAT

Alternate Path begins with the next step, designated by “AP”.

**AP** Step 8: EN-OP-120, Attachment 9.2, Monitoring

- ☐\* Verify and report automatic system actuations or response, which includes operator actions if the plant has not responded as expected

**Standard:** Operator recognizes failed initiation of HPCS by observing system high drywell pressure (greater than 1.39 psig) and low reactor water level (less than -41.6") on P601 and reports failure to the CRS.

**Cue:** Act as CRS and acknowledge the operators report

**Notes:** Operator may elect to take action to initiate HPCS injection prior to reporting failure to CRS. This is acceptable.

SAT / UNSAT

**AP** Step 9: EN-OP-120, Attachment 2, Control

- ☐\* Take manual actions (IAW procedure direction, if available) when automatic actions do not occur.

**Standard:** **USING** HPCS MAIN INIT pushbutton on 1H13-P601 by ROTATING collar to the ARMED position **AND** PUSHING red button

**Cue:** None

**Notes:**

SAT / UNSAT

**AP** Step 10 EN-OP-120, Attachment 2, Monitoring

- ☐\* Verify and report automatic system actuations or response, which includes operator actions if the plant has not responded as expected.

**Standard:** Operator recognizes failed injection of HPCS by observing system indications on P601(E22-F004 (HPCS Injection Valve) fails to open) and reports failure to the CRS

**Cue:** Act as CRS and acknowledge the operators report

**Notes:** Operator may elect to take action to inject HPCS prior to reporting failure to CRS. This is acceptable.

SAT / UNSAT

**AP** Step 11: EN-OP-120, Attachment 2, Control

- ☐\* Take manual actions (IAW procedure direction, if available) when automatic actions do not occur.

**Standard:** Opens the E22-F004 (HPCS Injection Valve) using its handswitch on P601 and observing its red light is on and its green light is off

**Cue:** None

**Notes:** Once the E22F004 is opened the evaluator may stop the JPM.

**RECORD STOP TIME ON NEXT PAGE**

SAT / UNSAT

Operator: _____ License: RO / SRO Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"><li>The HPCS pump is started for full test return flow, Suppression Pool to Suppression Pool, IAW 06-OP-1E22-Q-0005, when both Main Feed Pumps trip and HPCS fails to auto initiate. Student must recognize the failed initiation (-41.6 inches Wide Range Reactor Water Level) and manually initiate HPCS. Then the student must recognize the failure to inject and manually open E22-F004 (HPCS Injection Valve) prior to wide range reactor water level reaching -160 inches.</li></ul>		
<u>JPM Results</u> (circle one):	<b>SAT</b>	<b>UNSAT</b>
<u>Follow-up Questions:</u>		
<u>Follow-up Question Response:</u>		
<u>Comments / Feedback:</u>		

**Give this page to the student**

**Initial Condition(s):**

- 06-OP-1E22-Q-0005, HPCS Quarterly Functional Test, Attachment 1 is in progress at step 5.2.2 t.
- SSW C is in STANDBY
- All Prerequisites are met
- Reactor power is at approximately 100%
- You are filling the position of CRO

**Initiating Cue(s):**

- The CRS directs you to continue with 06-OP-1E22-Q-0005, HPCS Quarterly Functional Test, Attachment 1.



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020S4

**2-2020 S4**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020S4

JPM Title: Secure Containment Spray  
and Align for RPV Injection

Facility Number: GJPM-OPS-E12015  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	April Hargrave / Benny White	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Secure Containment Spray and Align for RPV Injection

### JPM Attributes:

<input type="checkbox"/> New	<input checked="" type="checkbox"/> Modified	<input type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 10 Min

Setting: Simulator  
 Type: RO  
 Task: CRO-E12-015; CRO-E12-003; CRO-EP-012  
 K&A: 226001 A4.01: 3.5/3.4; A4.03: 3.5/3.4; A4.07: 3.5/3.5; 2.1.30: 3.9/3.4  
 A2.04: 3.0/3.0  
 203000 A2.13: 3.2/3.3; A3.01: 3.8/3.7; A4.02: 4.1/4.1  
 Safety Function: Containment (5)  
 PRA Applicability: Accident Type Contribution to Core Damage Frequency - Break Outside Containment  
 10CFR 55.45(a) (3); (4); (7)  
 Performance: Perform  
 Reference(s): 04-1-01-E12-1, Rev 155  
 05-S-01-EP-1 Att. 12  
 Handout(s): 04-1-01-E12-1, Attachment VII.  
 # Manipulations: 3  
 # Critical Steps: 3  
 Low Power: **YES**  
 Emergency/Abnormal: **YES**  
 RCA entry: No  
 Engineered Safety Function: **YES**

### Simulator Setup/Required Plant Conditions:

- Reset to IC-128
- Using PDS computer HOT KEY, display Reactor Water Level.



## **Secure Containment Spray and Align for RPV Injection**

### Safety Concerns:

- None

### Task Standard:

- Depresses the CTMT SPR A RESET pushbutton
- Depresses the CTMT SPR B RESET pushbutton
- Manually opens the E12-F042A using handswitch
- Manually opens the E12-F042B using handswitch
- RHR 'A' is injecting to the RPV via E12-F042A and RHR 'B' is injecting through E12-F042B

## Secure Containment Spray and Align for RPV Injection

### Initial Condition(s):

- A LOCA has occurred on Feedwater line 'B' in the Drywell.
- RHR 'A' and 'B' are operating in Containment Spray.
- The CRS has entered applicable EPs.
- Adequate Core Cooling is NOT assured.

### Initiating Cue(s):

- You have been directed by the CRS to secure Containment Spray and align LPCI 'A' and 'B' for RPV injection to restore reactor water level.

## **Secure Containment Spray and Align for RPV Injection**

### Notes to Evaluator:

- All controls and indications for this task are on panel P601
- The simulator will be in FREEZE until the candidate is ready to perform actions.
- The Evaluator will CUE the simulator operator to begin the JPM by removing the simulator from FREEZE.

### Task Overview: (Detailed description of task)

- This task is to secure RHR systems from Containment Spray and align them for injection into the RPV during a LOCA.
- During the performance the injection valves have been manually overridden, therefore the injection valves, E12-F042A and B must be manually opened.
- Realignment of RHR from Containment Spray to LPCI mode is directed from the Emergency Procedures when there is not Adequate Core Cooling.

## Secure Containment Spray and Align for RPV Injection

Critical tasks are underlined, *italicized*, and denoted by an (\*)

NOTE: The sequence of the following steps is critical unless otherwise noted.

CUE the simulator operator to begin the JPM by removing the simulator from FREEZE

Remember to record Start time

Step 1: 04-1-01-E12-1, Attachment VII, Containment Spray Shutdown, Step (1)
<input type="checkbox"/> * <b><u>DEPRESS CTMT SPR A(B) RESET pushbutton.</u></b>
<b><u>Standard:</u></b> Depresses the CTMT SPR A RESET pushbutton.
<b><u>Cue:</u></b> <b>None</b>
<b><u>Notes:</u></b> 1H13-P601 section 20B
<b>SAT / UNSAT</b>

Step 2: 04-1-01-E12-1, Attachment VII, Containment Spray Shutdown, Step (2)
<input type="checkbox"/> <b><u>ENSURE</u></b> white light above CTMT SPR A(B) RESET pushbutton extinguishes.
<b><u>Standard:</u></b> Verifies the white light above the CTMT SPR A RESET pushbutton extinguishes
<b><u>Cue:</u></b> <b>None</b>
<b><u>Notes:</u></b> 1H13-P601 section 20B
<b>SAT / UNSAT</b>

Step 3: 04-1-01-E12-1, Attachment VII, Containment Spray Shutdown, Step (3)	
<input type="checkbox"/> <b>ENSURE</b> E12-F042A(B), RHR A(B) INJ SHUTOFF VLV Opens ( <u>Unless</u> overridden by previous EP step).	
<b><u>Standard:</u></b> Recognizes E12-F042A did not auto open and is overridden closed.	
<b><u>Cue:</u></b> <b>None</b>	
<b><u>Notes:</u></b> 1H13-P601 section 20C	
SAT / UNSAT	

Step 4: 04-1-01-E12-1, Attachment VII, Containment Spray Shutdown, Step (3)	
<input type="checkbox"/> * <u>Manually opens E12-F042A using handswitch RHR A INJ SHUTOFF VLV.</u>	
<b><u>Standard:</u></b> Opens E12-F042A using handswitch.	
<b><u>Cue:</u></b> <b>None</b>	
<b><u>Notes:</u></b> 1H13-P601 section 20C	
SAT / UNSAT	

Step 5: 04-1-01-E12-1, Attachment VII, Containment Spray Shutdown, Step (4)
<input type="checkbox"/> <b>ENSURE</b> E12-F028A(B), CTMT SPRAY A(B) SPARGER INJ VLV Closes.
<b><u>Standard:</u></b> Verifies E12-F028A, CTMT SPRAY A SPARGER INJ VLV Closes.
<b><u>Cue:</u></b> <b>None</b>
<b><u>Notes:</u></b> 1H13-P601 section 20C
<b>SAT / UNSAT</b>

Step 6: 04-1-01-E12-1, Attachment VII, Containment Spray Shutdown
<input type="checkbox"/> <b>ENSURE</b> RHR A is injecting into the reactor.
<b><u>Standard:</u></b> Verifies RHR PMP A DISCH FLO is rising.
<b><u>Cue:</u></b> <b>None</b>
<b><u>Notes:</u></b> 1H13-P601 section 20B
<b>SAT / UNSAT</b>

Step 7: 04-1-01-E12-1, Attachment VII,  
Containment Spray Shutdown, Step (1)

☐\* **DEPRESS CTMT SPR A(B) RESET pushbutton.**

**Standard:** Depresses the CTMT SPR B RESET pushbutton.

**Cue:** None

**Notes:** 1H13-P601 section 17B

**SAT / UNSAT**

Step 8: 04-1-01-E12-1, Attachment VII,  
Containment Spray Shutdown, Step (2)

☐ **ENSURE** white light above CTMT SPR A(B) RESET pushbutton extinguishes.

**Standard:** Verifies the white light above the CTMT SPR B RESET pushbutton extinguishes

**Cue:** None

**Notes:** 1H13-P601 section 17B

**SAT / UNSAT**

Step 9: 04-1-01-E12-1, Attachment VII,  
Containment Spray Shutdown, Step (3)

- ☐ **ENSURE** E12-F042A(B), RHR A(B) INJ SHUTOFF VLV Opens  
(Unless overridden by previous EP step).

**Standard:** Recognizes E12-F042B did not auto open and is overridden closed.

**Cue:** None

**Notes:** 1H13-P601 section 17C

SAT / UNSAT

Step 10: 04-1-01-E12-1, Attachment VII,  
Containment Spray Shutdown, Step (3)

- ☐ \* Manually opens E12-F042B using handswitch RHR A INJ SHUTOFF VLV.

**Standard:** Opens E12-F042B using handswitch.

**Cue:** None

**Notes:** 1H13-P601 section 17C

SAT / UNSAT



Step 11: 04-1-01-E12-1, Attachment VII,  
Containment Spray Shutdown, Step (4)

☐ **ENSURE** E12-F028A(B), CTMT SPRAY A(B) SPARGER INJ VLV Closes.

**Standard:** Verifies E12-F028B, CTMT SPRAY B SPARGER INJ VLV Closes.

**Cue:** None

**Notes:** 1H13-P601 section 17C

**SAT / UNSAT**

Step 12: 04-1-01-E12-1, Attachment VII,  
Containment Spray Shutdown

☐ **ENSURE** RHR B is injecting into the reactor.

**Standard:** Verifies RHR PMP B DISCH FLO is rising.

**Cue:** None

**Notes:** 1H13-P601 section 17B

**SAT / UNSAT**

Step 13: 04-1-01-E12-1, Attachment VII,  
Containment Spray Shutdown, Step (5)

☐ **REFER** to Step 5.3.2 of this procedure **WHEN** time permits.

**Standard:** Refers to SOI for this step.

**Cue:** **NONE**

**Notes:**

**EVALUATOR TERMINATE JPM after both RHR systems are injecting into the reactor.**

**RECORD STOP TIME ON NEXT PAGE**

**SAT / UNSAT**

## Secure Containment Spray and Align for RPV Injection

<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 10 Min
--	---	-------------------------

Operator: \_\_\_\_\_ License: RO / SRO      Date: \_\_\_\_\_

---

Evaluators Name: \_\_\_\_\_ Evaluators Signature: \_\_\_\_\_

---

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_

CRITICAL TIME FRAME: \_\_\_\_\_ Required Time (min): \_\_\_\_\_ Actual Time (min): \_\_\_\_\_

---

Task Standard(s):

- Depresses the CTMT SPR A RESET pushbutton
- Depresses the CTMT SPR B RESET pushbutton
- Manually opens the E12-F042A using handswitch
- Manually opens the E12-F042B using handswitch
- RHR 'A' is injecting to the RPV via E12-F042A and RHR 'B' is injecting through E12-F042B

---

JPM Results (circle one):      **SAT**      **UNSAT**

---

Follow-up Questions:

Follow-up Question Response:

Comments / Feedback:

**Give this page to the applicant**

**Initial Condition(s):**

- A LOCA has occurred on Feedwater line 'B' in the Drywell.
- RHR 'A' and 'B' are operating in Containment Spray.
- The CRS has entered applicable EPs.
- Adequate Core Cooling is NOT assured.

**Initiating Cue(s):**

- You have been directed by the CRS to secure Containment Spray and align LPCI 'A' and 'B' for RPV injection to restore reactor water level.



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020S5

**2-2020 S5**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020S5 JPM Title: Isolate CCW to  
FPCCU HT EX 'B'  
Facility Number: N/A NEW  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	April Hargrave / Benny White	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

**Isolate CCW to FPCCU Ht Ex 'B'****JPM Attributes:**

<input checked="" type="checkbox"/> New	<input type="checkbox"/> Modified	<input type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input checked="" type="checkbox"/> Alternate Path	Validation Time: 10 Min

Setting: Simulator  
 Type: RO  
 Task: CRO-P42-007; CRO-P42-004  
 K&A: 400000 A4.01: 3.1/3.0; A2.01: 3.3/3.4  
       2.1.30: 3.9/3.4; 2.1.31: 4.2/3.9;  
       295018 AK3.04: 3.3/3.3; AA1.01: 3.3/3.4  
 Safety Function: 8 – Plant Service Systems  
 PRA Applicability: Accident Type Contribution to Core Damage Frequency - Break Outside Containment  
 10CFR 55.45(a) (3); (4); (7)  
 Performance: Perform  
 Reference(s): 04-1-01-P42-1, Rev. 61, section 5.5.1.3  
                   EN-OP-120, Rev. 2, Operator Fundamentals Program  
                   05-1-02-V-1, Rev 26, Loss of CCW ONEP  
 Handout(s) 04-1-01-P42-1, Precautions and Limitations and section 5.5  
 # Manipulations: 5  
 # Critical Steps: 3  
 Low Power: NO  
 Emergency/Abnormal: **YES**  
 RCA entry: No  
 Engineered Safety Function: NO

**Simulator Setup/Required Plant Conditions:**

- Reset Simulator to IC – 126

## **Isolate CCW to FPCCU Ht Ex 'B'**

### Safety Concerns:

- None

### Task Standard:

- Closes 1P42-F028B, CCW OUTBD INL TO FPHX B using its respective handswitch.
- Closes 1P42-F203, CCW INB INL TO FPHX B. using its respective handswitch.
- After verification of failure to auto start, manually starts CCW pump 'B' using its respective handswitch.
- CCW Pumps 'B' and 'C' are operating.

## Isolate CCW to FPCCU Ht Ex 'B'

### Initial Condition(s):

- The plant is at 100% power.
- CCW pumps 'A' and 'C' are operating
- FPCCU Heat Exchangers 'A' and 'B' are in service.

### Initiating Cue(s):

- The CRS directs you to Remove Fuel Pool Heat Exchanger 'B' from Service, per SOI 04-1-01-P42-1 section 5.5.1.3.



## Isolate CCW to FPCCU Ht Ex 'B'

### Notes to Evaluator:

- All controls and indications for this task are on panel 1H13-P870.

### Task Overview: (Detailed description of task)

- This task is to isolate the 'B' FPCCU heat exchanger.
- During the evolution, a trip will occur on one of the operating CCW pumps, with at failure to start of the Standby pump, requiring the restart of the non-operating CCW pump per the Loss of CCW ONEP.

Critical tasks are underlined, *italicized*, and denoted by an (\*)

**NOTE: The sequence of the following steps is critical unless otherwise noted.**

Remember to record Start time

Step 1: 04-1-01-P42-1, Step 5.5.1.3 a and b	
<input type="checkbox"/> 3.	<b>PERFORM</b> following to remove only FPHX B from service: <div style="margin-left: 20px;">         a. <b>REFER TO</b> Limitation 3.2.3.       </div> <div style="margin-left: 20px;">         b. <b>ENSURE</b> FPHX A is in-service.       </div>
<u>Standard:</u> Refers to Limitation 3.2.3	
<u>Cue:</u> <b>inform student if asked that valves will be tagged in the left position per the SOI and G41 system is isolated to the 'B' heat exchanger.</b>  If asked, per initial conditions, FPHX 'A' and 'B' are currently in service.	
<u>Notes:</u>	
SAT / UNSAT	

## Step 2: 04-1-01-P42-1, Step 5.5.1.3 c

- ☐ **IF** FPHX B is isolated with 1P42-F028B, CLG WTR INL TO FPHX B  
**AND** 1P42-F032B, CCW INBD INL FM FPHX B, CLOSED **THEN ENSURE** G41, Fuel Pool  
 Cooling and Cleanup, water flow is secured to FPHX B.

Standard: Ensures that FPCCU water flow is secured to FPHX B

Cue: **G41 system is isolated to the 'B' heat exchanger.**

Notes:

SAT / UNSAT

## Step 3: 04-1-01-P42-1, Step 5.5.1.3 d

- ☐ At 1H13-P870-8B, **PLACE** CCW DIV 2 MOV TEST switch to TEST.

Standard: Places CCW DIV 2 MOV TEST switch to TEST.

Cue: **NONE**

Notes:

SAT / UNSAT

## Step 4: 04-1-01-P42-1, Step 5.5.1.3 e

☐\* At 1H13-P870-8C, **CLOSE** 1P42-F028B, CCW OUTBD INL TO FPHX B

Standard: Places control switch for 1P42-F028B, CCW OUTBD INL TO FPHX B to CLOSE position

Cue: NONE

Notes: NONE

SAT / UNSAT

## Step 5: 04-1-01-P42-1, Step 5.5.1.3 f

☐ At 1H13-P870-8B, **PLACE** CCW DIV 2 MOV TEST switch to NORM

Standard: Places CCW DIV 2 MOV TEST switch to NORM.

Cue: NONE.

Notes: NONE

SAT / UNSAT

Step 6: 04-1-01-P42-1, 5.5.1.3 g

☐ At 1H13-P870-2B **PLACE** CCW DIV 1 MOV TEST switch to TEST.

Standard: Places CCW DIV 1 MOV TEST switch to TEST.

Cue: **NONE**
Notes:

SAT / UNSAT

Step 7: 04-1-01-P42-1, 5.5.1.3 h

☐\* At 1H13-P870-2C, **CLOSE** 1P42-F203, CCW INB INL TO FP HX B.
Standard: Places control switch for 1P42-F203, CCW INB INL TO FPHX B to CLOSE position

Cue: **NONE**
Notes:
**ALTERNATE PATH BEGINS ON NEXT STEP**

SAT / UNSAT

Alternate Path begins with the next step, designated by "AP".

**BOOTH ACTIONS**

**When green indication for 1P42-F203 is lit, ensure trigger fires and the 'A' CCW pump trips.**

**AP** Step 8: 04-1-01-P42-1

☐ Recognize the following:

- CCW 'A' Pump trip.
- P870-5A-B1, CCW PMP A TRIP
- P870-5A-C1, CCW DISCH HDR PRESS LO-LO
- P870-5A-C2, CCW PMP A/C DISCH PRESS LO
- P870-8A-E1, CCW PMP B DISCH PRESS LO

Standard: Recognizes alarms

Cue: **NONE**

Notes:

SAT / UNSAT

**AP** Step 9: 05-1-02-V-1, Step D1

☐\* Recognize the STANDBY CCW pump should have started but did not.

***IF ONE CCW pump is running,***  
***OR CCW Pressure is < 100 psig,***  
***THEN START AVAILABLE CCW Pump(s) A(B)(C).***

Standard: Places control switch for 'B' CCW pump to START position

Cue: NONE

Notes:

This action is a subsequent action and is required to be performed with procedure in hand and directed by CRS, however, it is also an automatic action that did not occur, therefore, the operator is required to ensure automatic actions occur without direction.

EN-OP-120, Operator Fundamentals Program, step 5.1.1.b.10), ENSURE appropriate manual action is taken when automatic systems do not actuate when required or when the equipment has not responded as expected.

SAT / UNSAT

**AP** Step 10: 04-1-01-P42-1☐ Recognize the CCW 'B' started and CCW system parameters are back to normal.

Standard: Verifies 2 CCW pumps are running and header pressure is >100 psig.

Cue: NONE

Notes:

The evaluator will end the JPM

RECORD STOP TIME ON NEXT PAGE

SAT / UNSAT

**Isolate CCW to FPCCU Ht Ex 'B'**

<input type="checkbox"/> Time Critical	<input checked="" type="checkbox"/> Alternate Path	Validation Time: 10 Min
--	--	-------------------------

Operator: _____ License: RO / SRO Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>• Closes 1P42-F028B, CCW OUTBD INL TO FPHX B using its respective handswitch.</li> <li>• Closes 1P42-F203, CCW INB INL TO FPHX B. using its respective handswitch.</li> <li>• After verification of failure to auto start, manually starts CCW pump 'B' using its respective handswitch.</li> <li>• CCW Pumps 'B' and 'C' are operating.</li> </ul>		
<u>JPM Results (circle one):</u> <div style="display: inline-block; width: 150px; text-align: center;"> <b>SAT</b> </div> <div style="display: inline-block; width: 150px; text-align: center;"> <b>UNSAT</b> </div>		
<u>Follow-up Questions:</u>          		
<u>Follow-up Question Response:</u>          		
<u>Comments / Feedback:</u>          		



**Give this page to the student**

**Initial Condition(s):**

- The plant is at 100% power.
- CCW pumps 'A' and 'C' are operating
- FPCCU Heat Exchangers 'A' and 'B' are in service.

**Initiating Cue(s):**

- The CRS directs you to Remove Fuel Pool Heat Exchanger 'B' from Service, per SOI 04-1-01-P42-1 section 5.5.1.3.



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020S6

**2-2020 S6**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020S6

JPM Title: Place Standby Gas  
Treatment System 'A' in  
STANDBY Mode

Facility Number: N/A NEW  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	April Hargrave / Benny White	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Place Standby Gas Treatment System 'A' in STANDBY Mode

### JPM Attributes:

<input checked="" type="checkbox"/> New	<input type="checkbox"/> Modified	<input type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 10 Min

Setting:	Simulator
Type:	RO
Task:	CRO-T48-OFFNORM-3
K&A:	261000 A4.03: 3.0/3.0; A4.09: 2.7/2.7
Safety Function:	Radioactivity Release (9)
10CFR 55.45(a)	(6); (8); (10)
Performance:	Perform
Reference(s):	04-1-01-T48-1, Rev 39
Handout(s):	04-1-01-T48-1, Section 5.2.
# Manipulations:	4
# Critical Steps:	4
Low Power:	No
Emergency/Abnormal:	No
RCA entry:	No
Engineered Safety Function:	<b>YES</b>

### Simulator Setup/Required Plant Conditions:

- Reset to IC-122

## Place Standby Gas Treatment System 'A' in STANDBY Mode

### Safety Concerns:

- None

### Task Standard:

- Places SGTS DIV 1 MODE SEL handswitch to STBY position
- Turns SGTS DIV 1 MAN INIT RESET key-locked handswitch to RESET position **AND** back to NORM, to reset automatic **OR** manual initiation signal
- Places handswitch for ENCL BLDG RECIRC FAN A to STOP
- Places handswitch for SGTS FLTR TR A EXH FAN to STOP.
- SBT 'A' is STANDBY Mode with SBT 'B' in OPERATION.

## Place Standby Gas Treatment System in STANDBY Mode

### Initial Condition(s):

- An inadvertent SBGT initiation has occurred on Fuel Pool Sweep Radiation monitors.
- All Initiations signals have been reset.
- Both SBGT 'A' and 'B' are running in the AUTO Mode.

### Initiating Cue(s):

- You have been directed by the CRS to place SBGT system 'A' to STANDBY Mode per 04-1-01-T48-1 Section 5.2
- Steps 5.2.2 a through 5.2.2 d are complete.

## **Place Standby Gas Treatment System 'A' in STANDBY Mode**

### Notes to Evaluator:

- All controls and indications for this task are on panel P870

### Task Overview: (Detailed description of task)

- This task is to place one SBT system in the STANDBY Mode per System Operating Instruction.

## Place Standby Gas Treatment System 'A' in STANDBY Mode

Critical tasks are underlined, *italicized*, and denoted by an (\*)

NOTE: The sequence of the following steps is critical unless otherwise noted.

Remember to record Start time

Step 1: 04-1-01-T48-1, Step 5.2.2 e

- ☐ **WHEN** SGTS has completed an adequate Enclosure Building vacuum drawdown, **THEN PLACE** one SGTS filter train in STANDBY, **IF** desired, as follows:
- (1) **IF** SBGT automatically started as a result of high radiation **OR** inoperative signals from either Fuel Handling Area **OR** Fuel Pool Sweep Ventilation radiation monitors, **THEN ENSURE** the initiating condition is clear.
  - (2) **IF** SBGT automatically started as a result of an NSSS LOCA signal, **THEN ENSURE** the initiating condition is clear **AND RESET** NSSS LOCA signal per SOI 04-1-01-M71-1.

**Standard:** Ensures all auto start signals are clear. Initial conditions on CUE sheet states All Initiations signals have been reset

**Cue:** If asked notify student of Initial Conditions.

**Notes:**

SAT / UNSAT

Step 2: 04-1-01-T48-1, Step 5.2.2 e (3)

☐ \* **PLACE SGTS DIV 1(2) MODE SEL handswitch to STBY position.**

**Standard:** Places SGTS DIV 1(2) MODE SEL handswitch to STBY position.

**Cue:** None

**Notes:**

SAT / UNSAT

Step 3: 04-1-01-T48-1, Step 5.2.2 e (4)

☐ **VERIFY SGTS DIV 1(2) MODE SEL handswitch amber light is lit**

**Standard:** Recognizes SGTS DIV 1(2) MODE SEL handswitch amber light is lit.

**Cue:** None

**Notes:**

SAT / UNSAT



Step 4: 04-1-01-T48-1, Step 5.2.2 e (5)

☐ **VERIFY** SGTS DIV 1(2) IN STBY MODE annunciator alarms

**Standard:** Recognizes SGTS DIV 1(2) IN STBY MODE annunciator, P870-2A-F3 alarms.

**Cue:** If applicant addresses the ARI, notify them that another operator will address the ARI

**Notes:**

SAT / UNSAT

Step 5: 04-1-01-T48-1, Step 5.2.2 e (6)

☐\* **TURN SGTS DIV 1(2) MAN INIT RESET key-locked handswitch to RESET position AND back to NORM, to reset automatic OR manual initiation signal.**

**Standard:** Turns SGTS DIV 1 MAN INIT RESET key-locked handswitch to RESET position **AND** back to NORM, to reset automatic **OR** manual initiation signal.

**Cue:** None

**Notes:**

SAT / UNSAT

Step 6: 04-1-01-T48-1, Step 5.2.2 e (7)

☐\* **PLACE handswitch for ENCL BLDG RECIRC FAN A(B) to STOP**

**Standard:** Places handswitch for ENCL BLDG RECIRC FAN A to STOP.

**Cue:** None

**Notes:**

SAT / UNSAT

Step 7: 04-1-01-T48-1, Step 5.2.2 e (8)

☐\* **PLACE handswitch for SGTS FLTR TR A(B) EXH FAN to STOP.**

**Standard:** Places handswitch for SGTS FLTR TR A EXH FAN to STOP.

**Cue:** None

**Notes:**

SAT / UNSAT

Step 8: 04-1-01-T48-1, Step 5.2.2 e (9)
<input type="checkbox"/> <b>VERIFY</b> adequate Enclosure Building vacuum drawdown still exists.
<b><u>Standard:</u></b> Verifies Enclosure Building vacuum is greater than or equal to -0.25" wc by monitoring ENCL BLDG PRESS 1T48-PDR-R602A (or B)
<b><u>Cue:</u></b> Notify the applicant that another operator will finish the operation.
<b><u>Notes:</u></b>  The evaluator will end the JPM  <b><u>RECORD STOP TIME ON NEXT PAGE</u></b>  <div style="text-align: right;"><b>SAT / UNSAT</b></div>

## Place Standby Gas Treatment System 'A' in STANDBY Mode

<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 15 Min
--	---	-------------------------

Operator: _____ License: RO / SRO      Date: _____
Evaluators Name: _____ Evaluators Signature: _____
Start Time: _____ Stop Time: _____  CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>Places SGTS DIV 1 MODE SEL handswitch to STBY position</li> <li>Turns SGTS DIV 1 MAN INIT RESET key-locked handswitch to RESET position <b>AND</b> back to NORM, to reset automatic <b>OR</b> manual initiation signal</li> <li>Places handswitch for ENCL BLDG RECIRC FAN A to STOP</li> <li>Places handswitch for SGTS FLTR TR A EXH FAN to STOP.</li> <li>SBGT 'A' is STANDBY Mode with SBGT 'B' in OPERATION.</li> </ul>
<u>JPM Results (circle one):</u> <b>SAT</b> <b>UNSAT</b>
<u>Follow-up Questions:</u>
<u>Follow-up Question Response:</u>
<u>Comments / Feedback:</u>

**Give this page to the applicant**

**Initial Condition(s):**

- An inadvertent SBGT initiation has occurred on Fuel Pool Sweep Radiation monitors.
- All Initiations signals have been reset.
- Both SBGT 'A' and 'B' are running in the AUTO Mode.

**Initiating Cue(s):**

- You have been directed by the CRS to place SBGT system 'A' to STANDBY Mode per 04-1-01-T48-1 Section 5.2
- Steps 5.2.2 a through 5.2.2 d are complete.



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020S7

**2-2020 S7**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020S7

JPM Title: Transfer RPS B to  
Normal Power Source  
and RPS A to Alternate  
Power Source

Facility Number: GJPM-OPS-C7107  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	April Hargrave / Benny White	10/10/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Transfer RPS B to Normal Power Source and RPS A to Alternate Power Source

### JPM Attributes:

<input type="checkbox"/> New	<input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 10 Min

Setting: Simulator  
 Type: RO  
 Task: CRO-C71-004  
 K&A: 212000 A2.02 (3.7/3.9), A4.14 (3.8/3.8)  
 Generic 2.1.30 (4.4/4.0)  
 Safety Function: Instrumentation (7)  
 PRA Applicability: RPS is listed as #5 on the System Importance to CDF  
 10CFR 55.45(a) (6); (8); (10)  
 Performance: Actual  
 Reference(s): 04-1-01-C71-1, Rev. 37, sections 5.1 and 5.2  
 Handout(s): 04-1-01-C71-1 sections 5.1 and 5.2  
 # Manipulations: 4  
 # Critical Steps: 4  
 Low Power: No  
 Emergency/Abnormal: No  
 RCA entry: No  
 Engineered Safety Function: No

### Simulator Setup/Required Plant Conditions:

- Reset to IC 124

### Safety Concerns:

- None

## **Transfer RPS B to Normal Power Source and RPS A to Alternate Power Source**

### Task Standard:

- Places handswitch MG SET B TRANSFER TO MG B on 1H13-P610
- Places SCRAM RESET handswitches for tripped channels in reset on 1H13-P680
- Places MG SET A TRANSFER handswitch on 1H13-P610 to ALT A.
- Places SCRAM RESET handswitches for tripped channels in RESET on 1H13-P680.
- RPS B has been transferred to its Normal power source and RPS A was transferred to its Alternate power source IAW 04-1-01-C71-1.



## Transfer RPS B to Normal Power Source and RPS A to Alternate Power Source

### Initial Condition(s):

- The plant is at rated power.
- Electrical Maintenance is taking readings on all RPS EPA breakers under routine preventative maintenance task.
- RPS A is aligned to its Normal Source
- RPS B is aligned to its Alternate Source.

### Initiating Cue(s):

- The SRO with the Command Function has directed you to re-align RPS B to its Normal source in accordance with section 5.2 of 04-1-01-C71-1. THEN align RPS A to its Alternate source in accordance with section 5.1 of 04-1-01-C71-1. Notify Electrical Maintenance via the Plant Paging System when the alignment is complete.
- RPS B Motor Generator Set has been verified to be operating normally IAW 04-1-01-C71-1 section 4.1
- It has been verified no other work is in progress that could cause half scrams or half isolations.
- MSIV solenoids have been verified to be energized and all Pilot Solenoids are indicating amperage on 1H13-P622 and P623 panels.
- Alternate power supply is available for RPS 'A' per section 4.3.

## **Transfer RPS B to Normal Power Source and RPS A to Alternate Power Source**

### Notes to Evaluator:

- RPB B must be aligned first and the half scram reset prior to proceeding with RPS A. Failure to reset the half scram will result in a full scram on the transfer of RPS A. RPS B must be performed first per 04-1-01-C71-1 section 3.5 and FSAR 8.3.1.1.5.4. The only section of the sequence that is critical is one division's half scram must be reset before the other division's power supply is transferred to avert a full scram.

### Task Overview:

- This task is to align RPS B power to be supplied from its Normal source, the Motor Generator Set, and to align RPS A power to be supplied from its Alternate source, 480V ESF breaker 52-154204.

## Transfer RPS B to Normal Power Source and RPS A to Alternate Power Source

Critical tasks are underlined, *italicized*, and denoted by an (\*)

NOTE: The sequence of the following steps is critical unless otherwise noted.

Remember to record Start time

<b>RPS B</b>
Step 1: SOI 04-1-01-C71-1 step 5.2.2.a
<input type="checkbox"/> <b>Ensure</b> the following lights are illuminated prior to the transfer of the RPS bus: <ul style="list-style-type: none"> <li>• RPS Div 1 SCRAM SOL VLV 1A and 1B lights ON (5C1)</li> <li>• RPS Div 2 SCRAM SOL VLV 2A and 2B lights ON (7C1)</li> <li>• RPS Div 3 SCRAM SOL VLV 3A and 3B lights ON (5C1)</li> <li>• RPS Div 4 SCRAM SOL VLV 4A and 4B lights ON (7C1)</li> </ul>
<u>Standard:</u> Observes white scram solenoid valve lights lit.
<u>Cue:</u> NONE
<u>Notes:</u> <div style="text-align: right;">SAT / UNSAT</div>

## Step 2: SOI 04-1-01-C71-1 step 5.2.2.b

☐ **CHECKS** GENERATOR B NORMAL FEED AVAILABLE lights are lit on 1H13-P610.

Standard: Checks normal feed light for Generator B to ensure power is available.

Cue: None.

Notes:

SAT / UNSAT

NOTE: The following step causes a Division 2 half scram due to break-before-make contacts on the power transfer switch.

## Step 3: SOI 04-1-01-C71-1 step 5.2.2.c

☐\* **PLACE handswitch MG SET B TRANSFER TO MG B on 1H13-P610.**

Standard: **TRANSFER** RPS B to its normal power source.

Cue: NONE

Notes:

SAT / UNSAT

## Step 4: SOI 04-1-01-C71-1 step 5.2.2.d

☐\* **PLACE SCRAM RESET handswitches for tripped channels in reset on 1H13-P680.**

**Standard:** Resets Div 2 half scram. Takes Div 2 and 4 SCRAM RESET HS to reset on P680-7C1.

**Cue:** None

**Notes:**

SAT / UNSAT

## RPS A

## Step 5: SOI 04-1-01-C71-1 step 5.1.2.a

☐ **Ensure** the following lights are illuminated prior to the transfer of the RPS bus:

- RPS Div 1 SCRAM SOL VLV 1A and 1B lights ON (5C1)
- RPS Div 2 SCRAM SOL VLV 2A and 2B lights ON (7C1)
- RPS Div 3 SCRAM SOL VLV 3A and 3B lights ON (5C1)
- RPS Div 4 SCRAM SOL VLV 4A and 4B lights ON (7C1)

**Standard:** Observes white scram solenoid valve lights lit.

**Cue:** NONE

**Notes:**

SAT / UNSAT

## Step 6: SOI 04-1-01-C71-1 step 5.1.2.b

☐ **CHECK** GENERATOR A ALTERNATE FEED AVAILABLE white lights are lit on 1H13-P610.

Standard:    **Verifies** power is available to RPS A via breaker 52-154204 and EPA breakers.

Cue:        **None.**

Notes:

**SAT / UNSAT**

NOTE: The following step causes a Division 1 half scram due to break-before-make contacts on the power transfer switch.

## Step 7: SOI 04-1-01-C71-1 step 5.1.2.c

☐\* **PLACE MG SET A TRANSFER handswitch on 1H13-P610 to ALT A.**

Standard:    **TRANSFER** RPS A to its alternate power source

Cue:        **NONE**

Notes:

**SAT / UNSAT**

Step 8: SOI 04-1-01-C71-1 step 5.1.2.d

☐\* **PLACE SCRAM RESET handswitches for tripped channels in RESET on 1H13-P680.**

**Standard:** Resets the Division 1 half scram. Takes Div 1 and 3 SCRAM RESET HS to reset on P680-5C1.

**Cue:** None

**Notes:** If needed, acknowledge transfer as CRS.

Evaluator can end JPM.

**RECORD STOP TIME ON NEXT PAGE**

**SAT / UNSAT**

## Transfer RPS B to Normal Power Source and RPS A to Alternate Power Source

<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 10 Min
--	---	-------------------------

Operator: _____ License: RO / SRO Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>• Places handswitch MG SET B TRANSFER TO MG B on 1H13-P610</li> <li>• Places SCRAM RESET handswitches for tripped channels in reset on 1H13-P680</li> <li>• Places MG SET A TRANSFER handswitch on 1H13-P610 to ALT A.</li> <li>• Places SCRAM RESET handswitches for tripped channels in RESET on 1H13-P680.</li> <li>• RPS B has been transferred to its Normal power source and RPS A was transferred to its Alternate power source IAW 04-1-01-C71-1.</li> </ul>		
JPM Results (circle one):	<b>SAT</b>	<b>UNSAT</b>
<u>Follow-up Questions:</u>          <u>Follow-up Question Response:</u>          <u>Comments / Feedback:</u>          		



**Give this page to the student**

**Initial Condition(s):**

- The plant is at rated power.
- Electrical Maintenance is taking readings on all RPS EPA breakers under routine preventative maintenance task.
- RPS A is aligned to its Normal Source
- RPS B is aligned to its Alternate Source.

**Initiating Cue(s):**

- The SRO with the Command Function has directed you to re-align RPS B to its Normal source in accordance with section 5.2 of 04-1-01-C71-1. THEN align RPS A to its Alternate source in accordance with section 5.1 of 04-1-01-C71-1. Notify Electrical Maintenance via the Plant Paging System when the alignment is complete.
- RPS B Motor Generator Set has been verified to be operating normally IAW 04-1-01-C71-1 section 4.1
- It has been verified no other work is in progress that could cause half scrams or half isolations.
- MSIV solenoids have been verified to be energized and all Pilot Solenoids are indicating amperage on 1H13-P622 and P623 panels.
- Alternate power supply is available for RPS 'A' per section 4.3.



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020P1

**2-2020 P1**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020P1

JPM Title: RPS Motor Generator  
Startup

Facility Number: GJPM-OPS-C7101  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	Johnnie Clack / Mark Watts	10/14/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## RPS Motor Generator Startup

### JPM Attributes:

<input type="checkbox"/> New	<input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 15 Min

Setting: Plant  
 Type: NLO  
 Task: NOB-C71-002, 003, 004, 005  
 K&A: 212000 A2.01 3.7/3.9  
           A1.01 2.9/2.9  
           G2.1.30 3.9/3.4  
 Safety Function: Instrumentation (7)  
 PRA Applicability: RPS is listed as #5 on the System Importance to CDF  
 10CFR 55.45(a) (6); (8); (10)  
 Performance: Simulate  
 Reference(s): 04-1-01-C71-1, Section 4.1  
 Handout(s) 04-1-01-C71-1, Section 4.1  
 # Manipulations: 6  
 # Critical Steps: 6  
 Low Power: No  
 Emergency/Abnormal: No  
 RCA entry: No  
 Engineered Safety Function: No

### Simulator Setup/Required Plant Conditions:

- Area is accessible
- Do not operate plant equipment.
- Fill in the appropriate train for initial conditions and initiating cues prior to commencing the JPM (There are 3 blanks).

### Safety Concerns:

- Extreme caution should be taken around the RPS Motor Generator Set to prevent accidental contact with the controls.
- Use care when working around or near rotating equipment.
- Adjust which RPS Room to go to based on plant Protected Train.

## **RPS Motor Generator Startup**

### Task Standard:

- Depresses MOTOR ON pushbutton on panel 1C71-S001A(B) for 5 seconds
- Closes GENERATOR OUTPUT circuit breaker on panel 1C71-S001A(B).
- Pushes the TARGET RESET pushbutton on the appropriate relay, on the 1C71S003A(B) panel.
- Closes breaker 1C71-S003A(B).
- Pushes the TARGET RESET pushbutton on the appropriate relay, on the 1C71S003C(D) panel.
- Closes breaker C71-S003C(D).
- RPS A(B) Motor/Generator is running at rated speed and voltage per 04-1-01-C71-1, Section 4.1.

## RPS Motor Generator Startup

### Initial Condition(s):

- The plant is operating at 100% power.
- Repairs have been completed on RPS \_\_\_\_\_(A or B) Motor/Generator.
- 04-1-01-N32-1 Manual Valve Lineup Checksheet has been completed for C71-PT-N005A – D and C71-PT-N006A - H
- 04-1-01-C71-1 Handswitch Lineup Checksheet, Attachment V, has been completed, as required.
- 04-1-01-C71-1 Electrical Lineup Checksheet, Attachment III, has been completed, as required.
- RPS \_\_\_\_\_(A or B) Bus is being supplied by the Alternate Feed.

### Initiating Cue(s):

- The CRS directs you to perform section 4.1 of the SOI to startup the RPS \_\_\_\_\_(A or B) Motor/Generator.

## **RPS Motor Generator Startup**

### Notes to Evaluator:

- JPM may be performed on either RPS A or B System, depending on plant conditions. The RPS train components are identified as A(B) within this JPM.
- DO NOT OPERATE PLANT EQUIPMENT.

### Task Overview:

- This task is to perform a startup of the RPS Motor Generator and align the RPS Bus to the Normal Supply per the SOI.

## RPS Motor Generator Startup

Critical tasks are underlined, *italicized*, and denoted by an (\*)

**NOTE:** The sequence of the following steps is critical unless otherwise noted.

*Remember to record Start time on page 15*

Step 1: 04-1-01-C71-1 step 4.1.2 a
<input type="checkbox"/> <b>CHECK OPEN</b> GENERATOR OUTPUT circuit breaker on panel 1C71-S001A(B) on MG set.
<u>Standard:</u> Verifies that the circuit breaker's operating handle is in the "down" position, indicating an open breaker.
<u>Cue:</u> Circuit breaker handle is down.
<u>Notes:</u> <div style="text-align: right;">SAT / UNSAT</div>

Step 2: 04-1-01-C71-1 step 4.1.2 b
<input type="checkbox"/> <b>CHECK</b> RPS MG A(B) Output Breakers 1C71-S003A(B) <u>AND</u> 1C71-S003C(D) are open.
<u>Standard:</u> Verifies that the EPAs' operating handles are in the "OFF/RESET OPEN" position.
<u>Cue:</u> Circuit breakers are in the OFF position.
<u>Notes:</u> <div style="text-align: right;">SAT / UNSAT</div>

## Step 3: 04-1-01-C71-1 step 4.1.2 c

- ☐ **CHECK** switches on RPS MG A(B) Output Breakers 1C71-S003A(B) and 1C71-S003C(D) are in NORM.

Standard: Verifies that the "Undervoltage", "Overvoltage" and "Underfrequency" test switches on RPS MG A(B) Output Breakers 1C71-S003A(B) and 1C71-S003C(D) are in the NORM position.

Cue: **All switches in NORM.**

Notes:

**SAT / UNSAT**

## Step 4: 04-1-01-C71-1 step 4.1.2 d

- ☐ \* **DEPRESS MOTOR ON pushbutton on panel 1C71-S001A(B) for 5 seconds AND:**
- **OBSERVE the RED ON light illuminates.**
  - **OBSERVE that the output voltage meter indicates output is present.**

Standard: Simulates depressing the "MOTOR ON" pushbutton on panel 1C71-S001A(B) and observes the RED ON light illuminates and the output voltage meter indicated output is present.

Cue:

1. **MOTOR ON pushbutton has been depressed.**
2. **RED ON light is illuminated**
3. **Output voltage meter indicates output is present**

Notes:

**SAT / UNSAT**



## Step 5: 04-1-01-C71-1 step 4.1.2 e

- ☐ **CHECK** generator output is 122-128 Vac on meter on panel 1C71-S001A(B).

**IF** meter **DOES NOT** indicate in this range, **CONTACT** electrical group to adjust voltage as necessary.

**Standard:** Observes voltmeter on motor generator control panel 1C71-S001A(B) is indicating between 122 and 128 VAC.

**Cue:** As indicated (if MG is running. 124V if not running).

**Notes:**

**SAT / UNSAT**

## Step 6: 04-1-01-C71-1 step 4.1.2 f

- ☐\* **CLOSE GENERATOR OUTPUT circuit breaker on panel 1C71-S001A(B).**

**Standard:** Simulates pulling up on the circuit breaker's operating handle on panel 1C71-S001A(B) to close the breaker.

**Cue:** Circuit breaker handle is up.

**Notes:**

**SAT / UNSAT**

## Step 7: 04-1-01-C71-1 step 4.1.2 g

- ☐ **CHECK** the ELECT PROT ASSY INPUT and the POWER SUPPLY OUTPUT red lights are lit at the 1C71-S003A(B) ELECTRICAL PROTECTION ASSEMBLY panel.

Standard: Check the ELECT PROT ASSY INPUT and the POWER SUPPLY OUTPUT red lights are lit at the 1C71-S003A(B) ELECTRICAL PROTECTION ASSEMBLY panel.

Cue: Red lights are lit

Notes:

SAT / UNSAT

## Step 8: 04-1-01-C71-1 step 4.1.2 h

- ☐ **VERIFY** the trip targets are reset on the following 1C71-S003A(B) relays:

- UNDER VOLTAGE
- OVER VOLTAGE
- UNDER FREQUENCY

Standard: Checks for presence of orange "trip target" lights.

Cue: Orange lights lit on UNDERVOLTAGE and UNDER FREQUENCY.

Notes:

SAT / UNSAT

Step 9: 04-1-01-C71-1 step 4.1.2 i

- ☐\* To reset the relay, **PUSH** the TARGET RESET pushbutton on the appropriate relay, on the 1C71S003A(B) panel.

Standard: Simulates pushing the TARGET RESET pushbuttons for UNDER VOLTAGE and UNDER FREQUENCY and verifies all target lights are out.

Cue: No orange lights lit.

Notes:

SAT / UNSAT

Step 10: 04-1-01-C71-1 step 4.1.2 j

- ☐\* **CLOSE** breaker 1C71-S003A(B).

Standard: Simulates closing breaker 1C71-S003A(B) by rotating its operating handle counter-clockwise until it snaps into the "ON" position.

Cue: Circuit Breaker handle is in the ON position.

Notes:

SAT / UNSAT

## Step 11: 04-1-01-C71-1 step 4.1.2 k

- ☐ **CHECK** that the ELECT PROT ASSY OUTPUT red light on the 1C71-S003A(B) panel is lit.

Standard: Checks that the red ELECT PROT ASSY OUTPUT light on 1C71-S003A(B) is lit.

Cue: Red light is lit.

Notes:

**SAT / UNSAT**

## Step 12: 04-1-01-C71-1 step 4.1.2 l

- ☐ **CHECK** the ELECT PROT ASSY INPUT **AND** the POWER SUPPLY OUTPUT red lights are lit at the 1C71-S003C(D) ELECTRICAL PROTECTION ASSEMBLY panel.

Standard: Check the ELECT PROT ASSY INPUT and the POWER SUPPLY OUTPUT red lights are lit at the 1C71-S003C(D) ELECTRICAL PROTECTION ASSEMBLY panel.

Cue: Red lights are lit.

Notes:

**SAT / UNSAT**

## Step 13: 04-1-01-C71-1 step 4.1.2 m

☐ **VERIFY** the trip targets are reset on the following 1C71-S003C(D) relays:

- UNDER VOLTAGE
- OVER VOLTAGE
- UNDER FREQUENCY

Standard: Checks for presence of orange "trip target" lights.

Cue: Orange lights lit on UNDERVOLTAGE and UNDER FREQUENCY.

Notes:

SAT / UNSAT

## Step 14: 04-1-01-C71-1 step 4.1.2 n

☐ \* To reset the relay, **PUSH** the TARGET RESET pushbutton on the appropriate relay, on the 1C71S003C(D) panel.

Standard: Pushes the TARGET RESET pushbuttons for UNDER VOLTAGE and UNDER FREQUENCY and verifies all target lights are out.

Cue: No orange lights lit.

Notes:

SAT / UNSAT

Step 15: 04-1-01-C71-1 step 4.1.2 o

☐ \* **CLOSE** *breaker C71-S003C(D).*

**Standard:** Checks for presence of orange "trip target" lights Simulates closing breaker 1C71-S003C(D) by rotating its operating handle counter-clockwise until it snaps into the "ON" position.

**Cue:** **Circuit Breaker handle is in the ON position.**

**Notes:**

SAT / UNSAT

Step 16: 04-1-01-C71-1 step 4.1.2 p

☐ **CHECK** that the ELECT PROT ASSY OUTPUT red light on the 1C71-S003C(D) panel is lit.

**Standard:** Checks that the red ELECT PROT ASSY OUTPUT light on 1C71-S003C(D) is lit.

**Cue:** **Red light is lit.**

**Notes:**

SAT / UNSAT

Step 17: 04-1-01-C71-1 step 4.1.2 q

☐ **CHECK** GENERATOR A NORMAL FEED AVAILABLE white lights are lit on 1H13-P610.

Standard: Simulates contacting Control Room Operator to verify white lights on 1H13-P610.

Cue: As Control Room Operator report that control room will complete the remaining steps in the SOI.

Notes:

Evaluator can end JPM.

RECORD STOP TIME ON NEXT PAGE

SAT / UNSAT

## RPS Motor Generator Startup

<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 15 Min
--	---	-------------------------

Operator: _____ License: RO / SRO      Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>Depresses MOTOR ON pushbutton on panel 1C71-S001A(B) for 5 seconds</li> <li>Closes GENERATOR OUTPUT circuit breaker on panel 1C71-S001A(B).</li> <li>Pushes the TARGET RESET pushbutton on the appropriate relay, on the 1C71S003A(B) panel.</li> <li>Closes breaker 1C71-S003A(B).</li> <li>Pushes the TARGET RESET pushbutton on the appropriate relay, on the 1C71S003C(D) panel.</li> <li>Closes breaker C71-S003C(D).</li> <li>RPS A(B) Motor/Generator is running at rated speed and voltage per 04-1-01-C71-1, Section 4.1.</li> </ul>		
<u>JPM Results (circle one):</u> <div style="display: inline-block; width: 150px; text-align: center;"> <b>SAT</b> </div> <div style="display: inline-block; width: 150px; text-align: center;"> <b>UNSAT</b> </div>		
<u>Follow-up Questions:</u>          		
<u>Follow-up Question Response:</u>          		
<u>Comments / Feedback:</u>          		



**Give this page to the student**

**Initial Condition(s):**

- The plant is operating at 100% power.
- Repairs have been completed on RPS \_\_\_\_\_(A or B) Motor/Generator.
- 04-1-01-N32-1 Manual Valve Lineup Checksheet has been completed for C71-PT-N005A – D and C71-PT-N006A - H
- 04-1-01-C71-1 Handswitch Lineup Checksheet, Attachment V, has been completed, as required.
- 04-1-01-C71-1 Electrical Lineup Checksheet, Attachment III, has been completed, as required.
- RPS \_\_\_\_\_(A or B) Bus is being supplied by the Alternate Feed.

**Initiating Cue(s):**

- The CRS directs you to perform section 4.1 of the SOI to startup the RPS \_\_\_\_\_(A or B) Motor/Generator.



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020P2

**2-2020 P2**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020P2

JPM Title: Align Fire Water to RHR  
'C' per EP Attachment 26

Facility Number: GJPM-OPS-EOP26C  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	Johnnie Clack / Mark Watts	10/14/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## Align Fire Water to RHR 'C' per EP Attachment 26

### JPM Attributes:

<input type="checkbox"/> New	<input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 10 Min

Setting: Plant (Inside CAA)  
 Type: NLO  
 Task: AON-P64-025  
 K&A: 286000 A1.05:3.2/3.2  
 295031: EA1.08 3.8/3.9;  
 2.1.30: 4.4/4.0  
 2.4.35 3.8/4.0  
 Safety Function: 8 – Plant Service Systems  
 PRA Applicability: RHR is listed as #3 on the System Importance to CDF  
 10CFR 55.45(a) (5); (6); (7)  
 Performance: Simulate  
 Reference(s): 05-S-01-EP-1 Attachment 26  
 Handout(s): 05-S-01-EP-1 Attachment 26  
 # Manipulations: 6  
 # Critical Steps: 6  
 Low Power: **Yes**  
 Emergency/Abnormal: **Yes**  
 RCA entry: **Yes**  
 Engineered Safety Function: No

### Simulator Setup/Required Plant Conditions:

- Auxiliary Building 119' elev., Areas 9/10 are accessible with radiation levels ALARA

### Safety Concerns:

- Wear appropriate personal protective equipment.
- Don't forget ALARA
- No climbing. Point up or down while you explain what you are going to do.
- DO NOT operate plant equipment

## **Align Fire Water to RHR 'C' per EP Attachment 26**

### Task Standard(s):

- Removes nozzle from existing hose.
- Attaches additional 50 feet of hose.
- Attaches hose to RPV fill connection 1E12-F056C/F057C, located in the piping penetration room Area 9/10.
- Opens Hose Station 13B isolation valve SP64-FA12V, Area 9 by stairwell
- Opens fill connection 1E12-F056C, located in the piping penetration room Area 9/10.
- Opens fill connection 1E12-F057C, located in the piping penetration room Area 9/10.
- Fire Water has been aligned to RHR 'C', pathway 2, in accordance with 05-S-01-EP-1, Attachment 26.

## Align Fire Water to RHR 'C' per EP Attachment 26

### Initial Condition(s):

- A LOCA has occurred.
- The reactor is shutdown with RPV level still lowering
- The SRO with the Command Function is implementing EP-2 actions

### Initiating Cue(s):

- The CRS directs you to align Fire Water for injection through RHR 'C' per 05-S-01-EP-1 Attachment 26, Injection into RPV with Fire Protection Water System beginning at step 2.3.
- A ladder and extra fire hoses are being dispatched to the area.
- A spanner wrench has been obtained.

## **Align Fire Water to RHR 'C' per EP Attachment 26**

### Notes to Evaluator:

- Fire hoses and nozzles are not to be disturbed during task performance.
- The only portion of the sequence that is critical is that the fire hose is connected before either the fire hose station valve or the pair of injection line test connection valves is opened.
- Remember to record Start time on page 9.

### Task Overview: (Detailed description of task)

- This task simulates routing and connecting fire hoses from hose stations to test connections on ECCS injection piping in the Auxiliary Building.

## Align Fire Water to RHR 'C' per EP Attachment 26

Critical tasks are underlined, *italicized*, and denoted by an (\*)

**NOTE:** The sequence of the following steps is critical unless otherwise noted.

*Remember to record Start time on page 14*

Step 1: 05-S-01-EP-1 Attachment 26, Step 2.3	
<input type="checkbox"/> <b>PERFORM</b> the ALTERATION SHEET for each desired injection pathway.	
<u>Standard:</u> Candidate recognizes section 2.3.2 INJECTION PATHWAY #2 RHR 'C' INJECTION LINE is the correct pathway.	
<u>Cue:</u>	NONE
<u>Notes:</u>	
SAT / UNSAT	

Step 2: 05-S-01-EP-1 Attachment 26 step 2.3.2 a	
<input type="checkbox"/> <b>LOCATE</b> HOSE STATION 13B (Area 9 E1 119' by stairwell)	
<u>Standard:</u> Locates hose station 13B (Area 9 EL. 119' by the stairwell).	
<u>Cue:</u>	None.
<u>Notes:</u>	
SAT / UNSAT	

## Step 3: 05-S-01-EP-1 Attachment 26 step 2.3.2 b

☐\* ***REMOVE nozzle from existing hose.***

**Standard:** Describes removal of the nozzle from the hose on Hose Station 13B using common technique for right hand threads.

**Cue:** The nozzle is removed.

**Notes:**

**SAT / UNSAT**

## Step 4: 05-S-01-EP-1 Attachment 26 step 2.3.2 c

☐\* ***ATTACH an additional 50 feet of hose.***

**Standard:** Locates 50 foot section of hose (provided by Plant Services in the Initial Conditions) and connects it to the hose on the hose reel of HS-13B using common technique for right hand threads.

**Cue:** When asked, tell the operator that Plant Services has placed a 50 foot section of hose beneath hose station HS-13B. After the candidate describes connecting the hose section, state the hose has been attached.

**Notes:**

**SAT / UNSAT**



## Step 5: 05-S-01-EP-1 Attachment 26 step 2.3.2 d

- ☐\* **ROUTE AND ATTACH** *hose to RPV fill connection 1E12-F056C/F057C, located in the piping penetration room Area 9/10.*

**Standard:** Locates 1E12-F056C/F057C in the piping penetration room Area 9/10 and describes routing the hose from hose station 13B into the room and connecting it to the special fitting at E12-F057C using common technique for right hand threads.

**Cue:** The hose is connected.

**Notes:**

SAT / UNSAT

## Step 6: 05-S-01-EP-1 Attachment 26 step 2.3.2 e

- ☐\* **SLOWLY OPEN** *Hose Station 13B isolation valve SP64-FA12V, Area 9 by stairwell.*

**Standard:** Describes slowly opening Hose Station 13B isolation valve SP64-FA12V by turning the handle counter-clockwise.

**Cue:** The hose is pressurized and you feel resistance in the counter-clockwise direction.

**Notes:**

SAT / UNSAT

## Step 7: 05-S-01-EP-1 Attachment 26 step 2.3.2 f

- ☐\* ***SLOWLY OPEN fill connection 1E12-F056C, located in the piping penetration room Area 9/10.***

**Standard:** Describes slowly opening fill connection 1E12-F056C by turning the valve handle counter-clockwise.

**Cue:** You feel resistance in the counter-clockwise direction.

**Notes:**

**SAT / UNSAT**

## Step 8: 05-S-01-EP-1 Attachment 26 step 2.3.2 g

- ☐\* ***SLOWLY OPEN fill connection 1E12-F057C, located in the piping penetration room Area 9/10.***

**Standard:** Describes slowly opening fill connection 1E12-F057C by turning the valve handle counter-clockwise.

**Cue:** You feel resistance in the counter-clockwise direction.

**Notes:** After 1E12-F057C is opened the evaluator may stop the JPM.

***Remember to record stop time***

**SAT / UNSAT**

Operator: _____ License: RO / SRO Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>Removes nozzle from existing hose.</li> <li>Attaches additional 50 feet of hose.</li> <li>Attaches hose to RPV fill connection 1E12-F056C/F057C, located in the piping penetration room Area 9/10.</li> <li>Opens Hose Station 13B isolation valve SP64-FA12V, Area 9 by stairwell</li> <li>Opens fill connection 1E12-F056C, located in the piping penetration room Area 9/10.</li> <li>Opens fill connection 1E12-F057C, located in the piping penetration room Area 9/10.</li> <li>Fire Water has been aligned to RHR 'C', pathway 2, in accordance with 05-S-01-EP-1, Attachment 26.</li> </ul>		
<u>JPM Results (circle one):</u> <div style="display: inline-block; width: 150px; text-align: center;"> <b>SAT</b> </div> <div style="display: inline-block; width: 150px; text-align: center;"> <b>UNSAT</b> </div>		
<u>Follow-up Questions:</u>		
<u>Follow-up Question Response:</u>		
<u>Comments / Feedback:</u>		

**Give this page to the student**

**Initial Condition(s):**

- A LOCA has occurred.
- The reactor is shutdown with RPV level still lowering
- The SRO with the Command Function is implementing EP-2 actions

**Initiating Cue(s):**

- The CRS directs you to align Fire Water for injection through RHR 'C' per 05-S-01-EP-1 Attachment 26, Injection into RPV with Fire Protection Water System beginning at step 2.3.
- A ladder and extra fire hoses are being dispatched to the area.
- A spanner wrench has been obtained.



Date of Examination: 2/03/2020  
Operating Test Number: GGNS 2-2020  
Facility: Grand Gulf Nuclear Station  
JPM Number: GJPM-OPS-2-2020P3

**2-2020 P3**  
**GGNS**  
**2-2020 NRC Operating Test**  
**Job Performance Measure**

JPM Number: GJPM-OPS-2-2020P3

JPM Title: HPCS Diesel Generator  
Emergency Shutdown

Facility Number: N/A New  
(If Bank or Modified from Bank)

<b>Prepared By:</b>	Steve Reeves	10/1/2019
	Exam Developer	Date
<b>Ops Review:</b>	Jonathan Smith	10/3/2019
	1 <sup>st</sup> Validation by Ops Rep or Ops Validation Crew	Date
<b>Validated By:</b>	Johnnie Clack / Mark Watts	10/14/2019
	2 <sup>nd</sup> Validation by Ops Validation Crew	Date
<b>Approved By:</b>	Tracy Tharp	10/24/2019
	Project Lead or Exam Team Lead	Date

## HPCS Diesel Generator Emergency Shutdown

<input checked="" type="checkbox"/> New	<input type="checkbox"/> Modified	<input type="checkbox"/> Direct from bank
<input type="checkbox"/> Time Critical	<input checked="" type="checkbox"/> Alternate Path	Validation Time: 20 Min

Setting: Plant (outside CAA)  
Type: NLO  
Task: NOB-P81-OFFNORM-14  
K&A: 264000 4.04 3.7/3.7  
Safety Function: Electrical (6)  
10CFR 55.45(a) (5); (6)  
Performance: Simulated  
Reference(s): 04-1-01-P81-1, Section 6.6  
Handout(s) 04-1-01-P81-1, Section 6.6  
# Manipulations: 3  
# Critical Steps: 2  
Low Power: **Yes**  
Emergency/Abnormal: **Yes**  
RCA entry: **Yes**  
Engineered Safety Function: No

### Simulator Setup/Required Plant Conditions:

- HPCS Diesel Generator room available.

### Safety Concerns:

- Extreme caution should be taken around the Diesel Generator.
- Use care when working around or near rotating equipment.
- DO NOT operate plant equipment

## HPCS Diesel Generator Emergency Shutdown

### Task Standard(s):

- Pulls the lay shaft handle on the 'A' engine front-left side toward you **OR** pushes the lay shaft handle on the 'B' engine front-right side away from you.
- On 1H22-P118, Places UNIT MODE SEL SW to MAINT position
- The HPCS Emergency Diesel Generator is Shutdown IAW P81 SOI.

## HPCS Diesel Generator Emergency Shutdown

### Initial Condition(s):

- The plant is operating at 100% power.
- The Control Room has experienced a Division 3 HPCS spurious LOCA signal that is sealed in.
- Division 3 HPCS Diesel Generator is running and NOT tied to the respective electrical bus.

### Initiating Cue(s):

- The CRS directs you to monitor the Diesel Generator for proper operation and prepare for parallel operation.
- Start with 04-1-01-P81-1, Step 5.2.1 a,
- Step 5.2.1b and 5.2.1c are complete in the Control Room



## **HPCS Diesel Generator Emergency Shutdown**

### Notes to Evaluator:

- Unless otherwise stated, all controls and indications are at local panels 1H22-P028 and 1H22-P118 in the Div. 3 D/G room at Area 12, El. 133'.
- DO NOT OPERATE PLANT EQUIPMENT.
- Remember to record Start time on page 11.

### Task Overview:

- This task simulates an auto start of HPCS Diesel Generator with a subsequent oil system failure requiring the operator to EMERGENCY STOP (trip) the HPCS D/G. The Control Room switch and local Emergency Stop switch will not work, the operator must use other means to stop the EDG. Per P81 SOI the lay shaft handle on each diesel engine must be manipulated to stop the EDG.

## HPCS Diesel Generator Emergency Shutdown

Critical tasks are underlined, *italicized*, and denoted by an (\*)

**NOTE:** The sequence of the following steps is critical unless otherwise noted.

Remember to record Start time on page 11

Step 1: 04-S-01-P81-1, Step 5.2.1 a
<input type="checkbox"/> Diesel generator running close to synchronous speed (Approximately 900 RPM).
<u>Standard:</u> Locates local tachometer and verifies >900 rpm
<u>Cue:</u> Inform candidate that engine speed is 900 rpm
<u>Notes:</u>
SAT / UNSAT

Step 2: 04-S-01-P81-1, Step 5.2
<input type="checkbox"/> <b>NOTIFIES</b> Control Room that prerequisites are complete locally
<u>Standard:</u> Notifies control room
<u>Cue:</u> You receive the following alarm on panel 1H22-P118: <ul style="list-style-type: none"> <li>• LOW LUBE OIL PRESSURE (B1)</li> <li>• LUBE OIL SYSTEM FAULT (F2)</li> <li>• When checked, inform the operator that Lube Oil System pressure is 10 psig on PI-R016A/B and lowering.</li> </ul>
<u>Notes:</u> Alternate Path begins at the next step.
SAT / UNSAT

**AP Step 3: 04-1-02-1H22-P118, 1A-B1 Step 1.2**

☐ **WHEN** following conditions are met:

- Lube oil pressure is less than or equal to 20 psig, 60 seconds after DG13 speed is greater than or equal to 150 rpm
- LOCA **OR** 73 percent BUV signal does **NOT** exist

**THEN** DG13 will trip.

**Standard:** NA

**Cue:** :

- When checked, inform the operator that the engine is still running at 900 rpm
- When checked, inform the operator that Lube Oil System pressure is 10 psig on PI-R016A/B and lowering.
- If the operator calls the control room requesting guidance, inform the operator that there is noise coming from the DG bearings.

**Notes:** The operator should take the action to shutdown DG 13 due to a failure to trip.  
If the operator contacts the control room and asks for guidance that would constitute a failure on this JPM.

SAT / UNSAT

**AP Step 4: 04-1-02-1H22-P118, 1A-B1 Step 2.1****CHECK** following:

- Lube oil pressure as read on:
  - 1P81-R016A, HPCS ENG A LUBE OIL PRESSURE INDICATOR
  - 1P81-R016B, HPCS ENG B LUBE OIL PRESSURE INDICATOR
- DG13 is at rated speed

Standard: Checks lube oil pressure

Cue: Lube oil pressure is 10 psig and lowering

Notes:

**SAT / UNSAT**

**AP Step 5: 04-1-02-1H22-P118, 1A-B1 Step 2.2.a**

- ☐ **IF** non-emergency conditions exist **AND** conditions of Section 1.0 Step 2 apply,  
**THEN ENSURE** DG13 has tripped

- a. **IF** DG13 has **NOT** tripped,  
**THEN** on 1H13-P601-16C, **DEPRESS** HPCS DSL ENG EMERG STOP  
pushbutton.

Standard: Notifies Control Room to depress the STOP pushbutton

Cue: Diesel Generator is still running

Notes:

SAT / UNSAT

**AP Step 6: 04-1-02-1H22-P118, 1A-B1 Step 2.2.b**

- ☐ **IF** DG13 **CANNOT** be shut down remotely,  
**THEN** on 1H22-P118 panel, **DEPRESS** EMERGENCY SHUTDOWN pushbutton to  
immediately shutdown DG13.

Standard: Depresses the EMERGENCY SHUTDOWN pushbutton on 1H22P118.

Cue: Diesel Generator is still running

Notes: Candidate can also use SOI 04-1-01-P81-1, step 6.6.2 a

SAT / UNSAT

**AP Step 7: 04-1-01-P81-1, Step 6.6.2 b**

- ☐ \* ***IF the HPCS diesel generator **CANNOT** be shut down by performing Step 6.6.2a, **THEN ATTEMPT to SHUT DOWN** the engine by **PULLING** the lay shaft handle on the 'A' engine front-left side toward you **OR** by **PUSHING** the lay shaft handle on the 'B' engine front-right side away from you.***

**Standard:** Locate the lay shaft on the A or B engine and pull or push respectively. Refer to figure 1 attached.

- Cue:**
- 1) Prior to performing this step, if asked inform the student that breaker 152-1701 is OPEN and excitation is de-energized.
  - 2) After the student performs the step inform that Diesel Generator speed is lowering.
  - 3) CRS directs you to put Div 3 D/G in MAINT.

**Notes:**

**SAT / UNSAT**

**AP Step 8: 04-1-01-P81-1, Step 5.4.2 a**

- ☐ \* ***On 1H22-P118, **PLACE** UNIT MODE SEL SW to MAINT position***

**Standard:** Places UNIT MODE SEL SW to MAINT position.

**Cue:** Diesel Generator UNIT MODE SEL SW is in MAINT position.

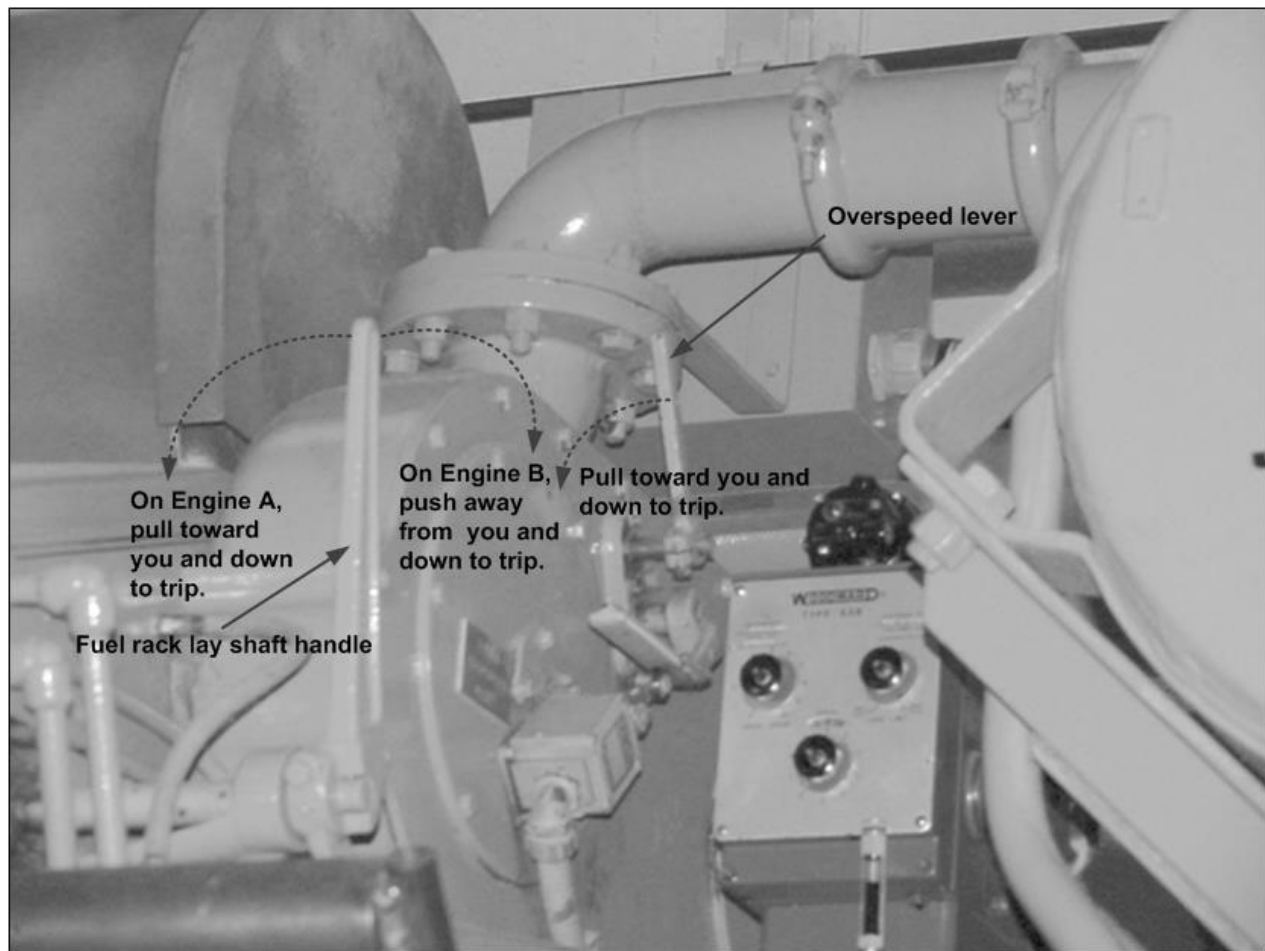
**Notes:**

Evaluator may end the JPM

*Remember to record stop time*

**SAT / UNSAT**

**Figure 1, Fuel Rack Lay Shaft Handle and Overspeed Lever**



## HPCS Diesel Generator Emergency Shutdown

<input type="checkbox"/> Time Critical	<input type="checkbox"/> Alternate Path	Validation Time: 20 Min
--	---	-------------------------

Operator: _____ License: RO / SRO      Date: _____		
Evaluators Name: _____ Evaluators Signature: _____		
Start Time: _____ Stop Time: _____		
CRITICAL TIME FRAME: _____ Required Time (min): _____ Actual Time (min): _____		
<u>Task Standard(s):</u> <ul style="list-style-type: none"> <li>• Pulls the lay shaft handle on the 'A' engine front-left side toward you <b>OR</b> pushes the lay shaft handle on the 'B' engine front-right side away from you.</li> <li>• On 1H22-P118, Places UNIT MODE SEL SW to MAINT position</li> <li>• The HPCS Emergency Diesel Generator is Shutdown IAW P81 SOI.</li> </ul>		
<u>JPM Results (circle one):</u> <b>SAT</b> <b>UNSAT</b>		
<u>Follow-up Questions:</u>		
<u>Follow-up Question Response:</u>		
<u>Comments / Feedback:</u>		



**Give this page to the student**

**Initial Condition(s):**

- The plant is operating at 100% power.
- The Control Room has experienced a Division 3 HPCS spurious LOCA signal that is sealed in.
- Division 3 HPCS Diesel Generator is running and NOT tied to the respective electrical bus.

**Initiating Cue(s):**

- The CRS directs you to monitor the Diesel Generator for proper operation and prepare for parallel operation.
- Start with 04-1-01-P81-1, Step 5.2.1 a
- Step 5.2.1b and 5.2.1c are complete in the Control Room

## GGNS 2-2020 NRC Scenario 2

Facility: Grand Gulf Nuclear Station Scenario No.: 2 Op-Test No.: GGNS 2-2020-2

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Initial Conditions: 100% power.

Inoperable equipment: None

Turnover: Div 1 work week. Place SSW A in recirculation mode for chemistry sample

Event No.	Malf. No.	Event Type †	Event Description
1	p41f005a_i	C (BOP, CRS) TS (CRS)	Place SSW A in Recirc for chemistry sample. P41-F005A trip on stroke. LCO 3.7.1, Cond D, 3.8.1, Cond B, 3.6.3.3. Cond A
2	ftb33n014b_e	C (ATC, CRS)	Recirc suction flow transmitter loses power. PLCO 3.3.1.1 Cond. A and PLCO TR 3.3.2.1
3	p43152a	C (BOP, CRS) A (Crew)	TBCW pump trip and standby pump fails to auto start
4	z025025_60_37 z025025_56_37 z025025_52_37	C (ATC, CRS) A (Crew) TS (CRS)	3 control rods scram in due to air leak LCO 3.1.3, Cond C
5	tc093	M (CREW)	Spurious Main Turbine Trip
6	c11164	M (CREW)	ATWS > 5% power (CT-1) terminates injection to lower Rx level (CT-2) initiates standby liquid control (CT-3) inserts control rods
7	RF Att. 11	C (ATC, CRS)	Defeat RWCU isolation on SLC initiation
8	r21180	C (BOP, CRS)	ESF 21 lockout
† (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (A)bnormal (TS) Tech Spec			

## GGNS 2-2020 NRC Scenario 2

Quantitative Attributes Table			
Attribute	E3-301-4 Target	Actual	Description
Malfunctions after EOP entry	1-2	2	<ul style="list-style-type: none"> <li>RWCU fails to isolate on SLC initiation</li> <li>ESF 21 lockout</li> </ul>
Abnormal Events	2-4	4	<ul style="list-style-type: none"> <li>SSW A return valve P41F005A trip on stroke</li> <li>TBCW pump trip and standby pump fails to auto start</li> <li>B33 Flow Xmitter failure</li> <li>3 control rods scram in</li> </ul>
Major Transients	1-2	2	<ul style="list-style-type: none"> <li>Spurious main turbine trip</li> <li>ATWS</li> </ul>
EOP entries requiring substantive action	1-2	1	<ul style="list-style-type: none"> <li>ATWS, EP-2A</li> </ul>
Entry into a contingency EOP with substantive actions	≥1	1	<ul style="list-style-type: none"> <li>ATWS, EP-2A</li> </ul>
Preidentified critical tasks	2-3	3	<ul style="list-style-type: none"> <li>(CT-1) When control rods fail to scram, crew inserts all control rods to position 02 or beyond before exiting EP-2A</li> <li>(CT-2) During failure to scram conditions with power &gt; 5% RTP, terminates feedwater injection within 90 seconds of ARI/RPT initiation and prevents injection from all other sources (except boron, CRD, and RCIC) as necessary to lower RPV level to below -70" wide range prior to exiting EP-2A.</li> <li>(CT-3) With Reactor Power above 5%, inject Standby Liquid Control system within 5 minutes AND/OR prior to suppression pool temperature reaching 110°F, whichever is later.</li> </ul>

## GGNS 2-2020 NRC Scenario 2

Objectives: To evaluate the candidate's ability to operate the facility in response to the following evolutions:

- Respond to a trip of P41-F005A, SSW A return valve when placing SSW A in recirc.
- Respond to a failure of a Rx Recirc suction flow transmitter failure that results in a rod block
- Respond to a trip of a TBCW pump and the standby pump fails to auto start
- Respond to 3 control rods scrambling in due to an air leak
- Respond to a spurious turbine trip
- Respond to an ATWS that generates > 5% Rx power
- Respond to a failure of RWCU to isolate on Standby Liquid Control initiation
- Respond to an ESF 21 lockout

Initial Conditions:

- Plant is operating at 100% power.

Inoperable Equipment:

- None

Planned activities:

- Place SSW A in recirculation mode per step 5.10 of SOI 04-1-01-P41-1 for a chemistry sample immediately after turnover. The sample will be drawn later in the shift.

Scenario Notes:

- This scenario is a NEW Scenario.
- Validation Time: 70 minutes

## GGNS 2-2020 NRC Scenario 2

**SCENARIO ACTIVITIES:****Event 1 – P41-F005A trip on stroke (Initial Setup - Automatic)**

The BOP operator will place SSW A in recirculation mode for a chemistry sample per SOI 04-1-01-P41-1, section 5.10. The pump discharge relief valve will be open requiring the operator to place flow through the RHR A heat exchanger. When the F005A handswitch is taken to open, its breaker will trip. This will require placing the Div 1 DG in maintenance and racking out the Div 1 DW purge compressor breaker. LCO 3.7.1, Cond D, 3.8.1, Cond B, 3.6.3.3, Cond A.

**Event 2 – Recirc flow transmitter failure (Triggered by Lead Examiner)**

A 'B' Rx recirculation loop suction transmitter will lose power and input '0' flow into 'B' APRM/OPRM trip logic. When investigated, flow input will be half of the other APRM/OPRMs since a similar suction flow transmitter on the A Recirc loop continues to provide input. Per ARI instruction, the APRM should be declared inop, bypassed, and potential LCO 3.3.1.1 and potential TR 3.3.2.1 identified.

**Event 3 – TBCW pump trip with standby pump auto start failure (Triggered by Lead Examiner)**

A TBCW pump trip will occur and the standby pump will fail to auto start. The BOP operator should recognize the failure of the standby pump to start and start the standby pump. The CRS should enter 05-1-02-V-2, Loss of Turbine Building Cooling Water ONEP and ensure parameters have stabilized.

**Event 4 – Three control rods scram in (Triggered by Lead Examiner)**

3 control rods will scram in due to an air leak. This will require entry into 05-1-02-IV-1, Control Rod/Drive Malfunctions ONEP and require reducing Recirc flow to 70 mlbm/hr. Lowering Recirc flow will require entry into 05-1-02-III-3, Reduction in Recirculation System Flow Rate ONEP to ensure Rx and Recirc system parameters are as expected. If an operator is dispatched to investigate, he will simulate isolating the air leak which will allow 2 of the 3 control rods to settle. LCO 3.1.3, Cond C should be identified for the inop control rod(s).

There is a potential this will be misdiagnosed as 3 control rods drifting in, which requires a manual scram.

## GGNS 2-2020 NRC Scenario 2

### **Event 5 – Spurious Main Turbine Trip (Triggered by Lead Examiner)**

A spurious main turbine trip will occur. The automatic actions of the turbine trip ONEP should be verified.

### **Event 6 - Hydraulic Block ATWS > 5% RTP (Initial Setup - Automatic)**

When the reactor scrams due to the turbine trip, an ATWS occurs due to a hydraulic block of both scram discharge volumes. EP-2A is entered via EP-2. Reactor power will be above 5% RTP. Crew will install the necessary attachments to bypass RPS and RC&IS interlocks and insert controls rods via manual scrams and RC&IS **(CT-3)**. Terminate and Prevent is required because reactor power is above 5% RTP. RPV level is intentionally lowered below -70 inches wide range in order to lower core inlet subcooling which prevents/suppresses instabilities and lowers reactor power **(CT-1)**. Bypass valves will control reactor pressure. Turbine pressure setpoint should be lowered to 900 psig to lower RPV pressure below the reset value for low-low set valves.

When RCIC initiates on low RPV level, it will trip.

When SLC A and B is initiated, SLC A suction valve will trip on open signal and SLC pump A will not start.

### **Event 7 – RWCU fails to auto isolate on SLC injection (Initial Setup - Automatic)**

RWCU fails to auto isolate on level 2 (-41.6") or SLC initiation. When the immediate action to inject SLC is performed **(CT-2)**, (a minimum) 1 RWCU MOV will be required to be closed to prevent RWCU from removing SLC from the RPV. With SLC injection, Rx power will lower. Based in the ATWS power level, sufficient SLC content is being injected and combined with rod insertion, the Rx will be shutdown.

### **Event 8 – ESF 21 lockout (Initial Setup - Automatic)**

ESF 21 will lockout. The Div 2 DG will automatically tie to 16AB and Div 3 DG will automatically tie to 17AC. This will require a re-terminate/prevent of Div 2 ECCS and restoration of CRD pump B.

### **Termination:**

- Once control rods are being inserted and as directed by Lead Evaluator:
  - Take the simulator to Freeze and turn horns off.
  - Stop and save the SBT report and any other recording devices.
  - Instruct the crew to not erase any markings or talk about the scenario until after follow-up questions are asked.

## GGNS 2-2020 NRC Scenario 2

<b>Critical Task</b>	(CT-1) During failure to scram conditions with power > 5%, <ul style="list-style-type: none"> <li>• terminate feedwater injection to lower RPV level to below -70" wide range within 90 seconds following ATWS ARI/RPT initiation. This is a time critical action.</li> <li>• terminate and prevent all other injection sources (except boron, CRD, and RCIC) as necessary to lower RPV level to below -70" wide range prior to exiting EP-2A.</li> </ul>
<b>Event</b>	6
<b>Safety Significance</b>	<p>Regarding lowering level below -70" wide range, to prevent or mitigate the consequences of any large irregular neutron flux oscillations induced by neutronic/thermal-hydraulic instabilities. RPV water level is lowered sufficiently below the elevation of the feedwater sparger nozzles. This places the feedwater spargers in the steam space providing effective heating of the relatively cold feedwater and eliminating the potential for high core inlet subcooling. For conditions that are susceptible to oscillations, the initiation and growth of oscillations is principally dependent upon the subcooling at the core inlet; the greater the subcooling, the more likely oscillations will commence and increase in magnitude.</p> <p>24" below the lowest nozzle in the feedwater sparger has been selected as the upper bound of the RPV water level control band. This water level is sufficiently low that steam heating of the injected water will be at least 65% to 75% effective (i.e., the temperature of the injected water will be increased to 65% to 75% of its equilibrium value in the steam environment). This water level is sufficiently high that most plants without the capability to readily defeat the low RPV water level MSIV isolation should be able to control RPV water level with feedwater pumps to preclude the isolation.</p>
<b>Cueing</b>	A scram is initiated (either automatically or manually) and numerous control rods indicate beyond position 02 and reactor power is > 5% on panel P680 indications and SPDS and RPV level is > -70" wide range on SPDS and PDS.

<b>Critical Task</b>	(CT-2) With Reactor Power above 5% inject Standby Liquid Control system within 5 minutes OR prior to suppression pool temperature reaching 110°F.
<b>Event</b>	6
<b>Safety Significance</b>	<p>GGNS-NE-16-00004, Time Critical Operator Actions for Grand Gulf, Attachment 1 02-S-01-40, EP Technical Bases, Attachment IX Steps Q2 – Q4</p> <p>If reactor power remains above the APRM downscale setpoint (5%) following multiple attempts to scram the reactor (EP-2 Step 1, EP-2A Step 1), boron injection is initiated immediately to preclude power oscillations, avoid challenges to primary containment temperature and pressure limits, and ensure that the plant remains in a controlled state. SLC is the normal method of injecting boron into the RPV. Both pumps are started to increase the injection rate and shorten the time required to complete boron injection.</p>
<b>Cueing</b>	Operator verifies SLC is injecting IAW 04-1-01-C41-1, Attachment VI, Verification of Standby Liquid Control Injection.

## GGNS 2-2020 NRC Scenario 2

<b>Critical Task</b>	(CT-3) When control rods fail to scram, crew inserts all control rods to position 02 or beyond before exiting EP-2A
<b>EVENT</b>	6
<b>Safety Significance</b>	Failure to effect shutdown of the reactor when a RPS setpoint has been exceeded would unnecessarily extend the level of degradation of the safety of the plant. This could further degrade into damage to the principle fission product barriers if left unmitigated. The crew is authorized by Conduct of Operations to take mitigating actions when automatic safety systems fail to perform their intended function. Action to shut down the reactor is required when RPS and control rod drive systems fail IAW EP-2A.
<b>Cueing</b>	<ul style="list-style-type: none"><li>• A scram is initiated (either automatically or manually) and numerous control rods indicate beyond position 02.</li></ul>

\* If an operator or the crew significantly deviates from, or fails to, follow procedures that affect the maintenance of basic safety functions, those actions may form the basis of a CT identified in the post-scenario review (NUREG 1021, Appendix D). An unintentional or unnecessary RPS or ESF actuation may result in the creation of a post-scenario Critical Task, if that actuation results in a significant plant degradation or significantly alters a mitigation strategy.



## GGNS 2-2020 NRC Scenario 2

**Simulator Setup:**

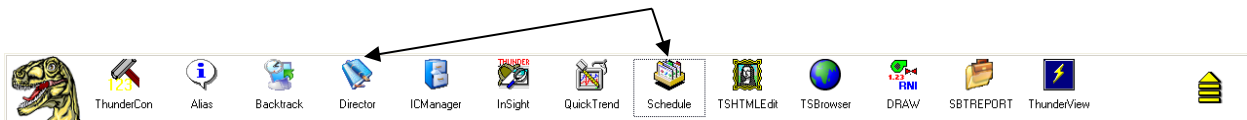
## A. Initialization

1. Log off all simulator PDS and SPDS computers (PDS and SPDS must come up after the simulator load for proper operation).
2. Startup the simulator using Simulator Instructor's Job Aid section 7.3.

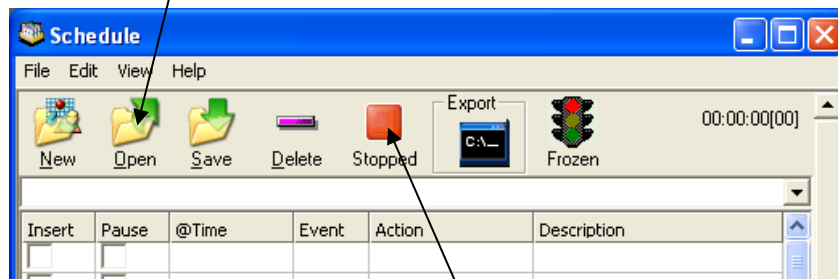
*Note:*

***Prior to running the Schedule File, ensure no Event Files are Open. If an existing Event File is Open prior to running the Schedule File, then any associated Event Files will not automatically load.***

3. Open Schedule.exe and Director.exe by clicking on the Icon in the Thunder Bar.



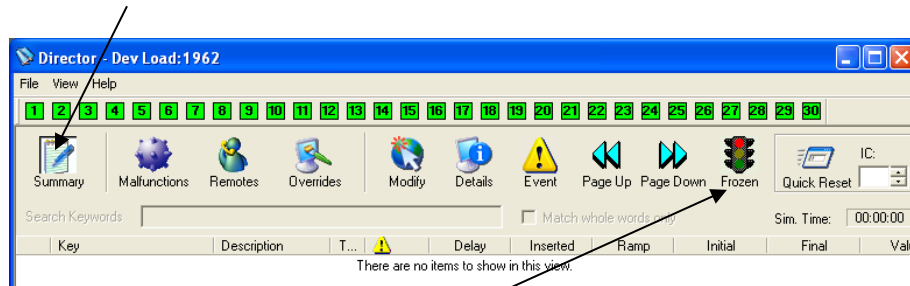
4. Set the Simulator to **IC-27** and perform switch check (Using Quick Reset in Director).
5. Click on **“Open”** in the Schedule window and Open Schedule File **“2-2020 Scenario 2.sch”** (in the Schedule Directory)



6. In Schedule window, click on the **“Stopped”** red block. The red block will change to a green arrow and indicate the scenario is active (**“Running”**).

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7. Click the Summary tab in the Director window. Verify the schedule files are loaded and opened per Section B below. (Note: Any actions in the schedule file without a specific time will not load into the director until triggered.)



8. Take the simulator out of freeze.
9. Log on to all simulator PDS and SPDS computers.
10. Verify or perform the following:
- IC-27
  - Ensure all procedures are marked as indicated for turnover conditions.
  - Advance all chart recorders and ensure all pens inking properly.
  - Clear any graphs and trends off of SPDS.
11. Run through any alarms and ensure alarms are on. **(Note: On T-Rex, to verify alarms are ON, the indicator will indicate “Alarms On”).**
12. Place the simulator in Freeze.

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## B. File loaded verification:

Schedule - F:\Schedule & Word files\2020 Initial\NRC 2-2020 Schedule Files\2-2020 scenario 2.sch

File Edit View Help

New Open Save Delete Running Export Running 00:00:40[00]

In...	Pa...	@Time	Ev...	Action	Description
<input type="checkbox"/>	<input type="checkbox"/>			^2-2020 scenario 2	
<input type="checkbox"/>	<input type="checkbox"/>			^Time 0	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert override LO_1P43M601C_W to TRUE	P870/05C TBCW PMP C:P43-C001C - DF
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert override DI_1P43M600C to STOP delete in 5	P870/05C TBCW PMP C : P43-C001C
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction c1164 to 10.00000	CRD HYDRAULIC BLOCK (ATWS)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert remote ATT11 to DONE	Defeating RWCJ Isolation Interlocks
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction c41f001b_i	override (loss of power when stroke) c41f001b
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>			^event 1 - place SSW A in recirc	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction p41f005a_i	override (loss of power when stroke)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert remote p75057 to MAINT on event 7	DG DIV 1 MAINTENANCE MODE
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction e61c001a_c on event 8	breaker rack out override
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>			^event 2	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction ftb33n014b_e on event 2	override (loss of power)
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>			^event 3	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction p43152a on event 3	Turbine Building Closed Cooling Water Pump A trip
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>			^event 4	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction z025025_60_37 on event 4	Control Rod 60-37 Scram
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction z025025_56_37 on event 4	Control Rod 56-37 Scram
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction z025025_52_37 on event 4	Control Rod 52-37 Scram
<input type="checkbox"/>	<input type="checkbox"/>		9	delete malfunction z025025_52_37	Control Rod 52-37 Scram
<input type="checkbox"/>	<input type="checkbox"/>		9	delete malfunction z025025_56_37	Control Rod 56-37 Scram
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>			^event 5	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction tc093 on event 5	Spurious Main Turbine Trip
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		create event 10 zlo4(568) >0 desc-slc a initiated	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction r21180 after 480 on event 10	ESF 21 Transformer Lockout
<input type="checkbox"/>	<input type="checkbox"/>				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Create event 11 ioao4(22) > .5	> 3000 rpm
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction e51047 on event 11	RCIC Turbine Trip
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction p601_21a_b_4 to OFF	RCIC PMP SUCT PRESS LO
<input type="checkbox"/>	<input type="checkbox"/>				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert remote c11647 to RESET on event 12	RC&IS Reset
<input type="checkbox"/>	<input type="checkbox"/>				

Execute: Insert remote c11647 to RESET on event 12  
 Execute: Insert malfunction p601\_21a\_b\_4 to OFF  
 Execute: Insert malfunction e51047 on event 11  
 Execute: Create event 11 ioao4(22) > .5  
 Execute: Insert malfunction r21180 after 480 on event 10

Ready NUM

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## B. File loaded verification:

Director - Dev Load:1962

File View Help

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Summary Malfunctions Remotes Overrides Modify Details Event Page Up Page Down Running Quick Reset IC: 27

Search Keywords  Match whole words only Sim. Time: 00:01:08

Key	Description	T...	Delay	Inserted	Delete in	Ramp	Initial	Final	Value
LO_1P43M60...	P870/05C TBCW PMP C:P43-C001C - DF		00:00:00	00:00:00	00:00:00	00:00:00	TRUE	TRUE	
ATT11	Defeating RWCU Isolation Interlocks		00:00:00	00:00:00	00:00:00	00:00:00	DONE	DONE	
p601_21a_b_4	RCIC PMP SUCT PRESS LO		00:00:00	00:00:00	00:00:00	00:00:00	OFF	OFF	
c11164	CRD HYDRAULIC BLOCK (ATWS)		00:00:00	00:00:00	00:00:00	00:00:00	10	10	
c41f001b_i	override (loss of power when stroke) c41f001b		00:00:00	00:00:00	00:00:00	00:00:00	Active	Active	
p41f005a_i	override (loss of power when stroke)		00:00:00	00:00:00	00:00:00	00:00:00	Active	Active	
ftb33n014b_e	override (loss of power)	2	00:00:00		00:00:00	00:00:00	Active	InActive	
p43152a	Turbine Building Closed Cooling Water Pump A trip	3	00:00:00		00:00:00	00:00:00	Active	InActive	
z025025_52_...	Control Rod 52-37 Scram	4	00:00:00		00:00:00	00:00:00	Active	InActive	
z025025_56_...	Control Rod 56-37 Scram	4	00:00:00		00:00:00	00:00:00	Active	InActive	
z025025_60_...	Control Rod 60-37 Scram	4	00:00:00		00:00:00	00:00:00	Active	InActive	
tc093	Spurious Main Turbine Trip	5	00:00:00		00:00:00	00:00:00	Active	InActive	
p75057	DG DIV 1 MAINTENANCE MODE	7	00:00:00		00:00:00	00:00:00	MAINT	OPER	
e61c001a_c	breaker rack out override	8	00:00:00		00:00:00	00:00:00	Active	InActive	
r21180	ESF 21 Transformer Lockout	10	00:08:00		00:00:00	00:00:00	Active	InActive	
e51047	RCIC Turbine Trip	11	00:00:00		00:00:00	00:00:00	Active	InActive	
c11647	RCIS Reset	12	00:00:00		00:00:00	00:00:00	RESET	NORM	

Ready NUM

## GGNS 2-2020 NRC Scenario 2

**Procedures that may be used in this scenario:**

- IOI 03-1-01-2, Power Operations
- ARI 04-1-02-1H13-P870-1A-C2
- ARI 04-1-02-1H13-P864-1A-B1
- ARI 04-1-02-1H13-P864-1A-D1
- ARI 04-1-02-1H13-P864-1A-D2
- ARI 04-1-02-1H13-P870-4A-B2
- ARI 04-1-02-1H13-P680-4A2-C5
- ARI 04-1-02-1H13-P680-5A-B10
- ARI 04-1-02-1H13-P680-5A-C11
- ARI 04-1-02-1H13-P680-71-A11
- Technical Specification
- ARI 04-1-02-1H13-P870-5A-B3
- ARI 04-1-02-1H13-P870-5A-C4
- 05-1-02-V-2, Loss of TBCW ONEP
- ARI 04-1-02-1H13-P680-4A2-D4
- ARI 04-1-02-1H13-P680-4A2-E4
- 05-1-02-IV-1, Control Rod/Drive Malfunctions ONEP
- 05-1-02-III-3, Reduction in Recirc System Flow Rate ONEP
- 02-S-01-43, Transient Mitigation Strategy
- EN-OP-115, Conduct of Operations
- 05-1-02-I-1, Reactor Scram ONEP
- 05-1-02-II-1, Turbine and Generator Trip ONEP
- 05-S-01-EP-2, RPV Control
- 05-S-01-EP-2A, ATWS RPV Control
- SOI 04-1-01-N21-1, Feedwater System
- 05-S-01-EP-3, Containment Control
- 05-1-02-III-5, Automatic Isolations ONEP
- SOI 04-1-01-E51-1, Reactor Core Isolation Cooling System
- SOI 04-1-01-C11-1, Control Rod Drive System
- SOI 04-1-01-G33-1, Reactor Water Cleanup System
- SOI 04-1-01-C41-1, Standby Liquid Control System

## GGNS 2-2020 NRC Scenario 2

**SCENARIO ACTIVITIES:**

- Start SBT report and any other required recording devices.

Event No: 1

Event Description: Place SSW A in recirculation mode per SSW SOI 04-1-01-P41-1, P41-F005A trip on stroke signal

**Initial Setup – Automatic**

TIME	Position	Applicant's Actions or Behavior
0	CRS	Directs BOP to place SSW A in recirculation mode per 04-1-01-P41-1, section 5.10.
2	RO	<p>Performs the following per SOI: 5.10.2 <u>Instructions</u></p> <ol style="list-style-type: none"> <li>1. <b>PLACE</b> SSW DIV 1 MOV TEST switch to TEST.</li> </ol> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;"><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• Starting SSW A Pump can cause 1P41-F299A, SSW C001A DISCH S/R VALVE, to lift.</li> <li>• 1P41-F299A should reseal at approximately 125 to 128 psig discharge pressure.</li> </ul> </div> <ol style="list-style-type: none"> <li>2. <b>PLACE</b> SSW A Basin Recirculation in service as follows:</li> <li>3. <b>ENSURE</b> 1P41-F006A, SSW PMP A RECIRC VLV, is OPEN.</li> <li>4. <b>START</b> 1P41-C001A, SSW PMP A.</li> </ol>
	Booth	If asked if 1P41-F299A, SSW C001A DISCH S/R VALVE is lifted, respond "YES", P41-F299A is open.
3	RO	<p>Performs the following:</p> <ol style="list-style-type: none"> <li>5. <b>IF</b> 1P41-F299A, SSW C001A DISCH S/R VALVE, lifted and did NOT seat, <b>THEN PERFORM</b> following: <ol style="list-style-type: none"> <li>a. <b>OPEN</b> 1P41-F001A, SSW PMP A DISCH VLV.</li> <li>b. <b>OPEN</b> 1P41-F014A, SSW INL TO RHR HX A.</li> <li>c. <b>ENSURE</b> 1P41-F068A, SSW OUTL FM RHR HX A, is OPEN.</li> <li>d. <b>OPEN</b> 1P41-F005A, SSW LOOP A RTN TO CLG TWR A.</li> </ol> </li> </ol>

## GGNS 2-2020 NRC Scenario 2

TIME	Position	Applicant's Actions or Behavior
5	RO	<p>Reports the following when P41-F005A is stroked:</p> <ul style="list-style-type: none"> <li>• Annunciator P870-1A-C2, SSW DIV 1 OOSVC</li> <li>• Status light, OVLD OR PWR LOSS SSW VALVE</li> <li>• P870-1C, P41-F005A, both red and green lights out.</li> </ul> <p>Refers to ARI</p>
	Booth	<p><b>If directed to check breaker 52-15512 for P41-F005A, after 3 minutes report the breaker is tripped.</b></p> <p><b>If directed to check local position of P41-F005A, after 3 minutes report valve is closed.</b></p>
7	CRS	Directs BOP to place Div 1 DG in maintenance and to rack out Div 1 drywell purge compressor breaker.
8	BOP	<p>Directs NOB to report to Div 1 DG to place it in maintenance.</p> <p>Directs NOB to rack out breaker 52-15105 for DW purge compressor A.</p>
	Booth	<p><b>If directed, after 3 minutes report as NOB you are ready to place Div 1 DG in maintenance.</b></p> <p><b>When directed to depress and release local MAINTENANCE MODE SELECT PB, insert trigger 7.</b></p>
9	BOP	<p>Depresses and holds DG 11 MAINT PERM PB on P864-1C</p> <p>Directs NOB to depress and release local MAINTENANCE MODE SELECT PB</p>
10	BOP	<p>Reports the following expected P864 alarms:</p> <ul style="list-style-type: none"> <li>• 1A-B1, DIV 1 DSL ENG TRIP</li> <li>• 1A-D1, DG 11 AUTO START NOT AVAIL</li> <li>• 1A-D2, DIV 1 DSL GEN TROUBLE</li> </ul> <p>Reports the following P864-1B status light:</p> <ul style="list-style-type: none"> <li>• DG 11 NOT AVAIL</li> </ul> <p>Reports Div 1 DG is in maintenance mode</p>
	Booth	<b>After 5 minutes, insert trigger 8 and report Div 1 drywell purge compressor breaker 52-15105 is racked out.</b>
13	BOP	<p>Reports the following expected P870 alarm:</p> <ul style="list-style-type: none"> <li>• 4A-B2, CGCS DIV 1 OOSVC</li> </ul>

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TIME	Position	Applicant's Actions or Behavior
15	CRS	<p>Directs RO to place SSW A in standby.</p> <p>Enters Tech Specs and identifies the following LCOs:</p> <p>3.7.1 Condition D, One SSW subsystem inop,</p> <p style="text-align: center;">Notes</p> <p>1 Enter applicable conditions and required actions of LCO 3.8.1 for DGs made inop by SSW.</p> <p>D.1 Restore SSW subsystem to OPERABLE status within 72 hours</p> <p>3.8.1 Condition B, One required DG inop for reason other than Condition F.</p> <p>B.1 Perform SR 3.8.1.1 for OPERABLE required offsite circuit(s) within 1 hour and once per 8 hours thereafter</p> <p><u>AND</u></p> <p>B.2 Declare required feature(s), supported by the inop DG, inop when the redundant required feature(s) are inop within 4 hrs from discovery of Cond B concurrent with inop of redundant required features</p> <p><u>AND</u></p> <p>B.3.1 Determine OPERABLE DGs are not inop due to common cause failure within 24 hours</p> <p><u>OR</u></p> <p>B.3.2 Perform SR 3.8.1.2 for OPERABLE DGs within 24 hours.</p> <p><u>AND</u></p> <p>B.3.3 Restore required DG to OPERABLE status within 14 days.</p> <p>3.6.3.3 Condition A, One drywell purge subsystem inoperable.</p> <p>A.1 Restore drywell purge subsystem to operable status within 30 days</p>
15	BOP	<p>Secures SSW A by performing the following:</p> <ul style="list-style-type: none"> <li>• <b>CLOSE</b> 1P41-F014A.</li> <li>• <b>CLOSE</b> 1P41-F001A.</li> <li>• STOP 1P41 C001A, SSW PMP A.</li> <li>• STOP 1Y47 C001A, SSW PMPHS O/A FAN.</li> <li>• PLACE SSW DIV 1 MOV TEST switch to NORM.</li> </ul>



## GGNS 2-2020 NRC Scenario 2

Event No: <u>2</u>		
Event Description: B33 flow transmitter failure		
Triggered by Lead Examiner		
TIME	Position	Applicant's Actions or Behavior
16	ATC	<p>Recognizes and reports the following alarms:</p> <ul style="list-style-type: none"> <li>• P680-4A2-C5, CONT ROD WITHDRAWAL BLOCK</li> <li>• P680-5A-B10, APRM UPSC/OPRM ALM</li> <li>• P680-5A-C11, APRM FLOW UPSC/COMP</li> <li>• P680-7A-A11, APRM CH 2 UPSC TRIP/OPRM TRIP/INOP</li> </ul> <p>Recognizes APRM status lights:</p> <ul style="list-style-type: none"> <li>• UPSC TR OR INOP</li> <li>• UPSC ALM</li> <li>• FLOW COMP</li> </ul> <p>Refers to ARIs</p>
18	CRS	<p>Directs RO to perform the following per ARI 7A-A11:</p> <p>3.4 <b>OBSERVE</b> the APRM recorders on 1H13-P680. <b>IF</b> APRM 2 is <b>NOT</b> upscale <b>OR</b> is failed upscale, the alarm <u>May</u> be due to inoperative equipment. <b>CHECK</b> the APRM 2 module on 1H13-P670 to help <b>DETERMINE</b> the cause of the Inop.</p> <p>3.4.1 <b>BYPASS</b> APRM channel 2 until the cause of the inoperative condition is corrected.</p> <p>a. <b>BYPASS</b> an APRM channel by <b>SELECTING</b> appropriate BYPASS SELECT joystick on 1H13-P680.</p> <p>(1) <b>PLACE</b> joystick in desired channel position.</p> <p>b. <b>ENSURE</b> the appropriate <b>BYP</b> indication is present on the APRM module Main Display header on 1H13-P669, P670, P671 <b>OR</b> P672, <b>AND</b> the BYP status light is back-lit on 1H13-P680 (11E).</p>
20	BOP	<p>Performs the actions of ARI 7A-A11:</p> <ul style="list-style-type: none"> <li>• Reports APRM CH 2 module on P670 is indicating approximately 42%.</li> </ul>
22	ATC	Bypasses APRM Channel 2 and reports APRM channel 2 is bypassed.
23	CRS	Verifies alarms are clear for APRM CH 2
23	CRS	Directs I&C to investigate APRM Ch 2
	Booth	<b>If directed to investigate wait 3 minutes and report one of the two flow transmitter inputs to APRM B has failed downscale.</b>
25	CRS	<p>Enter Tech Specs and identifies Potential LCO for APRM Ch 2</p> <ul style="list-style-type: none"> <li>• 3.3.1.1, RPS Instrumentation</li> <li>• TR 3.3.2.1, Control Rod Block Instrumentation</li> </ul>

## GGNS 2-2020 NRC Scenario 2

Event No: <u>3</u>		
Event Description: <b>TBCW pump trip / Stby pump fails to auto start</b> <b>Triggered by Lead Examiner</b>		
TIME	Position	Applicant's Actions or Behavior
25	RO	<p>Recognizes and reports the following P870 alarms:</p> <ol style="list-style-type: none"> <li>1) 5A-B3, TBCW PMP A TRIP</li> <li>2) 5A-C4, TBCW PMPS DISCH PRESS LO</li> </ol> <p>Determines Standby TBCW pump did not auto start, manually starts TBCW Pump 'C' using handswitch.</p> <p>Reports to CRS, TBCW pumps B and C are operating</p>
<p><b>Evaluator Note: The Standby TBCW pump should be started prior to reaching step B3 of the LOSS OF TBCW ONEP IAW EN-OP-200 step 5.1(9) which states:</b></p> <p><b>Failed Automatic Actions</b></p> <ol style="list-style-type: none"> <li>a. <b>ENSURE operators backup automatic action when they fail to occur.</b></li> <li>b. <b>IF an automatic control malfunctions, THEN ESTABLISH manual control.</b></li> </ol>		
26	CRS	<p>Enters and directs Subsequent Actions from 05-1-02-V-2, Loss of Turbine Building Cooling Water. Performs update.</p> <p>A. Partial Loss of TBCW</p> <p>B3 <b><u>IF</u> REQUIRED to RESTORE TBCW flow to pre-event values, <u>THEN START</u> AVAILABLE TBCW Pumps.</b></p> <p>B4 <b>MONITOR</b> Key Parameters, <b>USE</b> Attachment 2.</p>
26	BOP	<p>Reports the following alarm has cleared:</p> <ol style="list-style-type: none"> <li>3) 5A-C4, TBCW PMPS DISCH PRESS LO</li> </ol>
27	BOP	Monitors parameters per Attachment 2 and reports no significant changes to parameters (next page).
28	CRS	Directs plant operator and electrical maintenance to investigate TBCW pump A trip, breaker 152-1313.
	Booth	<p><b>If directed to perform post-start checks on TBCW pump C and investigate TBCW pump A trip:</b></p> <ul style="list-style-type: none"> <li>• <b>Wait 3 minutes and report locally at TBCW pump, there is no indication for the A pump trip and pump C is operating normally.</b></li> <li>• <b>Wait 3 minutes and report breaker 152-1313 is tripped with 86 device lockout and instantaneous trip flags.</b></li> </ul>

## GGNS 2-2020 NRC Scenario 2

ATTACHMENT 2						
CRITICAL PARAMETER MONITORING						
Loss Of TBCW System Monitoring						
Monitored Parameter and Action	Indication	Limit	T1	T2	T3	T4
TBCW Temperature Restore and Maintain LESS THAN limit	PDS P43N055	100°F				
TBCW Temperature Reactor Scram Limit	PDS P43N055	120°F				
Turbine Hydraulic Fluid Temperature Reactor Scram Limit / Remove from Service	PDS N32N001 <u>OR</u> N32-R614 (1H13-P680)	150°F				
Main Turbine Lube Oil Temperature Reactor Scram Limit / Sys. Action Required	PDS N34N101 <u>OR</u> N34-R601 (1H13-P680)	150°F				
TBCW Pressure Pump Auto Start	PDS P43N045 <u>OR</u> P43-R601 (1H13-P870)	45 psig				
TBCW Flow Single Pump Flow Limit	PDS P43N021	12,000 gpm				
RFPT A Lube Oil Temp. Pump Operating Limit	PDS N21N007A <u>OR</u> N21-TR-R619A (1H13-P878)	150°F				
RFPT B Lube Oil Temp. Pump Operating Limit	PDS N21N007B <u>OR</u> N21-TR-R619B (1H13-P878)	150°F				
Condensate Booster Pump Oil Temp. Pump Operating Limit	Local	150°F				

## GGNS 2-2020 NRC Scenario 2

Event No: <u>4</u>		
Event Description: <b><u>3 Control Rods Scram</u></b>		
Triggered by Lead Examiner		
TIME	Position	Applicant's Actions or Behavior
<b>Evaluator Note:</b> <b>There is a possibility this will be misdiagnosed as multiple rods drifting. If this occurs the ATC may place the Rx Mode Switch in SHUTDOWN.</b>		
30	ATC	<p>Recognizes and reports the following:</p> <p>P680 alarms:</p> <ul style="list-style-type: none"> <li>4A2-D4, HCU TROUBLE</li> <li>4A2-E4, CONTROL ROD DRIFT</li> </ul> <p>Status Lights:</p> <ul style="list-style-type: none"> <li>SCRAM VLV</li> <li>HCU FAULT</li> <li>ROD DRIFT</li> </ul> <p>Control Rods indication --</p> <ul style="list-style-type: none"> <li>60-37</li> <li>56-37</li> <li>52-37</li> </ul> <p>Reports three control rods have Scrammed.</p>
31	CRS	<p>Enters 05-1-02-IV-1, Control Rod / Drive Malfunctions ONEP, performs Update</p> <p>Directs RO to reduce core flow to 70 Mlbm/hr.</p> <p>2.4 <u>Inadvertent Scram of More Than One Control Rod</u></p> <p>2.4.1 <b><u>IF</u></b> more than one but less than eight Control Rods have scrambled, <b><u>THEN:</u></b></p> <ul style="list-style-type: none"> <li><b>REDUCE</b> Reactor core flow to 70 Mlbm/hr.</li> </ul> <p style="text-align: center;"><b><u>OR</u></b></p> <ul style="list-style-type: none"> <li><b><u>IF</u></b> core flow <b><u>CANNOT</u></b> be promptly reduced, <b><u>THEN MANUALLY SCRAM</u></b> the Reactor.</li> </ul> <p>2.4.2 <b><u>IF</u></b> eight <b><u>OR</u></b> more Control Rods have scrambled, <b><u>THEN MANUALLY SCRAM</u></b> Reactor</p>
32	ATC	<p>Using Recirc FCVs, reduces RPV Core flow to 70 Mlbm/hr.</p> <p>After 70 mlbm/hr core flow is reached, RO plots point on Power / Flow map and determines to be in the OPRM Armed Region.</p> <p>Monitors for Thermal Hydraulic Instability</p>
33	CRS	<p>Enters 05-1-02-III-3, Reduction in Recirc System Flow Rate ONEP, performs Update</p> <p>Issues a Critical Parameter and directs RO to monitor for additional Control Rod Drifts and Scrams</p>

## GGNS 2-2020 NRC Scenario 2

TIME	Position	Applicant's Actions or Behavior
35	CRS	Dispatches NOB to investigate HCUs: <ul style="list-style-type: none"> <li>• 60-37</li> <li>• 56-37</li> <li>• 52-37</li> </ul>
	Booth	<b>If dispatched to investigate HCUs, wait 3 minutes, trigger EVENT 9 and report via the pager the air line for control rod HCU 60-37 has a leak. HCU 60-37 air isolation valve was closed.</b>
36	ATC	Reports control rods 56-37 and 52-37 have settled to position 00.
<b>Evaluator Note: 60-37 will not settle due to not having air supplied to the scram valves. This will keep the scram valves open and prevent settling.</b>		
	Booth	<b>If directed to isolate the HCU notify control room that you must return to the Control Room for procedure and briefing.</b>  <b>If directed to close the 103QJ and 105QJ, wait 3 minutes and report that 103QJ and 105QJ are closed. This action will have no effect if trying to get the rod to settle.</b>
38	CRS	Directs Plant Operator to isolate HCU 60-37 per SOI.
40	CRS	Enters Tech Specs and identifies the following LCO: 3.1.3 Condition C, One or more control rods inop for reasons other than Conditions A or B. C.1 Fully insert inoperable control rod within 3 hours. <u>AND</u> C.2 Disarm the associated CRD within 4 hours.
40	CRS	Notifies Reactor Engineering of the scrammed rods.

## GGNS 2-2020 NRC Scenario 2

Event No: 5, 6, 7, 8

## Event Description:

- Spurious main turbine trip (Event 5)
- ATWS (Event 6)
- RWCU fails to isolate on SLC initiation (Event 7)
- ESF 21 lockout (Event 8)

**Critical task 1- During failure to scram conditions with power > 5%,**

- terminate feedwater injection to lower RPV level to below -70" wide range within 90 seconds following ATWS ARI/RPT initiation. This is a time critical action.
- terminate and prevent all other injection sources (except boron, CRD, and RCIC) as necessary to lower RPV level to below -70" wide range prior to exiting EP-2A.

**Critical task 2 - With Reactor Power above 5%, inject Standby Liquid Control system within 5 minutes AND/OR prior to suppression pool temperature reaching 110°F.**

**Critical task 3 - When control rods fail to scram, crew inserts all control rods to position 02 or beyond before exiting EP-2A.**

**Event 5 - Triggered by Lead Examiner**  
**Events 6, 7, 8 are automatic**

TIME	Position	Applicant's Actions or Behavior
	<b>Booth</b>	<b>Initiate Trigger 5</b> <b>Malfunction(s):</b> <b>Spurious main turbine trip</b>
41	ATC	Performs Immediate Operator Actions per 05-1-02-I-1, Reactor Scram ONEP 2.0 <u>IMMEDIATE OPERATOR ACTIONS</u> 2.1 <b>CONFIRM</b> all Control Rods are fully inserted. 2.2 <b>CONFIRM</b> Reactor power decreasing. 2.3 <b>IF</b> Pressure Control System is maintaining reactor pressure greater than 850 psig, <b>THEN PLACE</b> Reactor Mode switch to <b>SHUTDOWN</b> .  When the Turbine trips on reverse power, verifies the following Automatic Actions have occurred and determines no immediate actions are required: <ul style="list-style-type: none"> <li>• Turbine Stop Valves Close</li> <li>• Turbine Control Valves Close</li> <li>• Generator Output Breakers J5228 <u>AND</u> J5232 Open</li> </ul>
41	ATC	Recognizes and reports Hydraulic Block ATWS

## GGNS 2-2020 NRC Scenario 2

TIME	Position	Applicant's Actions or Behavior
42	ATC	<p>Performs Immediate Operator Actions for ATWS per 05-1-02-I-1, Reactor Scram ONEP</p> <ul style="list-style-type: none"><li>• <b>VERIFY</b> Reactor Recirc Pumps are transferred to LFMGs<ul style="list-style-type: none"><li>○ Ensures CB5 A &amp; B breakers are OPEN</li></ul></li><li>• <b>INITIATE</b> ARI/RPT<ul style="list-style-type: none"><li>○ Arms and Depresses ATWS ARI/RPT Channel 1 &amp; 2 pushbuttons</li></ul></li><li>• <b>INHIBIT</b> ADS<ul style="list-style-type: none"><li>○ Places ADS A &amp; ADS B MANUAL INHIBIT switches to INHIBIT POSITION</li></ul></li><li>• <b>INITIATE <u>AND</u> OVERRIDE</b> HPCS<ul style="list-style-type: none"><li>○ While holding 1E22F004, HPCS INJ SHUTOFF VLV handswitch in CLOSE position, arm and depress manual system initiation pushbutton for HPCS</li><li>○ After indication of pump start, then trip HPCS Pump</li><li>○ Ensure HPCS Pump and 1E22F004, HPCS INJ SHUTOFF VLV override alarms are sealed in</li></ul></li></ul>

## GGNS 2-2020 NRC Scenario 2

TIME	Position	Applicant's Actions or Behavior
43★	ATC	<p><b>IF</b> ATWS is greater than 5% power, <b>THEN PERFORM</b> the following:</p> <p>Using 04-1-01-C11-1 hard card, performs the following:</p> <p>Turns SLC A and B handswitches to START</p> <p>1. <b>CHECK</b> system initiation by <b>OBSERVING</b> following:</p> <ul style="list-style-type: none"> <li>a. <b>CHECK</b> Squib Valves fired on following: <ul style="list-style-type: none"> <li>1) 1C41-F004A, SLC PUMP C001A DISCHARGE SQUIB VALVE <ul style="list-style-type: none"> <li>• White SQUIB VLV READY light OFF</li> </ul> </li> <li>2) 1C41-F004B, SLC PUMP C001A DISCHARGE SQUIB VALVE <ul style="list-style-type: none"> <li>• White SQUIB VLV READY light OFF</li> </ul> </li> <li>3) Annunciator SLC System A OOSVC ON</li> <li>4) Annunciator SLC SYSTEM B OOSVC ON</li> <li>5) SLC A SYS STATUS SQUIB A LOSCONT/PWRLOSS light ON</li> <li>6) SLC B SYS STATUS SQUIB B LOSCONT/PWRLOSS light ON</li> </ul> </li> <li>b. <b>CHECK</b> OPEN Tank Outlet Valves: <ul style="list-style-type: none"> <li>• 1C41 F001A</li> <li>• 1C41 F001B</li> </ul> </li> <li>c. SLC Pump A RUNNING</li> <li>d. SLC Pump B RUNNING</li> <li>e. RWCU ISOLATES: <ul style="list-style-type: none"> <li>• G33-F004, RWCU PMP SUCT CTMT OTBD ISOL, CLOSED</li> <li>• G33-F001, RWCU PMP SUCT DRWL INBD ISOL, CLOSED.</li> <li>• G33-F251, RWCU SPLY TO RWCU HXS, CLOSED</li> </ul> </li> </ul> <p>2. <b>CHECK</b> SLC INJECTING INTO the RPV by observing following:</p> <ul style="list-style-type: none"> <li>• SLC Pump discharge pressure greater than reactor pressure.</li> <li>• SLC Tank Level lowering.</li> <li>• Nuclear instrumentation lowering.</li> </ul> <ul style="list-style-type: none"> <li>• Reports RWCU failed to auto isolate. <ul style="list-style-type: none"> <li>○ Isolates the following valves using their control room handswitches: <ul style="list-style-type: none"> <li>• G33-F001 (P601-11C, normally closed)</li> <li>• G33-F004 (P601-11C)</li> <li>• G33-F251 (P870-9C)</li> </ul> </li> </ul> </li> </ul> <p><b>CRITICAL TASK; With Reactor Power above 5% inject Standby Liquid Control system within 5 minutes AND/OR prior to suppression pool temperature reaching 110°F</b></p>
44	ATC	Reports Storage Tank Outlet Valve, C41-F001B failed to open and SLC pump B not running.
44	CRS	<p>Performs update and enters the following:</p> <ul style="list-style-type: none"> <li>▪ Reactor Scram ONEP, 05-1-02-I-1,</li> <li>▪ EP-2, RPV Control</li> </ul> <p>Directs all personnel to evacuate Containment due to reactor scram.</p>



## GGNS 2-2020 NRC Scenario 2

TIME	Position	Applicant's Actions or Behavior
44	CRS	Transitions from EP-2, RPV Control, to EP-2A, ATWS RPV Control Verifies ATC performed immediate actions of Reactor Scram ONEP, 05-1-02-I-1 for ATWS > 5%
45	CRS	Directs RO to terminate feedwater injection to the reactor vessel <ul style="list-style-type: none"> <li>• Verifies Feedwater flow is terminated</li> </ul> Directs RO to align Condensate/Feedwater on Startup Level Control Directs RO to maintain RPV water level between -70" and -130" wide range
45★	BOP	<b><u>IF</u></b> directed to "Terminate and Prevent Feedwater Injection" <b><u>THEN</u></b> : <ul style="list-style-type: none"> <li>○ <b>PUT</b> 1C34-LK-R600, FW LVL MASTER CONT in manual mode by depressing MAN push button.</li> <li>○ <b>LOWER</b> 1C34-LK-R600, FW LVL MASTER CONT setpoint by <b>DEPRESSING</b> the OUT ↓ pushbutton <b><u>UNTIL</u></b> OUTPUT is at -5.00 percent.</li> </ul> <b>CRITICAL TASK: Terminate Feedwater injection within 90 seconds of ARI/RPT initiation.</b>

## GGNS 2-2020 NRC Scenario 2

TIME	Position	Applicant's Actions or Behavior
46	BOP	<p>Performs the following using 04-1-01-N21-1 hard card:</p> <ol style="list-style-type: none"> <li><b>IF</b> Reactor pressure is dropping rapidly during performance of this attachment, <b>THEN</b> <ol style="list-style-type: none"> <li><b>SELECT</b> SPEED AUTO OR MANUAL on running Reactor Feed Pump.</li> <li><b>LOWER</b> Reactor Feed Pump discharge pressure to maintain Reactor level below 58 inches.</li> </ol> <p style="text-align: center;"><b>NOTE</b></p> <p style="text-align: center;">The following steps can be performed concurrently.</p> </li> <li><b>PERFORM</b> the following: <ul style="list-style-type: none"> <li><b>MINIMIZE</b> the output of 1C34-LK-R602, RX WTR LVL SU CONT to <b>CLOSE</b> N21-F513.</li> <li><b>MINIMIZE</b> the output of 1N21-HC-R609, FW CU RECIRC VLV to <b>CLOSE</b> N21-F510.</li> <li><b>DEPRESS</b> the <b>CLOSE</b> pushbutton for the N21-F040, FW SU BYP VLV <b>AND ENSURE</b> valve is closed.</li> </ul> </li> <li><b>OPEN</b> the following valves: <ul style="list-style-type: none"> <li>N21-F001, SU FCV OUTL ISOL VLV.</li> <li>N21-F010A, HP FW HTR STRNG A SU OUTL VLV.</li> <li>N21-F010B, HP FW HTR STRNG B SU OUTL VLV.</li> </ul> </li> <li><b>SELECT</b> MAN on FW LVL MASTER CONT (1C34-LK-R600).</li> <li><b>CLOSE</b> the following valves: <ul style="list-style-type: none"> <li>N21-F009A, FW HTR 6A OUTL VLV.</li> <li>N21-F009B, FW HTR 6B OUTL VLV.</li> </ul> </li> <li><b>IF NO</b> RFPTs are in operation <b>AND</b> required, <b>THEN START</b> one RFPT per Attachment VI.</li> <li><b>IF</b> using a RFPT, <b>THEN PLACE</b> a RFPT in SPEED AUTO with respective RFPT discharge pressure approximately 250 psid above reactor pressure.</li> <li><b>ENSURE OPEN</b> RFP A(B) DISCH VLV N21-F014A(B) for RFPTs that are operating <b>OR</b> as needed to establish a flow path for Condensate.</li> <li><b>ADJUST</b> 1C34-LK-R602, RX WTR LVL SU CONT as necessary in MAN <b>or</b> AUTO to control N21-F513 to maintain desired Reactor level. N21-F040 <b>and</b> N21-F009A(B) <b>May</b> be OPENED/CLOSED as necessary to augment flow.</li> <li><b>WHEN</b> plant conditions require removing unneeded RFPT <b>AND</b> two RFPTs are running, <b>THEN TRIP</b> unneeded RFPT.</li> <li><b>REFER</b> to Section 5.14 of the procedure <b>WHEN</b> time permits.</li> </ol>

## GGNS 2-2020 NRC Scenario 2

TIME	Position	Applicant's Actions or Behavior
47	CRS	When RPV level falls below -41.6" WR, provides update and directs ATC to verify level 2 initiations and isolations.
48	ATC	<p>Verifies and reports Level 2 isolations complete using the isolation status board as a quick reference and verifying the following alarms:</p> <ul style="list-style-type: none"> <li>• P870-3A-A4, CTMT-DRWL ISOL DIV 1 OPER annunciator sealed in</li> <li>• P870-3A-B3, AUX BLDG ISOL DIV 1 OPER annunciator sealed in</li> <li>• P870-9A-A4, CTMT-DRWL ISOL DIV 2 OPER annunciator sealed in</li> <li>• P870-9A-B3, AUX BLDG ISOL DIV 2 OPER annunciator sealed in</li> </ul> <p>Verifies all Emergency D/Gs are running with cooling water</p> <p>Restores Instrument air to containment by opening the following valves:</p> <ul style="list-style-type: none"> <li>• P53-F001</li> <li>• P53-F007</li> </ul>
49	ATC	When RPV level lower below -41.6" WR, reports RCIC initiation and RCIC trip.
50	CRS	<p>Directs RPV pressure control band of 800-1060 psig using main turbine bypass valves.</p> <p>Directs turbine pressure setpoint to be lowered to 900 psig.</p>
50	BOP	Lowers pressure setpoint to 900 psig and maintains RPV pressure within band.
	CRS	<p>Directs I&amp;C to install EP Attachment 8 for MSIVs</p> <p>Directs I&amp;C to install EP Attachment 18, 19, and 20 to defeat RC&amp;IS interlocks and RPS scram signals</p> <p>May direct I&amp;C to install EP Attachment 12 for RHR injection through feedwater sparger</p> <p>May direct I&amp;C to install EP Attachments 1 and 3 for RCIC</p>
51	Booth	<p><b>Role Play: When directed to install Attachments, select "Remotes" and EP ATT tab; Select attachment to be installed, select INSTALL and Insert:</b></p> <p><b>Notify CRS as each Attachment indicates DONE.</b></p>
51	CRS	Directs RO to maximize CRD for flow

## GGNS 2-2020 NRC Scenario 2

TIME	Position	Applicant's Actions or Behavior
51	ATC	<p>Performs Immediate Operator action to start one pump per 05-1-02-IV-1, CRD Malfunctions ONEP:</p> <p>2.1.2 <b>IF</b> running CRD pump trips, <b>THEN START</b> standby CRD pump as follows:</p> <ol style="list-style-type: none"> <li><b>IF</b> required, <b>RE-ENERGIZE</b> MCC's 15B42 <b>AND</b> 16B42 on 1H13-P864.</li> <li><b>PLACE</b> CRD SYS FLO CONT in MANUAL <b>AND REDUCE</b> output to zero.</li> <li><b>START</b> standby CRD pump.</li> <li><b>IF</b> no scram signal is present, <b>THEN SLOWLY ADJUST</b> CRD SYS FLO CONT to 54-66 gpm after charging pressure is normal.</li> <li><b>RETURN</b> CRD SYS FLO CONT to AUTO with tapeset at 54-66 gpm.</li> </ol> <p>Maximizes CRD flow per 04-1-01-C11-1, Attachment VII, CRD SOI:</p> <ol style="list-style-type: none"> <li>Ensure oil pump is running on the non-running CRD Pump A(B).</li> <li>With one CRD pump already running, THEN START standby CRD PMP A(B).</li> <li>PLACE CRD SYS FLO CONT C11-R600 in MANUAL.</li> <li>Using CRD SYS FLOW CONT C11-R600, fully OPEN C11-F002A(B), CRD FLO CONT VLV.</li> <li>IF maximizing CRD for flow, THEN fully OPEN C11-F003, CRD DRIVE WTR PRESS CONT VLV.</li> </ol>
54	ATC	<p>When directed to Maximize CRD for pressure, Maximizes CRD for pressure per 04-1-01-C11-1, Attachment VII, CRD SOI:</p> <p>IF maximizing CRD for pressure THEN FULLY CLOSE C11-F003, CRD DRIVE WTR PRESS CONT VLV.</p>
55	CRS	<p>Set the following as a Critical Parameters:</p> <ul style="list-style-type: none"> <li>Reactor Power of 5%</li> <li>Suppression Pool Temperature</li> </ul>
56	ATC	<p>Recognizes and reports:</p> <ol style="list-style-type: none"> <li>16AB loss of power</li> <li>Div 2 D/G restored bus power by observing 152-1608, BUS 16AB FDR FM DG 12 closed.</li> </ol>
57	CRS	<p>Directs ATC to verify power restored to 16AB and re-override Div 2 ECCS systems, RHR B only.</p> <p>Directs ATC to restore CRD pump B to service</p>
59	ATC	<p>Overrides RHR B injection valve E12-F042B and E12-F042C by taking their handswitches to the CLOSE position.</p>

## GGNS 2-2020 NRC Scenario 2

TIME	Position	Applicant's Actions or Behavior
60	CRS	After attachments 18, 19, and 20 are installed, directs to maximize CRD for pressure and insert Control Rods
	<b>Booth</b>	<b>If directed to reset RC&amp;IS, insert event 12</b>
63★	BOP	<p>Insert Control Rods by performing the following:</p> <ul style="list-style-type: none"> <li>Reset the Reactor Scram using scram reset switches on P680</li> <li>Allow Scram Discharge Volume to drain as indicated on P680</li> <li>Depress Manual Scram pushbuttons on P680</li> <li>Verify Rod motion</li> <li>Reset the Reactor Scram using scram reset switches on P680</li> <li>Select a Control Rod in gang mode and depress the IN TIMER SKIP pushbutton on P680</li> </ul> <p><b>CRITICAL TASK; Crew is to insert control rods by manual scram and/or normal rod insertion following installation of EP Attachments 18, 19, and 20 prior to exiting EP-2A.</b></p>
65	CRS	Enters all legs of EP-3 and provides update.
67	CRS	Direct RO to energize Div 1 and Div 2 Hydrogen Igniters.
70	RO	<p>Using 04-1-01-E61-1 hard card, performs the following:</p> <p>Energizes Div 1 and Div 2 Hydrogen Igniters by performing the following:</p> <ul style="list-style-type: none"> <li><b>VERIFY</b> Running A(B) CTMT <b>AND</b> A(B) DW H2 Analyzers <b>OR</b> Start by <b>PLACING</b> handswitches to START on P870-4C and P870-10C</li> <li><b>VERIFY</b> the amber light on for the 0-10% scale on recorders 1E61-R602A(B) on P870-4B and P870-10B.</li> <li><b>ENSURE</b> A(B) CTMT <b>AND</b> A(B) DW H2 Analyzers have been in service for &gt; 60 seconds.</li> <li><b>VERIFY</b> A(B) CTMT <b>AND</b> A(B) DW H2 Concentration is &lt; 2.9% <b>AND THEN</b> <ul style="list-style-type: none"> <li><b>ENERGIZE</b> Div 1 H2 Igniters by <b>PLACING</b> H2 IGNITER SYS A handswitch to ON position on P870-4C.</li> <li><b>ENERGIZE</b> Div 2 H2 Igniters by <b>PLACING</b> H2 IGNITER SYS B handswitch to ON position on P870-10C.</li> </ul> </li> </ul>

**(Critical TASK in BOLD)**

**Termination:**

- Once control rods are being inserted and as directed by Lead Evaluator:
  - Take the simulator to Freeze and turn horns off.
  - Stop and save the SBT report and any other recording devices.
  - Instruct the crew to not erase any markings or talk about the scenario until after follow-up questions are asked.

## GGNS 2-2020 NRC Scenario 2

**If this scenario is used for EAL classification:**

- Site Area Emergency – SS3, Automatic scram fails to shut down the reactor and manual actions taken from the reactor control console are not successful in shutting down the reactor.

## GGNS 2-2020 NRC Scenario 2

**Give this page to the CRS**

**Crew Turnover:**

Reactor Power: 100%

MOC

EOOS: GREEN

Integrated Risk: NORMAL

Work Week: Div 1

Inop Equipment: None

Place SSW A in recirculation mode per step 5.10 of SOI 04-1-01-P41-1 for a chemistry sample immediately after turnover. The sample will be drawn later in the shift.

## GGNS 2-2020 NRC Scenario 4

Facility: Grand Gulf Nuclear Station Scenario No.: 4 Op-Test No.: GGNS 2-2020-4

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Initial Conditions: 79% power.

Inoperable equipment: Div 1 diesel generator, E30-F001A

Turnover: Sequence exchange completed last shift. Reactor Engineering is verifying rod pattern and thermal limits prior to raising core flow.

Event No.	Malf. No.	Event Type †	Event Description
1	c41f004b_a	TS (CRS)	SLC B squib valve failure LCO 3.1.7, Cond D With Div 1 DG inop, LCO 3.1.7, Cond E in 4 hours
2	n34098	C (ATC, CRS) A (ALL)	Turbine lube oil temp controller failure
3	e51188	I (BOP, CRS) A (ALL) TS (CRS)	Spurious RCIC initiation (TS) LCO 3.5.3, Cond A LCO 3.3.5.2, Cond B
4	r21139d	C (BOP, ATC, CRS) A (ALL)	28AG lockout
5	fw203 rr190b	M (CREW)	Recirc pumps downshift / LFMG trip / THI
6	rr063a	M (CREW)	LOCA
7	fw171a b21f065a_i	M (CREW)	Feedwater line break in DW, F065A isolation valve trips on stroke.
8	ct218e ct219b O/Rs e30f002b stem/disc separation	C (ATC, CRS)	HPCS supp pool leak / Door failure / SPMU failure / emergency depressurization. (CT-1) (CT-2)
† (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (A)bnormal (TS) Tech Spec			



## GGNS 2-2020 NRC Scenario 4

Quantitative Attributes Table			
Attribute	E3-301-4 Target	Actual	Description
Malfunctions after EOP entry	1-2	2	<ul style="list-style-type: none"> <li>• HPCS suppression pool leak / door failure</li> <li>• E30-F002B stem/disc separation</li> </ul>
Abnormal Events	2-4	3	<ul style="list-style-type: none"> <li>• Turbine lube oil temp controller failure</li> <li>• Spurious RCIC initiation</li> <li>• 28AG lockout</li> </ul>
Major Transients	1-2	3	<ul style="list-style-type: none"> <li>• Recirc pumps downshift / 1 LFMG trip / THI</li> <li>• LOCA</li> <li>• Feedwater line break in DW / inability to isolate</li> </ul>
EOP entries requiring substantive action	1-2	3	<ul style="list-style-type: none"> <li>• LOCA, EP-2</li> <li>• HPCS Suppression pool leak / door failure, EP-3</li> <li>• HPCS Suppression pool leak / door failure, EP-4</li> </ul>
Entry into a contingency EOP with substantive actions	≥1	2	<ul style="list-style-type: none"> <li>• Alternate level control, EP-2</li> <li>• Emergency Depressurization, EP-2</li> </ul>
Preidentified critical tasks	2-3	2	<p>(CT-1) Emergency Depressurize the RPV prior to Suppression Pool level reaching 14.5 ft.</p> <p>(CT-2) After Emergency Depressurization, restore and maintain RPV level above -191" using available injection systems prior to exiting EP-2.</p>

## GGNS 2-2020 NRC Scenario 4

Objectives: To evaluate the candidates' ability to operate the facility in response to the following evolutions:

- Respond to a SLC squib valve loss of power
- Respond to a turbine lube oil temperature controller failure
- Respond to a spurious RCIC initiation
- Respond to a 28AG lockout
- Respond to a double recirc pump downshift / 1 LFMG failure / THI / failure to auto scram
- Respond to a LOCA
- Respond to a feedwater line break in the DW that cannot be isolated
- Respond to a suppression pool leak into HPCS with door failure and SPMU failure

Initial Conditions:

- Plant is operating at 79% power following a rod sequence exchange.

Inoperable Equipment:

- Division 1 diesel generator
- Suppression Pool Makeup valve E30-F001A

Scenario Notes:

- This scenario is a NEW Scenario.
- Validation Time: 65 minutes

## GGNS 2-2020 NRC Scenario 4

**SCENARIO ACTIVITIES:****Event 1 – SLC B squib valve loss of power (Triggered by Lead Examiner)**

With Div 1 DG inop and with B SLC inop, LCO 3.1.7, Cond D. With Div 1 DG inop, LCO 3.1.7, Cond E in 4 hours

**Event 2 – Turbine lube oil temperature controller failure failure (Triggered by Lead Examiner)**

The controller should be placed in manual IAW ARI P680-10A-D3 and restore lube oil temperature to 113°F.

**Event 3 – Spurious RCIC initiation (Triggered by Lead Examiner)**

RCIC will initiate due to a spurious level 2 initiation signal. The BOP operator will secure RCIC per the hardcard by closing the trip/throttle valve, placing its controller in manual, and reducing its controller output to minimum. RCIC should be declared inop since it cannot automatically start / inject.

**Event 4 – 28AG lockout (Triggered by Lead Examiner)**

(reference CR GG-2019-3822)

Based on alarms received, the crew should recognize a loss of multiple PSW pumps due to 28AG lockout. The crew should enter 05-1-02-I-4, Loss of AC Power ONEP and 05-1-02-V-11, Loss of Plant Service Water ONEP. The bus is locked out and the crew should identify a computer point from the Loss of AC power ONEP and determine the bus cannot be reenergized. With core flow already at 70Mlbm/hr, control rods should be inserted to achieve < 50% Rx power. The BOP operator should start the (one) available PSW pump and optimize flow from all operating pumps.

**Event 5 – Recirc pumps downshift / LFMG failure / THI****(Initial Setup - Automatic)**

When the 3<sup>rd</sup> control rod is inserted, both of the recirc pumps will downshift due to faulty feedwater flow input to the cavitation interlock circuitry. The B LFMG will trip 40 seconds later. 60 seconds later, THI will start ramping in. Based on the rate THI is ramping in, the ATC should observe THI and place the Rx mode switch in shutdown prior to receiving an automatic Rx scram on OPRMs.

**Event 6 - LOCA (Initial Setup - Automatic)**

After the reactor is scrammed, a recirc suction leak will occur resulting in high drywell pressure ECCS initiations and isolations.

## GGNS 2-2020 NRC Scenario 4

**Event 7 – Feedwater break in drywell (Initial Setup - Automatic)**

A feedwater line A break will occur in the drywell. An attempt should be made to isolate the leak by closing FW INL SHUTOFF VLV, B21-F065A, but the breaker will trip on stroke signal. This will leave HPCS as the primary high pressure injection system available to maintain Rx level.

**Event 8 – HPCS suppression pool leak (Initial Setup - Automatic)**

HPCS suppression pool suction line will develop a leak between the suppression pool and its suction isolation valve E22-F015. Suppression pool level will start lowering. EP-3 should be entered and Suppression Pool Makeup (SPMU) should be initiated (may auto initiate). Both divisions of SPMU will receive an initiation signal. fail. SPMU valves E30-F001A is already inop with its breaker open. E30-F002B will experience a stem/disc separation resulting in no water being added to the suppression pool. HPCS room level will start rising and will lead to a HPCS pump trip as water gets in the motor. After the pump trip, HPCS pump room door will fail resulting in a continual drain of the suppression pool into the auxiliary building. With the HPCS pump trip, RPV level will start lowering and will require entry into the Alternate Level Control Leg of EP-2. RCIC should be aligned for injection, CRD maximized for flow, and SLC injected. Emergency depressurization is required prior to suppression pool level falling below 14.5 feet. After emergency depressurization, low pressure ECCS will restore RPV level. CT-1 and CT-2.

**Termination:**

- Once emergency depressurization has been conducted and reactor water level is stabilized above TAF and as directed by Lead Evaluator:
  - Take the simulator to Freeze and turn horns off.
  - Stop and save the SBT report and any other recording devices.
  - Instruct the crew to not erase any markings or talk about the scenario until after follow-up questions are asked.

## GGNS 2-2020 NRC Scenario 4

<b>Critical Task</b>	(CT-1) Emergency Depressurize the RPV prior to Suppression Pool level reaching 14.5 ft.
<b>Event</b>	8
<b>Safety Significance</b>	<p>02-S-01-40 Att. VI, EP Steps SPL-6 through 9.</p> <p>Suppression pool water must be maintained above 14.5 ft. to ensure that steam discharged through the horizontal vents following a primary system break will be adequately condensed. If a primary system break were to occur with suppression pool water level below this elevation, pressure suppression capability would be unavailable and primary containment pressure could exceed structural limits.</p> <p>If suppression pool water level <i>cannot</i> be maintained above 14.5 ft., emergency RPV depressurization is required since the RPV is not permitted to remain at pressure if pressure suppression capability is unavailable. Consistent with the definition of “cannot be maintained” a decision that suppression pool water level cannot be maintained above 14.5 ft can be made before level actually reaches this value.</p>
<b>Cueing</b>	Red light indication on at least 7 SRVs

<b>Critical Task (CT-2)</b>	(CT-2) After Emergency Depressurization, restore and maintain RPV level above -191” using available injection systems prior to exiting EP-2.
<b>Event</b>	8
<b>Safety Significance</b>	<p>02-S-01-40 Att. IV, EP Step L-14</p> <p>The Minimum Steam Cooling RPV Water Level is the lowest RPV water level at which the covered portion of the reactor core will generate sufficient steam to preclude any clad temperature in the uncovered portion of the core from exceeding 1500°F.</p> <p>Adequate core cooling is ensured if one of two conditions exists after the RPV is depressurized:</p> <ul style="list-style-type: none"> <li>• RPV water level can be restored and maintained above the Minimum Steam Cooling RPV Water Level (-191 in.). The core is then cooled by a combination of submergence and steam cooling, even with no core spray flow.</li> <li>• Design core spray flow requirements are satisfied (HPCS or LPCS flow above 7000 gpm and RPV water level above -216 in., the elevation of the top of the jet pumps). The core is then cooled by spray cooling, even if the core remains uncovered.</li> </ul>
<b>Cueing</b>	Positive injection flow established and reactor level rising

\* If an operator or the crew significantly deviates from, or fails to, follow procedures that affect the maintenance of basic safety functions, those actions may form the basis of a CT identified in the post-scenario review (NUREG 1021, Appendix D). An unintentional or unnecessary RPS or ESF actuation may result in the creation of a post-scenario Critical Task, if that actuation results in a significant plant degradation or significantly alters a mitigation strategy

## GGNS 2-2020 NRC Scenario 4

\*\*Per 02-S 01-40, EP-1, Step ED-6: Seven open SRVs is the Minimum Number of SRVs Required for Emergency Depressurization (MNSRED) and is the least number of SRVs which corresponds to a Minimum Steam Cooling Pressure (MSCP) sufficiently low that the ECCS with the lowest head will be capable of making up the SRV steam flow at the corresponding MSCP. The MNSRED is utilized to assure the RPV will depressurize and remain depressurized when emergency depressurization is required. Refer to Appendix A for a detailed discussion of the MNSRED and the MSCP.

## Simulator Setup:

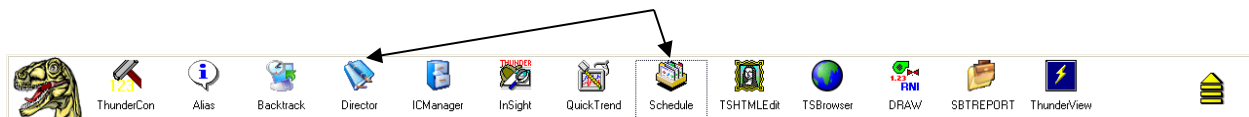
### A. Initialization

1. Log off all simulator PDS and SPDS computers (PDS and SPDS must come up after the simulator load for proper operation).
2. Startup the simulator using Simulator Instructor's Job Aid section 7.3.

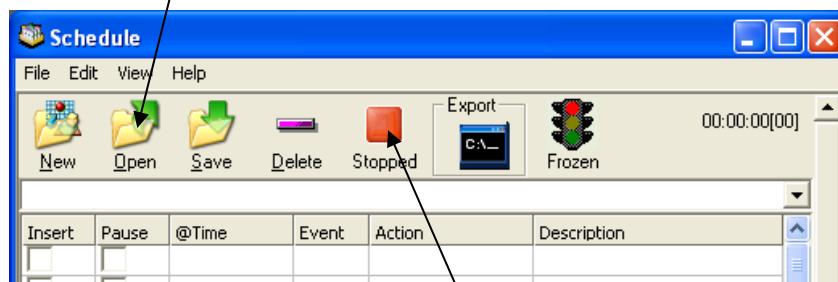
#### *Note:*

***Prior to running the Schedule File, ensure no Event Files are Open. If an existing Event File is Open prior to running the Schedule File, then any associated Event Files will not automatically load.***

3. Open Schedule.exe and Director.exe by clicking on the Icon in the Thunder Bar.

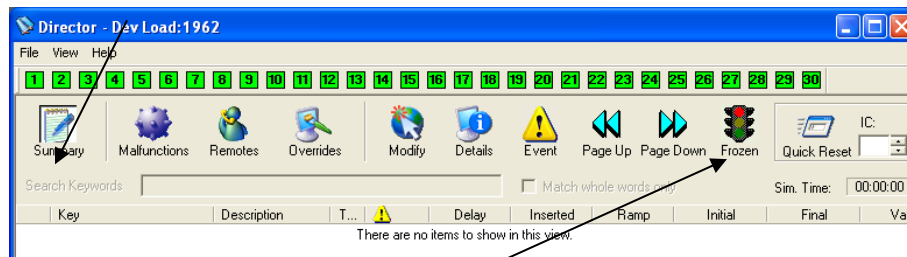


4. Set the Simulator to **IC-26** and perform switch check (Using Quick Reset in Director).
5. Click on “**Open**” in the Schedule window and Open Schedule File “**2-2020 NRC Exam Scenario 4.sch**” (in the Schedule Directory)



6. In Schedule window, click on the “**Stopped**” red block. The red block will change to a green arrow and indicate the scenario is active (“**Running**”).

7. Click the Summary tab in the Director window. Verify the schedule files are loaded and opened per Section B below. (Note: Any actions in the schedule file without a specific time will not load into the director until triggered.)



8. Take the simulator out of freeze.
9. Log on to all simulator PDS and SPDS computers.
10. Verify or perform the following:
  - IC-26
  - Ensure all procedures are marked as indicated for turnover conditions.
  - Advance all chart recorders and ensure all pens inking properly.
  - Clear any graphs and trends off of SPDS.
  - Perform the following on 1H13-P870:
    - Place SPMU DIV 1 OOSVC switch to INOP
    - Verify SPMU DIV 1 OOSVC annunciator is illuminated
    - Verify SPMU D1 MOV OVERLD PWR LOSS status light is illuminated
    - Verify SPMU D1 OOSVC SWITCH ACT status light is illuminated
    - Verify SMPU DIV 1 INBD DUMP VLV E30-F001A red and green lights are out
    - Place a red tag on handswitch SMPU DIV 1 INBD DUMP VLV E30-F001A
  - Perform the following on 1H13-P864:
    - Verify P864-1A-B1, DIV 1 DSL ENG TRIP annunciator is illuminated
    - Verify P864-1A-D1, DG 11 AUTO START NOT AVAIL annunciator is illuminated
    - Verify DG 11 NOT AVAIL status light is illuminated
    - DG 11 BRKR OUT/CONT PWR FAIL status light is illuminated
    - Place a red tag on handswitch BUS 15AA FDR FM DG 11:152-1508
    - Place a red tag on handswitch DIV 1 DSL ENG RMT MAN START pushbutton
11. Run through any alarms and ensure alarms are on. (**Note: On T-Rex, to verify alarms are ON, the indicator will indicate “Alarms On”**).
12. Place the simulator in Freeze.



## B. File loaded verification:

Schedule - 2-2020 scenario 4.sch

File Edit View Help

New Open Save Delete Running Export Running

00:00:04[00]

Ins...	Pa...	@Time	Ev...	Action	Description
<input type="checkbox"/>	<input type="checkbox"/>			^2-2020 scenario 4 (IC-26)	xxx
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Schedule Schedule\d1m.sch	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction b21f065a_i	override (loss of power when stroke)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Schedule Schedule\spmu B stem separation.sch	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction e30f001a_b	override (rack out)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert override DI_1E51M612C to NORM	P601/21C RCIC TURB TRIP
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>			^event 1	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction c41f004b_a on event 1	override (loss of squib power, fails closed)
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>			^event 2	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction n34098 to 130.00000 in 180 on event 2	N34-R602 Turbine Lube Oil Temp Cont Fail (0-150F)
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>			^event 3	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction e51188 on event 3	Spurious RCIC Initiation
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction p601_21a_g_6 to OFF on event 3 delete in 20	RCIC GL SEAL COMPR AUTO START
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>			^event 4	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction r21139d on event 4	4160 V Bus 28AG Overcurrent Trip
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>			^event 5	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		create event 11 c11rpos(183) < 256	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction fw203 on event 11	Inadvertent actuation of RECIRC-FW low flow NPSH
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		create event 12 zlo1(383) < 1	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction rr190b after 30 on event 12	LFMG B Failure
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction rr165 after 120 to 40.00000 in 120 on event 12	LASALLE POWER OSCILLATION EVENT
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		create event 13 (zlo1(756) !=1 & zlo1(757) !=1) -desc P680 RPS white lights out	
<input type="checkbox"/>	<input type="checkbox"/>		13	delete malfunction rr165 on event 13	LASALLE POWER OSCILLATION EVENT
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction rr063a after 5 to .80000 on event 13	Recirc Loop A Non-Isolable Suction Rupture
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction fw171a after 20 to 100.00000 on event 13	Feedwater Line A ruptures inside Drywell.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction ct218e after 180 to 10.00000 on event 13	Suppression Pool Leak HPCS Suction line
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert malfunction ct219b after 600 on event 13	Watertight door failure HPCS Room
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		Insert remote e22644 to OUT on event 7	HPCS PUMP BREAKER
<input type="checkbox"/>	<input type="checkbox"/>				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:00		create event 14 xalt_level_wr < -80	
<input type="checkbox"/>	<input type="checkbox"/>		14	modify malfunction ct218e to 20.00000	
<input type="checkbox"/>	<input type="checkbox"/>				

Execute: create event 14 xalt\_level\_wr < -80  
Execute: Insert remote e22644 to OUT on event 7  
Execute: Insert malfunction ct219b after 600 on event 13  
Execute: Insert malfunction ct218e after 180 to 10.00000 on event 13  
Execute: Insert malfunction fw171a after 20 to 100.00000 on event 13

Ready NUM

## B. File loaded verification:

Schedule - Schedule\spmu B stem separation.sch

File Edit View Help

New Open Save Delete Running Export Running 00:01:52[00]

In...	Pa...	@Time	Ev...	Action	Description
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:03		Insert override LO_1E30M602B_G to TRUE	P870/10C SPMU DIV 2 OTBD DUMP VLV:E30-F002B - DF
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:03		create event 15 zlo3(1508) > 0	
<input type="checkbox"/>	<input type="checkbox"/>		15	Insert override LO_1E30M602B_R to TRUE on event 15	P870/10C SPMU DIV 2 OTBD DUMP VLV:E30-F002B - DF
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:03		create event 16 zlo3(1507) < 1	
<input type="checkbox"/>	<input type="checkbox"/>		16	Insert override LO_1E30M602B_G to FALSE on event 16	P870/10C SPMU DIV 2 OTBD DUMP VLV:E30-F002B - DF
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/>	<input type="checkbox"/>				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:03		Insert malfunction p870_10a_b_3 to OFF	SMPU DIV 2 OOSVC
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:03		Insert override LO_1E30R702C to FALSE	P870/10B SPMU D2 MOV OVERLD PWRLOSS - DF
<input type="checkbox"/>	<input type="checkbox"/>				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:03		Insert malfunction e30f002b_b	override (rack out)
<input type="checkbox"/>	<input type="checkbox"/>				

Execute: Insert malfunction e30f002b\_b  
Execute: Insert override LO\_1E30R702C to FALSE  
Execute: Insert malfunction p870\_10a\_b\_3 to OFF  
Execute: create event 16 zlo3(1507) < 1  
Execute: create event 15 zlo3(1508) > 0

Ready CAP NUM

Schedule - Schedule\d1m.sch

File Edit View Help

New Open Save Delete Running Export Running 00:02:56[00]

In...	Pa...	@Time	Ev...	Action	Description
<input type="checkbox"/>	<input type="checkbox"/>			^Div 1 Diesel Gen to Maintance	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:03		Insert override DI_1P75M612A to PB delete in 5	P864/01C DG 11 MAINT PERM
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:03		Insert remote p75057 after 1 to MAINT	DG DIV 1 MAINTENANCE MODE
<input type="checkbox"/>	<input type="checkbox"/>				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	00:00:03		Insert remote p75062 to OUT	DG 11 Breaker 152-1508 Rackout
<input type="checkbox"/>	<input type="checkbox"/>				

Execute: Insert remote p75062 to OUT  
Execute: Insert remote p75057 after 1 to MAINT  
Execute: Insert override DI\_1P75M612A to PB delete in 5

Ready CAP NUM

## B. File loaded verification:

Director - Dev Load:1962

File View Help

Summary Malfunctions Remotes Overrides Modify Details Event Page Up Page Down Running Quick Reset IC: 26

Search Keywords  Match whole words only Sim. Time: 00:01:17

Key	Description	T...	Delay	Inserted	Delete in	Ramp	Initial	Final	Value
✓ p75062	DG 11 Breaker 152-1508 Rackout		00:00:00	00:00:00	00:00:00	00:00:00		OUT	OUT
✓ p870_10a_b_3	SMPU DIV 2 OOSVC		00:00:00	00:00:00	00:00:00	00:00:00		OFF	OFF
✓ p75057	DG DIV 1 MAINTENANCE MODE		00:00:00	00:00:02	00:00:00	00:00:00		MAINT	MAINT
✓ e30f002b_b	override (rack out)		00:00:00	00:00:00	00:00:00	00:00:00		Active	Active
✓ e30f001a_b	override (rack out)		00:00:00	00:00:00	00:00:00	00:00:00		Active	Active
✓ LO_1E30M60...	P870/10C SPMU DIV 2 OTBD DUMP VLV:E30-F002B ...		00:00:00	00:00:00	00:00:00	00:00:00		TRUE	TRUE
✓ DI_1E51M612C	P601/21C RCIC TURB TRIP		00:00:00	00:00:00	00:00:00	00:00:00		NORM	NORM
✓ LO_1E30R70...	P870/10B SPMU D2 MOV OVERLD PWRLOSS - DF		00:00:00	00:00:00	00:00:00	00:00:00		FALSE	FALSE
✓ b21f065a_i	override (loss of power when stroke)		00:00:00	00:00:00	00:00:00	00:00:00		Active	Active
c41f004b_a	override (loss of squib power, fails closed)	1	00:00:00		00:00:00	00:00:00		Active	InActive
n34098	N34-R602 Turbine Lube Oil Temp Cont Fail (0-150F)	2	00:00:00		00:00:00	00:03:00	130	109.444	
p601_21a_g_6	RCIC GL SEAL COMPR AUTO START	3	00:00:00		00:00:20	00:00:00	OFF	NORM...	
e51188	Spurious RCIC Initiation	3	00:00:00		00:00:00	00:00:00	Active	InActive	
r21139d	4160 V Bus 28AG Overcurrent Trip	4	00:00:00		00:00:00	00:00:00	Active	InActive	
e22644	HPCS PUMP BREAKER	7	00:00:00		00:00:00	00:00:00	OUT	IN	
fw203	Inadvertent actuation of RECIRC-FW low flow NPSH	11	00:00:00		00:00:00	00:00:00	Active	InActive	
rr165	LASALLE POWER OSCILLATION EVENT	12	00:02:00		00:00:00	00:02:00	40	0	
rr190b	LFMG B Failure	12	00:00:30		00:00:00	00:00:00	Active	InActive	
rr063a	Recirc Loop A Non-Isolable Suction Rupture	13	00:00:05		00:00:00	00:00:00	0.8	0	
fw171a	Feedwater Line A ruptures inside Drywell.	13	00:00:20		00:00:00	00:00:00	100	0	
ct219b	Watertight door failure HPCS Room	13	00:10:00		00:00:00	00:00:00	Active	InActive	
ct218e	Suppression Pool Leak HPCS Suction line	13	00:03:00		00:00:00	00:00:00	10	0	

Ready NUM

**Procedures that may be used in this scenario:**

- ARI 04-1-02-1H13-P601-18A-H4
- ARI 04-1-02-1H13-P680-10A-D3
- ARI 04-1-02-1H13-P601-21A-A3
- ARI 04-1-02-1H13-P601-21A-G6
- 05-1-02-V-5, Loss of Feedwater Heating ONEP:
- 04-1-01-E51-1, RCIC SOI
- ARI 04-1-02-1H13-P854-1A-A5
- ARI 04-1-02-1H13-P807-3A-C1
- ARI 04-1-02-1H13-P807-3A-D2
- ARI 04-1-02-1H13-P807-3A-C1
- 05-1-02-I-4, Loss of AC Power ONEP
- 05-1-02-V-11, Loss of Plant Service Water ONEP
- 04-1-01-P44-1, Plant Service Water SOI
- 04-1-01-R21-18, 18AG SOI
- ARI 04-1-02-1H13-P680-3A-D4
- ARI 04-1-02-1H13-P680-3A-D10
- 05-1-02-III-3, Reduction in Recirculation System Flow Rate ONEP
- 05-1-02-I-1, Reactor Scram ONEP
- 05-1-02-I-2, Turbine and Generator Trips ONEP
- IOI 03-1-01-2, Power Operations, Attachment VIII, Temporary Downpower
- Technical Specification
- SOI 04-1-01-E12-1, Residual Heat Removal System SOI
- 02-S-01-43, Transient Mitigation Strategy
- 05-S-01-EP-2, RPV Control
- 05-S-01-EP-3, Containment Control
- 05-S-01-EP-4, Auxiliary Building Control
- 05-1-02-III-5, Automatic Isolations ONEP
- 04-1-01-C11-1, Control Rod Drive System SOI
- 04-1-01-N32-2, Turbine Generator Control SOI
- 04-2-02-E30-1, Suppression Pool Makeup SOI
- EN-OP-115, Conduct of Operations

**SCENARIO ACTIVITIES:**

- Start SBT report and any other required recording devices.

Event No: 1

Event Description: standby liquid control B squib valve loss of power

**Triggered by Lead Examiner**

TIME	Position	Applicant's Actions or Behavior
0	BOP	Recognizes and reports the following indications on P601: <ul style="list-style-type: none"><li>• 18A-H4, SLC SYS B OOSVC alarm</li><li>• SQUIB B LOSCNT PWRLOSS status light</li><li>• SQUIB BLB READY light out</li></ul> Refers to ARI
5	CRS	Contacts Electrical Maintenance to investigate
	Booth	<b>If directed to investigate SLC Squib valve, wait 3 minutes and report a WO is required for additional investigation.</b>
10	CRS	Enters Tech Specs and identifies the following LCOs:  3.1.7 Condition D, One SLC subsystem inop for reasons other than Conditions A, B, or C. D.1 Restore SLC subsystem to operable status within 7 days With Div 1 DG inop, will enter the following in 4 hours:  3.1.7 Condition E, Two SLC subsystem inop for reasons other than Conditions A, B, or C. E.1 Restore one SLC subsystem to operable status within 8 hours.

<p>Event No: <u>2</u></p> <p>Event Description: turbine lube oil temperature controller failure</p> <p><b>Triggered by Lead Examiner</b></p>		
TIME	Position	Applicant's Actions or Behavior
10	ATC	<p>Recognizes and responds the following alarm on P680:</p> <ul style="list-style-type: none"> <li>10A-D3, TURB LUBE OIL TEMP HI</li> </ul> <p>Recognizes and reports Turbine Lube Oil Temperature Controller (1N34-R602) has failed.</p>
<p><b>Evaluator Note: it is expected the ATC will place the turbine lube oil temperature controller in manual and establish manual control prior to reaching step 3.3 of ARI IAW EN-OP-200 step 5.1(9) which states:</b></p> <p><b>Failed Automatic Actions</b></p> <p>a. <b>ENSURE operators backup automatic action when they fail to occur.</b></p> <p>b. <b>IF an automatic control malfunctions, THEN ESTABLISH manual control.</b></p>		
12	CRS	<p>Per ARI:</p> <p>3.0 <u>IMMEDIATE OPERATOR ACTION</u></p> <p>3.1 <b>MONITOR</b> TURB BRG OIL TEMP indicator on 1H13-P680-10B, normal operating temperature <u>Should</u> be approximately 113°F.</p> <p>3.3 <b>IF</b> the TURB LUBE OIL TEMP CONT control deviation signal to the TBCW valve is near zero, indicating a possible controller problem, <b>THEN TAKE</b> manual control of the turbine lube oil temperature controller 1N34-TK-R602 <b>AND</b> increase TBCW valve opening signal.</p> <p>3.4 <b>MONITOR</b> for high turbine bearing metal temperatures, on Recorder 1N32-R650 on 1H13-P822,</p> <p><b>OR</b> on the computer "OPERATOR GUIDE" titled "BEARING LOG".</p> <p>Directs ATC to place Turbine Lube Oil Temperature Controller (1N34-R602) in MANUAL and restore temperature to 113°F.</p>
<p><b>Evaluator Note: If BOP responds to R650 recorder (backpanel), provide feedback that all bearing temperature parameters indicate normal trends.</b></p>		
13	ATC	Places Turbine Lube Oil Temperature Controller (1N34-R602) in MANUAL and restores temperature to 113°F.
15	CRS	Directs I&C to investigate Turbine Lube Oil Temperature Controller.
	Booth	<b>If directed to investigate Turbine Lube Oil Temperature Controller, acknowledge the command. No actions will be taken.</b>

<p>Event No: <u>3</u></p> <p>Event Description: spurious RCIC initiation</p> <p><b>Triggered by Lead Examiner</b></p>		
TIME	Position	Applicant's Actions or Behavior
16	BOP	<p>Recognizes and reports the following P601 alarms:</p> <ul style="list-style-type: none"> <li>• 21A-A3, RCIC PMP DISCH FLO LO</li> <li>• 21A-G6, ECIC GL SEAL COMPR AUTO START</li> </ul> <p>Reports Spurious RCIC initiation</p> <p>Confirms spurious initiation by 2 independent means</p>
17	CRS	<p>Enters and directs Subsequent Actions from 05-1-02-V-5, Loss of Feedwater Heating ONEP:</p> <p>C.1 <b>CHECK</b> by <u>AT LEAST</u> TWO indications that RCIC Initiation is <u>NOT</u> VALID.</p> <p>C.2 <b>IF</b> RCIC initiation is <u>NOT</u> VALID, <b>THEN</b> TRIP RCIC.</p>
18	BOP	<p>Attempts to trip RCIC using RCIC TURB TRIP pushbutton.</p> <p>Reports RCIC failed to trip.</p>
19	CRS	Directs BOP to secure RCIC using hard card.
<b>Evaluator Note: The RCIC trip pushbutton will fail and requires a shutdown per the hard card.</b>		
20	BOP	<p>Secures RCIC using SOI 04-1-01-E51-1 hard card by performing the following:</p> <p><u>IF desired to shutdown RCIC AND maintain RCIC available:</u></p> <ul style="list-style-type: none"> <li>• Close Turbine Trip AND Throttle Valve.</li> <li>• Place Flo controller in manual AND reduce to minimum.</li> </ul>
22	CRS	Directs I&C maintenance to investigate RCIC initiation
	<b>Booth</b>	<b>If requested to investigate RCIC initiation, wait 5 minutes and report trip units B21-N692A, B, E, and F are all indicating normal and more investigation is required.</b>

TIME	Position	Applicant's Actions or Behavior
30	CRS	<p>Enters Tech Specs and identifies the following LCOs:</p> <p>3.5.3 Condition A, RCIC system inoperable.</p> <p>A.1 Verify by administrative means HPCS is operable within 1 hour</p> <p><u>AND</u></p> <p>A.2 Restore RCIC to operable status within 14 days</p> <p>3.3.5.3 Condition B, from table 3.3.5.3-1</p> <p>B.1 Declare RCIC system inoperable within 1 hour from discovery of loss of RCIC initiation capability</p> <p><u>AND</u></p> <p>B.2 Place channel in trip within 24 hours</p>



Event No: <u>4</u>		
Event Description: 4160 V Bus 28AG overcurrent trip		
Triggered by Lead Examiner		
TIME	Position	Applicant's Actions or Behavior
30	BOP	<p>Recognizes and reports the following alarm:</p> <ul style="list-style-type: none"> <li>• P854-1A-A5, PSW RADIAL WELL TROUBLE</li> <li>• P807-3A-C1, 4.16KV BUS 28AG UNDERVOLTAGE</li> <li>• P807-3A-D2, 4.16KV BUS 28AG INCM FDR 152-2801 TRIP</li> <li>• P807-3A-F2, 480V LCC 28BG1 UNDERVOLTAGE</li> </ul> <p>Refers to ARIs and reports loss of bus 28AG</p>
31	CRS	Enters 05-1-02-I-4, Loss of AC Power ONEP, performs Update
31	BOP	Reports loss of PSW pumps E, F, J, and K
32	CRS	<p>Enters and directs subsequent actions from 05-1-02-V-11, Loss of Plant Service Water ONEP for a Significant Loss of PSW:</p> <p>B1 <b>REDUCE</b> Reactor Power to <math>\leq 50\%</math> of Rated Thermal Power;  <b>PERFORM</b> the following:</p> <p>a. <b>REDUCE</b> Core Flow to 70 Mlbm/hr,  <b>USE FAST</b> Detent (core flow is already at 70 mlbm/hr)</p> <p>b. <b>INSERT</b> Control Rods,  <b>USE</b> RE Instructions.</p> <p>B3 <b>START</b> Radial Well Pumps from Main Control Room,  <b>RESTORE</b> PSW pressure to pre-event values,  <b>USE</b> Attachment 2 Hardcard.</p> <p>B5 <b>OPTIMIZE</b> Operating Radial Well Pump(s) flow,  <b>RESTORE</b> PSW pressure to pre-event values,  <b>USE</b> Attachment 2 Hardcard.</p> <p>B6 <b>MONITOR</b> TBCW Temp. Control Valve on PDS P44N094.</p>
33	BOP	Using 04-1-01-P44-1 hard card, starts Radial Well Pump 'M' and optimizes Radial Well pump flows.
34	ATC	Monitors and provides updates for TBCW TCV position.
34	ATC	Determines by computer point SR21S712 that 28AG is locked out. Performs update.
35	ATC	(With core flow already at 70 mlbm/hr), Inserts control rods to achieve $< 50\%$ Rx power.
Evaluator note: when the 4 <sup>th</sup> control rod is inserted, events 5-8 will automatically occur.		

Event No: 5

Event Description:

- Both Recirc pumps downshift / LFMG B Trip / LASALLE POWER OSCILLATIONS (Event 5)
- LOCA (Event 6)
- Feedwater rupture in drywell with inability to isolate (Event 7)
- Unisolable suppression pool leak HPCS / water tight door failure (Event 8)

**Critical task 1- Emergency Depressurize the RPV prior to Suppression Pool level reaching 14.5 ft.**

**Critical task 2- After Emergency Depressurization, restore and maintain RPV level above -191" using available injection systems prior to exiting EP-2.**

**(Initial Setup - Automatic)**

TIME	Position	Applicant's Actions or Behavior
37	ATC	<p>Recognize and reports the following P680 alarms:</p> <ul style="list-style-type: none"> <li>• 3A-A3, RX LVL 40"/32" HI/LO</li> <li>• 3A-D4, RECIRC PMP A AUTO TRIP XFER TO LO SP</li> <li>• 3A-D10, RECIRC PMP B AUTO TRIP XFER TO LO SP</li> </ul> <p>Reports Recirc system double downshift</p>
38	CRS	<p>Enters 05-1-02-III-3, Reduction in Recirculation System Flow Rate ONEP, performs update.</p>
39	ATC	<p>Recognizes and reports the following P680 alarms:</p> <ul style="list-style-type: none"> <li>• 3A-E8, LFMG B OVERLD/TRIP</li> </ul> <p>Reports Recirc pump B tripped to OFF</p> <p>Per ONEP:</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;"><b><u>NOTE</u></b></p> <p><b><u>WHEN</u></b> in single loop operation, <b><u>IF</u></b> indicated core flow is less than approximately 38 mlbm/hr (34% of rated), the jet pump reverse flow logic is inaccurate. Under these conditions, actual total core flow <b><u>Must</u></b> be determined by manually adding together the jet pump loop flows. This is because the natural circulation force is greater than active loop driving force <b><u>AND</u></b> forward flow is actually taking place.</p> </div> <p>Performs plot on Power / Flow Map.</p> <p>Assumes TH1 watch. Monitors for TH1 as directed by performing the following:</p> <ul style="list-style-type: none"> <li>• Monitors APRM indications</li> <li>• Monitors LPRM indications</li> <li>• Selects different control rods and monitors LPRM indications</li> </ul>
39	CRS	<p>Directs ATC to monitor for TH1 with no concurrent duties.</p>

TIME	Position	Applicant's Actions or Behavior
39	ATC	<p>Monitors for THI.</p> <p>Per ONEP:</p> <p>2.0 <u>IMMEDIATE OPERATOR ACTIONS (OPRMs OPERABLE)</u></p> <p>2.1 <b><u>IF ANY</u></b> of the following conditions of Steps 2.1.1 <b><u>OR</u></b> 2.1.2 exist, <b><u>THEN IMMEDIATELY PLACE</u></b> the reactor mode switch in the SHUTDOWN position.</p> <p>2.1.1 <b><u>WHEN</u></b> operating in the OPRM Armed Region of Figure 1 or Figure 2, thermal hydraulic instability is detected by:</p> <p>a. At least 2 of the following 4 alarms: [IER L2-15-34 Rec. 1A] Annunciators "APRM CH 1 (2) (3) (4) UPSC TRIP/OPRM TRIP/INOP"</p> <p><b><u>AND</u></b></p> <p>The corresponding two computer points in alarm: C51NC065 (NC066, NC067, NC068), "APRM 1 (2) (3) (4) OPRM TRIP"</p> <p><b><u>OR</u></b></p> <p>b. Thermal Hydraulic Instability symptoms being observed on neutron instrumentation</p>
40	ATC	<p>Recognizes and reports THI.</p> <p>Places the reactor mode switch in shutdown.</p> <p>Performs Immediate Operator Actions per 05-1-02-I-1, Reactor Scram and verifies the following Turbine Trip automatic actions have occurred per 05-1-02-I-2, Turbine and Generator Trips ONEPs:</p> <p>2.0 <u>IMMEDIATE OPERATOR ACTIONS</u></p> <p>2.1 <b>PLACE</b> Reactor Mode switch to <b>SHUTDOWN</b>.</p> <p>2.2 <b>CONFIRM</b> all Control Rods are fully inserted.</p> <p>2.3 <b>CONFIRM</b> Reactor power decreasing.</p> <p>Verifies the following Automatic Actions have occurred and determines no immediate actions are required:</p> <ul style="list-style-type: none"> <li>• Turbine Stop Valves Close</li> <li>• Turbine Control Valves Close</li> <li>• Generator Output Breakers J5228 AND J5232 Open</li> </ul> <p>Reports ALL RODS IN</p>
41	BOP	<p>Recognizes and reports 'A' Feedwater line break in the Drywell by observing 'A' Feedwater line flow rising or maximum with 'B' Feedwater line flow at or near zero.</p> <p>Trips all condensate pumps.</p> <p>Attempts to close B21-F065A, reports breaker trip.</p>

TIME	Position	Applicant's Actions or Behavior
	Booth	<b>If directed to investigate B21-F065A breaker (52-153111), wait 3 minutes and report breaker is in the trip free position</b>
41	ATC	Reports 1.39 psig drywell pressure.
42	CRS	Performs update and enters the following: <ul style="list-style-type: none"> <li>• Reactor Scram ONEP, 05-1-02-I-1,</li> <li>• Turbine and Generator Trips ONEP, 05-1-02-I-2</li> <li>• EP-2, RPV Control</li> </ul>
42	CRS	Directs ATC to verify High Drywell isolations, initiations, and DGs. Directs ATC to restore the Aux Building.
43	ATC	Verifies and reports High Drywell pressure isolations complete using the isolation status board as a quick reference and verifying the following alarms: <ul style="list-style-type: none"> <li>• P870-3A-A4, CTMT-DRWL ISOL DIV 1 OPER annunciator sealed in</li> <li>• P870-3A-B3, AUX BLDG ISOL DIV 1 OPER annunciator sealed in</li> <li>• P870-9A-A4, CTMT-DRWL ISOL DIV 2 OPER annunciator sealed in</li> <li>• P870-9A-B3, AUX BLDG ISOL DIV 2 OPER annunciator sealed in</li> </ul> Reports Div 2 and Div 3 Emergency D/Gs are running with cooling water. Reports all ECCS initiations have occurred and HPCS is injecting. Restores Aux building by opening Instrument Air isolation valves: <ul style="list-style-type: none"> <li>• P53-F001 and F007</li> </ul>
43	CRS	Directs BOP to control RPV level using HPCS with a level band of -30" to +50" WR using HPCS.
44	ATC	Reports no CRD pumps operating. Performs the following immediate actions: <p>2.1.2 <b>IF</b> running CRD pump trips, <b>THEN START</b> standby CRD pump as follows:</p> <ol style="list-style-type: none"> <li><b>IF</b> required, <b>RE-ENERGIZE</b> MCC's 15B42 <b>AND</b> 16B42 on 1H13-P864.</li> <li><b>PLACE</b> CRD SYS FLO CONT in MANUAL <b>AND REDUCE</b> output to zero.</li> <li><b>START</b> standby CRD pump.</li> <li><b>RETURN</b> CRD SYS FLO CONT to AUTO with tapeset at 54-66 gpm.</li> </ol>
44	CRS	Directs ATC to control RPV pressure with a band of 450-600 psig using turbine bypass valves to reduce the driving head of the leak.

TIME	Position	Applicant's Actions or Behavior
44	ATC	<p>Performs the following per 04-1-01-N32-2 hard card:</p> <ol style="list-style-type: none"> <li>At 1H13-P680-9C, Simultaneously <b>PRESS</b> and <b>HOLD</b> following MAN BYP CONT pushbuttons to energize Manual Bypass Valve Controller: <ul style="list-style-type: none"> <li>REL</li> <li>MAN BYP</li> </ul> </li> <li><b>WHEN</b> MAN BYP CONT ON light comes ON, <b>THEN RELEASE</b> pushbuttons.</li> <li>As directed by Control Room Supervision, <b>MAINTAIN</b> Reactor pressure PER established pressure band as follows: <ol style="list-style-type: none"> <li><b>IF</b> lowering Reactor pressure, <b>THEN PRESS</b> MAN BYP CONT RAISE pushbutton.</li> <li><b>IF</b> raising Reactor pressure, <b>THEN PRESS</b> MAN BYP CONT LOWER pushbutton.</li> <li>At 1H13-P680-9D, <b>OBSERVE</b> following position indicators to determine Main Turbine Bypass Valve positions: <ul style="list-style-type: none"> <li>1N11-R602A, BPV 1 POSITION INDICATOR</li> <li>1N11-R602B, BPV 2 POSITION INDICATOR</li> <li>1N11-R602C, BPV 3 POSITION INDICATOR</li> </ul> </li> </ol> </li> </ol>
44	CRS	Enters all legs of EP-3, performs update.
45	ATC	<p>Reports the following:</p> <ul style="list-style-type: none"> <li>EP-4 alarm, P870-5A-H1, HPCS PMP RM FLOODED.</li> <li>EP-4 alarm, P680-8A1-B4, HPCS RM SMP LVL HI-HI.</li> <li>Suppression pool level is trending down.</li> </ul>
46	CRS	<p>Enters EP-4 and performs an update.</p> <p>Directs ATC to secure HPCS and verify HPCS is isolated from suppression pool.</p> <p>Directs ATC that suppression pool level is a critical parameter and provide frequent updates.</p> <p>Directs BOP to inject with RCIC per the hard card.</p>
46	BOP	<p>Using 04-1-01-E51-1 hard card, performs the following:</p> <ol style="list-style-type: none"> <li><b>OPEN</b> Trip Throttle Valve.</li> <li><b>OPEN/CHECK OPEN</b> E51-F013.</li> <li><b>RAISE</b> flow with Flo Controller.</li> </ol>
<b>Evalu47ator note: If HPCS is not secured, it will trip as room level rises.</b>		
47	CRS	Directs HPCS pump breaker to be racked out.
	<b>Booth</b>	<b>Role Play: If directed to rack out HPCS pump breaker, acknowledge the command. After 5 minutes, insert Event 7 and report HPCS pump breaker has been racked out.</b>
48	BOP	Reports E22-F015 full closed and suppression pool level continues to trend down.

TIME	Position	Applicant's Actions or Behavior
48	CRS	Directs ATC to initiate Div 2 SPMU.
49	ATC	<p>Using 04-1-01-E30-1 hard card, performs the following:</p> <ol style="list-style-type: none"> <li>1.0 <u>MANUAL INITIATION OF SPMU</u></li> <li>1.1 <b><u>For each division:</u></b> <ol style="list-style-type: none"> <li>1. <b>PLACE</b> SPMU MODE SEL handswitch to AUTO</li> <li>2. <b>PLACE</b> SPMU DUMP TEST switch in TEST.</li> <li>3. <b>DEPRESS</b> both SPMU MAN INIT pushbuttons.</li> <li>4. <b>ENSURE</b> suppression pool level is rising.</li> </ol> </li> </ol> <p>Reports Div 2 SPMU valves opening and suppression pool level is not rising. Determines one of the valves has a stem/disc separation.</p>
	<b>Booth</b>	<b>The HPCS pump room door will fail 10 minutes after the scram. If directed to ensure HPCS room door is secure, acknowledge the command. After 2 minutes, determine from the DIRECTOR the status of MF ct219b. If ct219b is active, respond the door is open and cannot be secured. If ct219b is not active, report the door is secure.</b>
50	BOP	With RCIC injecting, reports RPV level is trending down.
50	CRS	<p>Directs ATC to maximize CRD for flow.</p> <p>Directs ATC to inject SLC A.</p>
51	ATC	<p>If directed to maximize CRD for flow, using 04-1-01-C11-1 hard card, performs the following:</p> <ol style="list-style-type: none"> <li>1. Ensure oil pump is running on the non-running CRD Pump A(B).</li> <li>2. With one CRD pump already running, THEN START standby CRD PMP A(B).</li> <li>3. PLACE CRD SYS FLO CONT C11-R600 in MANUAL.</li> <li>4. Using CRD SYS FLOW CONT C11-R600, fully OPEN C11-F002A(B), CRD FLO CONT VLV.</li> <li>5. IF maximizing CRD for flow, THEN fully OPEN C11-F003, CRD DRIVE WTR PRESS CONT VLV.</li> </ol>

TIME	Position	Applicant's Actions or Behavior
51	ATC	<p>Using 04-1-01-C41-1 hard card, performs the following:</p> <p>Turns SLC A handswitches to START</p> <p>1. <b>CHECK</b> system initiation by <b>OBSERVING</b> following:</p> <p>a. CHECK Squib Valves fired on following:</p> <ol style="list-style-type: none"> <li>1) 1C41-F004A, SLC PUMP C001A DISCHARGE SQUIB VALVE <ul style="list-style-type: none"> <li>• White SQUIB VLV READY light OFF</li> </ul> </li> <li>3) Annunciator SLC System A OOSVC ON</li> <li>5) SLC A SYS STATUS SQUIB A LOSCONT/PWRLOSS light ON</li> </ol> <p>b. <b>CHECK</b> OPEN Tank Outlet Valves:</p> <ul style="list-style-type: none"> <li>• 1C41 F001A</li> </ul> <p>c. SLC Pump A RUNNING</p> <p>e. RWCU ISOLATES:</p> <ul style="list-style-type: none"> <li>• G33-F004, RWCU PMP SUCT CTMT OTBD ISOL, CLOSED</li> <li>• G33-F001, RWCU PMP SUCT DRWL INBD ISOL, CLOSED.</li> <li>• G33-F251, RWCU SPLY TO RWCU HXS, CLOSED</li> </ul> <p>2. <b>CHECK</b> SLC INJECTING INTO the RPV by observing following:</p> <ul style="list-style-type: none"> <li>• SLC Pump discharge pressure greater than reactor pressure.</li> <li>• SLC Tank Level lowering.</li> <li>• Nuclear instrumentation lowering.</li> </ul>
52	BOP	Reports RPV level continues to lower.
52	CRS	<p>Enters Alternate Level Control Leg of EP-2, performs update.</p> <p>Directs ATC to INHIBIT ADS.</p> <p>Directs BOP that RPV level is a critical parameter and provide frequent updates.</p>
53	CRS	<p>Determines suppression pool level cannot be maintained &gt; 14.5'.</p> <p>Enters Emergency Depressurization Leg of EP-2 and performs update.</p>
53	CRS	Directs opening of 8 ADS/SRVs.
54★	RO	<p>Opens 8 ADS/SRV valves using handswitches on P601.</p> <p>Reports 8 ADS valves are open.</p> <p><b><i>CRITICAL TASK; When it is determined that suppression pool level cannot be maintained above 14.5', the crew opens at least seven SRVs prior to suppression pool level reaching 14.5'.</i></b></p>
55	CRS	<p>Directs the BOP the following critical parameters:</p> <ul style="list-style-type: none"> <li>• Low pressure ECCS injection</li> <li>• RPV level above TAF</li> </ul>

TIME	Position	Applicant's Actions or Behavior
57★	BOP	<p>At RPV pressure of 476 psig verifies and reports all Low Pressure ECCS injection valves opening.</p> <p>Reports LPCS injection.</p> <p>When RPV pressure is <math>&lt; \approx 300</math> psig, reports RHR A, B, C injection.</p> <p>Reports RPV level above TAF.</p> <p><b>CRITICAL TASK: After Emergency Depressurization, restore and maintain RPV level above -191" using available injection systems prior to exiting EP-2.</b></p>
59	CRS	<p>Exits Alternate Level Control leg of EP-2.</p> <p>Directs BOP to control RPV level within a band of -30" to +50" WR using LPCS and RHR C.</p>
61	ATC	<p>When directed by BOP, secures SLC by turning SLC handswitches to STOP.</p> <p>When directed by BOP, restores CRD to normal by securing one CRD pump and transferring CRD FCV to AUTO.</p>
63	CRS	Direct ATC to start Hydrogen Igniters.
63	ATC	<p>If directed, verifies Containment and Drywell Hydrogen Analyzers Operating on P870.</p> <p>Verifies drywell and containment hydrogen concentrations are <math>&lt; 2.9\%</math>.</p> <p>Starts Div 1 and Div 2 Hydrogen Igniters.</p>
65	CRS	Directs ATC to maximize suppression pool cooling.



TIME	Position	Applicant's Actions or Behavior
65	ATC	<p>If directed to place RHR A and B in suppression pool cooling, performs the following per SOI 04-1-01-E12-1, Attachment VI hard card:</p> <ol style="list-style-type: none"> <li>(1) On Panel 1H13-P870-1B(7B), <b>CHECK</b> SSW A(B) in service by observing &gt; 7,900 gpm on indicator E12-R602A(B), SSW HX A(B) SSW FLO.</li> <li>(2) <b>IF</b> SSW A(B) is <b>NOT</b> in service, <b>THEN PRESS</b> BOTH SSW Div 1(2) MAN INIT, LOGIC A(B) and LOGIC C(D) pushbuttons, and <b>ENSURE</b> the following lineup on Panel 1H13-P870-1B(7B): <ol style="list-style-type: none"> <li>(a) SSW A(B) Pump, RUNNING.</li> <li>(b) P41-F001A(B), SSW PMP A(B) DISCH VLV, OPEN.</li> <li>(c) P41-F005A(B), SSW LOOP A(B) RTN TO CLG TWR A(B), OPEN.</li> <li>(d) P41-F014A(B), SSW INL TO RHR HX A(B), OPEN.</li> <li>(e) P41-F006A(B), SSW PMP A RECIRC VLV, CLOSED.</li> </ol> </li> <li>(3) <b>ENSURE OPEN</b> E12-F003A(B), RHR HX A(B) OUTL VLV.</li> <li>(4) <b>IF</b> necessary, <b>THEN RESET</b> Ctmt Spray Logic A(B), by performing the following: <ol style="list-style-type: none"> <li>(a) <b>DEPRESS</b> CTMT SPR A(B) RESET pushbutton</li> <li>(b) <b>ENSURE</b> white light above CTMT SPR A(B) RESET pushbutton extinguishes.</li> <li>(c) <b>OVERRIDE</b> E12F042A(B) RHR A(B) INJ SHUTOFF VLV CLOSED (Unless overridden by previous EP step)</li> <li>(d) <b>ENSURE</b> E12F028A(B) CTMT SPRAY A(B) SPARGER INJ VLV Closes</li> <li>(e) <b>WHEN</b> time permits, <b>THEN REFER TO</b> Step 5.3.2 of this procedure .</li> </ol> </li> <li>(5) <b>ENSURE</b> RHR PMP A(B) running .</li> <li>(6) <b>BEGIN OPENING</b> E12-F024A(B), RHR A(B) TEST RTN TO SUPP POOL.</li> <li>(7) <b>CLOSE</b> E12-F048A(B), RHR HX A(B) BYP VLV.</li> <li>(8) <b>ENSURE OPEN</b> E12-F024A(B), RHR A(B) TEST RTN TO SUPP POOL.</li> <li>(9) <b>WHEN</b> flow exceeds 1154 gpm, <b>THEN ENSURE</b> E12-F064A(B), RHR A(B) MIN FLO TO SUPP POOL, closes.</li> <li>(10) <b>WHEN</b> time permits, <b>THEN REFER</b> to Section 5.2 of this procedure.</li> </ol>

**(Critical TASK in BOLD)**

**Termination:**

- Once emergency depressurization has been conducted and reactor water level is stabilized above TAF and as directed by Lead Evaluator:
  - Take the simulator to Freeze and turn horns off.
  - Stop and save the SBT report and any other recording devices.
  - Instruct the crew to not erase any markings or talk about the scenario until after follow-up questions are asked.

**If this scenario is used for Emergency Classification:**

- ALERT – FA1 from RC1, ANY Loss or ANY Potential Loss of EITHER Fuel Clad or RCS

## Give this page to the CRS

### Crew Turnover:

Reactor Power: 79%

MOC

EOOS: GREEN

Integrated Risk: HIGH, Sequence Exchange

Work Day: Div 1

Inop Equipment:

- Div 1 diesel generator
- E30-F001A

- Div 1 DG is inop due to an oil leak. Div 1 DG will not be restored until next shift.
- 06-OP-1R20-W-0001, Attachment 2 (AC/DC lineup verification), is next due in 3 hours.
- Suppression Pool Makeup Valve E30-F001A failed its stroke time last shift and is tagged out for troubleshooting.

The plant is operating at 79% power following a Control Rod sequence exchange. Reactor Engineering is verifying rod pattern and thermal limits prior to returning to 100% Rx power. They will inform the crew when to raise Rx power.

Step 12.8 of IOI-2, Attachment VIII, is complete

SCENARIOS 1 & 3  
OMITTED AS THEY WERE  
UNUSED SPARE  
SCENARIOS AND WERE  
PLACED IN THE  
LICENSEE'S EXAM BANK

Facility: <b>GRAND GULF NUCLEAR STATION</b> Date of Exam: <b>2 / 3 / 2020</b> Operating Test No.: <b>GGNS 2-2020</b>																		
A P P L I C A N T	E V E N T  T Y P E	Scenarios																
		1			2			3			4			T O T A L	M I N I M U M (*)			
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION							
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P					
															R	I	U	
RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX															1	1	0
	NOR	1													1	1	1	1
	I/C	5			6			5			4				20	4	4	2
	MAJ	2			2			2			3				9	2	2	1
	TS	2			2			2			2				8	0	2	2
RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX															1	1	0
	NOR															1	1	1
	I/C		3			3		3				2			11	4	4	2
	MAJ		2			2		2				3			9	2	2	1
	TS															0	2	2
RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX															1	1	0
	NOR			1											1	1	1	1
	I/C			3		3				3		3			12	4	4	2
	MAJ			2		2				2		3			9	2	2	1
	TS																	
	RX																	
	NOR																	
	I/C																	
	MAJ																	
	TS																	

Instructions:

- Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the at-the-controls (ATC) and balance-of-plant (BOP) positions. Instant SROs (SRO-I) must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an SRO-I *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
- Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (\*) Reactivity and normal evolutions may be replaced with additional I/C malfunctions on a one-for-one basis.
- Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.
- For new reactor facility licensees that use the ATC operator primarily for monitoring plant parameters, the chief examiner may place SRO-I applicants in either the ATC or BOP position to best evaluate the SRO-I in manipulating plant controls.

Facility: Grand Gulf		Date of Examination: 2/03/2020		Operating Test No.:GGNS 2/2020												
Competencies	APPLICANTS															
	RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	ATC 1	ATC 2	ATC 3	ATC 4	BOP 1	BOP 2	BOP 3	BOP 4	CRS 1	CRS 2	CRS 3	CRS 4	1	2	3	4
Interpret/Diagnose Events and Conditions	2, 3, 5, 6, 8	2, 4, 5, 6, 7, 8	2, 4, 5, 6, 7	2, 5, 6, 8	1, 2, 4, 5, 7	1, 3, 6	1, 3, 4, 5, 7	1, 3, 4, 7	ALL	ALL	ALL	ALL				
Comply with and Use Procedures (1)	2, 3, 5, 6	2, 4, 5, 6, 7, 8	2, 4, 5, 7	2, 4, 5, 6, 8	1, 2, 3, 4, 5, 7	1, 2, 3, 6	1, 2, 3, 5, 6, 7	1, 3, 4, 7	ALL	ALL	ALL	ALL				
Operate Control Boards (2)	2, 3, 5, 6	2, 4, 5, 6, 7	2, 4, 5, 7	2, 4, 5, 6	1, 2, 3, 4, 5, 7	1, 3, 6	1, 3, 5, 7	3, 4, 7, 8	N/A	N/A	N/A	N/A				
Communicate and Interact	2, 3, 5, 6, 8	2, 4, 5, 6, 7, 8	2, 4, 5, 6, 7	2, 4, 5, 6, 8	1, 2, 3, 4, 5, 7	1, 2, 3, 4, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 7, 8	ALL	ALL	ALL	ALL				
Demonstrate Supervisory Ability (3)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ALL	ALL	ALL	ALL				
Comply with and Use TS (3)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1, 4	1, 4	1, 3	1,				
Notes: (1) Includes TS compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs.																

**Instructions:**

Check the applicants' license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant. (This includes all rating factors for each competency.) (Forms ES 303 1 and ES 303 3 describe the competency rating factors.)