

Task No.: 283016S0101

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Obtain and Interpret a GARDEL Periodic Report

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Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Additional Program Information:**

1. Appropriate Performance Locations: CR / SIM
2. Appropriate Trainee level: RO / SRO
3. Evaluation Method: Perform
4. Performance Time: 10 minutes
5. NRC K/As 2.1.7 Imp. 3.7/4.4

**Directions to Examiner:**

1. This JPM evaluates the trainee's ability to Obtain and Interpret a Gardel Periodic Case.
2. If this JPM is performed on the Simulator, only the cues preceded by “#” should be given.
3. All blanks must be filled out with either initials or an “NP” for “not performed”; an explanation may also be written in the space, if desired, by the examiner.

**Directions to Trainee:**

When I tell you to begin, you are to Obtain and Evaluate a Gardel Official Case by completing attachment 2 of 6.LOG.601. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

**If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

**If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

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Task No.: 283016S0101

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Obtain and Interpret a GARDEL Periodic Report

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**General Conditions:**

1. The Reactor is at approximately 100% power.

**General References:**

1. Procedure 6.LOG.601 Daily Surveillance Log.

**General Tools and Equipment:**

1. None

**Special Conditions, References, Tools, Equipment:**

1. Simulator Setup: See Attachment 1.
2. Critical steps denoted by “\*”.
3. Simulator cues denoted by “#”.

**Task Standards:**

1. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

**Initiating Cue(s):**

The Control Room Supervisor directs you to obtain a Gardel Periodic Case and verify that Thermal Limits are within Specification by completing Attachment 2 of 6.LOG.601. Inform the CRS when you have completed your review of the official case.

NOTE: Give the candidate Attachment 2 of 6.LOG.601 and tell the candidate to begin.

Task No.: 283016S0101

Obtain and Interpret a GARDEL Periodic Report

Performance Checklist	Standards	Initials
1. Demand a Gardel Periodic Case	<p>The Operator demands and prints a Periodic Case.</p> <p><b>CUE:</b> Gardel Official Case prints.</p> <p><b>#CUE:</b> Remove the periodic case from the printer and give the Candidate the attached Periodic Case</p>	<p>_____ *</p>
2. Scans the periodic case and records the highest value of MFLCPR.	Value for the highest MFLCPR is recorded on Attachment 2.	<p>_____ *</p>
3. Scans the periodic case and records the highest value of MFLPD.	Value for the highest MFLPD is recorded on Attachment 2.	<p>_____</p>
4. Scans the periodic case and records the highest value of MAPRAT.	Value for the highest MAPRAT is recorded on Attachment 2.	<p>_____</p>
5. Scans the periodic case and records reactor power.	Reactor power is recorded on Attachment 2	<p>_____</p>
6. Scans the periodic case and records lowest value of MCPR.	Value for the lowest MCPR is recorded on Attachment 2.	<p>_____</p>
7. Scans the periodic case and records lowest value of APRM GAF	Value for the APRM GAF is recorded on Attachment 2.	<p>_____</p>
8. Informs the CRS that MCPR is out of limits.	<p>CRS informed that MFLCPR value is greater than 1.</p> <p><b>#CUE:</b> Acknowledge the report. Inform the candidate that the JPM is complete.</p>	<p>_____ *</p>

# ATTACHMENT 1

Cooper Nuclear Station

GARDEL

Gardel: Periodic Report Today's Date Current Time

	<b>A</b>	<b>C</b>	<b>E</b>	<b>B</b>	<b>D</b>	<b>F</b>	<b>Thermal Power</b>	2418.6	MWth	99.98%
<b>APRM</b>	100.1	100.5	100.7	100.6	100.3	100.7	<b>Elect. Power</b>	827.1	MWel	
<b>APRM GAF</b>	1.006	1.012	1.017	1.017	1.014	1.017	<b>Efficiency</b>	34.18%		
<b>APRM -%CTP</b>	-0.57	-1.15	-1.70	-1.67	-1.37	-1.70	<b>Coolant Flow</b>	70.5	Mlb/hr	95.95%
<b>LPRM Status</b>	Normal						<b>APRM ave.</b>	100.53		
<b>ADAPT</b>	ON TIP+LPRM									

The 4 most limiting bundles of the core

MFLCPR	Position	MCPR	CPRLIM	MFLPD	Position	LHGR	LHGRLIM	MAPRAT	Position	APLHGR	ALHLLIM
1.004	19-32	1.467	1.370	0.800	31-44-04	10.718	13.397	0.887	19-28-05	9.228	10.399
1.004	15-32	1.471	1.370	0.798	35-44-04	10.689	13.397	0.887	21-32-05	9.102	10.257
1.003	23-38	1.532	1.370	0.798	11-38-04	10.686	13.397	0.882	25-34-04	9.289	10.535
1.002	37-24	1.541	1.370	0.794	15-42-04	10.637	13.397	0.805	35-44-04	8.159	10.138
							PCIUTL		Position	19-28-04	

Control Rod Withdrawal

	02	06	10	14	18	22	26	30	34	38	42	46	50
51													
47													
43							16						
39													
35													
31													
27			16				12				16		
23													
19													
15													
11							16						
07													
03													

## Simulator Parameters

CR withdrawal	4.81%
Ave. Xenon conc.	1593.85E12/cm3
Xenon symmetry	-0.03%
Core press drop	18.04 psi
Average void	47.08%
Total bypass flow	17.25%
K-effective	1.00159
Cycle burnup	2032 GWD/Mt
Total pow peaking	2.461
Sup plate pres drop	13.19 psi

## Heat Balance Parameters

Feed water flow	9.49 Mlb/hr
Feed water temp.	363.66 F
Absolute press	1009.78 psi
Inlet subcooling	31.33 Btu/lb
CR drive temp.	100.00 F
CR drive flow	0.02Mlb/hr
Cleanup inlet temp.	514.91 F
Cleanup system flow	0.11 Mlb/hr
Ext. Recirc pump A	2.28 MW
Ext. Recirc pump B	2.29 MW
Steam flow	9.51 Mlb/hr
Sup plate pres drop	15.03 psi

Task No.: 283016S0101

## **ATTACHMENT 2**

### **Directions to Trainee:**

When I tell you to begin, you are to obtain and interpret a Gardel Periodic Case. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

### **If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

### **If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

### **General Conditions:**

1. The Reactor is at approximately 100% power.

### **Initiating Cue(s):**

The Control Room Supervisor directs you to obtain a Gardel Periodic Case and to log Official case in 6.LOG.601 Attachment 2 to verify operation is within limits.

Inform the CRS when you have completed your review of the official case.

Task No.: 299012O0301

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Determine Isolation Boundaries

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Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Additional Program Information:**

1. Appropriate Performance Locations: CR / SIM
2. Appropriate Trainee level: RO / SRO
3. Evaluation Method: Perform
4. Performance Time: 15 minutes
5. NRC K/As 2.1.24 2.8/3.1

**Directions to Examiner:**

4. This JPM evaluates the trainee's ability to determine appropriate mechanical isolation boundaries.
5. If this JPM is performed on the Simulator, only the cues preceded by “#” should be given.
6. All blanks must be filled out with either initials or an “NP” for “not performed”; an explanation may also be written in the space, if desired, by the examiner.

**Directions to Trainee:**

When I tell you to begin, you are to use station documents to determine the minimum mechanical/piping boundaries required to isolate the RHR 1A pump for removal. RHR 1A Motor has already been tagged and removed. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

**If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

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**General Conditions:**

N/A

Task No.: 299012O0301

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Determine Isolation Boundaries

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**General References:**

1. Procedure 0.49

**General Tools and Equipment:**

1. Set of Mechanical Prints
2. Copy of 2040 Sheet 1
3. Copy of 2031 Sheet 2

**Special Conditions, References, Tools, Equipment:**

1. Simulator Setup: N/A.
2. Critical steps denoted by “\*”.
3. Simulator cues denoted by “#”.

**Task Standards:**

1. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

**Initiating Cue(s):**

The Control Room Supervisor directs you to determine the minimum mechanical/piping isolation boundaries required to isolate the RHR 1A pump for removal. RHR 1A Motor has already been tagged and removed. Find and highlight all valves required to be positioned to support this task.

Task No.: 299012O0301  
Determine Isolation Boundaries

Performance Checklist	Standards	Initials
9. May reference procedure 0.49.	References procedure 0.49	_____
<b>NOTE:</b> Steps 2 thru 12 can be completed in any order		
10. References BR 2040 Sheet 1	Finds BR 2040 Sheet 1 <b>CUE:</b> When the candidate successfully locates 2040 Sheet 1 Provide a copy for the candidate to mark up.	_____*
11. Highlights RHR-MO-15A.	RHR-MO-15A is highlighted.	_____*
12. Highlights RHR-MO-13A.	RHR-MO-13A is highlighted.	_____*
13. Highlights RHR-98.	RHR-98 is highlighted.	_____*
14. Highlights RHR-58.	RHR-58 is highlighted.	_____*
15. Highlights RHR-11	RHR-11 is highlighted.	_____*
16. Highlights RHR drain path.	RHR-35, RHR 36 and/or RHR 34 are highlighted.	_____
17. References BR 2031 Sheet 2 to find REC Isolation valves.	Finds BR 2031 Sheet 2. <b>#CUE:</b> When the candidate successfully locates 2031 Sheet 2 Provide a copy for the candidate to mark up.	_____*



Task No.: 299012O0301

Determine Isolation Boundaries

Performance Checklist	Standards	Initials
18. Highlights REC-75.	REC-75 is highlighted.	_____*
19. Highlights REC-76.	REC-76 is highlighted.	_____*
20. Highlights REC Drain Path.	REC-87, 397 and 83 are highlighted.	_____
21. Informs the CRS that the boundaries are identified.	Gives the highlighted drawings to the examiner.  #CUE: Acknowledges receipt of the highlighted prints. This JPM is complete.	_____

## **ATTACHMENT 1**

### **Directions to Trainee:**

When I tell you to begin, you are to use station documents to determine the minimum mechanical/piping boundaries required to isolate the RHR 1A pump for removal. RHR 1A Motor has already been tagged and removed. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

### **If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

### **General Conditions:**

1. The plant is shutdown in a refueling outage.
2. RHR Loop A is not required to be operable.

### **Initiating Cue(s):**

The Control Room Supervisor directs you to determine the minimum mechanical/piping isolation boundaries required to isolate the RHR 1A pump for removal. RHR 1A Motor has already been tagged and removed. Find and highlight all valves required to be positioned to support this task.

Task No.:

**Task Title:** Radiation Protection Table Top

Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Time Started: \_\_\_\_\_ Time Finished: \_\_\_\_\_

**Additional Program Information:**

1. Appropriate Performance Locations: CR, SIM, Class
2. Appropriate Trainee level: SO, RO, SRO
3. Evaluation Method: \_\_ Simulate \_\_ Perform
4. Performance Time: 10 minutes
5. NRC K/A 2.3.1 (4.2)

**Directions to Examiner:**

1. This JPM evaluates the trainee's ability to determine if certain work can be performed within the confines of the Code of Federal Regulations and CNS procedures.
2. This JPM can be performed any place the operator can access appropriate procedures.
3. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space if desired by the examiner.

**Directions to Trainee:**

When I tell you to begin, you are to determine whether you can perform in-vessel work for which you are specially qualified. **If you find you cannot perform the work state the reason you cannot. If you can perform the work state what authorization, if any is required prior to performing the work.** Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

**General Conditions:**

1. The plant is shutdown to perform in-vessel work.
2. Your on-site exposure is within 10% of the average work group exposure.

**General References:**

10CFR20  
9.ALARA.1 Personnel dosimetry and Occupational Radiation Exposure program.

Task No.:

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**Task Title:** Radiation Protection Table Top

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**General Tools and Equipment:**

1. None.

**Special Conditions, References, Tools, Equipment:**

1. Critical checks denoted by "\*\*".
2. Simulator cues denoted by "#".

**Task Standards:**

1. 100% of critical elements successfully completed without error.

**Initiating Cue(s):**

You have unique skills to perform special in vessel work. Performance of the work is expected to result in a whole body dose of 500 mrem and a shallow dose to the skin of fingers of 7.5 Rem. Your Shift Manager directs you to determine based on your dose history, as provided whether you can perform this work.

Task No.:

**Task Title:** Radiation Protection Table Top

Performance Checklist	Standards	Initials
1. Refer to 9.ALARA.1	9.ALARA.1 referenced.	_____
2. Pertinent personal Dose history is reviewed.	Dose History is reviewed.	_____
3. Pertinent job dose projections for the job are reviewed.	Dose projections are reviewed.	_____
4. Compares the job requirements to the amount of dose that can be received.	Job requirements are reviewed.	_____
5. Informs the SM that he cannot perform this job.	SM informed. <b>CUE:</b> Acknowledge the report and ask the operator what impediment exists for performance.	_____ *
6. Informs the SM why he/she cannot perform the job.	SM informed that the reason is that he/she is limited to 1000 mrem/year because his/her lifetime dose is in excess of the lifetime TEDE guideline and extensions to this limit cannot be granted. <b>CUE:</b> Acknowledge the report and inform the operator that the JPM is complete.	_____ *

## **ATTACHMENT 1**

### **Directions to Trainee:**

When I tell you to begin, you are to determine whether you can perform in-vessel work for which you are specially qualified. If you find you cannot perform the work state the reason you cannot and if you can perform the work state what authorization, if any is required prior to performing the work. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

### **General Conditions:**

1. The plant is shutdown to perform in-vessel work.
2. Your on-site exposure is within 10% of the average work group exposure.

### **Initiating Cues:**

You have unique skills to perform special in vessel work. Performance of the work is expected to result in a whole body dose of 500 mrem and a shallow dose to the skin of fingers of 7.5 Rem. Your Shift Manager directs you to determine based on your dose history, as provided whether you can perform this work.

**Your Pertinent Statistics**

**Your Age: 32 years**

**Lifetime TEDE: 35 Rem**

**TEDE so far this year: 0.75 Rem**

**Extremities SDE dose so far this year: 35 Rem**

**NCR Form 116 has previously been signed.**

**Pertinent Job Dose Projections for the one individual performing this job**

**Projected Whole Body Dose: 0.5 Rem**

**Extremities SDE dose: 7.5 Rem**

Task No.: 259019P0401

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Determine RPV Water Level Instrumentation Availability  
During LOCA Conditions

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Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Additional Program Information:**

1. Appropriate Performance Locations: Classroom / Simulator
2. Appropriate Trainee Levels: RO/SRO/STE
3. Evaluation Method: Perform
4. Performance Time: 10 minutes
5. NRC K/A: 295028.EA2.03(CFR: 41.10 / 43.5 / 45.13)(3.7/3.9)

**Directions to Examiner:**

1. This JPM evaluates the trainee's ability to determine RPV water level instrumentation availability during LOCA conditions.
2. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space, if desired, by the examiner.
3. Give the trainee his copy of the Directions to the Trainee (Attachment 1) when ready to start the JPM.
4. Brief the trainee and tell the trainee to begin.

**Directions to Trainee:**

When I tell you to begin, you are to determine RPV water level instrumentation availability during LOCA conditions. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

During task performance, it is recommended that you limit your discussion/demonstration to the minimum required. The examiner may ask questions of you if necessary to understand your actions.



Task No.: 259019P0401

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Determine RPV Water Level Instrumentation Availability  
During LOCA Conditions

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**General Conditions:**

A LOCA has occurred with the following **stable** plant conditions:

- Narrow range RPV water level + 0" (indicated)
- Shutdown Range + 0" (indicated)
- Steam Nozzle Range + 0" (indicated)
- Wide range RPV water level - 140" (indicated)
- Fuel zone RPV water level - 145 " (indicated)
- RPV pressure 55 psig (6 SRVs open)
- Drywell pressure 53.1 psig (drywell spray unavailable)
- Drywell temp 330 °F (All PC-TI-505's and 510's)

**General References:**

1. Procedure 5.8
2. EOP/SAP Graphs

**General Tools and Equipment:**

1. EOP/SAP Graphs

**Special Conditions, References, Tools, Equipment:**

1. Critical checks denoted by "\*\*\*".

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Task No.: 259019P0401

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Determine RPV Water Level Instrumentation Availability  
During LOCA Conditions

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**Task Standards:**

1. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

**Initiating Cue(s):**

You are to determine RPV water level instrumentation availability during LOCA conditions. Complete the table below with the status of RPV level instruments return this Attachment to the examiner when you have completed this task.

Task No.: 259019P0401

Determine RPV Water Level Instrumentation Availability  
During LOCA Conditions

Performance Checklist	Standards	Initials
<b>NOTE: Steps may be performed concurrently or in any order</b>		
1. Refer to EOP/SAG Graphs.	The operator refers to EOP/SAG Graphs.	_____
2. Refer to EOP/SAG Graphs.	The operator refers to EOP/SAG Graphs. Determines Narrow range RPV water level is Not Available	_____ *
3. Refer to EOP/SAG Graphs.	The operator refers to EOP/SAG Graphs. Determines Steam Nozzle Range RPV water level is Not Available	_____ *
4. Refer to EOP/SAG Graphs.	The operator refers to EOP/SAG Graphs. Determines Shutdown Range RPV water level is Not Available	_____ *
5. Refer to EOP/SAG Graphs.	The operator refers to EOP/SAG Graphs. Determines Wide range RPV water level is Not Available	_____ *
6. Refer to EOP/SAG Graphs.	The operator refers to EOP/SAG Graphs. Determines Fuel Zone RPV water level is Available for Trending	_____ *
7. Turns in completed paperwork.	Returns completed Attachment 1 to evaluator.	_____

## ATTACHMENT 1

### Directions to Trainee:

You are to determine RPV water level instrumentation availability during LOCA conditions. Complete the table below with the status of RPV level instruments and return this attachment to the examiner when you have completed this task.

### General Conditions:

A LOCA has occurred with the following **stable** plant conditions:

- Narrow range RPV water level + 0" (indicated)
- Shutdown Range RPV water level + 0" (indicated)
- Steam Nozzle Range RPV water level + 0" (indicated)
- Wide range RPV water level - 140" (indicated)
- Fuel zone RPV water level - 145 " (indicated)
- RPV pressure 55 psig (6 SRVs open)
- Drywell pressure 53.1 psig (drywell spray unavailable)
- Drywell temp 330 °F (All PC-TI-505's and 510's)

What is the status of RPV water level instruments?	
Level Instrument	AFT = Available for Trending, NA = Not Available
Narrow range RPV water level	
Shutdown Range RPV water level	
Steam Nozzle Range RPV water level	
Wide range RPV water level	
Fuel zone RPV water level	

Task No. 344050O0503

Security Emergency

Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Time Started: \_\_\_\_\_ Time Finished: \_\_\_\_\_

**Additional Program Information:**

1. Appropriate Performance Locations: SIM / CR
2. Appropriate Trainee Level: SRO / STE
3. Evaluation Method: Perform
4. Performance Time: 25 minutes
5. NRC K/A 2.4.28 (2.3/3.3)

**Directions to Examiner:**

1. This JPM evaluates the trainee's ability to perform the required actions for a Security Emergency.
2. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space, if desired, by the examiner.
3. Give the trainee his copy of the Directions to the Trainee (Attachment 1) when ready to start the JPM.
4. Brief the trainee, place the Simulator in RUN, and tell the trainee to begin.

**Directions to Trainee:**

When I tell you to begin, you are to respond to a Security Emergency as appropriate to the provided conditions. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task. **ALL PLANT ANNOUNCEMENTS WILL BE SIMULATED!**

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Task No. 344050O0503

Security Emergency

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**General Conditions:**

1. The plant is operating at 30% power.
2. The Shift Manager has delegated you to direct the plant response.
3. The board operators are available ONLY to support control room actions.
4. You must personally perform any communications required for this situation.
5. The Shift Manager will perform all Emergency Director required actions.

**General References:**

1. Emergency Procedure 5.5SECURITY

**General Tools and Equipment:**

1. Site communication System.
2. Emergency Telephone number book.

**Special Conditions, References, Tools, Equipment:**

1. Critical checks denoted by "\*\*".

**Task Standards:**

1. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

**Initiating Cue(s):**

At 9:35 p.m. you are informed by the Operations Manager that armed intruders have been seen in the protected area. The intruders last known location was the 903 corridor outside the door to the reactor building. The intruders are carrying automatic rifles, pistols and grenades.

You are to perform the required control room actions for this situation until directed to stop by the evaluator.

Task No. 344050O0503

Security Emergency

Performance Checklist	Standards	Initials
1. Obtain Procedure 5.5SECURITY.	Current revision of 5.5SECURITY obtained. (Note: May be given if the operator goes to procedure rack or lock box in simulator.)	_____
2. Contact the Security Shift Supervisor to confirm threat.	Security Shift Supervisor contacted and asked to confirm the threat.  <b>#CUE:</b> As the Security Shift Supervisor, indicate that the intruders posses explosive devices and automatic weapons. <b>An actual Security Threat exists with high potential for significant structural damage and personnel injury. Security is in a “Code Red”</b>  <b>#CUE:</b> Security has just made the following plant announcement, <b>“All Station Personnel, Imminent Security Threat exists, seek shelter inside the nearest building. Code Red”</b> .	_____
3. Determines that an Actual Threat exists and enters 5.5Security Attachment 2.	Enters Attachment 2  <b># CUE:</b> If asked, a credible insider threat <b>DOES NOT</b> exist.  <b>#CUE:</b> The SM directs you to <b>DIRECT</b> actions per Attachment 2 and he/she will complete remaining actions in Section 4.	_____ *

Task No. 344050O0503

Security Emergency

Performance Checklist	Standards	Initials
4. Directs the reactor be scrammed.	<p>RO directed to scram the reactor.</p> <p><b># CUE: As the RO, acknowledge the order and report that the reactor is scrammed. All control rods are fully inserted. RPV water level and pressure are stable. No EOP entry conditions were met during the scram.</b></p>	_____ *
5. Directs level be maintained high is level band using RCIC	<p>BOP/RO/WCO directed to maintain level high in the band using RCIC per 2.2.67.1.</p> <p><b># CUE: As the BOP/WCO/RO, acknowledge the order and report that RCIC is running and level is being controlled +20"to +45" using RCIC.</b></p>	_____ *
6. Directs Reactor Cooldown.	<p>RO/BOP/WCO directed to cooldown reactor not to exceed 90 degrees per hour.</p> <p><b># CUE: As the BOP/WCO/RO, acknowledge the order and report that Reactor pressure is being lowered to 500 psig using Turbine Bypass Valves (or as directed in order by SRO).</b></p>	_____ *
7. Directs maximizing CRD for injection.	<p>RO/BOP/WCO directed to maximize CRD injection per 5.8.4.</p> <p><b># CUE: As the BOP/WCO/RO, acknowledge the order and report that you will review procedure and perform when RB Station Operator is available.</b></p>	_____



Task No. 344050O0503

Security Emergency

Performance Checklist	Standards	Initials
8. Directs the BOP to ensure that BF-C-1A, EMERGE BSTR FAN is running.	<p>BOP/WCO directed to ensure that BF-C-1A, EMERGE BSTR FAN is running.</p> <p><b># CUE: As the BOP/WCO, acknowledge the order and report that BF-C-1A, EMERG BSTR FAN is running.</b></p>	_____*
9. Directs rapid isolation of RWCU.	<p>RO/BOP/WCO directed to remove RWCU from service.</p> <p><b># CUE: As the BOP/WCO/RO, acknowledge the order and report that RWCU has been removed from service and isolated. You are following up per 2.2.66.</b></p>	_____*
10. Directs the BOP to start and run unloaded both DGs.	<p>BOP/WCO directed to start and run unloaded both DGs.</p> <p><b># CUE: As the BOP/WCO acknowledge the order. (If prestart checks are waived, report that both DGs are running unloaded.)</b></p>	_____*
<p><b>NOTE: Controls for the fire pumps do not exist in the simulator.</b></p>		

Task No. 344050O0503

Security Emergency

Performance Checklist	Standards	Initials
11.Directs or Starts Electric Fire pump 1E or 1D.	<p>Directs the BOP/WCO to start the 1E or 1D Fire Pump or places the 1E or 1D fire pump control switch to start.</p> <p><b># CUE: If BOP/WCO directed, then acknowledge the order as the BOP and report that the diesel or motor driven Fire Pump is running. (If the CRS starts the pump the RED light is ON and the GREEN light is OFF for the pump started.)</b></p>	<p>_____ *</p>

Task No. 344050O0503

Security Emergency

Performance Checklist	Standards	Initials
12.Directs Station Operators/UT Fire Brigade to obtain fire fighting gear and report to the Control Room.	<p>Station Operators directed to obtain fire fighting gear and to report to the Control Room.</p> <p><b># CUE: Indicate that the Radwaste Station Operator and UT Fire Brigade personnel have reported to the Control Room.</b></p> <p><b>#CUE: The Turbine Building operator contacts the Control Room and reports that he is unable to get to the Control Room at this time. He is just outside the #1 DG room and the 903 area just outside the doors to the control building is blocked by the armed intruders. The intruders are currently unaware of his presence. The Station Operator requests direction from you.</b></p> <p><b>#CUE: The Reactor Building operator contacts the Control Room and reports that he is unable to get out of the Reactor Building at this time. He is in the SE Quad (859' elevation). The intruders are currently unaware of his presence. The Station Operator requests direction from you.</b></p>	<p>_____ *</p>
13.Directs the Duty Chem/RP Tech to report to the control room.	<p>The Duty Chem/RP Tech is called to the control room.</p> <p><b># CUE: The Duty Chem/RP Tech reports to the control room.</b></p>	<p>_____ *</p>

Task No. 344050O0503

Security Emergency

Performance Checklist	Standards	Initials
14. Directs the TB Station Operator to card into the DG room and RB Station Operator told to stay in Vital Area.	<p>TB Station Operator directed to enter the DG room and RB Station Operator told to stay in Vital Area.</p> <p><b># CUE: TB operator acknowledges the order and reports that he has entered the DG room and RB Station Operator is remaining in current location (or as directed).</b></p>	<p>_____ *</p>
<p><b>PROVIDE THE FOLLOWING CUE:</b></p> <p><b>Annunciators 9-3-3/G-5 “ASD Room Door Open” and 9-3-3/F-5 “ASD Switch Position Abnormal” have just alarmed.</b></p>		
15. Responds to ASD Abnormal indications	<p>Directs RB Station Operator to open EE-DSC-125ASD or EE-DSC-125B.</p> <p><b># CUE: If asked as RB Station Operator, report that you can get to EE-DSC-125ASD.</b></p> <p><b># CUE: If asked if anyone has been dispatched to CB-903’, report that no operator is currently in that area.</b></p> <p><b># CUE: If the SRO directs and operator to CB-903 to open EE-DSC-125B, report that you have opened EE-DSC-125B</b></p> <p><b># CUE: As RB Station Operator dispatched to open disconnect, report that EE-DSC-125ASD is open.</b></p> <p><b># CUE: The JPM is complete.</b></p>	<p>_____ *</p>

## ATTACHMENT 1

### Directions to Trainee:

When I tell you to begin, you are to respond to a Security Emergency as appropriate to the provided conditions. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task. **ALL PLANT ANNOUNCEMENTS WILL BE SIMULATED!**

### General Conditions:

1. The plant is operating at 30% power.
2. The Shift Manager has delegated you to direct the plant response.
3. The board operators are available ONLY to support control room actions.
4. You must personally perform any communications required for this situation.
5. The Shift Manager will perform all Emergency Director required actions.

### Initiating Cue(s):

At 9:35 p.m. you are informed by the Security Shift Supervisor that armed intruders have been seen in the protected area. The intruders last known location was the 903 corridor outside the door to the reactor building. The intruders are carrying automatic rifles, pistols and grenades.

You are to perform the required control room actions for this situation until directed to stop by the evaluator.

Task No. 341033W0303

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Determine Shift Staffing Requirements for Mode Change

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Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Time Started: \_\_\_\_\_ Time Finished: \_\_\_\_\_

**Additional Program Information:**

6. Appropriate Performance Locations: SIM / CR
7. Appropriate Trainee Level: SRO
8. Evaluation Method: Perform
9. Performance Time: N/A
10. NRC K/A 2.1.4 (3.4)

**Directions to Examiner:**

1. This JPM evaluates the trainee's ability to determine shift staffing requirements for a mode change.
2. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space, if desired, by the examiner.
3. Give the trainee his copy of the Directions to the Trainee (Attachment 1) when ready to start the JPM.
4. Brief the trainee and tell the trainee to begin.

**Directions to Trainee:**

When I tell you to begin, you are to evaluate the staff available and determine if a change in Modes can occur without incurring an LCO condition. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

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Task No. 341033W0303

---

Determine Shift Staffing Requirements for Mode Change

---

**General Conditions:**

1. The plant conditions are as follows:
  - Reactor Pressure is 0 psig
  - Coolant temperature is 200°F
  - Mode Switch is in Shutdown
2. Your Shift complement is comprised of:
  - One SRO (you)
  - Two ROs
  - Three Non-Licensed Nuclear Plant Operators
  - One RP/Chem Tech

**General References:**

1. Conduct of Operations Procedure 2.0.3

**General Tools and Equipment:**

1. None

**Special Conditions, References, Tools, Equipment:**

1. Critical checks denoted by "\*\*\*".

**Task Standards:**

3. 100% of critical elements successfully completed without error.
4. 100% of safety and radiological work practices.

**Initiating Cue(s):**

During your shift Reactor Coolant temperature is expected to rise to 215°F as a result of Shutdown Cooling being removed from service. As the Senior Licensed person on your shift, you are to determine **two** things; 1. Do you have sufficient staff now and 2. will you have sufficient staff to allow you to raise Coolant Temperature to 215°F during your shift. If not determine how many additional staff types are needed and document your findings on Attachment 1.

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Task No. 341033W0303

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Determine Shift Staffing Requirements for Mode Change

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Task No. 341033W0303

Determine Shift Staffing Requirements for Mode Change

Performance Checklist	Standards	Initials
16. Obtain Procedure 2.0.3.	Current revision of 2.0.3 obtained.	_____
17. Determine section of Procedure 2.0.3.	The SRO turns to Section 10, Control Room and Shift Staffing Requirements.	_____
18. Determines the current mode.	The SRO may use Tech Specs to confirm that the Unit is in MODE 4.	_____
19. Determines the mode to be entered when temperature rises to 215°F	The SRO may use Tech Specs to confirm that the Unit will be entering Mode 3 within the shift.	_____ *
20. Determines that the current shift staff is adequate until the mode change.	Your Shift complement is comprised of: <ul style="list-style-type: none"> <li>• One SRO (you)</li> <li>• Two ROs</li> <li>• Three Non-Licensed Nuclear Plant Operators</li> <li>• One RP/Chem Tech</li> </ul>	_____ *
21. Determines which staff types are required.	For Mode 3 the SRO determines that the following staff types are needed: <ul style="list-style-type: none"> <li>• Two SRO (so there is a SM and a CRS)</li> <li>• Three RO (RO, BOP, WCO)</li> <li>• Three Non-Licensed Nuclear Plant Operators</li> <li>• One STE</li> <li>• One RP/Chem Tech</li> </ul>	_____ *
22. Writes the needed Staff on Attachment 1.	The SRO writes the additional needed staff on Attachment 1. <ul style="list-style-type: none"> <li>• One SRO (so there is a SM and a CRS)</li> <li>• One RO (RO, BOP, WCO)</li> <li>• One STE</li> </ul>	_____ *

Task No. 341033W0303

Determine Shift Staffing Requirements for Mode Change

Performance Checklist	Standards	Initials
23. Turns in completed paperwork.	Returns completed Attachment 1 to evaluator.	_____

## ATTACHMENT 1

### Directions to Trainee:

When I tell you to begin, you are to evaluate the staff available and determine if a change in Modes can occur without incurring an LCO condition. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

### General Conditions:

1. The plant conditions are as follows:
  - Reactor Pressure is 0 psig
  - Coolant temperature is 200°F
  - Mode Switch is in Shutdown
2. Your Shift complement is comprised of:
  - One SRO (you)
  - Two ROs
  - Three Non-Licensed Nuclear Plant Operators
  - One RP/Chem Tech

### Initiating Cue(s):

During your shift Reactor Coolant temperature is expected to rise to 215°F as a result of Shutdown Cooling being removed from service. As the Senior Licensed person on your shift, you are to determine **two** things; 1. Do you have sufficient staff now and 2. Will you have sufficient staff to allow you to raise Coolant Temperature to 215°F during your shift? If not determine how many additional staff types are needed and document your findings on Attachment 1.

Current Staff: ☐ Adequate in current mode ☐ Inadequate in current mode  
(Check one)

Additional needed staff:

\_\_\_\_\_

Staff required at 215°F: ☐ Current staff adequate ☐ Additional staff needed.  
(Check one)

Additional needed staff:

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Task No.: 202012O0201

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PERFORM JET PUMP OPERABILITY CHECK (RO or SRO)

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Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Additional Program Information:**

1. Appropriate Performance Locations: **Simulator Only**
2. Appropriate Trainee Level: RO / SRO
3. Evaluation Method: \_\_\_\_\_ **Perform in Simulator Only.**
4. Performance Time: 18 minutes
5. NRC K/A 202001 K1.06 3.6/3.6

**Directions to Examiner:**

1. This JPM evaluates the trainee's ability to perform the daily Jet Pump and Recirc Pump Flow Check of the Daily Tech Specs Surveillance Log.
2. **Provide the Reactor Recirc and Jet Pump values to the candidate; do not allow them to take the readings from the simulator.**
3. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space, if desired, by the examiner.
4. Give the trainee his copy of the Directions to the Trainee (Attachment 1) when ready to start the JPM.
5. Brief the trainee, place the Simulator in RUN, and tell the trainee to begin.

**Directions to Trainee:**

When I tell you to begin, you are to perform the activities associated with daily Jet Pump **AND** Recirc Pump Flow Check. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

**General Conditions:**

1. The plant is operating at rated power with DEH in Mode 4.
2. Both Reactor Recirculation pumps are operating with pump flows balanced.
3. Data is provided for the readings to be taken.

Task No.: 202012O0201

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PERFORM JET PUMP OPERABILITY CHECK (RO or SRO)

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**General References:**

1. Procedure 6.LOG.601

**General Tools and Equipment:**

1. Calculator.
2. Jet pump operability curves.

**Special Conditions, References, Tools, Equipment:**

1. Simulator Setup: See Attachment 1.
2. Critical checks denoted by "\*".
3. Simulator cues denoted by "#".

**Task Standards:**

1. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

**Initiating Cue(s):**

**RO.**

The Control Room Supervisor directs you to perform the daily Jet Pump (6.LOG.601 Attachment 12) and Recirc Pump Flow Check (6.LOG.601 Attachment 13) as part of the routine shift activities. Notify the CRS when the task is complete.

**SRO.**

Perform the Control Room Supervisor's review of the daily Jet Pump (6.LOG.601 Attachment 12) and Recirc Pump Flow Check (6.LOG.601 Attachment 13) as part of the routine shift activities to ensure that it has been performed correctly. Notify the SM when the task is complete.

Task No.: 202012O0201

PERFORM JET PUMP OPERABILITY CHECK (RO or SRO)

Performance Checklist	Standards	Initials
<b>NOTE: 1. This is the RO Section.</b>  <b>2. Steps 1 - 5 may be in any order.</b>		
1. Record indicated core flow ( $10^6$ lb/hr)	Record Core flow from Recorder NBI-FRDPR-95 (Green Pen) ( $\pm 2$ ).  <b>CUE:</b> Core Flow = 62	<div style="text-align: right;">_____ *</div>
2. Record RR pump flow ( $10^3$ gpm)	Record RR pump flow, from RR-FR-163 for Pumps A & B ( $\pm 2$ ).  <b>CUE:</b> Pump A = 38.5; Pump B = 38.5	<div style="text-align: right;">_____ *</div>
3. Record RRMG Set speed	Record RRMG Set speed from the following ( $\pm 2$ ):  a. RRFC-SI-1A for RRMG A b. RRFC-SI-1B for RRMG B  <b>CUE:</b> RRMG A = 79; RRMG B = 80.	<div style="text-align: right;">_____ *</div>

Task No.: 202012O0201

PERFORM JET PUMP OPERABILITY CHECK (RO or SRO)

Performance Checklist	Standards	Initials																				
4. Record Jet Pump Flow	<p>Record Jet Pump Flow from the following (<math>\pm 2</math>):</p> <p>a. NBI-FI-92A for LOOP A b. NBI-FI-92B for LOOP B</p> <p><b>CUE:</b> LOOP A = 31; LOOP B = 31</p>	<div></div> *																				
5. Record Jet Pump Differential Pressure	<p>Record differential pressures from individual jet pump instruments NBI-FI-78A through NBI-FI-78Z on Panel 9-38 in control room (<math>\pm 2</math>).</p> <p><b>CUE:</b></p> <table><tr><td>1 = 31</td><td>11 = 32</td></tr><tr><td>2 = 32</td><td>12 = 30</td></tr><tr><td>3 = 31</td><td><b>13 = 20</b></td></tr><tr><td>4 = 31</td><td>14 = 32</td></tr><tr><td>5 = 36</td><td>15 = 34</td></tr><tr><td>6 = 34</td><td>16 = 35</td></tr><tr><td>7 = 33</td><td>17 = 32</td></tr><tr><td>8 = 32</td><td>18 = 31</td></tr><tr><td>9 = 33</td><td>19 = 33</td></tr><tr><td>10 = 33</td><td>20 = 32</td></tr></table> <p><b>Note G, H, I, O, P &amp; Q are not used.</b></p>	1 = 31	11 = 32	2 = 32	12 = 30	3 = 31	<b>13 = 20</b>	4 = 31	14 = 32	5 = 36	15 = 34	6 = 34	16 = 35	7 = 33	17 = 32	8 = 32	18 = 31	9 = 33	19 = 33	10 = 33	20 = 32	<div></div> *
1 = 31	11 = 32																					
2 = 32	12 = 30																					
3 = 31	<b>13 = 20</b>																					
4 = 31	14 = 32																					
5 = 36	15 = 34																					
6 = 34	16 = 35																					
7 = 33	17 = 32																					
8 = 32	18 = 31																					
9 = 33	19 = 33																					
10 = 33	20 = 32																					
6. Record Loop B and Loop A Average	<p>Add JP #1 through 10 and divide by 10 for LOOP B, then add JP #11 through 20 and divide by 10 for LOOP A (<math>\pm 2</math>).</p> <p><b>CUE:</b> Average 32.6 for LOOP B and 31.1 for LOOP A.</p>	<div></div> *																				



Task No.: 202012O0201

PERFORM JET PUMP OPERABILITY CHECK (RO or SRO)

Performance Checklist	Standards	Initials
<b>NOTE: Curves are contained in the binder labeled “Cooper Nuclear Station Jet Pump Operability Graphs and Instability Noise Level Data”.</b>		
7. Verify RR pump flow and RRMG set speed within limits.	<b>Check 1</b> Determine that the values recorded in Items B and C are within the limits of the curve <b>(SAT checked)</b> .	_____ *
8. Verify JP flow and RRMG set speed within limits.	<b>Check 2</b> Determine that the values recorded in Items C and D are within or outside the limits of the curve <b>(SAT checked)</b> .	_____
<b>NOTE: Jet Pump 13 is outside the Operability Graphs. The candidate should determine that it falls outside the limit.</b>		
9. Jet Pump $\Delta p$ differs by $\leq 20\%$ from established patterns.	<b>Check 3</b> Determine that Jet Pump $\Delta p$ differs by $\leq 20\%$ from established patterns for <b>(UNSAT checked for Loop A)</b> .	_____ *
10. Verify check 1 and 2 SAT or check 3 SAT.	Verify check 1 and check 2 SAT or check 3 is SAT (Check 3 is SAT).	_____ *
11. Verify operation is not in Stability Exclusion Region of Power to Flow Map.	Determines operation is outside Stability Exclusion Region of Power to Flow Map using core flow value recorded in Item A on previous page and 2.1.10 Power to Flow Map.	_____ *

Task No.: 202012O0201

PERFORM JET PUMP OPERABILITY CHECK (RO or SRO)

Performance Checklist	Standards	Initials
12. Verify loop flow mismatch is within limit when at $< 51.45 \times 10^6$ lbs/hr core flow.	Determine Step is N/A.	_____
13. Verify loop flow mismatch is within limits when $51.45 \times 10^6$ lbs/hr core flow.	Determine Item D values (previous page of 6.LOG.601) for Loop A and Loop B flow mismatch is $3.67 \times 10^6$ lbs/hr (SAT entered into block).	_____ *
14. Verify Recirc Pump operating or RHR Pump operating in SDC.	Determine Step is N/A.	_____
15. Inform the CRS that the task is complete.	Inform Control Room Supervisor that the daily Jet Pump and Recirc Pump Flow Check is Complete and Jet Pump 13 d/p is low out of spec.  <b>#CUE: The CRS Acknowledges the report.</b>	_____

Task No.: 202012O0201

PERFORM JET PUMP OPERABILITY CHECK (RO or SRO)

**SRO Section**

Performance Checklist	Standards	Initials
<b>NOTE: 1. SRO Section</b>  <b>2. Declares Jet Pump 13 inop.</b>		
1. Reviews Attachment 12 "Jet Pump Operability" Items.	Reviews Attachment 12 "Jet Pump Operability" Items A, B, C and D. Notes that all have been filled out correctly.	_____
2. Reviews Attachment 12 "Jet Pump Operability" Checks 1, 2 and 3.	Reviews Attachment 12 "Jet Pump Operability" Items 1, 2, and 3. Notes that Check 3 should be checked Unsat and denotes it.	_____ *
3. Reviews Attachment 13 "RECIRC Pump Flow Checks" Checks	Reviews Attachment 13 "RECIRC Pump Flow Checks", NBI-FRDPR-95 is outside of the Exclusion Region. Checks that it is marked SAT correctly.	_____ *
4. Reviews Attachment 13 "RECIRC Pump Flow Checks" Checks	Reviews Attachment 13 "RECIRC Pump Flow Checks", NBI-FI-92A/B Mismatch should be N/A'ed for this flow.	_____
5. Reviews Attachment 13 "RECIRC Pump Flow Checks" Checks	Reviews Attachment 13 "RECIRC Pump Flow Checks", NBI-FI-92A/B Mismatch should be marked SAT. Checks that it is marked SAT correctly.	_____ *
6. Reviews Attachment 13 "RECIRC Pump Flow Checks" Checks	Reviews Attachment 13 "RECIRC Pump Flow Checks", Recirc Pump operating or RHR Pump operating in SDC is marked N/A.	_____

Task No.: 202012O0201

PERFORM JET PUMP OPERABILITY CHECK (RO or SRO)

Performance Checklist	Standards	Initials
7. Notifies Reactor Engineer	Notifies the Reactor Engineer that Jet Pump 13 d/p is low out of spec.  CUE: As reactor engineer respond to the report and tell the CRS that it was not low last time the surveillance was run.	_____
8. Notifies the Shift Manager	Contacts the Shift Manager and tells him that Jet Pump 13 is low out of spec and that was not that way last surveillance.  CUE: Respond as the Shift Manager and tell the CRS that the JPM is completed.	_____

## ATTACHMENT 1

### **Directions to Trainee:**

When I tell you to begin, you are to perform the daily Jet Pump and Recirc Pump Flow Check. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

### **General Conditions:**

1. The plant is operating at rated power with DEH in Mode 4.
2. Both Reactor Recirculation pumps are operating with pump flows balanced.

### **Initiating Cues:**

#### **RO.**

The Control Room Supervisor directs you to perform the daily Jet Pump (6.LOG.601 Attachment 12) and Recirc Pump Flow Check (6.LOG.601 Attachment 13) as part of the routine shift activities. Notify the CRS when the task is complete.

<b>Jet Pumps</b>	1 = 31	11 = 32
	2 = 32	12 = 30
	3 = 31	13 = 20
	4 = 31	14 = 32
	5 = 36	15 = 34
	6 = 34	16 = 35
	7 = 33	17 = 32
	8 = 32	18 = 31
	9 = 33	19 = 33
	10 = 33	20 = 32

#### **SRO.**

Perform the control room supervisor's review of the daily jet pump (6.log.601 attachment 12) and recirc pump flow check (6.log.601 attachment 13) as part of the routine shift activities to ensure that it has been performed correctly. Notify the Shift Manager when the task is complete.

ATTACHMENT 12 JET PUMP OPERABILITY

RO SECTION

ATTACHMENT 12 JET PUMP OPERABILITY

**NOTE** – If in single loop operation, mark idle loop N/A.

ITEMS		LOOP A	LOOP B	JET PUMP $\Delta P$ (%)			
				JP #	LOOP B	JP #	LOOP A
A	Core Flow ( $10^6$ lb/hr) NBI-FRDPR-95			1		11	
B	RR Pump Flow ( $10^3$ gpm) RR-FR-163			2		12	
C	RRMG Set Speed (%) RRFC-SI-1A/B			3		13	
D	JP Flow ( $10^6$ lb/hr) NBI-FI-92A/B			4		14	
				5		15	
				6		16	
				7		17	
				8		18	
				9		19	
				10		20	
				LOOP B Avg		LOOP A Avg	

CHECKS			SAT	UNSA T	OPERABILIT Y LIMIT	APPLICABL E MODE	ATT. 21 NOTE
1	Item B and C values within curve limits <sup>(a)</sup>	Loop A: ✓			SAT	1 <sup>(b)</sup> , 2 <sup>(b)</sup>	50
		Loop B: ✓					
2	Item C and D values within curve limits <sup>(a)</sup>	Loop A: ✓					
		Loop B: ✓					
3	Jet Pump $\Delta P$ differs by $\leq$ 20% from established patterns <sup>(a, c)</sup>	Loop A: ✓					
		Loop B: ✓					

Checks 1 and 2 SAT, or Check 3 SAT	Loop A: ✓			SAT		
	Loop B: ✓					

- (a) Refer to Jet Pump Operability Curves maintained in Control Room.
- (b) Required to be performed within 24 hours after > 25% RTP and required to be performed within 4 hours after associated recirculation loop is in service.
- (c) If any Jet Pump  $\Delta P$  vs. established pattern is not within curve limits, immediately notify Reactor Engineering.

Attachment 13

RECIRC PUMP FLOW CHECKS **RO Section**

ATTACHMENT 13 RECIRC PUMP FLOW CHECKS

CHECKS	0700-1000 SAT/UNSAT	1900-2200 SAT/UNSAT	OPERABILITY LIMIT	APPLICABLE MODES	ATT. 21 NOTES
Core Flow, NBI-DPR/FR-95, value is not in Stability Exclusion Region of Power to Flow Map <sup>(a)</sup>		MCO	SAT	1, 2	49
JP Flow, NBI-FI-92A/B, values for Loop A and Loop B flow mis-match is $\leq 7.35 \times 10^6$ lbs/hr at $< 51.45 \times 10^6$ lbs/hr Rated Core Flow <sup>(b) (d)</sup>		MCO	SAT	1 <sup>(c)</sup> , 2 <sup>(c)</sup>	48, 127
JP Flow, NBI-FI-92A/B, values for Loop A and Loop B flow mis-match is $\leq 3.67 \times 10^6$ lbs/hr at $\geq 51.45 \times 10^6$ lbs/hr Rated Core Flow <sup>(b) (d)</sup>		MCO	SAT	1 <sup>(c)</sup> , 2 <sup>(c)</sup>	48, 127

(a) Refer to power to flow map in Procedure 2.1.10.

(b) Per Technical Specification and TRM Bases, a recirculation loop is considered not in operation when the mis-match between total jet pump flows of the two loops is greater than required limits. The loop with the lower flow must be considered not in operation.

(c) Required to be performed within 24 hours after both recirculation loops are in service.

(d) If a flow mismatch results in one loop considered not in operation, contact FRED to manually insert single loop operation limits into GARDEL.

CHECK	0700-1000 READING (✓) <sup>(e)</sup>	1900-2200 READING (✓) <sup>(e)</sup>	OPERABILITY LIMIT	APPLICABLE MODES	ATT. 21 NOTES
Verify Recirc Pump operating or RHR Pump operating in SDC			RR Pump or SDC in Operation	3 (when Reactor Pressure is less than SDC Pressure Permissive) <sup>(f)</sup>	66

(e) ✓ indicates at least one RR pump or SDC Subsystem is in service.

(f) Required to be met within 2 hours after reactor steam dome pressure is less than the shutdown cooling permissive pressure.



**NOTE** – If in single loop operation, mark idle loop N/A.

ITEMS		LOOP A	LOOP B	JET PUMP ΔP (%)			
				JP #	LOOP B	JP #	LOOP A
A	Core Flow (10 <sup>6</sup> lb/hr) NBI-DPR/FR-95	62		1	31	11	32
B	RR Pump Flow (10 <sup>3</sup> gpm) RR-FR-163	38.5	38.5	2	32	12	30
C	RRMG Set Speed (%) RRFC-SI-1A/B	79	80	3	31	13	20
D	JP Flow (10 <sup>6</sup> lb/hr) NBI-FI-92A/B	31	31	4	31	14	32
				5	36	15	34
				6	34	16	35
				7	33	17	32
				8	32	18	31
				9	33	19	33
				10	33	20	32
				LOOP B Avg	32.6	LOOP A Avg	31.1

CHECKS			SAT	UNSA T	OPERABILIT Y LIMIT	APPLICABL E MODE	ATT. 21 NOTE
1	Item B and C values within curve limits <sup>(a)</sup>	Loop A: ✓	✓		SAT	1 <sup>(b)</sup> , 2 <sup>(b)</sup>	50
		Loop B: ✓	✓				
2	Item C and D values within curve limits <sup>(a)</sup>	Loop A: ✓	✓				
		Loop B: ✓	✓				
3	Jet Pump $\Delta P$ differs by $\leq$ 20% from established patterns <sup>(a, c)</sup>	Loop A: ✓	✓				
		Loop B: ✓	✓				

Checks 1 and 2 SAT, or Check 3 SAT	Loop A: ✓	✓		SAT		
	Loop B: ✓	✓				

- (a) Refer to Jet Pump Operability Curves maintained in Control Room.
- (b) Required to be performed within 24 hours after > 25% RTP and required to be performed within 4 hours after associated recirculation loop is in service.
- (c) If any Jet Pump  $\Delta P$  vs. established pattern is not within curve limits, immediately notify Reactor Engineering.

Attachment 13

RECIRC PUMP FLOW CHECKS

**SRO Section**

ATTACHMENT 13 RECIRC PUMP FLOW CHECKS

CHECKS	0700-1000 SAT/UNSAT	1900-2200 SAT/UNSAT	OPERABILITY LIMIT	APPLICABLE MODES	ATT. 21 NOTES
Core Flow, NBI-DPR/FR-95, value is not in Stability Exclusion Region of Power to Flow Map <sup>(a)</sup>	<b>SAT</b>	MCO	SAT	1, 2	49
JP Flow, NBI-FI-92A/B, values for Loop A and Loop B flow mis-match is $\leq 7.35 \times 10^6$ lbs/hr at $< 51.45 \times 10^6$ lbs/hr Rated Core Flow <sup>(b) (d)</sup>	<b>N/A</b>	MCO	SAT	1 <sup>(c)</sup> , 2 <sup>(c)</sup>	48, 127
JP Flow, NBI-FI-92A/B, values for Loop A and Loop B flow mis-match is $\leq 3.67 \times 10^6$ lbs/hr at $\geq 51.45 \times 10^6$ lbs/hr Rated Core Flow <sup>(b) (d)</sup>	<b>SAT</b>	MCO	SAT	1 <sup>(c)</sup> , 2 <sup>(c)</sup>	48, 127

(a) Refer to power to flow map in Procedure 2.1.10.

(b) Per Technical Specification and TRM Bases, a recirculation loop is considered not in operation when the mis-match between total jet pump flows of the two loops is greater than required limits. The loop with the lower flow must be considered not in operation.

(c) Required to be performed within 24 hours after both recirculation loops are in service.

(d) If a flow mismatch results in one loop considered not in operation, contact FRED to manually insert single loop operation limits into GARDEL.

CHECK	0700-1000 READING (✓) <sup>(e)</sup>	1900-2200 READING (✓) <sup>(e)</sup>	OPERABILITY LIMIT	APPLICABLE MODES	ATT. 21 NOTES
Verify Recirc Pump operating or RHR Pump operating in SDC	<b>N/A</b>	<b>N/A</b>	RR Pump or SDC in Operation	3 (when Reactor Pressure is less than SDC Pressure Permissive) <sup>(f)</sup>	66

(e) ✓ indicates at least one RR pump or SDC Subsystem is in service.

(f) Required to be met within 2 hours after reactor steam dome pressure is less than the shutdown cooling permissive pressure.

Task No. 341013O0303

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Approve Radioactive Discharge-Release Permit

---

Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Additional Program Information:**

11. Appropriate Performance Locations: SIM / CR
12. Appropriate Trainee Level: SRO
13. Evaluation Method: Perform
4. Performance Time: 10 minutes
5. NRC K/As 2.1.34 (2.9); 2.1.32 (3.4/3.8)

**Directions to Examiner:**

1. This JPM evaluates the trainee's ability to complete a radioactive discharge / release permit.
2. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space, if desired, by the examiner.
3. Give the trainee his copy of the Directions to the Trainee (Attachment 2) and Liquid Radwaste Discharge Form (Attachment 1) when ready to start the JPM.
4. Brief the trainee, and tell the trainee to begin.

**Directions to Trainee:**

When I tell you to begin, you are to review and complete the radioactive discharge/release permit as Shift Manager. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

=====

**General Conditions:**

1. The plant is operating at 100%.
2. CWP A, B, and D are in service.
3. De-icing is in progress.
4. The FDST radioactive discharge was started at 0905, Jan 6.
5. The FDST radioactive discharge was stopped at 1355, Jan 6.
6. FDST final level is 10.5%.

---

Task No. 341013O0303

---

Approve Radioactive Discharge-Release Permit

---

**General References:**

1. 8.8.11, Liquid Radioactive Waste Discharge Authorization

**General Tools and Equipment:**

1. Scientific calculator

**Special Conditions, References, Tools, Equipment:**

1. Critical steps denoted by “\*”.

**Task Standards:**

1. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

**Initiating Cue(s):**

As Shift Manager complete the Liquid Radioactive Waste Discharge Form for the FDST (Attachment 1) and inform me when all required actions are complete.

Task No. 341013O0303

Approve Radioactive Discharge-Release Permit

Performance Checklist	Standards	Initials
1. Records Stop Run Data in Section 5.	Operator records Date as 1/6/xx, records time as 1355 and records % tank level as 10.5.	_____
2. Records dilution flow.	Operator refers to Section 4.1 and records dilution flow of 308400 gpm.	_____*
3. Records volume of release.	Operator calculates volume of release as 16368.625 (using Usable tank volume and start and stop tank %).  NOTE: Acceptable value: 16360 to 16380 gallons.	_____*
4. Records total time of discharge.	Operator calculates total time of discharge in minutes (subtracting start time from end time) and records 290 minutes.	_____*
5. Records discharge flow.	Operator calculates discharge flow (divides volume of release by total time of discharge) and records 56-57 gpm.	_____*
6. Records River Level.	Operator records river level as 880 ft MSL.  <b>#CUE:</b> River level is 880 ft MSL.	_____
7. Removes Discharge In Progress Tags from running CWP's.	Operator would remove or direct control room operator to remove the tags from the running CWP's.  <b>#CUE:</b> Tags are removed.	_____

Task No. 341013O0303

Approve Radioactive Discharge-Release Permit

Performance Checklist	Standards	Initials
8. Records total river flow.	Operator contacts chemistry for total river flow and records 5.9E7 l/min.  <b>#CUE:</b> Chemistry reports total river flow is 5.9E7 l/min. (This may be completed by the Chemist after SM signature.)	  _____
9. Completes discharge permit.	Operator signs form as Shift Manager and forwards to Chemistry for review.  <b>#CUE:</b> Accept form as Chemist.	  _____

Attachment 1 LIQUID RADIOACTIVE WASTE DISCHARGE FORM  
ATTACHMENT 1 LIQUID RADIOACTIVE WASTE DISCHARGE FORM

Section 1. REQUEST FOR ANALYSIS OF RADIOACTIVE LIQUID WASTE PRIOR TO DISCHARGE

To: Chemistry From: Shift Manager Tank To Be Discharged: FDST  
Started Recirculation For Sample: Time: 0300 Date: 1/6/xx  
Recirculation Of Tank Complete: Time: 0500 Date: 1/6/xx  
Estimated Volume To Be Discharged: 98%-10.5% = 87.5%  
Shift Manager: Mark Helen Time: 0555 Date: 1/6/xx

Section 2. THIS SECTION TO BE COMPLETED BY PERSON TAKING SAMPLE

Monitor Source Check

Informed Control Room And Performed Source Check Initials: REW

Sample Point: 18 Time: 0635 Date: 1/6/xx

Signature: Ray Moname

Section 3. AUTHORIZATION TO RELEASE RADIOACTIVE LIQUID WASTE

To: Shift Manager From: Chemistry Release Authorization Number: \_\_\_\_\_

Total  $\mu\text{Ci/ml}$ : 3.74E-5

Total Concentration is  $< 1.0\text{E-}02 \mu\text{Ci/ml}$  YES/NO

Signature: Ray Moname

31 Day Dose, Percent Of Annual Limit For Each Value Is  $\leq 2.0\text{E}+00$  YES/NO

Signature: Ray Moname

You Are Authorized To Release Subject Tank With Either Of Following Restrictions:

Maximum Liquid Waste Discharge Rate (gpm)

1) 100 2) N/A 3) N/A

Minimum Dilution Flow To Canal (gpm)

1) 159,000 2) 159,000 3) 159,000

Discharge Monitor Alarm Setpoint ( $\mu\text{Ci/ml}$ )

1) 6.22E-3 2) N/A 3) N/A

**NOTE** – Terminate Discharge If Above Specifications Cannot Be Maintained. Contents Of This Tank Are Within Chemical Parameters For Discharge.

Chemistry: Ray Moname Time: 0707 Date: 1/6/xx



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Section 4. SHIFT MANAGER APPROVAL TO RELEASE

4.1 Circle Appropriate Discharge Canal Flow Rate:

NUMBER OF OPERATING CW PUMPS	AVERAGE CW DISCHARGE FLOWRATE (gpm)	
	DE-ICING	NO DE-ICING
4	378,600	631,000
3	308,400	514,000
2	193,200	322,000
1	118,800	198,000

4.2 To: Operations Personnel From: Shift Manager

The Subject Tank Contents Are Approved For Release Subject To The Following Restrictions:

- 1) Maximum Liquid Disch Rate: 100 gpm (Section 3)
- 2) Minimum Dilution Flow To Canal Of: 159000 gpm (Section 3)
- 3) Alarm Limits Specified (Section 3)
- 4) Tank Volume Verified: 98 (Compare To Section 1)
- 5) DISCHARGE IN PROGRESS Tags Installed On Running Circ Water Pumps.

Approval To Release:

Shift Manager: Mark Helen Time: 0804 Date: 1/6/xx

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Section 5. To: Chemist      From: Shift Manager

The Subject Discharge Has Been Completed And The Following Data Obtained During The Discharge:

START RUN NUMBER	DATE	TIME	% TANK LEVEL	STOP RUN NUMBER	DATE	TIME	% TANK LEVEL
1	1/6/xx	0905	98	1			
2				2			
3				3			
4				4			

Usable Tank Volumes (0% to 100%)

FDST - 18,707 gal

WST A - 20,015 gal

WST B - 20,015 gal

1) Dilution Flow (Section 4.1): \_\_\_\_\_ gpm

2) Volume Of Release: \_\_\_\_\_ gal

3) Total Time Of Discharge: \_\_\_\_\_ min

4) Discharge Flow: \_\_\_\_\_ gpm

5) River Level: \_\_\_\_\_ ft MSL

6) Remove DISCHARGE IN PROGRESS Tags From Running Circ Water Pumps.

7) Total River Flow: \_\_\_\_\_ l/min  
(Determined By The Chemist)

Shift Manager: \_\_\_\_\_ Time: \_\_\_\_\_ Date: \_\_\_\_\_

Chemist Review: \_\_\_\_\_ Date: \_\_\_\_\_

## **ATTACHMENT 2**

### **Directions to Trainee:**

When I tell you to begin, you are to review and complete the radioactive discharge/release permit as Shift Manager. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

### **General Conditions:**

1. The plant is operating at 100%.
2. CWP A, B, and D are in service.
3. De-icing is in progress.
4. The FDST radioactive discharge was started at 0905, Jan 6.
5. The FDST radioactive discharge was stopped at 1355, Jan 6.
6. FDST final level is 10.5%.

### **Initiating Cue(s):**

As Shift Manager complete the Liquid Radioactive Waste Discharge Form for the FDST and inform me when all required actions are complete.

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ATWS SCENARIO EAL

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Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass: ☐ Fail: ☐ Examiner signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Additional Program Information:**

1. Appropriate Performance Locations: SIM
2. Appropriate Trainee Level: SRO
3. Evaluation Method: Perform
4. Performance Time: 20 minutes
5. NRC K/A 2.4.41 2.3/4.1

**Directions to Examiner:**

1. This JPM evaluates the trainee's ability to determine the Emergency Action Level from an ATWS Scenario (Scenario 1).
2. Observe the trainee during performance of the JPM for proper use of self-checking methods.
3. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space if desired by the examiner.

**General Conditions:**

1. As seen during the previous simulator scenario.

**General References:**

1. EPIP 5.7.1, Emergency Classification, Revision 33

**General Tools and Equipment:**

None

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### ATWS SCENARIO EAL

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#### **Special Conditions, References, Tools, Equipment:**

1. Simulator Setup: NA
2. Critical checks denoted by "\*".
3. Simulator cues denoted by "#".

#### **Task Standards:**

1. Accurately classify the event using the correct plant procedure.

#### **Initiating Cue(s):**

The Shift Manager has directed you to determine what the highest Emergency Action Level was during the previous scenario. Notify the Shift Manager when the task is complete.

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ATWS SCENARIO EAL

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Performance Checklist	Standards	Initials
1. Consult EAL.	Candidate consults EAL procedure.	_____
2. EAL classification.	Candidate identifies that a Site Area Emergency would have been declared per EAL 3.3.4. This is because boron was injected to shut down the reactor.	_____ *
3. Inform the SM that the task is complete.	Inform Shift Manager that the Emergency Classification is complete.  #CUE: The SM Acknowledges that it is complete. This JPM is complete.	_____

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ATWS SCENARIO EAL

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## **ATTACHMENT 1**

### **Directions to Candidate:**

When I tell you to begin, you are to determine the Emergency Action Level from the ATWS Scenario you just experienced. Before you start, I will state the general plant conditions, the initiating cues and answer any questions you may have.

### **General Conditions:**

1. As seen during the previous simulator scenario.

### **Initiating Cues:**

The Shift Manager has directed you to determine what the highest Emergency Action Level was during the previous scenario. Notify the Shift Manager when the task is complete.



**JOB PERFORMANCE MEASURE FOR OPERATIONS**

Task No.: 202022C0401

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**Task Title:** Respond to a Trip of a Reactor Recirc Pump (Alternate Path)

=====

Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass [ ]; Fail [ ] Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Additional Program Information:**

**NOTE – THIS IS AN ALTERNATE PATH JPM.**

1. Appropriate Performance Locations: CR/SIM
2. Appropriate Trainee Level: RO/SRO
3. Evaluation Method: Perform \_\_\_\_\_ Simulate \_\_\_\_\_
4. Performance Time: 8 minutes
5. NRC K/As 202001 A2.03 (3.6/3.7)

**Directions to Examiner:**

**NOTE – THIS IS AN ALTERNATE PATH JPM.** The flow subtracting network will fail and require manual input of total core flow.

5. This JPM evaluates the trainee's ability to respond to a Reactor Recirculation pump trip per 2.4RR, "Reactor Recirculation Abnormal."
6. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
7. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space, if desired, by the examiner.
8. Give the trainee his copy of the Directions to the Trainee (Attachment 2) when ready to start the JPM.
9. Brief the trainee, place the Simulator in RUN, and tell the trainee to begin.

## **JOB PERFORMANCE MEASURE FOR OPERATIONS**

Task No.: 202022C0401

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**Task Title:** Respond to a Trip of a Reactor Recirc Pump (Alternate Path)

=====

### **Directions to Trainee:**

When I tell you to begin, you are to perform actions as appropriate to panel 9-4 and 9-5 indications. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

### **If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

### **If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

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### **General Conditions:**

7. The plant is operating at power.
8. You are the Control Room Operator.

### **General References:**

1. Procedure 2.4RR, Reactor Recirculation Abnormal
2. Procedure 2.2.68.1, Reactor Recirculation System Operations

**JOB PERFORMANCE MEASURE FOR OPERATIONS**

Task No.: 202022C0401

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=

**Task Title:** Respond to a Trip of a Reactor Recirc Pump (Alternate Path)

=====

**General Tools and Equipment:**

1. None

**Special Conditions, References, Tools, Equipment:**

1. Simulator Setup: See Attachment 1.
2. Critical steps denoted by "\*" .
3. Simulator cues denoted by "#".

**Task Standards:**

1. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

**Initiating Cue(s):**

The Control Room Supervisor directs you to perform actions as appropriate to panel 9-4 and panel 9-5 indications.

# **JOB PERFORMANCE MEASURE FOR OPERATIONS**

Task No.: 202022C0401

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**Task Title:** Respond to a Trip of a Reactor Recirc Pump (Alternate Path)

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Performance Checklist	Standards	Initials
1. Assume the watch at panel 9-5.	The operator positions himself in a position to monitor panel 9-5.	_____
<b>ACTION: After the candidate assumes the watch, activate TRIGGER E1 to trip “B” Reactor Recirculation Pump.</b>		
2. Recognize and report trip of Recirc pump.	The operator recognizes and reports the trip of “B” Reactor Recirculation pump.  <b>#CUE: Acknowledge the report as CRS. Directs the operator to perform his actions per the abnormal.</b>	_____*
3. Take appropriate immediate actions.	The operator evaluates 2.4RR immediate actions; determines none apply.	_____
4. Obtain procedure 2.4RR.	The operator obtains a copy of 2.4RR.	_____
5. Enter Attachment 1 of 2.4RR	Operator enters Attachment 1 of 2.4RR.	_____*
6. Evaluate need to enter Attachment 3 for stability exclusion region.	Operator evaluates the need to enter Attachment 3 for stability exclusion region; determines entry is required.  <b>#CUE: Acknowledge the report as CRS and another operator will address stability exclusion region.</b>	_____

## JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 202022C0401

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**Task Title:** Respond to a Trip of a Reactor Recirc Pump (Alternate Path)

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Performance Checklist	Standards	Initials
7. Ensure RRMG Set B GEN FIELD BKR open.	Operator ensures RRMG Set B GEN FIELD BKR open.  <b>CUE:</b> RRMG Set B GEN FIELD BKR green light is illuminated, the red light is out.	_____*
8. Close RR-MO-53B, PUMP DISCHARGE VLV.	Operator closes RR-MO-53B, PUMP DISCHARGE VLV.  <b>CUE:</b> RR-MO-53B green light is lit and the red light is out.	_____*
<b>NOTE: The operator should continue with the remaining 2.4RR steps while waiting for the RR-MO-53B valve.</b>		
9. After RR-MO-53B has been closed for 5 minutes, open valve.	Operator opens RR-MO-53B after it has been closed for 5 minutes (-0, + 5 minutes).  <b>CUE:</b> RR-MO-53B green light is out and red light is lit (after valve has been opened).	_____
10. Ensure operating RRMG is transferred to Startup Transformer per Procedure 2.2.18.	Operator ensures "A" RRMG is powered by the Startup Transformer.  <b>CUE:</b> "A" RRMG is powered by the Startup Transformer (Breaker 1CS is closed).	_____

## JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 202022C0401

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**Task Title:** Respond to a Trip of a Reactor Recirc Pump (Alternate Path)

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Performance Checklist	Standards	Initials
11. Maintain oil outlet temperature for tripped RRMG 90°F to 130°F.	Operator directs Station Operator to maintain oil outlet temperature for tripped RRMG 90°F to 130°F.  <b>#CUE: Acknowledge/repeat back order as Station Operator.</b>	_____
12. Monitor loop cooldown rate on RR-TR-165, RR SUCTION & FEEDWATER TEMP.	Operator monitors loop cooldown rate on RR-TR-165, RR SUCTION & FEEDWATER TEMP.  <b>CUE:</b> Loop temperature has dropped 6°F over the last 5 minutes.	_____
13. Concurrently enter Single Loop Operation per Procedure 2.2.68.1.	Operator obtains a copy of 2.2.68.1.	_____
14. Dispatch Operators to R-976-W and Non-Critical Switchgear Room to record lockout relays and targets for tripped pump.	Operator dispatches Operators to R-976-W and Non-Critical Switchgear Room to record lockout relays and targets for tripped pump.  <b>#CUE: Overcurrent (51 relay) is tripped for breaker 1DN (in Non-Critical Switchgear Room). There are no lockouts at Reactor Building 976 West.</b>	_____
15. If total core flow < 20%, concurrently enter Attachment 2.	Operator determines Core Flow is above 20% rated.  <b>CUE:</b> Indicated core flow is 41 Mlbm/hr.	_____

## JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 202022C0401

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**Task Title:** Respond to a Trip of a Reactor Recirc Pump (Alternate Path)

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Performance Checklist	Standards	Initials
16. Align RRMG H&V System per Procedure 2.2.85.	Operator aligns RRMG H&V System per Procedure 2.2.85.  <b>#CUE: When operator initiates action to align ventilation, inform him that another operator will perform the ventilation alignment.</b>	_____
17. Raise core flow to > 29.5x10 <sup>6</sup> lbs/hr, if possible.	Operator determines core flow is > 29.5x10 <sup>6</sup> lbs/hr  <b>CUE:</b> Indicated core flow is 41 Mlbm/hr.	_____
18. Determine if reverse flow summer is functioning.	Operator determines reverse flow summer is NOT functioning as annunciator 9-4-3/E-7 is NOT in and indicated core flow is NOT approximately equal to difference between NBI-FI-92A and NBI-FI-92B  <b>CUE:</b> 9-4-3/E-7 is <b><u>NOT</u></b> alarming.  <b>CUE:</b> NBI-FI-92A reads 37 Mlbm/hr. NBI-FI-92B reads 4 Mlbm/hr.	_____*
19. Initiate an emergency Work Order to repair or replace reverse flow summer (NBI-SUM-97).	Operator initiate an emergency Work Order to repair or replace reverse flow summer (NBI-SUM-97).  <b>#CUE: Another operator will perform this task.</b>	_____

## JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 202022C0401

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**Task Title:** Respond to a Trip of a Reactor Recirc Pump (Alternate Path)

=====

Performance Checklist	Standards	Initials
20. Determine difference between NBI-FI-92A and NBI-FI-92B loop flows.	Operator determines difference between NBI-FI-92A and NBI-FI-92B loop flows is $\geq 31 \times 10^6$ lbs/hr.	_____*
<b>NOTE: Entering substitute value for point B012 is accomplished using an IDT terminal and pressing the “Bogey Value” button. On screen prompts will guide the rest of the substitution.</b>		
21. Enter substitute value for PMIS Point B012.	Operator enters difference between NBI-FI-92A and NBI-FI-92B loop flows as substitute for PMIS Point B012.  <b>CUE:</b> PMIS Point B012 has been substituted for.  <b>#CUE: <u>SIMULATOR ONLY.</u> Ask the candidate to verify that the core flow value has updated on the power to flow map.</b>	_____*
22. Verify value substituted for PMIS Point B012 (Simulator ONLY).	Operator enters turn-on code of PFMAP and verifies core flow value matches value substituted.	_____
<b>NOTE: As soon as the student attempts to contact the Reactor Engineer, tell them that the JPM is complete.</b>		
23. Initiate actions to notify the Reactor Engineer about MCPR.	Initiate actions to notify the Reactor Engineer that MCPR needs to be adjusted for single loop operations	_____



**JOB PERFORMANCE MEASURE FOR OPERATIONS**

Task No.: 202022C0401

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**Task Title:** Respond to a Trip of a Reactor Recirc Pump (Alternate Path)

=====

**ATTACHMENT 1**

**SIMULATOR SET-UP**

A. Materials required

None

B. Initialize the Simulator in any full power IC (IC-18, 19 or 20 suggested)

Batch File name - none.

C. Change the Simulator conditions from those of the IC as follows:

1. Triggers

<u>Number</u>	<u>File Name</u>	<u>Description</u>
E1	None	trgset 11 "zlormgfb(1)==1" ^"B" Recirc MG Field Breaker green light on

2. Malfunctions

<u>Number</u>	<u>Title</u>	<u>Trigger</u>	<u>TD</u>	<u>Severity</u>	<u>Ramp</u>	<u>Initial</u>
RR04D	"B" Reactor Recirculation Pump Drive Motor Breaker Trip (1DN)	E1	N/A	N/A	N/A	N/A

3. Remotes

<u>Number</u>	<u>Title</u>	<u>Trigger</u>	<u>TD</u>	<u>Value</u>	<u>Ramp</u>
	None				

**JOB PERFORMANCE MEASURE FOR OPERATIONS**

Task No.: 202022C0401

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**Task Title:** Respond to a Trip of a Reactor Recirc Pump (Alternate Path)

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4. Overrides

<u>Instrument</u>	<u>Tag</u>	<u>Trigger</u>	<u>TD</u>	<u>Value</u>	<u>Ramp</u>
9-4-3/E-7, RECIRC LOOP B OUT OF SERVICE	RA:MUX08C108	A	0	OFF	0
Total Core Flow	ZAONBIDPRFR95[2]	E1	0:10	41	0:10
"A" Loop Flow	ZAONBIFI92A	E1	0:12	37	0:12
"B" Loop Flow	ZAONBIFI92B	E1	0:15	4	1:00

5. Panel Set-up (suggested.)

- a. Insert listed overrides and malfunctions.
- b. Place the Simulator in RUN.
- c. Ensure "A" Reactor Recirculation pump is aligned to the Startup Transformer.
- d. Ensure "B" Reactor Recirculation pump is aligned to the Normal Transformer.
- e. Ensure that the curser on the power to flow map is within the normal operating region.

Note: If this JPM is to be performed more than once, snap the Simulator into an IC after the panel set-up is complete.

## **ATTACHMENT 2**

### **Directions to Trainee:**

When I tell you to begin, you are to perform actions as appropriate to panel 9-4 and 9-5 indications. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

### **If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

### **If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

### **General Conditions:**

9. The plant is operating at power.
10. You are the CRO - Reactor Operator (RO) (9-5 PNL).
11. Optimum Water Chemistry is out of service.

### **Initiating Cue(s):**

The Control Room Supervisor directs you to perform actions as appropriate to panel 9-4 and panel 9-5 indications.

Task No.: 259058G401

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Perform a Quick Restart of RFPT A (Hard Card) (Alternate Path)

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Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Additional Program Information:**

**THIS IS AN ALTERNATE PATH JPM**

1. Appropriate Performance Locations: CR / SIM
2. Appropriate Trainee level: RO / SRO
3. Evaluation Method: \_\_\_ Simulate \_\_\_ Perform
4. Performance Time: 20 minutes
5. NRC K/A 259001 A4.02 (3.9/3.7)

**Directions to Examiner:**

**NOTE:** THIS IS AN **ALTERNATE PATH** JPM. THE INITIAL ATTEMPT TO RESET THE RFPT TRIP WILL FAIL AND REQUIRE USE OF THE ALTERNATIVE METHOD TO RESET THE TRIP.

1. This JPM evaluates the trainee's ability to perform a quick start of a RFPT
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space if desired by the examiner.
4. **DO NOT place the simulator in RUN until the student is ready to perform the JPM. (RFP must be coasting down or on turning gear < 5 minutes to use this procedure section.)**
5. Give the trainee his copy of the Directions to the Trainee (Attachment 2) when ready to start the JPM.
6. Brief the trainee, place the simulator in run, and tell the trainee to begin.

**Directions to Trainee:**

When I tell you to begin, you are to perform a quick start of the "A" RFPT. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

**If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you

Task No.: 259058G401

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Perform a Quick Restart of RFPT A (Hard Card) (Alternate Path)

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would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

**If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

=====

**General Conditions:**

1. The Reactor has scrammed.
2. Both RFPs have tripped on high level.

**General References:**

1. Procedure 2.2.28
8. Procedure 2.2.28.1

**General Tools and Equipment:**

1. None

**Special Conditions, References, Tools, Equipment:**

1. Simulator Setup: See Attachment 1.
2. Critical checks denoted by "\*\*\*".
3. Simulator cues denoted by "#".

**Task Standards:**

1. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

**Initiating Cue(s):**

The Control Room Supervisor directs you to restart "A" RFP in Reactor Pressure Follow Mode and raise RPV water level to the GREEN Band using the quick restart hard card.

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Perform a Quick Restart of RFPT A (Hard Card) (Alternate Path)

Performance Checklist	Standards	Initials
1. Ensure RFPT time limit is met.	<p>Ensure RFPT coasting from trip or not on turning gear &gt; 5 minutes after trip.</p> <p><b>CUE:</b> RFPTs are still coasting down.</p>	_____
<p><b>NOTE: RFPT Trips are as follows:</b></p> <ol style="list-style-type: none"> <li>1. Low pump suction pressure of 260 psig after a 15 second time delay</li> <li>2. Exhaust casing high pressure at 7" Hgv</li> <li>3. Exhaust casing high temperature of 23°F</li> <li>4. Low lube oil pressure of 10 psig</li> <li>5. Thrust bearing wear at 10 psig oil pressure</li> <li>6. High reactor water level of 52.5" (Tech Spec. <math>\leq 54</math>")</li> <li>7. Electrical overspeed at 5950 rpm</li> <li>8. Mechanical overspeed at 6050 to 6150 rpm</li> <li>9. Emergency trip pushbutton operation</li> </ol>		
2. Ensure RFPT trips are reset.	<p>Ensure RFPT trips (except high water level) are reset. Check the following annunciators are clear:</p> <ul style="list-style-type: none"> <li>- A-1/A-6 (Low Suction Pressure),</li> <li>- A-1/B-4 (Exhaust Hood High Temp),</li> <li>- A-1/B-5 (Low Vacuum Trip),</li> <li>- A-1/B-6 (Thrust Bearing Trip),</li> <li>- A-1/C-4 (Low Oil Pressure Pre Trip)</li> </ul> <p>Ensure reactor water level is &lt; 54"</p> <p>Check RFPT/Main Turbine high RPV water level trip amber lights (panel 9-5)</p> <p><b>CUE:</b> All trips (except high RPV water level) are reset.</p>	_____

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Perform a Quick Restart of RFPT A (Hard Card) (Alternate Path)

3. Ensure High RPV water level RFPT trips are reset.	At Panel 9-5, reset at least 2 of the HIGH WATER LEVEL TRIPS.  <b>CUE:</b> All 3 High RPV water level trips were in and now have been reset.	_____*
4. Ensure RFP-CS-RFPT-A RFPT A Control Station is in MDVP	Operator ensures RFP-CS-RFPT-A is in MDVP  <b>CUE:</b> RFP-CS-RFPT-A is in MDVP	_____
5. Ensure OUTPUT on RFP-CS-RFPT-A is adjusted to minimum.	Operator ensures OUTPUT on RFP-CS-RFPT-A is adjusted to minimum.  <b>CUE:</b> OUTPUT on RFP-CS-RFPT-A is adjusted to minimum.	_____
6. Attempt to reset "A" RFPT	Press and hold RFPT A TRIP RESET button. Note the RFPT A HP and LP STOP valves are NOT open.  <b>CUE:</b> HP and LP STOP valves red light are <b>OFF</b> Green lights are <b>ON</b> .	_____
7. Recognize and report the trip reset failure.	Recognize and report the "A" RFPT trip reset failure.	_____
8. Reset "A" RFPT	Press and hold RFPT A OVERSPEED TRIP BLOCK and RFPT A OVERSPEED TRIP RESET.  <b>CUE:</b> HP and LP STOP valves red lights are <b>ON</b> Green lights are <b>OFF</b> .	_____*
9. Ensure RF-11A is OPEN	Ensure RF-FCV-11A, MIN FLOW VALVE, is open.  <b>CUE:</b> RF-FCV-11A Red light is <b>ON</b> and Green light <b>OFF</b> .	_____

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Perform a Quick Restart of RFPT A (Hard Card) (Alternate Path)

10. Select RFP	At a HMI, select FEEDPUMP A screen for desired RFP to be started. <b>CUE:</b> "A" RFP selected	_____
11. Select Quick Restart.	Select QUICK RESTART start type. <b>CUE:</b> Quick restart selected	_____*
12. Select HP Start.	If extraction steam is available, select LP START. Otherwise, select HP START. <b>CUE:</b> HP Start selected	_____*
13. Press green Start button and confirm start in pop-up box.	Press green START button and confirm start in pop-up box <b>CUE:</b> Start in Pop-up box.	_____*
14. Continue Button	After RFP A(B) reaches MINIMUM GOVERNOR, depress green CONTINUE button. <b>CUE:</b> green CONTINUE button depressed.	_____*
15. Ensure injection path	Ensure injection path is aligned to the reactor vessel, as dictated by plant conditions <b>CUE:</b> Path lined up	_____
16. Raise speed	Use UP arrow to raise RFP speed to raise RFP discharge pressure. <b>CUE:</b> RFP speed rising.	_____



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Perform a Quick Restart of RFPT A (Hard Card) (Alternate Path)

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17. Place In Reactor Pressure Follow	Place RFP in desired mode (e.g., AUTO or REACTOR PRESSURE FOLLOW). <b>CUE:</b> In Reactor pressure follow	_____*
18. Raise Level	If required, adjust STARTUP MASTER controller using UP/DOWN arrows or RAMP FUNCTION, to adjust LEVEL SETPOINT as desired.  CUE Level at 35"	_____*
19. Inform the CRS that the task is Complete.	Inform the Control Room Supervisor that 1A RFP has been restarted and injecting into the RPV  <b>#CUE: CRS acknowledges the report.</b>	_____

## Perform a Quick Restart of RFPT A (Hard Card) (Alternate Path)

## SIMULATOR SET-UP

A. Materials Required		None					
B. Initialize the Simulator in IC		Any IC that will support this JPM					
C. Run Batch File		None					
D. Change the simulator conditions as follows:	Number	Title	Tgr	TD	Sev	Ramp	Initial
1. Triggers	None						
2. Malfunctions	RR19	Shutdown Cooling Loss of Mass			100		
	N/A	N/A					
3. Remotes	None						
	N/A	N/A					
4. Overrides	ZDIRFSWRFTRA[1]	RFPT-A Trip Reset Pushbutton			OFF		
5. Panel Setup	a. Place the Simulator in run. b. Use Monitor Parameter RRMVLOSS to reset malfunction RR19. c. Place the Mode Switch to Shutdown. d. Secure two Condensate and Condensate Booster pumps. e. If water level needs to be lowered insert RR19. f. Ensure the "A" RFP is still coasting down or is on the turning gear. g. Ensure RPV water level is < +50" (narrow range). h. Insert listed switch override. i. Place the Simulator in FREEZE until the operator is ready to begin.						
Note: If this JPM is to be performed more than once, take a SNAPSHOT after the panel setup is complete.							

Task No.: 259058G401

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Perform a Quick Restart of RFPT A (Hard Card) (Alternate Path)

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## **ATTACHMENT 2**

### **Directions to Trainee:**

When I tell you to begin, you are to perform a quick start of the "A" RFPT. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

### **If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

### **If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

### **General Conditions:**

1. The Reactor has scrammed.
2. Both RFPs have tripped on high level.

### **Initiating Cues:**

The Control Room Supervisor directs you to restart "A" RFP in Reactor Pressure Follow Mode and raise RPV water level to the GREEN Band using the quick restart hard card.

**JOB PERFORMANCE MEASURE FOR OPERATIONS**

Task No.: 206005O0101

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**Task Title:** Manually Initiate HPCI (Hard Card) (Alternate Path)

=====

Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass [ ]; Fail [ ] Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Additional Program Information:**

**NOTE – THIS IS AN ALTERNATE PATH JPM.**

1. Appropriate Performance Locations: CR/SIM
2. Appropriate Trainee Level: RO/SRO
3. Evaluation Method: Perform \_\_\_\_\_ Simulate \_\_\_\_\_
4. Performance Time: 8 minutes
5. NRC K/As 206000 K3.02 (3.8/3.8) and A4.01 (3.8/3.7)

**Directions to Examiner:**

**NOTE – THIS IS AN ALTERNATE PATH JPM. THE FLOW CONTROLLER WILL FAIL TO OPERATE IN AUTOMATIC AND MUST BE PLACED IN MANUAL.**

10. This JPM evaluates the trainee's ability to perform the "injection mode" of operation of HPCI per the guidance of procedure 2.2.33.1, High Pressure Coolant Injection System Operations (hard card).
11. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
12. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space, if desired, by the examiner.
13. Give the trainee his copy of the Directions to the Trainee (Attachment 2) when ready to start the JPM.
14. Brief the trainee, place the Simulator in RUN, and tell the trainee to begin.

## **JOB PERFORMANCE MEASURE FOR OPERATIONS**

Task No.: 206005O0101

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**Task Title:** Manually Initiate HPCI (Hard Card) (Alternate Path)

=====

### **Directions to Trainee:**

When I tell you to begin, you are to operate HPCI in the injection mode at rated flow using the hard card. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

### **If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

### **If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

=====

### **General Conditions:**

12. The Reactor is shutdown following a scram.
13. Reactor pressure is currently being maintained by another operator.
14. Suppression Pool Cooling will be placed in service by another operator.
15. SBGT and REC have been aligned to support HPCI operation.

### **General References:**

1. Procedure 2.2.33.1, High Pressure Coolant Injection System Operation.

**JOB PERFORMANCE MEASURE FOR OPERATIONS**

Task No.: 206005O0101

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**Task Title:** Manually Initiate HPCI (Hard Card) (Alternate Path)

=====

**General Tools and Equipment:**

1. None

**Special Conditions, References, Tools, Equipment:**

1. Simulator Setup: See Attachment 1.
2. Critical steps denoted by “\*”.
3. Simulator cues denoted by “#”.

**Task Standards:**

2. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

**Initiating Cue(s):**

The Control Room Supervisor directs you to place HPCI in the injection mode at rated flow using the hard card. Inform the CRS when HPCI is injecting at rated flow.

# **JOB PERFORMANCE MEASURE FOR OPERATIONS**

Task No.: 206005O0101

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**Task Title:** Manually Initiate HPCI (Hard Card) (Alternate Path)

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Performance Checklist	Standards	Initials
24. Place GLAND SEAL CNDSR BLOWER control switch in START.	The operator places the control switch for the GLAND SEAL CNDSR BLOWER in START.  <b>CUE:</b> The red light for the GLAND SEAL CNDSR BLOWER is lit, the green light is out.	_____
25. Checks High Water Level Trip	Checks and Resets REACTOR HI WTR LEVEL TRIP SIGNAL.  <b>CUE:</b> REACTOR HI WTR LEVEL TRIP yellow light is OFF.	_____
26. Open HPCI-MO-14, STM TO TURB VLV.	The operator places the control switch for the HPCI-MO-14 in OPEN.  <b>CUE:</b> HPCI-MO-14 red light is on, green light is off.	_____*
27. Start AUXILIARY OIL PUMP by placing control switch in START.	The operator places the control switch for the Auxiliary Oil Pump switch to START.  <b>CUE:</b> HPCI Aux Oil pump red light is on, green light is off.	_____*
28. Open HPCI-MO-19, INJECTION VALVE.	The operator places the control switch for the HPCI-MO-19 in OPEN.  <b>CUE:</b> HPCI-MO-19 red light is on, green light is off.	_____*



## JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 206005O0101

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**Task Title:** Manually Initiate HPCI (Hard Card) (Alternate Path)

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Performance Checklist	Standards	Initials
29. Adjust FLOW CONTROLLER HPCI-FIC-108 setpoint to maintain desired HPCI flow, as necessary.	Operator attempts to control HPCI flow with the Set Tape.  <b>CUE:</b> HPCI flow remains almost zero, irrespective of Set Tape setting.	_____
30. Operator recognizes and reports failed controller	Operator reports to CRS that HPCI controller has failed in automatic.  <b>#CUE:</b> CRS acknowledges, directs operator to continue with HPCI injection	_____
31. Operator places HPCI controller in manual.	Operator turns HPCI controller AUTO/BAL/MAN switch to MAN.  <b>CUE:</b> HPCI controller AUTO/BAL/MAN switch is in MAN.	_____*
32. Operator adjusts HPCI controller in manual to control flow.	Operator turns HPCI controller manual knob clockwise to raise flow, counter-clockwise to lower flow until flow is $\geq 4250$ gpm.  <b>CUE:</b> HPCI flow responds to manual control knob adjustment as appropriate.	_____*
33. Operator reports HPCI is in injection mode at rated flow.	Operator reports HPCI is in injection mode at rated flow per the hard card.  <b>CUE:</b> CRS acknowledges report.	_____

## JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 206005O0101

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**Task Title:** Manually Initiate HPCI (Hard Card) (Alternate Path)

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### ATTACHMENT 1

#### SIMULATOR SET-UP

##### A. Materials required

None

##### C. Initialize the Simulator in any IC that will support HPCI injection mode after a scram (IC-18, 19 or 20 suggested)

Batch File name - none.

##### C. Change the Simulator conditions from those of the IC as follows:

###### 1. Triggers

<u>Number</u>	<u>File Name</u>	<u>Description</u>
	None	

###### 2. Malfunctions

<u>Number</u>	<u>Title</u>	<u>Trigger</u>	<u>TD</u>	<u>Severity</u>	<u>Ramp</u>	<u>Initial</u>
RC01	RCIC System Failure to Auto Start	A	N/A	N/A	N/A	N/A
HP01	HPCI System Failure to Auto Start	A	N/A	N/A	N/A	N/A

###### 3. Remotes

<u>Number</u>	<u>Title</u>	<u>Trigger</u>	<u>TD</u>	<u>Value</u>	<u>Ramp</u>
	None				

**JOB PERFORMANCE MEASURE FOR OPERATIONS**

Task No.: 206005O0101

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**Task Title:** Manually Initiate HPCI (Hard Card) (Alternate Path)

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4. Overrides

<u>Instrument</u>	<u>Tag</u>	<u>Trigger</u>	<u>TD</u>	<u>Value</u>	<u>Ramp</u>
HPCI Set Tape	ZAIHPCIFIC108[2]	A	0	200	0

5. Panel Set-up (suggested. Any setup is allowed that supports performance of the HPCI injection mode)
  - a. Insert listed overrides and malfunctions.
  - b. Place the Simulator in RUN.
  - c. Trip both RFPs.
  - d. Trip the CRD pump.
  - e. Reset HPCI high level trip signal (if present).
  - f. Place the Simulator in FREEZE.

Note: If this JPM is to be performed more than once, snap the Simulator into an IC after the panel set-up is complete.

## **ATTACHMENT 2**

### **Directions to Trainee:**

When I tell you to begin, you are to operate HPCI in the injection mode at rated flow using the hard card. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

### **If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

### **If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

### **General Conditions:**

16. The Reactor is shutdown following a scram.
17. Reactor pressure is being maintained by another operator.
18. Suppression Pool Cooling will be placed in service by another operator.
19. SBTG and REC have been aligned to support HPCI operation.

### **Initiating Cue(s):**

The Control Room Supervisor directs you to place HPCI in the injection mode at rated flow using the hard card. Inform the CRS when HPCI is injecting at rated flow.

Task No.: 213003P0101

=====  
**Task Title:** Verify a Group 3 Primary Containment Isolation  
(Alternate Path)  
=====

Trainee:  
Examiner:

Pass:\_\_\_\_\_ Fail:\_\_\_\_\_ Examiner Signature:  
Date:

**NOTE - THIS IS AN ALTERNATE PATH JPM.**

**Additional Program Information:**

1. Appropriate Performance Locations: CR / SIM
2. Appropriate Trainee level: RO / SRO / STE
3. Evaluation Method: Perform \_\_\_\_\_ Simulate \_\_\_\_\_
4. Performance Time: 8 minutes
5. NRC K/As 2.1.31 (4.2/3.9) and 223002 A4.01 (3.6/3.5)

**Directions to Examiner:**

**NOTE:**THIS IS AN **ALTERNATE PATH** JPM. THE RWCU-MO-15 and RWCU-MO-18  
WILL FAIL TO AUTOMATICALLY CLOSE AND MUST BE MANUALLY  
CLOSED.

15. This JPM evaluates the trainee's ability to verify a Group 3 Primary Containment Isolation per the hard card in procedure 2.1.22, Recovering from a Group Isolation.
16. This JPM is an alternate path, it evaluates the trainee's ability to identify a failure of Group 3 Primary Containment Isolation valves to close and to take action to ensure the Primary Containment Isolation occurs.
17. If this JPM is performed on the Simulator, only the cues preceded by “#” should be given.
18. All blanks must be filled out with either initials or an “NP” for “not performed”; an explanation may also be written in the space, if desired, by the examiner.
19. IF asked, it is acceptable to use the hard card to perform the isolation verification.

Task No.: 213003P0101

=====  
**Task Title:** Verify a Group 3 Primary Containment Isolation  
(Alternate Path)  
=====

20. Give the trainee his copy of the Directions to the Trainee (Attachment 2) when ready to start the JPM.
21. Brief the trainee, place the Simulator in RUN, and tell the trainee to begin.

**Directions to Trainee:**

When I tell you to begin, you are to verify a Group 3 Primary Containment Isolation using the hard card. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

**If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

**If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

**General Conditions:**

20. The Reactor is shutdown following a transient and scram.
21. EOP 1A has been entered.

**General References:**

1. Procedure 2.1.22, Recovering from a Group Isolation.

**General Tools and Equipment:**

1. None

**Special Conditions, References, Tools, Equipment:**

Task No.: 213003P0101

=====  
**Task Title:** Verify a Group 3 Primary Containment Isolation  
(Alternate Path)  
=====

1. Simulator Setup: See Attachment 1.
2. Critical steps denoted by "\*".
3. Simulator cues denoted by "#".

**Task Standards:**

3. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

**Initiating Cue(s):**

The Control Room Supervisor directs you to verify a Group 3 Primary Containment Isolation. Inform the CRS when you have completed the verification.

Task No.: 213003P0101

=====

**Task Title:** Verify a Group 3 Primary Containment Isolation  
 (Alternate Path)

=====

Performance Checklist	Standards	Initials
34. Obtains 2.1.22 Attachment 1 Hard Card (or 2.1.22).	Hard Card (or procedure 2.1.22) obtained	
35. Verifies Group 3 isolation signal is present.	Observes the four Group 3 Isolation Indicating lights on panel 9-5 are OFF.  <b>CUE:</b> Channel A and B (4) White indicating lights are OFF.	
36. Verifies RWCU-MO-15 is closed.	Operator observes indicating lights for RWCU-MO-15 on panel 9-3 and determines valve failed to close.  <b>CUE:</b> The green light is OFF and the Red light is ON.	
37. Manually closes RWCU-MO-15.	Operator places the control switch for RWCU-MO-15 in CLOSE and observes the green light ON and the red light OFF.  <b>CUE:</b> When control switch is placed to CLOSE then green light is ON and red light is OFF.	*
38. Verifies RWCU-MO-18 is closed.	Operator observes indicating lights for RWCU-MO-18 on panel 9-3 and determines valve failed to close.	



Task No.: 213003P0101

=====

**Task Title:** Verify a Group 3 Primary Containment Isolation  
 (Alternate Path)

=====

Performance Checklist	Standards	Initials
	<b>CUE:</b> The green light is OFF and the Red light is ON.	
39. Manually closes RWCU-MO-18.	Operator places the control switch for RWCU-MO-18 in CLOSE and observes the green light ON and the red light OFF.  <b>CUE:</b> When control switch is placed to CLOSE then green light is ON and red light is OFF.	*
40. Crack open RWCU-MO-74, Demin Suction Bypass Valve.	Operator places the control switch for RWCU-MO-74 in OPEN position until dual valve position indication is observed.  <b>CUE:</b> Both green light and red light are ON.	
41. Informs CRS that the group 3 isolation has been verified.	CRS informed that the Group 3 isolation is verified and that RWCU-MO-15 and 18 failed to isolate and were manually closed.  <b>#CUE:</b> As the CRS acknowledge the report.	

Task No.: 213003P0101

=====  
**Task Title:** Verify a Group 3 Primary Containment Isolation  
(Alternate Path)  
=====

**ATTACHMENT 1**

**SIMULATOR SET-UP**

A. Materials required

None

B. Initialize the Simulator in any IC with the reactor at 100% power.(IC-18, 19 or 20 suggested)

Batch File name - none.

C. Change the Simulator conditions from those of the IC as follows:

1. Triggers

<u>Number</u>	<u>File Name</u>	<u>Description</u>
E8	Group 2 isolation	zlopccisrelk5ac[1]==0

2. Malfunctions

<u>Number</u>	<u>Title</u>	<u>Trigger</u>	<u>TD</u>	<u>Severit</u> <u>Y</u>	<u>Ramp</u>	<u>Initi</u> <u>al</u>
RP12	Group 3 Isolation Failure	A	0	NA	NA	NA

3. Remotes

<u>Number</u>	<u>Title</u>	<u>Trigger</u>	<u>TD</u>	<u>Value</u>	<u>Ramp</u>
None					

Task No.: 213003P0101

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**Task Title:** Verify a Group 3 Primary Containment Isolation  
(Alternate Path)

=====

4. Overrides

<u>Instrument</u>	<u>Tag</u>	<u>Trigge r</u>	<u>TD</u>	<u>Value</u>	<u>Ramp</u>
Group 3 ISOL IND LIGHT	zlopcisrelk26(1)	8	0	OFF	0
Group 3 ISOL IND LIGHT	zlopcisrelk26(2)	8	0	OFF	0
Group 3 ISOL IND LIGHT	zlopcisrelk27(1)	8	0	OFF	0
Group 3 ISOL IND LIGHT	zlopcisrelk27(2)	8	0	OFF	0

5. Panel Set-up (suggested. Any setup that results in a Group 3 isolation signal.)

a. Place the Simulator in RUN.

Insert a scram.

c. Verify a Group 3 isolation signal is present (low reactor water level).

i. Place the Simulator in FREEZE.

Note: If this JPM is to be performed more than once, snap the Simulator into an IC after the panel set-up is complete.

## **ATTACHMENT 2**

### **Directions to Trainee:**

When I tell you to begin, you are to Verify a Group 3 Primary Containment Isolation per the hard card. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

### **If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

### **If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

### **General Conditions:**

- b. The Reactor is shutdown following a transient and scram.
- c. EOP 1A has been entered.

### **Initiating Cue(s) :**

The Control Room Supervisor directs you to verify a Group 3 Primary Containment Isolation. Inform the CRS when you have completed the verification.

Task Number: 245056G0101

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Transfer of 4160V Bus 1G from DG2 to Emergency Transformer

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Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Additional Program Information:**

1. Appropriate Performance Locations: CR / SIM
2. Appropriate Trainee level: RO / SRO
3. Evaluation Method: \_\_\_ Simulate \_\_\_ Perform
4. Performance Time: 20 minutes
5. NRC K/A:262001 A4.04 (3.6/3.7)

**Directions to Examiner:**

22. This JPM evaluates the trainee's ability to perform transfer of 4160 bus 1G from DG2 to the Emergency Transformer.
23. If this JPM is performed on the Simulator, only the cues preceded by “#” should be given.
24. All blanks must be filled out with either initials or an “NP” for “not performed”; an explanation may also be written in the space, if desired, by the examiner.
25. Give the trainee his copy of the Directions to the Trainee (Attachment 2) when ready to start the JPM.
26. Brief the trainee, place the Simulator in RUN, and tell the trainee to begin.

**Directions to Trainee:**

When I tell you to begin, you are to perform the required actions to transfer 4160V bus 1G from DG2 to the Emergency Transformer. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

**If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

**If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

Task Number: 245056G0101

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Transfer of 4160V Bus 1G from DG2 to Emergency Transformer

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**General Conditions:**

1. DG2 is supplying 4160 VAC bus 1G.
2. The Emergency Transformer is available.
3. Breaker 1GB has failed.

**General References:**

1. Procedure 2.2.18, 4160V Auxiliary Power Distribution System
2. Procedure 2.2.20.1, Diesel Generator Operations

**General Tools and Equipment:**

1. None

**Special Conditions, References, Tools, Equipment:**

1. Simulator Setup: See Attachment 1.
2. Critical steps denoted by “\*”.
3. Simulator cues denoted by “#”.

**Task Standards:**

22. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

**Initiating Cue(s):**

The Control Room Supervisor directs you to perform transfer of 4160V bus 1G from DG2 to the Emergency Transformer. Inform Control Room Supervisor when 4160V bus 1G is being carried by the Emergency Transformer.

Task Number: 245056G0101

Transfer of 4160V Bus 1G from DG2 to Emergency Transformer

Performance Checklist	Standards	Initials
1. Obtain copy of 2.2.18 and 2.2.20.1.	Operator obtains a copy of procedure 2.2.18 and 2.2.20.1.	_____
2. Ensure risk has been assessed, per Procedure 0.49, for placing Breaker 1FS, EMERGENCY XFMR BKR, for Bus 1F in PULL-TO-LOCK	The operator determines that risk need not be assessed as breaker is already open due to a failure.  <b>#CUE:</b> IF asked as CRS, inform the operator that risk has been evaluated.	_____
3. Ensure the Emergency Transformer is energized	The operator verifies voltage available from the Emergency Transformer.  <b>CUE:</b> Emergency Transformer secondary voltage is 4440VAC.	_____
4. Inform Shift Manager both off-site circuits are inoperable.	Inform Shift Manager to declare both off-site circuits inoperable and to enter the appropriate Condition and Required Action of LCO 3.8.1, AC Sources - Operating.  <b>#CUE:</b> SM acknowledges the information.	_____
5. Verify 1GS racked in.	Ensure Breaker 1GS, EMERGENCY TRANSFORMER FEED TO 4160V BUS 1G, is racked in.  <b>CUE:</b> 1GS Breaker RED light OFF, GREEN light ON.	_____

Task Number: 245056G0101

Transfer of 4160V Bus 1G from DG2 to Emergency Transformer

Performance Checklist	Standards	Initials
6. Start signals clear	<p>Ensure DG2 auto start signals clear.</p> <p><b>CUE:</b> Drywell pressure is .5 pig and steady Reactor water level being controlled 15" to 40".</p> <p><b>CUE:</b> 4160V Bus 1F/1G are energized</p>	_____
7. Depress local RESET button	<p>Direct SO to locally at DG2 Control Panel, press and release EMERGENCY to NORMAL RESET button</p> <p><b>#CUE:</b> Station Operator reports EMERGENCY to NORMAL RESET button has been depressed and released</p>	_____ *
8. Place into Droop Parallel to Parallel.	<p>Direct SO to locally at DG2 Control Panel, ensure DROOP PARALLEL switch is in PARALLEL.</p> <p><b>#CUE:</b> Station Operator reports DROOP PARALLEL switch is in PARALLEL.</p>	_____ *
9. Speed control check	<p>Adjust speed of DG2 by placing DIESEL GEN 2 GOVERNOR SWITCH to RAISE or LOWER to verify DG2 frequency control.</p> <p><b>CUE:</b> DG2 frequency is 59.6 Hz</p> <p><b>CUE:</b> DG2 frequency rises to 60.0 Hz</p>	_____



Task Number: 245056G0101

Transfer of 4160V Bus 1G from DG2 to Emergency Transformer

Performance Checklist	Standards	Initials
10. Voltage control check	<p>Adjust voltage of DG2 by placing DIESEL GEN 2 VOLTAGE REGULATOR switch RAISE or LOWER to maintain DG2 voltage at 4160 volts.</p> <p><b>CUE:</b> DG voltage is 4050 volts.</p> <p><b>CUE:</b> DG voltage rises to 4160 volts.</p>	_____
11. Synch switch to 1GS	<p>Place SYNCH SWITCH 1GS to 1GS.</p> <p><b>CUE:</b> SYNCH SWITCH is in 1GS position</p>	_____ *
12. Adjust speed	<p>Using DIESEL GEN 2 GOVERNOR switch, adjust engine speed so SYNCHROSCOPE is rotating very slowly in counter-clockwise (slow) direction.</p> <p><b>CUE:</b> If the operator indicates that he is placing the governor switch to raise indicate that the SYNCHROSCOPE is speeding up in the clockwise (fast) direction.</p> <p><b>CUE:</b> If the operator indicates that he is placing the governor switch to lower indicate that the SYNCHROSCOPE starting to rotate in the counter-clockwise (slow) direction.</p>	_____

Task Number: 245056G0101

Transfer of 4160V Bus 1G from DG2 to Emergency Transformer

Performance Checklist	Standards	Initials
13. Adjust voltage	<p>Using DIESEL GEN 2 VOLTAGE REGULATOR switch, adjust Bus 1G voltage to slightly lower than EMERGENCY XFMR VOLTAGE</p> <p><b>CUE:</b> (Before adjustment) DG2 Voltage reads 4160 volts.</p> <p><b>CUE:</b> XFMR Transformer voltage is 4449 volts.</p> <p><b>CUE:</b> (after adjustment) DG2 voltage reads 4430 volts.</p>	_____ *
14. Close 1GS	<p>When SYNCHROSCOPE is at 1 o'clock, the operator closes Breaker 1GS and check switch spring returns to NORMAL AFTER CLOSE (red flagged)</p> <p><b>CUE:</b> Switch returns to center position (red flagged). 1GS Breaker , GREEN light is OFF, RED light is ON.</p>	_____ *
15. Adjust kVARS	<p>The Operator adjust DG2 kVARS so that they are slightly positive (~200 kVARS) using DIESEL GEN 2 VOLTAGE REGULATOR switch. (100 - 300 KVARs)</p> <p><b>CUE:</b> DG2 kVARS reads 40 kVARS</p> <p><b>CUE:</b> DG2 kVARS reads 200 kVARS</p>	_____

Task Number: 245056G0101

Transfer of 4160V Bus 1G from DG2 to Emergency Transformer

Performance Checklist	Standards	Initials
16. Bkr 1FS Pull-To-Lock.	<p>Verify switch for 1FS in PULL-TO-LOCK (PTL)</p> <p><b>CUE:</b> 1FS Breaker is still tagged</p>	_____
17. Lower DG2 Load	<p>Reduce load on DG2 to 1000 KW using DIESEL GEN 2 GOVERNOR switch.</p> <p><b>CUE:</b> DG2 load is 2200 KW</p> <p><b>CUE:</b> DG2 load is 1000 KW</p>	_____
18. Place SYNCH SWITCH to OFF	<p>Place SYNCH SWITCH 1GS to OFF</p> <p><b>CUE:</b> SYNCH SWITCH is in OFF</p>	_____
19. DG2 Cooldown	<p>After engine has cooled and cylinder exhaust temperature have dropped (~5 minutes), remove DG2 from services per 2.2.20.1.</p> <p><b>#CUE:</b> Five minutes have elapsed.</p> <p><b>#CUE:</b> Station Operator reports engine temperatures are cooling down.</p>	_____
20. Lower DG2 load (2.2.20.1)	<p>Lower DG2 load to <math>\geq 400</math> kW and <math>\leq 1000</math> kW</p> <p><b>CUE:</b> DG2 load is 600 kW</p> <p><b>#CUE:</b> 15 minutes have elapsed.</p>	_____

Task Number: 245056G0101

Transfer of 4160V Bus 1G from DG2 to Emergency Transformer

Performance Checklist	Standards	Initials
21. Lower to 400 KW	Lower DG2 load to 400 KW  <b>CUE:</b> DG2 load is 400 kW	_____
22. Lower kVARs	Reduce DG2 kVARs as low as possible.  <b>CUE:</b> DG2 kVARs is 50 KVA	_____
23. Open EG2	Open DIESEL GEN 2 BKR EG2  <b>CUE:</b> BKR EG2 is NORMAL AFTER TRIP (green flagged). Green light is ON. Red light is OFF.	_____ *
24. Inform CRS	Inform CRS that the Emergency Transformer is carrying 4160 V Bus 1G.  <b>CUE:</b> CRS acknowledges. This JPM is complete. (Stop JPM at this point even if candidate continues.)	_____

Task Number: 245056G0101

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Transfer of 4160V Bus 1G from DG2 to Emergency Transformer

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**ATTACHMENT 1**

**SIMULATOR SET-UP**

A. Materials required

None

B. Initialize the Simulator in any at power IC (IC-18, 19 or 20 suggested)

Batch File name - none.

C. Change the Simulator conditions from those of the IC as follows:

1. Triggers

<u>Number</u>	<u>File Name</u>	<u>Description</u>
None		

2. Malfunctions

<u>Number</u>	<u>Title</u>	<u>Trigger</u>	<u>TD</u>	<u>Severity</u>	<u>Ramp</u>	<u>Initial</u>
None						

3. Remotes

<u>Number</u>	<u>Title</u>	<u>Trigger</u>	<u>TD</u>	<u>Value</u>	<u>Ramp</u>
None					

4. Overrides

<u>Instrument</u>	<u>Tag</u>	<u>Trigger</u>	<u>TD</u>	<u>Value</u>	<u>Ramp</u>
None					

Task Number: 245056G0101

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Transfer of 4160V Bus 1G from DG2 to Emergency Transformer

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5. Panel Set-up (suggested. Any setup is allowed that supports performance of the bus transfer)
  - a. Place Bkr 1FS & 1GB in PTL and place Danger Tag on C/S
  - b. Place 2nd SW pump B in service
  - c. Place B RHR loop in Suppression Pool Cooling using Div 2 power sources
  - d. Place Bkr 1GS to NORMAL AFTER TRIP
  - e. At DG2 local panel, depress & release EMERGENCY to NORMAL RESET pushbutton.
  - f. At DG2 local panel, place DROOP PARALLEL switch in PARALLEL.

Note: If this JPM is to be performed more than once, snap the simulator into an IC after the panel setup is complete.

## **ATTACHMENT 2**

### **Directions to Trainee:**

When I tell you to begin, you are to perform the required actions to transfer 4160V bus 1G from DG2 to the Emergency Transformer. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

### **If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

### **If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

### **General Conditions:**

1. DG2 is supplying 4160 VAC bus 1G.
2. The Emergency Transformer is available.
3. Breaker 1GB has failed.

### **Initiating Cues:**

The Control Room Supervisor directs you to perform transfer of 4160V bus 1G from DG2 to the Emergency Transformer. Inform Control Room Supervisor when 4160V bus 1G is being carried by the Emergency Transformer.

Task Number: 200363G0501

Install EOP PTMs 57, 58, 59 and 60

Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass:\_\_\_ Fail:\_\_\_ Examiner Signature:\_\_\_\_\_ Date:\_\_\_\_\_

**Additional Program Information:**

- 1) Appropriate Performance Locations: Simulator
- 2) Appropriate Trainee Level: SO / RO / SRO
3. Evaluation Method: \_\_\_ Simulate \_\_\_ Perform
4. Performance Time: 10 minutes
5. NRC K/A 295037 EA1.11 (3.5/3.6),

**Directions to Examiner:**

1. This JPM evaluates the trainee's ability to Install the EOP PTMs that bypass the low level group 1 isolation during an ATWAS.
2. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space, if desired, by the examiner.
3. Give the trainee his copy of the Directions to the Trainee (Attachment 1) when ready to start the JPM.
4. Brief the trainee and tell the trainee to begin.

**Directions to Trainee:**

When I tell you to begin, you are to install EOP PTMs 57, 58, 59 and 60 to bypass the low level group 1 isolation. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

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Task Number: 200363G0501

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Install EOP PTMs 57, 58, 59 and 60

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**General Conditions:**

23. An ATWAS has occurred.
2. The MSIVs are open.

**General References:**

1. EMERGENCY OPERATING PROCEDURE 5.8.20.

**General Tools and Equipment:**

1. Safety Glasses
2. Electrical Safety Equipment

**Special Conditions, References, Tools, Equipment:**

1. Critical checks denoted by "\*\*."

**Task Standards:**

4. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

**Initiating Cue(s):**

The CRS directs you to bypass the low level MSIV isolation per 5.8.20 and to inform him when it is complete.

Task Number: 200363G0501

Install EOP PTMs 57, 58, 59 and 60

Performance Checklist	Standards	Initials
3. Obtain a copy of EOP 5.8.20.	Current revision of EOP 5.8.20 is obtained.	_____
4. Verifies the MSIVs are OPEN.	MSIV position is verified.  <b>CUE:</b> All MSIV red position indicating lights are lit and the green lights are extinguished.	_____
5. Ensure following RR sample valves CLOSED.	Ensure following valves closed (PNL 9-4) : RR-AO-740, OUTBD ISOL VLV and RR-AO-741, IND ISOL VLV .  <b>CUE:RR-AO-740, OUTBD ISOL VLV and RR-AO-741, IND ISOL VLV GREEN lights ON RED lights OFF.</b>	_____
<b>Caution: If the student fails to put on safety glasses prior to installing the PTMs the JPM cannot proceed. If the JPM is being used for evaluation purposes the JPM is concluded at that point and marked unsat.</b>		
6. Puts on required safety equipment.	As a minimum safety glass are worn during the performance of this task.	_____*
7. Install EOP PTM Number 57 by jumpering between Terminals DD1 and DD2 (BAY-1, PNL 9-15).	EOP PTM Number 57 installed.  <b>CUE:</b> Jumper is installed.	_____*
8. Install EOP PTM Number 58 by jumpering between Terminals BB1 and BB2 (BAY-3, PNL 9-15).	EOP PTM Number 58 installed.  <b>CUE:</b> Jumper is installed.	_____*
9. Install EOP PTM Number 59 by jumpering between Terminals DD1 and DD2 (BAY-1, PNL 9-17).	EOP PTM Number 59 installed.  <b>CUE:</b> Jumper is installed.	_____*
10. Install EOP PTM Number 60 by jumpering between Terminals BB1 and BB2 (BAY-3, PNL 9-17).	EOP PTM Number 60 installed.  <b>CUE:</b> Jumper is installed.	_____*

Task Number: 200363G0501

Install EOP PTMs 57, 58, 59 and 60

Performance Checklist	Standards	Initials
11. Informs the CRS that the low level MSIV isolation is bypassed per 5.8.20.	CRS is informed.  <b>CUE:</b> As the Control Room Supervisor acknowledge the report.	  _____

## **ATTACHMENT 1**

When I tell you to begin, you are to install EOP PTMs 57, 58, 59 and 60 to bypass the low level group 1 isolation. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

### **General Conditions:**

1. An ATWAS has occurred.
2. The MSIVs are open.

### **Initiating Cues:**

The CRS directs you to bypass the low level MSIV isolation per 5.8.20 and to inform him when it is complete.

## JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 208018C0101

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**Task Title:** Align REC after REC isolation on Low Pressure

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Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### Additional Program Information:

1. Appropriate Performance Locations: CR/SIM
2. Appropriate Trainee Level: RO/SRO
3. Evaluation Method: ☐ Simulate ☐ Perform
4. Performance Time: 10 minutes
5. NRC K/A 295018; AA1.03 (3.3/3.4)

### Directions to Examiner:

1. This JPM evaluates the trainee's ability to Restore REC after REC isolation on Low Pressure.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. All blanks must be filled out with either initials or an "NP" for "not performed", an explanation may also be written in the space, if desired, by the examiner.

### Directions to Trainee:

When I tell you to begin, you are to restore REC flow for Drywell Cooling after REC isolation on Low Pressure, per the Hardcard.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to restore REC flow for Drywell Cooling after REC isolation on Low Pressure.

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### General Conditions:

1. The Reactor was scrammed due to loss of REC per 5.2REC.
2. REC Isolation was due to REC Augmented Radwaste Supply pipe break down stream of REC-MO-1329, AUGMENTED RADWASTE SUPPLY
3. The REC pipe break has been isolated.

**JOB PERFORMANCE MEASURE FOR OPERATIONS**

Task No.: 208018C0101

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**Task Title:** Align REC after REC isolation on Low Pressure

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## JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 208018C0101

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**Task Title:** Align REC after REC isolation on Low Pressure

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### General References:

SOP 2.2.65.1

### General Tools and Equipment:

None

### Special Conditions, References, Tools, Equipment:

1. Simulator Setup: See Attachment 1.
2. Critical checks denoted by "\*\*".
3. Simulator cues denoted by "#".
4. Faulted steps denoted by "◆".

### Task Standards:

5. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

### Initiating Cue(s):

You are the Balance of Plant Operator. The CRS has directed you restore REC after REC isolation on Low Pressure

Inform the CRS when REC is restored for Drywell Cooling

NOTE: Tell Trainee to begin. Place Simulator in RUN

## JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 208018C0101

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**Task Title:** Align REC after REC isolation on Low Pressure

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Performance Checklist	Standards	Initials
1. Obtain copy of SOP 2.2.65.1	The operator obtains a copy of SOP 2.2.65.1 or Hard Card.  CUE: None.	_____
2. Determine cause of REC isolation	Ensure low pressure isolation not due to leakage or leak isolated.  CUE: REC piping break has been repaired.	_____*
3. Verify two REC pumps in Operation	Ensure two REC pumps are running.  CUE: REC Pumps B and D are in service.	_____*
4. Verify REC critical loop supplied.	Ensure one of following valves are OPEN: REC-MO-711, NORTH CRITICAL LOOP SUPPLY. Or REC-MO-714, SOUTH CRITICAL LOOP SUPPLY.  CUE: REC-MO-711, NORTH CRITICAL LOOP SUPPLY and REC-MO-714, SOUTH CRITICAL LOOP SUPPLY are OPEN	_____*



## JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 208018C0101

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**Task Title:** Align REC after REC isolation on Low Pressure

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Performance Checklist	Standards	Initials
5. Checking Drywell Temperature	<p>If drywell temperature <math>\leq 260^{\circ}\text{F}</math> on PC-TI-505A through PC-TI-505E, place DRYWELL REC ISOL VALVE CONTROL switch to OPEN.</p> <p>CUE: PC-TI-505A through PC-TI-505E reading <math>253^{\circ}\text{F}</math>.</p>	_____*
6. Throttle open REC HX outlet valve	<p>Throttle open REC HX outlet valve for a HX that was in service, as necessary, while maintaining REC CRIT LOOP SUPPLY PRESS in green band.</p> <p>REC-MO-712, HX A OUTLET VLV. REC-MO-713, HX B OUTLET VLV.</p> <p>CUE: REC-MO-712, HX A OUTLET VLV is open.</p>	_____
7. Start third REC pump	<p>Start third REC pump.</p> <p>CUE: REC Pump C is in service</p>	_____*
8. Throttle open REC HX outlet valve	<p>Throttle open REC HX outlet valve, as necessary, to obtain following conditions: REC CRIT LOOP SUPPLY PRESS <math>\geq 62</math> psig. REC HEADER PRESSURE in top of green band.</p> <p>CUE: REC-MO-712, HX A OUTLET VLV is open.</p>	_____*

## JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 208018C0101

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**Task Title:** Align REC after REC isolation on Low Pressure

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Performance Checklist	Standards	Initials
9. Open REC-MO-700, NON-CRITICAL HEADER SUPPLY.	Perform following simultaneously: Open REC-MO-700, NON-CRITICAL HEADER SUPPLY. Continue throttling open REC HX outlet valve, as necessary, to maintain REC HEADER PRESSURE in green band.  CUE: REC-MO-700, NON-CRITICAL HEADER SUPPLY is open.	_____*
10. Ensure REC HX outlet valve full open	Ensure REC HX outlet valve full open.  CUE: REC-MO-712, HX A OUTLET VLV is open.	_____*
11. Open REC-AO-710, RWCU NON-REGEN HX INLET	If REC-AO-710, RWCU NON-REGEN HX INLET, not closed for leak isolation, open REC-AO-710.  CUE: REC-MO-712, HX A OUTLET VLV is open.	_____*
12. Verify REC-MO-1329, AUGMENTED RADWASTE SUPPLY is closed.	If REC-MO-1329, AUGMENTED RADWASTE SUPPLY, not closed for leak isolation and cooling desired, open REC-MO-1329.  CUE: REC-MO-1329, AUGMENTED RADWASTE SUPPLY, is closed.	_____*
13. DRYWELL REC ISOL VALVE CONTROL switch to AUTO	Place DRYWELL REC ISOL VALVE CONTROL switch to AUTO.  CUE: REC-MO-712, HX A OUTLET VLV is open.	_____*

**JOB PERFORMANCE MEASURE FOR OPERATIONS**

Task No.: 208018C0101

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**Task Title:** Align REC after REC isolation on Low Pressure

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Performance Checklist	Standards	Initials
14. Notify CRS.	Notify CRS that REC is restored for Drywell Cooling  <b>#CUE:</b> Respond as the CRS and acknowledge the report.	

**ATTACHMENT 1****SIMULATOR SET-UP****A. Materials Required**

SOP 2.2.65.1

**B. Initialize the Simulator in IC-20 or any IC that will support REC isolation.****C. Change the simulator conditions as follows:**

1. Perform Mitigating Scram Actions.
2. Close the in service heat exchanger outlet valve until the REC system isolates on low pressure. Close REC-MO-1329, AUGMENTED RADWASTE SUPPLY
3. Place simulator in freeze.

Note: If this JPM is to be performed more than once, snap the simulator into an available IC after the panel setup is complete.

## **ATTACHMENT 2**

### **Directions to Trainee:**

When I tell you to begin, you are to restore REC flow for Drywell Cooling after REC isolation on Low Pressure, per the Hardcard.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to restore REC flow for Drywell Cooling after REC isolation on Low Pressure.

### **General Conditions:**

1. The Reactor was scrammed due to loss of REC per 5.2REC.
2. REC Isolation was due to REC Augmented Radwaste Supply pipe break down stream of REC-MO-1329, AUGMENTED RADWASTE SUPPLY
3. The REC pipe break has been isolated.

### **Initiating Cues:**

You are the Balance of Plant Operator. The CRS has directed you restore REC after REC isolation on Low Pressure

Inform the CRS when REC is restored for Drywell Cooling.

Task No.: 261003O0101

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**Task Title: SGT SYSTEM SUPPORT FOR HPCI OPERATIONS (Alternate Path)**

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Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Time Started: \_\_\_\_\_ Time Finished: \_\_\_\_\_

**THIS IS AN ALTERNATE PATH JPM**

**Additional Program Information:**

1. Appropriate Performance Locations: CR / SIM
2. Appropriate Trainee level: RO / SRO
3. Evaluation Method: \_\_\_ Simulate \_\_\_ Perform
4. Performance Time: 15 minutes
5. NRC K/A 261000 A4.03 (3.0/3.0)

**Directions to Examiner:**

1. This JPM evaluates the trainee's ability to manipulate the SGT controls in order to start SGT in support of HPCI operation.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space if desired by the examiner.
4. Give the trainee his copy of the Directions to the Trainee (Attachment 2) when ready to start the JPM.
5. Brief the trainee, place the simulator in run, and tell the trainee to begin.

**Directions to Trainee:**

When I tell you to begin, you are to start the SGT system to support HPCI operation. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

**If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

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**Task Title: SGT SYSTEM SUPPORT FOR HPCI OPERATIONS (Alternate Path)**

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**If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

**General Conditions:**

1. The Standby Gas Treatment System is required to support HPCI operation.

**General References:**

1. Procedure 2.2.73.

**General Tools and Equipment:**

1. None

**Special Conditions, References, Tools, Equipment:**

1. Simulator Setup: See Attachment 1.
2. Critical checks denoted by "\*\*\*".
3. Simulator cues denoted by "#".

**Task Standards:**

1. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

**Initiating Cue(s):**

The Control Room Supervisor directs you to start SGT to support HPCI operation. Inform the CRS when SGT is running to support HPCI.

**Task Title:** SGT SYSTEM SUPPORT FOR HPCI OPERATIONS (Alternate Path)

Performance Checklist	Standards	Initials
1. Obtains the current revision of Procedure 2.2.73.	Current revision of 2.2.73 is obtained.	_____
2. Determine the preferred SGT train.	SGT train 1A is determined to be the preferred train.	_____
3. Start EF-R-1E, SGT A EXHAUST FAN.	EF-R-1E, SGT A EXHAUST FAN switch is placed to RUN.  <b>CUE:</b> SGT Fan Red running light is ON and the Green light is OFF	_____*
4. Verifies the inlet and discharge valves OPEN.	Position of SGT-AO-249, SGT A INLET and SGT-AO-251, SGT A DISCHARGE are checked.  <b>CUE:</b> SGT-AO-249, SGT A INLET RED light is On and the GREEN light is OFF.  SGT-AO-251, SGT A DISCHARGE red light is ON and the GREEN light is OFF.	_____
5. Verifies SGT-DPIC-546 is in Manual.	SGT-DPIC-546 is verified in Manual.  <b>CUE:</b> SGT-DPIC-546 is in Manual.	_____
6. Toggles SGT-DPIC-546 until Parameter V is displayed.	D pushbutton is depressed until parameter V is displayed.  <b>CUE:</b> Parameter V is displayed.	_____*



**Task Title:** SGT SYSTEM SUPPORT FOR HPCI OPERATIONS (Alternate Path)

Performance Checklist	Standards	Initials
7. Adjusts SGT-DPIC-546 to ensure $\geq 800$ CFM	SGT-DPIC-546 is adjusted to obtain $\geq 800$ scfm on SGT-FI-545, SGT DISCHARGE HEADER FLOW.  <b>CUE:</b> SGT-FI-545 indicates 900 CFM.	_____*
8. Checks High Moisture is clear.	Checks that Annunciator K-1/A-2 "SGT A HI Moisture".  <b>CUE:</b> Annunciator is in alarm.	_____
9. Checks Annunciator K-1/A-2 "SGT A HI Moisture"	Checks Annunciator K-1/A-2 "SGT A HI Moisture" and informs CRS of Alarm  <b>#CUE:</b> CRS acknowledges the report and directs A SBGT be secured and B SBGT train started to support HPCI operation, alarm card actions will not be performed due to not emergency condition.	_____
10. Determines Reactor Building HV System Operation	Ensure Reactor Building H&V System running and maintaining Reactor Building pressure at $\leq -0.25$ " wg.  <b>CUE:</b> Reactor Building pressure at $-0.3$ " wg..	_____
11. Verifies SGT-DPIC-546 is in Manual.	SGT-DPIC-546 is verified in Manual.  <b>CUE:</b> SGT-DPIC-546 is in Manual.	_____

**Task Title:** SGT SYSTEM SUPPORT FOR HPCI OPERATIONS (Alternate Path)

Performance Checklist	Standards	Initials
12. Toggles SGT-DPIC-546 until Parameter V is displayed.	D pushbutton is depressed until parameter V is displayed.  <b>CUE:</b> Parameter V is displayed.	_____
13. Adjusts SGT-DPIC-546 to ensure ~ 100 CFM	SGT-DPIC-546 is adjusted to obtain ~ 100 scfm on SGT-FI-545, SGT DISCHARGE HEADER FLOW.  <b>CUE:</b> SGT-FI-545 indicates 100 CFM.	_____*
14. Check SGT heaters	Verifies SGT heaters are off.  <b>CUE:</b> SGT heaters GREEN lights ON, RED light OFF	_____
15. Stop EF-R-1E, SGT A EXHAUST FAN.	EF-R-1E, SGT A EXHAUST FAN switch is placed to AUTO.  <b>CUE:</b> SGT Fan Red running light is OFF and the Green light is ON	_____*
16. Verifies the inlet and discharge valves CLOSED.	Position of SGT-AO-249, SGT A INLET and SGT-AO-251, SGT A DISCHARGE are checked.  <b>CUE:</b> SGT-AO-249, SGT A INLET RED light is OFF and the GREEN light is ON.  SGT-AO-251, SGT A DISCHARGE red light is OFF and the GREEN light is ON.	_____

Task No.: 261003O0101

**Task Title:** SGT SYSTEM SUPPORT FOR HPCI OPERATIONS (Alternate Path)

Performance Checklist	Standards	Initials
17. Verifies SGT-AO-271, SGT B DILUTION AIR, in AUTO	Ensure SGT-AO-271, SGT B DILUTION AIR, in AUTO and valve closed.  <b>CUE:</b> SGT-AO-271, SGT B DILUTION AIR, in AUTO and valve RED light is OFF and the GREEN light is ON.	_____
18. Start EF-R-1F, SGT B EXHAUST FAN.	EF-R-1F, SGT B EXHAUST FAN switch is placed to RUN.  <b>CUE:</b> SGT Fan Red running light is ON and the Green light is OFF	_____*
19. Verifies the inlet and discharge valves OPEN.	Position of SGT-AO-250, SGT B INLET and SGT-AO-252, SGT B DISCHARGE are checked.  <b>CUE:</b> SGT-AO-250, SGT A INLET RED light is On and the GREEN light is OFF.  SGT-AO-252, SGT A DISCHARGE red light is ON and the GREEN light is OFF.	_____
20. Verifies SGT-DPIC-546 is in Manual.	SGT-DPIC-546 is verified in Manual.  <b>CUE:</b> SGT-DPIC-546 is in Manual.	_____
21. Toggles SGT-DPIC-546 until Parameter V is displayed.	D pushbutton is depressed until parameter V is displayed.  <b>CUE:</b> Parameter V is displayed.	_____*

Task No.: 261003O0101

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**Task Title: SGT SYSTEM SUPPORT FOR HPCI OPERATIONS (Alternate Path)**

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Performance Checklist	Standards	Initials
22. Adjusts SGT-DPIC-546 to ensure $\geq 800$ CFM	SGT-DPIC-546 is adjusted to obtain $\geq 800$ scfm on SGT-FI-545, SGT DISCHARGE HEADER FLOW.  <b>CUE:</b> SGT-FI-545 indicates 900 CFM.	_____*
23. Ensures High Moisture is clear.	Ensures that Annunciator K-2/A-2 "SGT B HI Moisture" is clear.  <b>CUE:</b> Annunciator is clear.	_____
24. Informs CRS that the task is complete.	CRS is informed.  <b>#CUE:</b> Acknowledge the report and inform the candidate that the JPM is complete.	_____

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**Task Title:** SGT SYSTEM SUPPORT FOR HPCI OPERATIONS (Alternate Path)

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**ATTACHMENT 1**

**SIMULATOR SET-UP**

A. Materials Required

None

B. Initialize the Simulator to a full power IC.

Batch File Name - none.

C. Change the Simulator conditions from those of the IC as follows:

1. Triggers

<u>Number</u>		<u>Description</u>
1	ZAOSGTFI545 >0.13	Ramps moisture reading when SBTG flow greater than 500 cfm

2. Malfunctions

<u>Number</u>	<u>Title</u>	<u>Trigger</u>	<u>TD</u>	<u>Severity</u>	<u>Ramp</u>	<u>Initial</u>
none						

3. Remotes

<u>Number</u>	<u>Title</u>	<u>Trigger</u>	<u>Value</u>	<u>Ramp</u>
<u>None</u>				

4. Overrides

<u>Instrument</u>	<u>Tag</u>	<u>Trigger</u>	<u>TD</u>	<u>Value</u>	<u>Ramp</u>
18A2M04 0 TO 100% SGT A CARBON FILTER INLET RH		1	30 sec	53.3358	30 sec
18A2M05 0 TO 100% SGT A HI-EFF FILTER RH INDICATOR		1	30 sec	53.3358	30 sec

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**Task Title: SGT SYSTEM SUPPORT FOR HPCI OPERATIONS (Alternate Path)**

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<u>Instrument</u>	<u>Tag</u>	<u>Trigger</u>	<u>TD</u>	<u>Value</u>	<u>Ramp</u>
K-1 A-02 SGT A MOISTURE HIGH		1	58 sec	OFF	

5. Panel Setup

- a. Ensure that SGT train 1A is the preferred SGT train.

Setup for the Exam:

- a) Initialize the simulator in any power IC.

Note: If this JPM is to be performed more than once, snap the simulator into an IC after the panel setup is complete.

## **ATTACHMENT 2**

### **Directions to Trainee:**

When I tell you to begin, you are to start the SGT system to support HCI operation.

### **If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

### **If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

### **General Conditions:**

1. The Standby Gas Treatment System is required to support HPCI operation.

### **Initiating Cues:**

The Control Room Supervisor directs you to start SGT to support HPCI operation. Inform the CRS when SGT is running to support HPCI.

Nebraska Public Power District  
Cooper Nuclear Station  
Course Type 7456

SKL034-10-95

Job Performance Measure for Operations  
Task No.: 200134I0504

Revision 03

=====  
**Task Title:** Respond to No Break Power Panel  
Failure (Control Bldg. Actions) (Alternate Path)  
=====

Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner \_\_\_\_\_ Date: \_\_\_\_\_  
Signature: \_\_\_\_\_

**THIS IS AN ALTERNATE PATH JPM**

**Additional Program Information:**

- 27. Appropriate Performance Locations: Plant
- 28. Appropriate Trainee Level: SO / RO / SRO
- 29. Evaluation Method: **Simulate**
- 30. Performance Time: 25 minutes
- 31. NRC K/A: 262002 K4.01(3.4/3.4)

**Directions to Examiner:**

**NOTE:** This is an **Alternate Path** JPM. The alternate source supplying load will not work and the manual bypass switch must be used.

- 24. This JPM evaluates the trainee's ability to respond to a no-break power panel failure
- 2. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space, if desired, by the examiner.
- 3. Give the trainee his copy of the Directions to the Trainee (Attachment 1) when ready to start the JPM.
- 4. Brief the trainee and tell the trainee to begin.



=====  
**Task Title:** Respond to No Break Power Panel  
Failure (Control Bldg. Actions) (Alternate Path)  
=====

**Directions to Trainee:**

When I tell you to begin you are to perform the assigned Control Building Operator's actions to respond to a no break power panel failure. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

=====  
**General Conditions:**

1. The plant has experienced a no break power panel failure.
2. The Rx has scrambled.
3. An attempt to transfer NBPP to MCC-R by placing NBPP PWR TRANSFER switch to MCC-R has failed.
4. The electricians have determined that the fault is not in the NBPP itself.
5. Both switches have been placed to ALT at the 120v AC supplies for the gaitronics.
6. Control Room Operators have performed actions 4.1 through 4.3.11 of 5.3NBPP.

**General References:**

1. 5.3NBPP (NO BREAK POWER FAILURE)

**General Tools and Equipment:**

- 1) Key for access to Control Building 903' doors.

**Special Conditions, References, Tools, Equipment:**

1. Critical checks denoted by "\*".

**Task Standards:**

Nebraska Public Power District  
Cooper Nuclear Station  
Course Type 7456

SKL034-10-95

Job Performance Measure for Operations  
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Revision 03

=====  
**Task Title:** Respond to No Break Power Panel  
Failure (Control Bldg. Actions) (Alternate Path)  
=====

- =
2. 100% of critical elements successfully completed without error.
  2. 100% of safety and radiological work practices.

**Initiating Cue(s) :**

You have been assigned to carry out actions for a no break power panel failure in accordance with 5.3NBPP. The Control Room Supervisor (CRS) directs you to perform all the necessary Control Building Operator's actions for restoring power from the Alternate Supply (MCC-R). Notify the CRS when the NBPP is energized.

=====

**Task Title:** Respond to No Break Power Panel  
Failure (Control Bldg. Actions) (Alternate Path)

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Performance Checklist	Standard	Initials
3. Obtain a copy of 5.3NBPP	Obtain a copy of 5.3NBPP, NO BREAK POWER FAILURE	_____ —
d. Ensure MCC-R FEED TO NBPP is in ON.	Ensure EE-DSC-NBPP(AC), MCC-R FEED TO NBPP TRANSFMR (Cable Spreading near NBPP), is in ON.  <b>CUE:</b> Indicate the handle is in the UP position.	_____ — *
e. Contact the Rx Building Operator.	Contacts the Reactor Building Operator to ensure that MCC-R, Breaker 2B, NO BREAK AC POWER SUPPLY, is closed and reset.  <b>CUE:</b> Respond as the Rx Bldg Operator, that MCC-R, Breaker 2B, NO BREAK AC POWER SUPPLY, is closed and reset.	_____ — *
f. Open breaker	At Inverter A, open INVERTER OUTPUT breaker.  <b>CUE:</b> Indicate the handle is in the DOWN position.	_____ — *
1. Ensure breaker is closed.	At Inverter A, ensure SUPPLY TO NBPP breaker is closed.  <b>CUE:</b> Indicate the handle is in the UP position.	_____ —

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**Task Title:** Respond to No Break Power Panel  
Failure (Control Bldg. Actions) (Alternate Path)

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Performance Checklist	Standard	Initials
2. Ensure breaker is closed.	At Inverter A, ensure ALTERNATE AC INPUT TO STATIC SWITCH breaker is closed.  <b>CUE:</b> Indicate the handle is in the UP position.	_____ —
3. Depress button.	At Inverter A, depress ALTERNATE SOURCE SUPPLYING LOAD button.  <b>CUE:</b> The red ALT SOURCE SUPPLYING LOAD light is off. (NBPP is still de-energized)	_____ —
g. Place MAN BP SW to ALT SOURCE TO LOAD.	Place MANUAL BYPASS SWITCH to ALTERNATE SOURCE TO LOAD.  <b>CUE:</b> Point to ALTERNATE SOURCE TO LOAD position.	_____ — *
h. Depress ALT SOURCE SUPPLYING LOAD button.	Depress ALTERNATE SOURCE SUPPLYING LOAD button.  <b>CUE:</b> The red ALT SOURCE SUPPLYING LOAD light is on. (NBPP is energized)	_____ — *
NOTE: The Gaitronics do not need to be transferred		
i. Notifies CRS.	Notifies CRS that NBPP is	

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**Task Title:** Respond to No Break Power Panel  
Failure (Control Bldg. Actions) (Alternate Path)  
=====

Performance Checklist	Standard	Initials
	energized.  <b>CUE:</b> As the CRS respond to the report.	 _____ —

**ATTACHMENT 1**

**Directions to Trainee:**

When I tell you to begin you are to perform the assigned Control Building Operator's actions to respond to a no break power panel failure. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

**General Conditions:**

1. The plant has experienced a no break power panel failure.
2. The Rx has scrambled.
3. An attempt to transfer NBPP to MCC-R by placing NBPP PWR TRANSFER switch to MCC-R has failed.
4. The electricians have determined that the fault is not in the NBPP itself.
5. Both switches have been placed to ALT at the 120v AC supplies for the gaitronics.
6. Control Room Operators have performed actions 4.1 through 4.3.11 of 5.3NBPP.

**Initiating Cues:**

You have been assigned to carry out actions for a no break power panel failure in accordance with 5.3NBPP. The Control Room Supervisor (CRS) directs you to perform all the necessary Control Building Operator's actions for restoring power from the Alternate Supply (MCC-R). Notify the CRS when the NBPP is energized.

Task Number: 200390A0501

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5.3ALT-STRATEGY, Inject Fire Protection Water to RHR

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Trainee: \_\_\_\_\_ Examiner: \_\_\_\_\_

Pass ☐ Fail ☐ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Additional Program Information:**

1. Appropriate Performance Locations: In Plant
2. Appropriate Trainee Levels: RO / SRO
3. Evaluation Method: Simulate
4. Performance Time: 15 minutes
5. NRC K/A 295003.AA1.03 (4.4 / 4.4)

**Directions to Examiner:**

1. This JPM evaluates the trainee's ability to inject fire protection water into the RHR System during a complete loss of AC and DC power.
2. If this JPM is to be performed on the Simulator, only the cues preceded by "#" should be given.
3. All blanks must be filled out with either initials or an "NP" for "not performed," and an explanation may also be written in the space if desired by the examiner.
4. Give the trainee his copy of the Directions to the Trainee (Attachment 1) when ready to start the JPM.
5. Brief the trainee and tell the trainee to begin.

**Directions to Trainee:**

When I tell you to begin, you are to perform the actions to align Fire Protection to RHR Subsystem "A", using SWBP "A" in accordance with Procedure 5.3ALT-STRATEGY. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation. **ALL PLANT ANNOUNCEMENTS WILL BE SIMULATED!**

Task Number: 200390A0501

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### 5.3ALT-STRATEGY, Inject Fire Protection Water to RHR

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#### **General Conditions:**

1. The Plant has experience a total loss of A/C and D/C power.
2. Reactor Pressure is 600 psig.
3. Procedure 5.3ALT-STRATEGY, Alternate Core Cooling Mitigating Strategies, has been entered.
4. Another SO has completed the breaker alignments per step 1.1 Attachment 1 of 5.3ALT-STRATEGY.
5. Fire Protection header is intact.

#### **General References:**

1. Procedure 5.3ALT-STRATEGY

#### **General Tools and Equipment:**

1. 3" Fire Hose
2. Fire hose Wrench

#### **Special Conditions, References, Tools, Equipment:**

1. Critical checks denoted by "\*"."
2. Simulator cues denoted by "#."

#### **Task Standards:**

1. 100% of critical elements successfully completed without error.
2. 100% of safety and radiological work practices.

#### **Initiating Cue(s):**

The CRS has directed you to align Fire Protection Water to RHR Subsystem "A" using SWBP "A" in accordance with 5.3ALT-STRATEGY, Attachment 1. You are to inform the CRS when Fire Protection Water is aligned to RHR.



Task Number: 200390A0501

5.3ALT-STRATEGY, Inject Fire Protection Water to RHR

Performance Checklist	Standards	Initials
32. Obtain procedure	The Operator obtains a copy of the current revision of procedure 5.3ALT-STRATEGY	_____
<p><b>NOTE</b> - Equipment is stored C-882-N by MCC-T.</p> <p><b>NOTE</b> – The Operator must show that they are capable of obtaining the required equipment, but does not have to take them to the specified locations, to get credit for the task element.</p>		
25. C-882 N, gets hose.	<p>The Operator obtains the 3" hose.</p> <p><b>CUE:</b> Hose is obtained.</p>	_____*
3. Remove existing 2½" hose at Hose Station No. 16	<p>The Operator removes the 2½" hose</p> <p><b>CUE:</b> The hose is removed.</p>	_____*
j. 4. C-882 N, attaches hose.	<p>The Operator attaches the 3" hose to FP-315, Hose Station No. 16.</p> <p><b>CUE:</b> The hose is attached.</p>	_____*
k. 5. C-882 N, removes pipe cap.	<p>The Operator removes the pipe cap from SW-641, GW System Supply from SWB Pump "A". (Outlet of SWBP "A" Pump Inlet Strainer)</p> <p><b>CUE:</b> The pipe cap is removed.</p>	_____*
l. 6. C-882 N, attaches hose.	<p>The Operator attaches the 3" hose to SW-641 connection.</p> <p><b>CUE:</b> The hose is attached.</p>	_____*

Task Number: 200390A0501

5.3ALT-STRATEGY, Inject Fire Protection Water to RHR

Performance Checklist	Standards	Initials
m. 7. C-882 N, ensures SW-84 is CLOSED.	The Operator ensures that the SW-77, SWBP "A" Suction valve is closed.  <b>CUE:</b> The hand wheel has stopped moving in the clockwise direction.	_____
n. 8. C-882 N, ensures the SW-121 is CLOSED.	The Operator ensures that the SW-121, Emergency Core Flooding Tell-Tale Drain valve is CLOSED. (SW-121 is in a contaminated area. He can call for RP support or obtain PCs, or since this is an Emergency Procedure, he can complete the task and then ask for RP support.)  <b>CUE:</b> The hand wheel has stopped moving in the clockwise direction.	_____
o. 9. C-882 N, ensures valve is OPEN.	The Operator ensures that the SW-119 Emergency Core Flooding Supply Root valve is OPEN.  <b>CUE:</b> The hand wheel has stopped moving in the counter-clockwise direction.	_____*
p. 10. C-882 N, ensures valve is OPEN.	The Operator ensures that the SW-120, Emergency Core Flooding Supply Shutoff valve is OPEN.  <b>CUE:</b> The hand wheel has stopped moving in the counter-clockwise direction.	_____*
q. 11. C-882 N, ensures valve is OPEN.	The Operator ensures that the SW-641, GW System Supply from SWBP "A" is OPEN.  <b>CUE:</b> The valve Operator has been turned Counter Clockwise now is pointing straight up.	_____*

Task Number: 200390A0501

5.3ALT-STRATEGY, Inject Fire Protection Water to RHR

Performance Checklist	Standards	Initials
r. 12. Slowly opens FP-315.	The Operator slowly opens FP-315.  <b>CUE:</b> The hand wheel has stopped moving in the counter-clockwise direction and the hose is charged.	_____*
s. 13. Notifies CRS that task is completed.	The operator informs the CRS that Fire Water is aligned to the RHR System via SWBP "A".  <b>CUE:</b> The CRS acknowledges the report.	_____

Task Number: None

## **ATTACHMENT 1**

### **Directions to Trainee:**

When I tell you to begin, you are to perform the actions to align Fire Protection to RHR Subsystem "A", using SWBP "A" in accordance with Procedure 5.3ALT-STRATEGY. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

### **If being simulated In-Plant or Control Room:**

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to complete the assigned task.

### **If being performed in the Simulator:**

During task performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation. **ALL PLANT ANNOUNCEMENTS WILL BE SIMULATED!**

### **General Conditions:**

1. The Plant has experience a total loss of A/C and D/C power.
2. Reactor Pressure is 600 psig.
3. Procedure 5.3ALT-STRATEGY, Alternate Core Cooling Mitigating Strategies, has been entered
4. Another SO has completed the breaker alignments per step 1.1 Attachment 1 of 5.3ALT-STRATEGY.
5. Fire Protection header is intact.

### **Initiating Cues:**

The CRS has directed you to align Fire Protection Water to RHR Subsystem "A" using SWBP "A" in accordance with 5.3ALT-STRATEGY, Attachment 1. You are to inform the CRS when Fire Protection Water is aligned to RHR.

Task Number: None