


NRC JPM RO COO1
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Perform N1-ST-D0 DAILY CHECKS (Partial)

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 3/8/13
General Supervisor Date
Operations Training (Designee)

N/A - Exam Security / _____
General Supervisor Date
Operations (Designee)

N/A - Exam Security / _____
Configuration Control Date

Performer: _____ (RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: X Perform _____ Simulate

Evaluation Location: _____ Plant X Simulator

Expected Completion Time: 20 minutes Time Critical Task: No Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

Simulator

Simulator Set-up:

1. Initialize Simulator to IC-166
2. Verify the following overrides are set:
 - a. 5M80AO3550 = 73.00
 - b. 5M81AO3560 = 75.00
 - c. 5M118AO3860 = 76.00
 - d. 5M116AO3840 = 68.00
 - e. 5AR1TS1AO31000 = 68.00
 - f. 13M1AO42680 = 69.00
 - g. 9M53AO51270 = 70.50
3. Take the simulator to Run, and then back to Freeze
4. Verify average Drywell temperature is less than 130°F
5. Verify total Recirc flow is 38 Mlbm/hr
6. Verify FWLC is selected to column 11
7. Turn off PI monitor

Directions to the Instructor/Evaluator:

Prior to performance of this JPM, obtain SM / CRO general permission to open equipment cabinets and inspection covers. If opening the equipment cabinet or inspection cover will affect Tech. Spec. Operability, operational status, or the effects are unknown, obtain specific SM / CRO permission.

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, the use of applicable methods of verification and checking are expected. Therefore, either another individual or I will act as the independent verifier or peer checker.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading areas **Pass/Fail**. All steps are sequenced critical unless denoted by a “•”.
2. During Evaluated JPM:
 - Self checking shall be demonstrated.
3. During Training JPM:
 - Self checking shall be demonstrated.
 - Peer checking shall be demonstrated.

References:

1. NUREG 1123, 2.1.18, RO 3.6
2. N1-ST-DO

Tools and Equipment:

None

Task Standard: Control room RPV water level readings are taken for N1-ST-DO. Out of spec readings are identified to SRO and inoperable equipment is identified by the candidate.

Initial Conditions:

1. The plant is operating at approximately 15% power.
2. N1-ST-DO, Daily Checks, is in progress.
3. The provided printout shall be used to determine computer point and PI data.
4. Instructor to ask the operator for any questions.

Initiating cue:

“(Operator’s name), obtain the instrument readings needed from control room panels to complete N1-ST-DO Attachment 4 sections 5.0 and 6.0 only, then complete section 8.4 in the body of the procedure. When completed, report findings and provide completed sections to SRO.”

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat

RECORD START TIME _____

- | | | |
|--|---|-----------|
| 2. Obtain a copy of the reference procedure and review/utilize the correct section | N-ST-DO obtained, sections 5.0 and 6.0 referenced | Sat/Unsat |
|--|---|-----------|

Note: Completed N1-ST-DO is attached as JPM key. Small differences in recorded values may occur due to instrument interpolation.

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
3. Records section 5.0 readings	Records Reactor Recirc Pump Inlet Temperature readings on Attachment 4 Section 5.0	Sat/Unsat
4. Compare Recirc Pump Inlet Temperature readings and determines readings within 15°F	Compares readings and determines readings within 15°F of each other	Sat/Unsat
	Checks YES block in Section 5.0, indicating the maximum difference in loop temperatures is < 15°F	Pass/Fail
5. Record section 6.0 readings	Records RPV water level readings on Attachment 4 section 6.0	Sat/Unsat
Cue: Another operator has completed the required Independent Verifications.		
6. Record Total Recirc Flow	Records total recirc flow in the correct box on Attachment 4 section 6.0	Sat/Unsat
7. Determines average Drywell temperature	Observes average Drywell temperature is less than 125°F	Sat/Unsat/NA
Note: Since Yarway level indicator deviation is less than 4 inches, Drywell temperature reading is not necessary for task completion.		
8. Analyzes Yarway level indicator deviation	Determines Yarway level indicator deviation is less than the 6 inch limit	Pass/Fail
Note: This may be evidenced by the lack of a report to the contrary.		
9. Analyzes GEMAC level indicator deviation	Determines GEMAC level indicator deviation is greater than the 6 inch limit	Pass/Fail
10. Determines GEMAC level indicators are inoperable	Checks INOP option in step 8.4	Pass/Fail
11. Provides completed sections to SRO and informs of out of spec readings	Proper communications used (GAP-OPS-01)	Sat/Unsat

TERMINATING CUE: Control room readings are taken. Out of spec readings are identified to SRO and inoperable equipment is identified by the candidate.

RECORD STOP TIME_____

Initial Conditions:

1. The plant is operating at approximately 15% power.
2. N1-ST-DO, Daily Checks, is in progress.
3. The provided printout shall be used to determine computer point and PI data.

Initiating cue:

“(Operator’s name), obtain the instrument readings needed from control room panels to complete N1-ST-DO Attachment 4 sections 5.0 and 6.0 only, then complete section 8.4 in the body of the procedure. When completed, report findings and provide completed sections to SRO.”

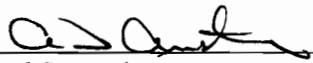
NRC JPM RO COO2
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Perform Heat-Up Rate Determination

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 3/11/10
General Supervisor
Operations Training (Designee) Date

N/A - Exam Security /
General Supervisor
Operations (Designee) Date

N/A - Exam Security /
Configuration Control Date

Performer: _____ (RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: Perform

Evaluation Location: Classroom

Expected Completion Time: 15 minutes Time Critical Task: No Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

Classroom

Set-up:

1. Prepare a picture of RRP 11 suction temperature gauge indicating approximately 535°F.
2. Prepare N1-OP-43A Attachment 18 with the following data:

Date/Time	RRP Suction Temp	DT/15 min	DT/15 min Limits	Heatup Rate Limits
5/1/13 0900	350	N/A	N/A	N/A
5/1/13 0915	370	20	SAT	N/A
5/1/13 0930	380	10	SAT	N/A
5/1/13 0945	400	20	SAT	N/A
5/1/13 1000	415	15	SAT	SAT
5/1/13 1015	435	20	SAT	SAT
5/1/13 1030	470			
5/1/13 1045	490			
5/1/13 1100				

Directions to the Instructor/Evaluator:

None

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, the use of applicable methods of verification and checking are expected. Therefore, either another individual or I will act as the independent verifier or peer checker.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading areas **Pass/Fail**.
2. During Evaluated JPM:
 - Self checking shall be demonstrated.
3. During Training JPM:
 - Self checking shall be demonstrated.
 - Peer checking shall be demonstrated.

References:

1. NUREG 1123, 2.1.7, RO 4.4
2. N1-OP-43A Attachment 18

Tools and Equipment:

Calculator

Task Standard: Current plant heat-up data taken per N1-OP-43A Attachment 18. Current and past heat-up rates calculated. Out of spec heat-up rate is identified to SRO.

Initial Conditions:

1. A plant startup is in progress.
2. Current time is 1100 on 5/1/13.
3. N1-OP-43A Attachment 18 is provided with heat-up data for the last hour.
4. All RRP suction temperature readings have been taken from Recirc loop 11.
5. The provided picture shows the current Recirc loop 11 suction temperature indication.
6. Instructor to ask the operator for any questions.

Initiating cue:

“(Operator’s name), obtain the time 1100 reading for N1-OP-43A Attachment 18, then complete the attachment for times 1030, 1045, and 1100. When completed, report findings and provide completed sections to SRO.”

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat

RECORD START TIME _____

- | | | |
|--|-------------------------|-----------|
| 2. Obtain a copy of the reference procedure and review/utilize the correct section | N1-OP-43A Attachment 18 | Sat/Unsat |
|--|-------------------------|-----------|

Note: Completed N1-OP-43A is attached as JPM key. Small differences in recorded values may occur due to instrument interpolation.

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
3. Records current RRP suction temperature	Records current RRP suction temperature (535°F ± 10°F)	Pass/Fail
4. Calculates and records ΔT/15 min for times 1030-1100	Calculates and records ΔT/15 min: 1030: 470°F - 435°F = 35°F 1045: 490°F - 470°F = 20°F 1100: 535°F - 490°F = 45°F (± 10°F)	Sat/Unsat
5. Analyzes and records ΔT Limits for ΔT/15 min	Analyzes and records ΔT Limits for ΔT/15 min: 1030: UNSAT 1045: SAT 1100: UNSAT	Sat/Unsat
6. Calculates hourly ΔTs for times 1030-1100	Calculates ΔTs: 1030: 470°F - 380°F = 90°F 1045: 490°F - 400°F = 90°F 1100: 535°F - 415°F = 120°F	Sat/Unsat/NA
Note: There is no column on N1-OP-43A to record this step. It is provided to document an intermediate step taken to arrive at JPM Step #7. If the candidate does not provide these intermediate values, the JPM step may be graded "NA".		
7. Analyzes and records Heat-up Rate Limits	Analyzes and records Heat-Up Rate Limits: 1030: SAT 1045: SAT 1100: UNSAT	Pass/Fail Pass/Fail Pass/Fail
8. Provides completed sections to SRO and informs of out of spec readings	Proper communications used (GAP-OPS-01)	Sat/Unsat

TERMINATING CUE: Control room reading taken. Heat-up rates are calculated. Results are provided to SRO.

RECORD STOP TIME_____

Initial Conditions:

1. A plant startup is in progress.
2. Current time is 1100 on 5/1/13.
3. N1-OP-43A Attachment 18 is provided with heat-up data for the last hour.
4. All RRP suction temperature readings have been taken from Recirc loop 11.
5. The provided picture shows the current Recirc loop 11 suction temperature indication.

Initiating cue:

“(Operator’s name), obtain the time 1100 reading for N1-OP-43A Attachment 18, then complete the attachment for times 1030, 1045, and 1100. When completed, report findings and provide completed sections to SRO.”

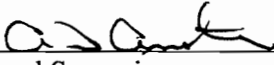
NRC JPM RO-SRO EC
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: RPS Manual Scram Electrical Print Reading

Revision: NRC 2013

Task Number: N/A

Approvals:

 3/11/10
General Supervisor Date
Operations Training (Designee)

N/A – Exam Security
General Supervisor Date
Operations (Designee)

N/A – Exam Security
Configuration Control Date

Performer: _____(RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: Perform

Evaluation Location: Classroom

Expected Completion Time: 30 minutes Time Critical Task: No Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature: _____

Date: _____

Recommended Start Location: Classroom

Simulator Set-up: N/A

Directions to the Instructor/Evaluator:

Make available a set of electrical prints. When the Candidate identifies the correct print, provide them with another copy of the print so that they may mark it up.

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**.
2. During Evaluated JPM:
 - Self-verification shall be demonstrated.
3. During Training JPM:
 - Self-verification shall be demonstrated.

References:

1. NUREG 1123, 2.2.41, RO 3.5
2. C-19859-C Sheet 7

Tools and Equipment:

None

Task Standard: Relays and contacts affected by depressing RPS 12 manual scram pushbutton are identified on station electrical drawings and operation is explained. For SRO candidates, additionally identify the surveillance requirements for testing the RPS 12 manual scram pushbutton and the Technical Specification impact if the pushbutton becomes inoperable.

Initial Conditions:

1. None.
2. Ask the operator for any questions.

Initiating cue:

“(Operator’s name), using station electrical prints, explain how depressing the RPS 12 manual scram pushbutton on E console results in an RPS channel 12 half scram. You may mark the provided prints and/or write the explanation on this sheet. Identify the electrical components that accomplish this action.”

Performance Steps	Standard	Grade
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat

RECORD START TIME _____

2. Obtain a copy of the necessary electrical print	Obtains the following documents, as needed: <ul style="list-style-type: none">• Drawing Index, if needed• Drawing C-19859-C Sheet 7	Sat/Unsat/ NA
--	--	------------------

Note: When the Candidate identifies the correct print, provide them with another copy of the print so that they may mark it up.

3. Using C-19859-C Sheet 7, locates RPS 12 manual scram pushbutton	Locates RPS 12 manual scram pushbutton (1S28) on C-19859-C Sheet 7 near drawing coordinate E-6	Pass/Fail
--	--	------------------

Note:

This may be identified by either marking on the electrical print or writing the electrical print number and location on the response sheet.

4. Using C-19859-C Sheet 7, identifies relay 12K55	Locates relay 12K55 on C-19859-C Sheet 7 near drawing coordinate E-7	Pass/Fail
--	--	------------------

Note:

This may be identified by either marking on the electrical print or writing the electrical print number and location on the response sheet.

Performance Steps	Standard	Grade
5. Using C-19859-C Sheet 7, identifies contacts 12K55	<p>Locates contact 12K55 on C-19859-C Sheet 7 near drawing coordinates F-2, H-2, J-2, and L-2</p> <p>Note: This may be identified by either marking on the electrical print or writing the electrical print number and location on the response sheet.</p> <p>Note: The candidate may also identify the contact near drawing coordinate N-2. This is satisfactory but not required, as the task did not require discussion of the backup scram.</p>	Pass/Fail
6. Using C-19859-C Sheet 7, identifies relays/solenoids 305-139(B)	<p>Locates relays/solenoids 305-139(B) on C-19859-C Sheet 7 near drawing coordinates F-5/6 through M-5/6</p> <p>Notes:</p> <ul style="list-style-type: none"> • This may be identified by either marking on the electrical print or writing the electrical print number and location on the response sheet. • The candidate does not have to identify all eight solenoids/relays on this sheet, as long as a representative sample is identified and some indication is given that there are multiple solenoids/relays. 	Pass/Fail
7. Describes how depressing the RPS 12 manual scram pushbutton on E console results in an RPS half scram	<p>Describes the following:</p> <ul style="list-style-type: none"> • Depressing RPS 12 manual scram pushbutton on E console causes relay 12K55 to de-energize. • Relay 12K55 de-energizing causes contacts 12K55 to open. • Contacts 12K55 opening causes solenoid/relay 305-139(B) to de-energize at each HCU. <p>Notes: The candidate does not have to match this description word-for-word, but must include all concepts in their description.</p>	Pass/Fail

Performance Steps	Standard	Grade
-------------------	----------	-------

Additional SRO Only Cue:

Provide SRO candidates the additional SRO only cue sheet and direct them to determine:

- the surveillance requirement for testing the RPS 12 manual scram pushbutton and
- the Technical Specification impact if the RPS 12 manual scram pushbutton becomes inoperable.

8. SRO Only: Determines the surveillance requirement for testing the RPS 12 manual scram pushbutton.	Determines the surveillance requirement for testing the RPS 12 manual scram pushbutton is weekly.	Pass/Fail
9. SRO Only: Determines the Technical Specification impact if the RPS 12 manual scram pushbutton becomes inoperable.	Determines Technical Specification table 3.6.2.a item (1) is not met. Determines Technical Specification 3.6.2.a.(1) requires control rods to be inserted.	Pass/Fail

TERMINATING CUE: Relays and contacts affected by depressing RPS 12 manual scram pushbutton are identified on station electrical drawings and operation is explained.

RECORD STOP TIME _____

Initiating cue:

“(Operator’s name), using station electrical prints, explain how depressing the RPS 12 manual scram pushbutton on E console results in an RPS channel 12 half scram. You may mark the provided prints and/or write the explanation on this sheet. Identify the electrical components that accomplish this action.”

Additional SRO Only Cue

Determine the following:

- the surveillance requirement for testing the RPS 12 manual scram pushbutton
and
- the Technical Specification impact if the RPS 12 manual scram pushbutton becomes inoperable with the plant at 100% power.

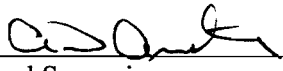
NRC JPM RO EP
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Conduct Alert Emergency Announcement and Evacuation

Revision: NRC 2013

Task Number: N/A

Approvals:

	<u>3/11/17</u>	<u>N/A – Exam Security</u>	
General Supervisor Operations Training (Designee)	Date	General Supervisor Operations (Designee)	Date

N/A – Exam Security
Configuration Control Date

Performer: _____ (RO)

Trainer/Evaluator: _____

Evaluation Method: Perform

Evaluation Location: Simulator

Expected Completion Time: 10 minutes Time Critical Task: No Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature: _____

Date: _____

Recommended Start Location: Simulator

Simulator Set-up: N/A

Directions to the Instructor/Evaluator:

This JPM may be conducted anywhere a GAI-tronics station (with alarms) is located.

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**.
2. During Evaluated JPM:
 - Self-verification shall be demonstrated.
3. During Training JPM:
 - Self-verification shall be demonstrated.

References:

1. NUREG 1123, 2.4.43, RO 3.2
2. EPIP-EPP-18

Tools and Equipment:

None

Task Standard: Alert emergency announcement is made.

Initial Conditions:

1. The Shift Manager has declared an Alert emergency condition due to high Drywell pressure.
2. Ask the operator for any questions.

Initiating cue:

“(Operator’s name), make the provided EPIP-EPP-18 attachment 2 Emergency Announcement.”

Performance Steps	Standard	Grade
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used for repeat back (GAP-OPS-01)	Sat/Unsat
RECORD START TIME _____		
2. Place GAI-tronics in MERGE	Places GAI-tronics in MERGE by toggling MERGE/ISOLATE switch to MERGE	Pass/Fail
3. Sound the appropriate alarm	Sounds the Evacuation Alarm by depressing EVAC pushbutton	Pass/Fail
4. Stop the alarm	Stops the Evacuation Alarm by depressing OFF pushbutton after approximately 10 seconds	Sat/Unsat
5. Announce checked items	Holds GAI-tronics broadcast pushbutton while saying: “Attention, attention, all personnel. This is a drill. Nine Mile Point Unit 1 is experiencing an Alert emergency condition due to high Drywell pressure. All Emergency Response Organization personnel are to report to their Emergency Response Facilities and card in. All personnel not assigned emergency response duties shall evacuate the Protected Area and report to the P-Building. Remain at this location until further notice. Personnel is protective clothing should leave the area removing PCs as indicated at the step off pad. I repeat, this is a drill.”	Pass/Fail
<u>Notes:</u> <ul style="list-style-type: none">• If Examiner wishes not to broadcast, holding the broadcast pushbutton may be discussed/simulated.• The announcement may differ slightly between Candidates, however the important points must all be covered.		

Performance Steps	Standard	Grade
6. Repeat alarm	Sounds the Evacuation Alarm by depressing EVAC pushbutton	Sat/Unsat
7. Stops alarm	Stops the Evacuation Alarm by depressing OFF pushbutton after approximately 10 seconds	Sat/Unsat
8. Repeat announcement	<p>Holds GAI-tronics broadcast pushbutton while saying:</p> <p>“Attention, attention, all personnel. This is a drill. Nine Mile Point Unit 1 is experiencing an Alert emergency condition due to high Drywell pressure. All Emergency Response Organization personnel are to report to their Emergency Response Facilities and card in. All personnel not assigned emergency response duties shall evacuate the Protected Area and report to the P-Building. Remain at this location until further notice. Personnel in protective clothing should leave the area removing PCs as indicated at the step off pad. I repeat, this is a drill.”</p> <p><u>Notes:</u></p> <ul style="list-style-type: none"> • If Examiner wishes not to broadcast, holding the broadcast pushbutton may be discussed/simulated. • The announcement may differ slightly between Candidates, however the important points must all be covered. 	Sat/Unsat

TERMINATING CUE: Alert emergency announcement is made.

RECORD STOP TIME_____

Initial Conditions:

1. The Shift Manager has declared an Alert emergency condition due to high Drywell pressure.

Initiating cue:

“(Operator’s name), make the provided EPIP-EPP-18 attachment 2 Emergency Announcement.”

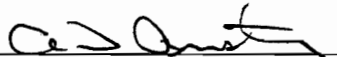
NRC JPM SRO COO1
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Review N1-ST-D0 DAILY CHECKS (Partial)

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 3/8/12
General Supervisor Date
Operations Training (Designee)

N/A - Exam Security /
General Supervisor Date
Operations (Designee)

N/A - Exam Security /
Configuration Control Date

Performer: _____ (SRO)

Trainer/Evaluator: _____

Evaluation Method: X Perform _____ Simulate

Evaluation Location: _____ Plant X Simulator /Classroom

Expected Completion Time: 20 minutes Time Critical Task: No Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

Simulator

Simulator Set-up:

N/A

Directions to the Instructor/Evaluator:

None

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, the use of applicable methods of verification and checking are expected. Therefore, either another individual or I will act as the independent verifier or peer checker.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading areas **Pass/Fail**.
2. During Evaluated JPM:
 - Self checking shall be demonstrated.
3. During Training JPM:
 - Self checking shall be demonstrated.
 - Peer checking shall be demonstrated.

References:

1. NUREG 1123, 2.1.7, SRO 4.7
2. N1-ST-DO

Tools and Equipment:

Provide copy of N1-ST-DO with Attachment 4 section 6.0 and step 8.4 completed with the following values:

Attachment 4 section 6.0:

Low-Low Level Alarms – Checked “NO”
Feedwater Level Column – Checked “11”
E-Panel Vessel Level Indicator – 72”
K-Panel Vessel Level Indicator – 72”
K-Panel Flange Level Indicator – DOWNSCALE
Reactor Vessel Level Recorder – 71”
Wide Range Level Indicator – 7’
GEMAC Level Column (Ch 11/12) – 71” / 79”
GEMAC Level Computer Points (Ch 11/12) – 71.344” / 79.051”
Pi Calculated GEMAC level column difference – 7.680”
RPS Level Column (Ch 11/12) – 73”/76”
Yarway (RPS) Level Column – 73.125”/75.763”
Pi Calculated Yarway level column difference – 2.770”
GEMAC variance – 8”
Computer point variance – 7.707”
Total Recirc Flow – 38.0 Mlbm/hr

Step 8.4:

Check “Pi-Calculated GEMAC Level Delta”
Check “Acceptable Range”

Task Standard: Control room RPV water level instrument surveillance per N1-ST-DO is reviewed. Out of spec results are identified and the appropriate Technical Specification is determined.

Initial Conditions:

1. The plant is operating at approximately 67% power.
2. N1-ST-DO, Daily Checks, is in progress.
3. Operators have completed the RPV water level instrument readings.
4. Instructor to ask the operator for any questions.

Initiating cue:

“(Operator’s name), perform SRO review of the following section of N1-ST-DO:

- Attachment 4 section 6.0
- Step 8.4

When completed, report findings to the Examiner.”

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used for repeat back (GAP-OPS-01)	Sat/Unsat

RECORD START TIME _____

2. Obtain a copy of the reference procedure and review/utilize the correct section	N1-ST-DO obtained	Sat/Unsat
3. Review Attachment 4 section 6.0 readings and Step 8.4	Reviews Attachment 4 section 6.0 readings	Sat/Unsat

Note:

If Candidate asks for prior readings for comparison, report that prior readings were consistent with the current readings.

4. Identifies error in Step 8.4	Identifies that GEMAC Level Column Variance is in the INOP range	Pass/Fail
5. Determines a GEMAC level indicator is inoperable	Determines a GEMAC level indicator is inoperable	Pass/Fail
6. Determines Technical Specification impact	Determines a 15 day LCO applies per Technical Specification 3.1.8	Pass/Fail
7. Provides completed sections to Examiner and informs of out of spec readings	Proper communications used (GAP-OPS-01)	Sat/Unsat

TERMINATING CUE: Control room RPV water level instrument surveillance per N1-ST-DO is reviewed. Out of spec results are identified and the appropriate Technical Specification is determined.

RECORD STOP TIME _____

Initial Conditions:

1. The plant is operating at approximately 67% power.
2. N1-ST-DO, Daily Checks, is in progress.
3. Operators have completed the RPV water level instrument readings.

Initiating cue:

“(Operator’s name), perform SRO review of the following section of N1-ST-DO:

- Attachment 4 section 6.0
- Step 8.4

When completed, report findings to the Examiner.”


NRC JPM SRO COO2
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Assess Reportability Requirements

Revision: NRC 2013

Task Number: N/A

Approvals:

 3/8/13
General Supervisor Date
Operations Training (Designee)

N/A – Exam Security
General Supervisor Date
Operations (Designee)

N/A – Exam Security
Configuration Control Date

Performer: _____ (SRO)

Trainer/Evaluator: _____

Evaluation Method: X Perform _____ Simulate

Evaluation Location: _____ Plant X Simulator or other location

Expected Completion Time: 40 minutes Time Critical Task: No Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

Classroom

Simulator Set-up: N/A

Directions to the Instructor/Evaluator:

None

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, the use of applicable methods of verification and checking are expected. Therefore, either another individual or I will act as the independent verifier or peer checker.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading areas **Pass/Fail**.
2. During Evaluated JPM:
 - Self checking shall be demonstrated.
3. During Training JPM:
 - Self checking shall be demonstrated.
 - Peer checking shall be demonstrated.
4. Verify the references below are available to the candidate.

References:

1. CNG-NL-1.01-1004
2. 10CFR50.72
3. NUREG 1022
4. EAL Matrix

Tools and Equipment:

None

Task Standard: Determine 10 CFR 50.72 reportability requirements.

Initial Conditions:

1. The plant was operating at 100% power with no equipment out of service.
2. A loss of offsite power Lines 1 and 4 occurred one hour ago.
3. Emergency Diesel Generator (EDG) 102 failed to start and has been declared inoperable.
4. Maintenance reports that repairs to EDG 102 will take several days.
5. Power Control reports Line 1 will be returned to service in approximately 12 hours, and Line 4 will be returned to service in approximately 24 hours.
6. Instructor to ask Candidate for any questions.

Initiating cue:

“(Operator’s name), list the applicable 10 CFR 50.72 reportability requirements, the reason that they apply and the associated time limitations for reporting under that category. Record your findings on the sheet provided.”

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
1. Provide repeat back of initiating cue. <i>Evaluator Acknowledge repeat back providing correction if necessary</i>	Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat

RECORD START TIME _____

2. Obtain a copy of the any of the reference documents related to regulatory notifications. These are likely to include the following: <ul style="list-style-type: none">• CNG-NL-1.01-1004• 10 CFR 50.72 and 50.73• NUREG 1022• EAL Matrix	Reference materials obtained as necessary.	Sat/Unsat
3. Locate and identify applicability of 10 CFR 50.72(a)(1)	Identifies plant conditions require Emergency Classification per Alert EAL 6.1.3	Sat/Unsat

Note: Candidate must recognize that a loss of offsite power with a failure of an EDG to start requires Emergency Classification (Alert EAL 6.1.3). The exact classification is not critical for the purposes of this JPM. Event classification will be tested in more detail in other exam items.

Identifies reportability per 50.72(a)(1), for declaration of any of the Emergency Classes, within one hour

Pass/Fail

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
4. Locate and identify applicability of 50.72(b)(2)(i). Non-emergency four hour report. Initiation of a plant shutdown required by Tech Specs.	Refers to Tech Spec 3.6.3.e(1) and determines that with specification not being met, the required action is to initiate a shutdown within one hour and be in cold shutdown within 10 hours.	Sat/Unsat
	Identifies reportability per 50.72(b)(2)(i), for initiation of a plant shutdown required by Tech Specs, within four hours	Pass/Fail
5. Locate and identify applicability of 50.72(b)(3)(iv)(A) Non-emergency eight hour report. Event or condition results in valid actuation of Emergency Diesel Generator.	Identifies reportability per 50.72(b)(3)(iv)(A) (or may alternately reference 50.72(b)(3)(iv)(B)(8), for valid actuation of Emergency Diesel Generator, within 8 hours	Pass/Fail
6. Locate and identify applicability of 50.72(b)(3)(v)(D) Non-emergency eight hour report. Event or condition that could have prevented fulfillment of a safety function needed to mitigate the consequences of an accident.	Identifies reportability per 50.72(b)(3)(v)(D) for an event or condition that could have prevented fulfillment of a safety function needed to mitigate the consequences of an accident (loss of both offsite power lines, failure of EDG 102), within 8 hours	Sat/Unsat

Note: This step is deemed non-critical because of the redundancy with other reports and the subjective nature of this call.

TERMINATING CUE: Reportability requirements have been determined.

RECORD STOP TIME _____

Initial Conditions:

1. The plant was operating at 100% power with no equipment out of service.
2. A loss of offsite power Lines 1 and 4 occurred one hour ago.
3. Emergency Diesel Generator (EDG) 102 failed to start and has been declared inoperable.
4. Maintenance reports that repairs to EDG 102 will take several days.
5. Power Control reports Line 1 will be returned to service in approximately 12 hours, and Line 4 will be returned to service in approximately 24 hours.

Initiating cue:

“(Operator’s name), list the applicable 10 CFR 50.72 reportability requirements, the reason that they apply and the associated time limitations for reporting under that category. Record your findings on the sheet provided.”

Attachment 1

JPM Scorecard KEY

Note: Critical items bolded. Exact wording may vary.

Identify the applicable 10 CFR 50.72 reportability requirements, the reason that they apply and the associated time limitations for reporting under that category	
Reportability Requirement and Reason	Time Limit
50.72(a)(1). Declaration of any of the Emergency Classes. <ul style="list-style-type: none">• Alert EAL 6.1.3 for Emergency Bus AC power reduced to only EDG 103 for greater than 15 minutes	Within one hour.
50.72(b)(2)(i). Initiation of a plant shutdown required by Tech Specs. <ul style="list-style-type: none">• Tech Spec 3.6.3.e(1) requires initiation of shutdown within one hour and cold shutdown within 10 hours	Within 4 hours, if not previously reported.
50.72(b)(3)(iv)(A). Event or condition results in valid actuation of Emergency Diesel Generator. <ul style="list-style-type: none">• Loss of offsite power resulting in automatic start of EDG 103• May alternately reference 50.72(b)(3)(iv)(B)(8)	Within 8 hours, if not previously reported.
50.72(b)(3)(v)(D). Event or condition that could have prevented fulfillment of a safety function needed to mitigate the consequences of an accident. <ul style="list-style-type: none">• Loss of both offsite power lines• Failure of EDG 102	Within 8 hours, if not previously reported.

Attachment 2

JPM Scorecard For Applicant Use

Identify the applicable 10 CFR 50.72 reportability requirements, the reason that they apply and the associated time limitations for reporting under that category

Reportability Requirement and Reason	Time Limit


NRC JPM SRO RC
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Determine Actions for Inoperable Stack Radiation Monitor

Revision: NRC 2013

Task Number: N/A

Approvals:

 3/13/13
General Supervisor Date
Operations Training (Designee)

N/A – Exam Security
General Supervisor Date
Operations (Designee)

N/A – Exam Security
Configuration Control Date

Performer: _____ (SRO)

Trainer/Evaluator: _____

Evaluation Method: Perform

Evaluation Location: Classroom

Expected Completion Time: 25 minutes Time Critical Task: No Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature: _____

Date: _____

Recommended Start Location: Classroom

Simulator Set-up: None

Directions to the Instructor/Evaluator: None

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, the use of applicable methods of verification and checking are expected. Therefore, either another individual or I will act as the independent verifier or peer checker.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading areas **Pass/Fail**.
2. During Evaluated JPM:
 - Self checking shall be demonstrated.
3. During Training JPM:
 - Self checking shall be demonstrated.
 - Peer checking shall be demonstrated.

References:

1. ARP H1-3-8
2. N1-OP-50B
3. ODCM 3.6.14.b and TBL D 3.6.14-2
4. NUREG 1123 K/A 2.3.11 (4.3)

Tools and Equipment:

1. None

Task Standard: Determine actions per ARP H1-3-8 and ODCM in response to stack radiation monitor downscale condition.

Initial Conditions:

1. The plant is operating at 100% power.
2. Annunciator H1-3-8, STACK GAS MONITORING TROUBLE, has alarmed.
3. Computer Point C061, OGESMS RAD MON STATUS - TRBL, is in alarm.
4. OGESMS radiation monitor RN-10A indicates downscale.
5. Ask the operator for any questions.

Initiating cue:

“(Operator’s name), determine the appropriate actions and compensatory measures in response to ARP H1-3-8. Record your findings on the provided attachment.”

EXAMINER NOTE: Provide Attachment 2.

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
1. Provide repeat back of initiating cue. <i>Evaluator Acknowledge repeat back providing correction if necessary</i>	Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat
RECORD START TIME _____		
1. Obtain a copy of the reference procedure and review/utilize the correct section.	ARP H1-3-8 obtained. Operator Actions referenced. ODCM obtained. DLCO 3.6.14 referenced. Table D 3.6.14-2 referenced.	Sat/Unsat
2. Determines actions per ARP H1-3-8.	Determines Chemistry should implement N1-CSP-V309, Stack Monitor Alarm Response.	Pass/Fail
	Determines the 8 Drywell and Torus Vent and Purge valves must be verified CLOSED and a Caution Clearance Section must be applied.	Pass/Fail
3. Determines actions per ODCM.	Determines one Stack Effluent Monitoring Noble Gas Activity High Range Monitor is inoperable.	Sat/Unsat
	Determines ODCM Table D 3.6.14-2 Instruments 1.a.(1) have one less than the minimum number of functional channels.	Sat/Unsat

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
	<p>Determines ODCM Table D 3.6.14-2 note (a)(1) applies - With the number of channels functional 1 less than required by the minimum channels functional requirement, effluent releases via this pathway may continue provided:</p> <p>(a) The nonfunctional channel is placed in the tripped condition, OR (b) Vent and Purge valves are closed and administratively controlled, OR (c) Primary containment integrity is not required.</p>	Pass/Fail
	<p>Determines DLCO 3.6.14.b requires - Restore the instruments to functional status within 30 days or outline in the next Radioactive Effluent Release Report the cause of the non-functionality and how the instruments were or will be restored to functional status.</p>	Pass/Fail

TERMINATING CUE: Actions have been determined per ARP H1-3-8 and ODCM in response to stack radiation monitor downscale condition.

RECORD STOP TIME _____

Initial Conditions:

1. The plant is operating at 100% power.
2. Annunciator H1-3-8, STACK GAS MONITORING TROUBLE, has alarmed.
3. Computer Point C061, OGESMS RAD MON STATUS - TRBL, is in alarm.
4. OGESMS radiation monitor RN-10A indicates downscale.

Initiating cue:

“(Operator’s name), determine the appropriate actions and compensatory measures in response to ARP H1-3-8. Record your findings on the provided attachment.”

Attachment 1

ANSWER KEY

Determine the appropriate actions in response to these conditions.	
Action	Required By (Document)
Chemistry should implement N1-CSP-V309, Stack Monitor Alarm Response. The 8 Drywell and Torus Vent and Purge valves must be verified CLOSED and a Caution Clearance Section must be applied.	ARP H1-3-8
ODCM Table D 3.6.14-2 note (a)(1) applies - With the number of channels functional 1 less than required by the minimum channels functional requirement, effluent releases via this pathway may continue provided: (a) The nonfunctional channel is placed in the tripped condition, OR (b) Vent and Purge valves are closed and administratively controlled, OR (c) Primary containment integrity is not required.	ODCM Table D 3.6.14-2
DLCO 3.6.14.b requires - Restore the instruments to functional status within 30 days or outline in the next Radioactive Effluent Release Report the cause of the non-functionality and how the instruments were or will be restored to functional status.	ODCM DLCO 3.6.14.b

Attachment 2

JPM Scorecard For Applicant Use

Determine the appropriate actions in response to these conditions.	
Action	Required By (Document)

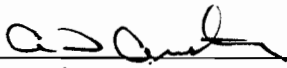
NRC JPM SRO EP
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Post-Scenario Emergency Event Classification

Revision: NRC 2013

Task Number: N/A

Approvals:



General Supervisor
Operations Training (Designee) 3/11/13
Date

N/A – Exam Security

General Supervisor
Operations (Designee) Date

N/A – Exam Security

Configuration Control Date

Performer: _____ (SRO)

Trainer/Evaluator: _____

Evaluation Method: Perform

Evaluation Location: Simulator

Expected Completion Time: 15 minutes Time Critical Task: Yes Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature: _____

Date: _____

Recommended Start Location: Classroom/Simulator

Simulator Set-up: None

Directions to the Instructor/Evaluator: None

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the Unit 2 SM, Security Supervisor, Communication Aid, and other personnel as necessary. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**.
2. During Evaluated JPM:
 - Self-verification shall be demonstrated.
3. During Training JPM:
 - Self-verification shall be demonstrated.
 - No other verification shall be demonstrated.

References:

1. NUREG 1123, 2.4.29, SRO 4.4
2. EPIP-EPP-01
3. EPIP-EPP-18
4. EPMP-EPP-0101

Tools and Equipment:

1. EPIP-EPP-01, ATTACHMENT 1, UNIT 1 EAL FLOWCHART
2. SM/ED Checklist Package

Task Standard:

Classify the emergency event based on the final scenario conditions within 15 minutes of the JPM start time.

Initial Conditions:

1. None
2. Instructor to ask the operator for any questions.

Initiating Cue:

“(Operator’s name), based on the events that have just occurred, determine if the conditions warranted emergency classification. If so, determine the appropriate emergency classification. This is a time critical task. Your time starts now.”

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used for repeat back (GAP-OPS-01)	Sat/Unsat

RECORD START TIME _____

2. Obtain a copy of EPIP-EPP-01 attachments 1 and 2, and Shift Manager emergency paperwork and review/utilize the correct section	EPIP-EPP-01 attachments 1 and 2, and Shift Manager emergency paperwork is obtained	Sat/Unsat
3. Reviews plant conditions and determines if emergency classification is warranted.	Determines an emergency classification is required.	Sat/Unsat
4. Classifies the emergency for 2013 NRC Scenario #1.	Determines the emergency classification level is Alert.	Pass/Fail/NA

Examiner Note: The listed EAL is the expected EAL based on scenario validation. If scenario deviates from the expected course, examiner discretion will be required to determine the actual classification.

Determines the Emergency Action Level (EAL) designator is 3.1.1. **Pass/Fail/NA**

EXAMINER NOTE: Time difference below must be 15 minutes or less:

JPM start time: _____

Time of Classification: _____

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
5. Classifies the emergency for 2013 NRC Scenario #2.	Determines the emergency classification level is Site Area Emergency.	Pass/Fail/NA
<u>Examiner Note:</u> The listed EAL is the expected EAL based on scenario validation. If scenario deviates from the expected course, examiner discretion will be required to determine the actual classification.	<p>Determines the Emergency Action Level (EAL) designator is 3.4.1 and/or 4.1.1.</p> <p>EXAMINER NOTE: Time difference below must be 15 minutes or less:</p> <p>JPM start time: _____</p> <p>Time of Classification: _____</p>	Pass/Fail/NA
6. Classifies the emergency for 2013 NRC Scenario #3.	Determines the emergency classification level is Site Area Emergency.	Pass/Fail/NA
<u>Examiner Note:</u> The listed EAL is the expected EAL based on scenario validation. If scenario deviates from the expected course, examiner discretion will be required to determine the actual classification.	<p>Determines the Emergency Action Level (EAL) designator is 2.2.2.</p> <p>EXAMINER NOTE: Time difference below must be 15 minutes or less:</p> <p>JPM start time: _____</p> <p>Time of Classification: _____</p>	Pass/Fail/NA
7. Classifies the emergency for 2013 NRC Scenario #4.	Determines the emergency classification level is Site Area Emergency.	Pass/Fail/NA
<u>Examiner Note:</u> The listed EAL is the expected EAL based on scenario validation. If scenario deviates from the expected course, examiner discretion will be required to determine the actual classification.	<p>Determines the Emergency Action Level (EAL) designator is 2.1.1.</p> <p>EXAMINER NOTE: Time difference below must be 15 minutes or less:</p> <p>JPM start time: _____</p> <p>Time of Classification: _____</p>	Pass/Fail/NA

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
8. Classifies the emergency for 2013 NRC Scenario #5.	Determines the emergency classification level is Alert.	Pass/Fail/NA

Examiner Note: The listed EAL is the expected EAL based on scenario validation. If scenario deviates from the expected course, examiner discretion will be required to determine the actual classification.

Determines the Emergency Action Level (EAL) designator is 3.1.1.

Pass/Fail/NA

EXAMINER NOTE: Time difference below must be 15 minutes or less:

JPM start time: _____

Time of Classification: _____

TERMINATING CUE: Emergency classification requirement is determined.

RECORD STOP TIME _____

Initiating Cue:

“(Operator’s name), based on the events that have just occurred, determine if the conditions warranted emergency classification. If so, determine the appropriate emergency classification. This is a time critical task. Your time starts now.”

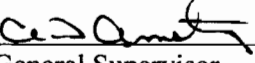
NRC JPM S-1
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Rapid RWCU System Restoration for Level Control

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 3/2/13
General Supervisor Date
Operations Training (Designee)

N/A - Exam Security /
General Supervisor Date
Operations (Designee)

N/A - Exam Security /
Configuration Control Date

Performer: _____ (RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: X Perform _____ Simulate

Evaluation Location: _____ Plant X Simulator

Expected Completion Time: 20 minutes Time Critical Task: No Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator's Signature: _____

Date: _____

Recommended Start Location: Simulator

Simulator Set-up (if required):

1. Initialize Simulator to IC-161.
2. Verify RPV water level is above 100 inches.
3. Verify RWCU system isolated with isolation signal clear.

Directions to the Instructor/Evaluator:

None

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the independent/peer verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading area as **Pass/Fail**.
2. During Evaluated JPM:
 - Self verification shall be demonstrated.
3. During Training JPM:
 - Self verification shall be demonstrated.
 - Peer verification shall be demonstrated.

References:

1. NUREG 1123, 204000, A4.06, RO 3.0, SRO 2.9
2. N1-EOP-HC

Tools and Equipment:

None

Task Standard: RWCU is rejecting to the condenser for level control.

Initial Conditions:

1. RWCU isolated following a low-low RPV water level transient.
2. RPV water level is high.
3. RWCU system is needed to control RPV water level.
4. Another Operator will be controlling RPV pressure using the ERVs and/or ECs.
5. Instructor to ask operator for any questions.

Initiating Cue:

“(Operator’s name), perform rapid RWCU system restoration for RPV water level control and establish reject flow to the condenser, per N1-EOP-HC Attachment 12.”

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used (GAP-OPS-01)	Sat/Unsat

RECORD START TIME _____

2. Obtain a copy of the reference procedure and review/utilize the correct section of the procedure	N1-EOP-HC Attachment 12 is obtained	Sat/Unsat
3. Verify the following: <ul style="list-style-type: none">• All Reactor Water Cleanup isolation signals clear• The cause of the isolation is known AND corrected	Observes K3-4-4 clear Determines cause is known and corrected per initial conditions	Sat/Unsat Sat/Unsat
4. Verify closed the following valves: <ul style="list-style-type: none">• 33.1-01B, CLEANUP PCV 11 (LP)• 33-39B, CLEANUP PCV 12 (HP)	Observes 33.1-01B in MAN and output signal at 0 Places controller PC-33-39 in MAN and dials to 0	Sat/Unsat Sat/Unsat
5. Using RMC-33-151, CLEANUP SYS SELECTOR, close 33-40	Verifies controller RMC-33-151 CLEANUP SYS SELECTOR in MAN and dialed to 0	Sat/Unsat

Note: Manipulation of FC-33-169 is inconsequential, but does not satisfy this step.

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
6. Using RMC-33-165, CLEANUP TO COND & WASTE FLOW, close 33-165	Verify controller RMC-33-165C dialed to 0	Sat/Unsat
7. Verify open one of the following using the CLEANUP SELECTOR CONDENSER WASTE control switch:		
• WASTE (valve 33-10, CLEANUP TO WASTE DISPOSAL BV)	Rotates CLEANUP SELECTOR CONDENSER WASTE control switch clockwise to COND position	Pass/Fail
• COND (valve 33-11, CLEANUP TO CONDENSER BV)	Observes right-hand set of lights red light ON and green light OFF, for 33-11	Sat/Unsat
Note: Initiating cue directs the candidate to reject to the condenser		
8. Open 33-01R, CU RETURN ISOLATION VALVE 1 (INSIDE)	Rotates 33-01R control switch clockwise to open	Pass/Fail
	Observes red light ON, green light OFF	Sat/Unsat
9. Open 33-04R, CU SUPPLY ISOLATION VALVE 12 (OUTSIDE), for approximately 3 seconds THEN PULL-TO-STOP	Rotates 33-04R control switch clockwise to open and uses pull-to-stop function after 3 seconds	Sat/Unsat
	Observes red light ON, green light ON	Sat/Unsat
Note: Cleanup System Inlet Pressure will rapidly rise in the next step		
10. Jog open 33-02R, CU SUPPLY ISOLATION VALVE 11 (INSIDE), using ½ second open signals followed by PULL-TO-STOP UNTIL Cleanup System Inlet Pressure has stabilized at Reactor Pressure	Rotates 33-02R control switch clockwise to open and uses pull-to-stop in ½ second intervals UNTIL Cleanup system inlet pressure rises and stabilizes at reactor pressure on indicators	Sat/Unsat
	Observes red light ON, green light ON	Sat/Unsat
	Observes cleanup system pressure and reactor pressure approximately equal	Sat/Unsat
11. Fully open 33-02R	Rotates 33-02R control switch clockwise to open	Pass/Fail
	Observes red light ON, green light OFF	Sat/Unsat

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
12. Fully open the following valves:		
• 33-04	Rotates 33-04R control switch clockwise to open	Pass/Fail
	Observes red light ON, green light OFF	Sat/Unsat
• 33-41, AO BLOCKING VALVE	Rotates 33-41 control switch clockwise to open	Pass/Fail
	Observes red light ON, green light OFF	Sat/Unsat
13. Simultaneously perform the following:		
• Adjust the in-service PCV to maintain Reactor Water Cleanup System pressure <100 psig	Using controller PC-33-39, dials output signal to open valve and establish inlet pressure below 100 psig	Sat/Unsat
Note: Operator may place the PCV in AUTO after pressure is established		
• Adjust RMC-33-165C, CLEANUP TO COND & WASTE FLOW to control Reactor Water Level AND maintain Non-Regenerative Heat Exchanger outlet temperature < 120°F on computer point F359	Using controller RMC-33-165C, dials output signals to open valve and establish system reject flow	Pass/Fail
	Maintains parameters to prevent a subsequent RWCU system isolation	Pass/Fail
Cue: Another operator will monitor computer point F359.		
Note: 33-165 controller output signal must be greater than 20% before the valve will open, then may be lowered below 20% to adjust flow.		
14. As time permits, continue with N1-OP-3, H.10.0.	Proper communications used (GAP-OPS-01)	Sat/Unsat
Cue: Another operator will continue with N1-OP-3 H.10.0.		
15. Reports to CRS that RWCU is restored and rejecting to condenser for level control	Proper communications used (GAP-OPS-01)	Sat/Unsat

Terminating Cue: RWCU is rejecting to the condenser for level control.

RECORD STOP TIME _____

Initial Conditions:

1. RWCU isolated following a low-low RPV water level transient.
2. RPV water level is high.
3. RWCU system is needed to control RPV water level.
4. Another Operator will be controlling RPV pressure using the ERVs and/or ECs.

Initiating Cue:

“(Operator’s name), perform rapid RWCU system restoration for RPV water level control and establish reject flow to the condenser, per N1-EOP-HC Attachment 12.”

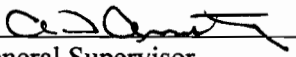
NRC JPM S-2
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Cool RBEVS Charcoal Filter

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 5/8/13
General Supervisor
Operations Training (Designee) Date

N/A - Exam Security /
General Supervisor Date
Operations (Designee)

N/A - Exam Security /
Configuration Control Date

Performer: _____ (RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: ☒ Perform _____ Simulate

Evaluation Location: _____ Plant ☒ Simulator

Expected Completion Time: 15 minutes Time Critical Task: No Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator's Signature: _____

Date: _____

Recommended Start Location: Simulator

Simulator Set-up (if required):

1. Initialize Simulator to IC-161.
2. Verify an RBEVS auto-start signal is locked in.
3. Verify RBEVS 11 is running and RBEVS 12 is secured.

Directions to the Instructor/Evaluator:

None

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the independent/peer verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading area as **Pass/Fail**.
2. During Evaluated JPM:
 - Self verification shall be demonstrated.
3. During Training JPM:
 - Self verification shall be demonstrated.
 - Peer verification shall be demonstrated.

References:

1. NUREG 1123, 261000 A4.03 (3.0/3.0)
2. N1-OP-10

Tools and Equipment:

None

Task Standard: RBEVS train 12 placed in service and RBEVS train 11 placed in the cooling lineup.

Initial Conditions:

1. A steam leak in the Reactor Building occurred approximately 24 hours ago.
2. RBEVS auto-initiated on high Reactor Building exhaust radiation level.
3. RBEVS train 11 is in service.
4. RBEVS train 12 is secured.
5. It has been determined that RBEVS train 11 charcoal filter needs to be removed from service and cooled.
6. Another Operator will be controlling Reactor pressure with ERVs and/or ECs.
7. Instructor to ask operator for any questions.

Initiating Cue:

“(Operator’s name), place RBEVS train 12 in service and cool the charcoal filter for RBEVS train 11 per N1-OP-10 section H.3.0.”

<u>Performance Steps</u>	<u>Standard</u>	<u>Grade</u>
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used (GAP-OPS-01)	Sat/Unsat

RECORD START TIME _____

2. Obtain a copy of the reference procedure and review/utilize the correct section of the procedure	N1-OP-10 obtained, precautions and limitations reviewed, sections H.3.0 referenced	Sat/Unsat
3. Verify closed the following valves:		
• 202-47, EM VENTILATION TIE BV	Observes 202-47 green light on, red light off	Sat/Unsat
• 202-74, EM VENTILATION LOOP 11 COOLING BV	Observes 202-74 green light on, red light off	Sat/Unsat
• 202-75, EM VENTILATION LOOP 12 COOLING BV	Observes 202-75 green light on, red light off	Sat/Unsat
4. Open 202-38, EM VENTILATION LOOP 12 INLET BV	Opens 202-38 by rotating control switch CW to OPEN	Pass/Fail
5. Start 202-33, EVS FAN 12	Starts 202-33 by rotating control switch CW to START	Pass/Fail
6. Verify open 202-35, EM VENTILATION EXHAUST FAN 12 OUTLET BV	Observes 202-35 green light off, red light on	Sat/Unsat

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
7. Confirm proper operation of 202-51, EM VENT EXHAUST FAN 12 INLET FCV, by observing indicating lights AND flow indication	Observes 202-51 green light on, red light on Observes proper RBEVS flow	Sat/Unsat Sat/Unsat
8. Stop 202-53, EVS FAN 11	Stops 202-53 by rotating control switch CCW and pulls to lock	Pass/Fail
Note: RBEVS fan 11 control switch must be placed in pull-to-lock to stop fan due to presence of an auto-start signal.		
9. Verify closed 202-34, EM VENT EXHAUST FAN 11 OUTLET BV	Observes 202-34 green light on, red light off	Sat/Unsat
10. Verify EVS Train 12 running	Observes RBEVS fan 12 green light off, red light on	Sat/Unsat
11. Verify 202-53, EVS FAN 11 in PULL-TO-LOCK	Observes 202-53 control switch in pull-to-lock	Sat/Unsat
12. Notify SRO to enter LCO 3.4.4.e (7 day plant shutdown LCO when one train of EVS is inoperable)	Proper communications used (GAP-OPS-01)	Sat/Unsat
Role Play: Acknowledge communication as SRO.		
13. Open 202-74, EM VENTILATION LOOP 11 COOLING BV, by placing 202-37, EM VENTILATION LOOP 11 INLET BV, control switch to COOL	Opens 202-74 by rotating control switch CCW to COOL	Pass/Fail
14. Verify closed 202-37, EM VENTILATION LOOP 11 INLET BV	Observes 202-37 green light on, red light off	Sat/Unsat
15. Open 202-47, EM VENTILATION TIE BV	Opens 202-47 by rotating control switch CW to OPEN	Pass/Fail

Terminating Cue: RBEVS train 12 placed in service and RBEVS train 11 placed in the cooling lineup.

RECORD STOP TIME _____

Initial Conditions:

1. A steam leak in the Reactor Building occurred approximately 24 hours ago.
2. RBEVS auto-initiated on high Reactor Building exhaust radiation level.
3. RBEVS train 11 is in service.
4. RBEVS train 12 is secured.
5. It has been determined that RBEVS train 11 charcoal filter needs to be removed from service and cooled.
6. Another Operator will be controlling Reactor pressure with ERVs and/or ECs.

Initiating Cue:

“(Operator’s name), place RBEVS train 12 in service and cool the charcoal filter for RBEVS train 11 per N1-OP-10 section H.3.0.”

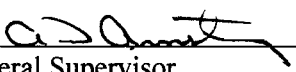
NRC JPM S-3
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Re-Open MSIVs with Reactor Pressurized

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 3/8/13
General Supervisor
Operations Training (Designee) Date

N/A - Exam Security /
General Supervisor
Operations (Designee) Date

N/A - Exam Security /
Configuration Control Date

Performer: _____ (RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: ☒ Perform _____ Simulate

Evaluation Location: _____ Plant ☒ Simulator

Expected Completion Time: 10 minutes Time Critical Task: No Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator's Signature: _____

Date: _____

Recommended Start Location: Simulator

Simulator Set-up (if required):

1. Initialize Simulator to IC-162.
2. Verify the Reactor is scrammed with the MSIVs closed.
3. Verify MSIV automatic closure signals are clear.

Directions to the Instructor/Evaluator:

None

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the independent/peer verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading area as **Pass/Fail**.
2. During Evaluated JPM:
 - Self verification shall be demonstrated.
3. During Training JPM:
 - Self verification shall be demonstrated.
 - Peer verification shall be demonstrated.

References:

1. NUREG 1123, 239001 A4.01 (4.2/4.0)
2. N1-EOP-HC

Tools and Equipment:

None

Task Standard: MSIVs re-opened.

Initial Conditions:

1. A Reactor scram occurred 5 minutes ago due to low Reactor water level following trip of Feedwater pump 13.
2. MSIVs closed due to Lo-Lo Reactor water level.
3. Another Operator will control Reactor pressure using ECs and/or ERVs.
4. Another Operator will control Reactor water level using Condensate/Feedwater and CRD.
5. Instructor to ask operator for any questions.

Initiating Cue:

“(Operator’s name), re-open the MSIVs per N1-EOP-HC attachment 3.”

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used (GAP-OPS-01)	Sat/Unsat
RECORD START TIME _____		
2. Obtain a copy of the reference procedure and review/utilize the correct section of the procedure	N1-EOP-HC attachment 3 obtained	Sat/Unsat
3. Open MSIV 01-03	Opens MSIV 01-03 by rotating control switch CW to OPEN	Pass/Fail
4. Slowly throttle open MSIV 01-01 utilizing PULL-TO-STOP	Throttles open MSIV 01-01 by rotating control switch CW to OPEN and then pulling control switch out	Pass/Fail
5. Fully open MSIV 01-01	Opens MSIV 01-01 by rotating control switch CW to OPEN	Pass/Fail
6. Open MSIV 01-04	Opens MSIV 01-04 by rotating control switch CW to OPEN	Pass/Fail
7. Slowly throttle open MSIV 01-02 utilizing PULL-TO-STOP	Throttles open MSIV 01-02 by rotating control switch CW to OPEN and then pulling control switch out	Pass/Fail
8. Fully open MSIV 01-02	Opens MSIV 01-02 by rotating control switch CW to OPEN	Pass/Fail

Terminating Cue: MSIVs re-opened.

RECORD STOP TIME _____

Initial Conditions:

1. A Reactor scram occurred 5 minutes ago due to low Reactor water level following trip of Feedwater pump 13.
2. MSIVs closed due to Lo-Lo Reactor water level.
3. Another Operator will control Reactor pressure using ECs and/or ERVs.
4. Another Operator will control Reactor water level using Condensate/Feedwater and CRD.

Initiating Cue:

“(Operator’s name), re-open the MSIVs per N1-EOP-HC attachment 3.”

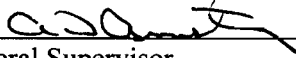
NRC JPM S-4
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Transfer Torus Water to the Waste Collector Tank Using
Containment Spray Loop 111

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 3/2/13
General Supervisor Date
Operations Training (Designee)

N/A – Exam Security /
General Supervisor Date
Operations (Designee)

N/A – Exam Security /
Configuration Control Date

Performer: _____ (RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: X Perform Simulate

Evaluation Location: Plant X Simulator

Expected Completion Time: 15 Minutes Time Critical Task: No Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluators Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

NMP Unit 1 Simulator

Simulator Set-up (if required):

1. Initialize Simulator to IC-162.
2. Verify Torus water level raised to ~11.3' per N1-EOP-1 Attachment 18.

Directions to the Instructor/Evaluator:

None

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the independent/peer verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading areas **Pass/Fail**.
2. During Evaluated JPM:
 - Self verification shall be demonstrated.
3. During Training JPM:
 - Self verification shall be demonstrated.
 - No other verification shall be demonstrated.

References:

1. N1-EOP-1, Attachment 15
2. NUREG 1123 295029 EA1.03 (2.9/3.0)

Tools and Equipment:

None

Task Standard: Torus water level is being lowered via the Containment Spray System.

Initial Conditions:

1. Torus water level is 11.3 feet and rising slowly.
2. N1-EOP-4 has been entered.
3. Containment Spray pumps are in pull-to-lock.
4. Another Operator will control Reactor pressure using ECs and/or ERVs.
5. Another Operator will control Reactor water level using Condensate/Feedwater and CRD.

Initiating Cues:

“(Operator’s name), lower Torus water level to 11.0 feet by discharging water to the Waste Collector Tank using Containment Spray Loop 111 in accordance with N1-EOP-1 Attachment 15.”

Performance Steps	Standard	Grade
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used (GAP-OPS-01)	Sat/Unsat
RECORD START TIME _____		
2. Obtain a copy of the reference procedure and review/utilize the correct section of the procedure	N1-EOP-1 Attachment 15 obtained	Sat/Unsat
3. Notify Radwaste of intent to pump down Torus to Waste Collector Tank <u>Role Play:</u> Acknowledge report	Proper communications used (GAP-OPS-01)	Sat/Unsat
4. Close 80-45, Cont Spray Bypass BV 122	Closes 80-45 by rotating control switch CCW to CLOSE	Pass/Fail
5. Open 80-118, Cont Spray Test to Torus FCV <u>Note:</u> 80-118 is a throttlable valve, and must be held in the open position until fully open	Opens 80-118 by rotating control switch CW to OPEN	Pass/Fail
6. Verify closed 80-16, Cont Spray Discharge IV 111	Closes 80-16 by rotating control switch CCW to CLOSE	Pass/Fail
7. Verify open 80-40, Cont Spray Bypass BV 111	Observes 80-40 green light off, red light on	Sat/Unsat
8. Start Containment Spray Raw Water Pump 111	Starts Containment Spray Raw Water Pump 111 by rotating control switch CW to START	Pass/Fail
NRC 2013 JPM S-4	- 1 -	May 2013

Performance Steps	Standard	Grade
9. Start Containment Spray Pump 111	Starts Containment Spray Pump 111 by rotating control switch CW to START	Pass/Fail
10. Open 80-115, Cont Spray to Radwaste IV 12	Opens 80-115 by rotating control switch CW to OPEN	Pass/Fail
11. Open 80-114, Cont Spray to Radwaste IV 11	Opens 80-114 by rotating control switch CW to OPEN	Pass/Fail
12. Throttle 80-118, Cont Spray Test to Torus FCV as required to control flow to Waste Collector Tank	Throttles closed 80-118 by rotating control switch CCW as required	Sat/Unsat
<u>Role Play:</u> If requested, inform that Radwaste has indication of sufficient flow		
13. Monitor 58-05A and 58-06A TORUS H ₂ O LEVEL indicators for level response	Observes TORUS H ₂ O LEVEL indicators 58-05A and 58-06A monitored for level response	Sat/Unsat
14. Inform SRO that flow to the Waste Collector Tank has been established using Containment Spray Loop 111	Proper communications used (GAP-OPS-01)	Sat/Unsat
<u>Role Play:</u> Acknowledge report		

Terminating Cue: Torus water level is being lowered via Containment Spray Loop 111.

RECORD STOP TIME _____

Initial Conditions:

1. Torus water level is 11.3 feet and rising slowly.
2. N1-EOP-4 has been entered.
3. Containment Spray pumps are in pull-to-lock.
4. Another Operator will control Reactor pressure using ECs and/or ERVs.
5. Another Operator will control Reactor water level using Condensate/Feedwater and CRD.

Initiating Cues:

“(Operator’s name), lower Torus level to 11.0 feet by discharging water to the Waste Collector Tank using Containment Spray Loop 111 in accordance with N1-EOP-1 Attachment 15.”


NRC JPM S-5
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Control Room Evacuation, Manual Scram Fails, ARI Works

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 3/8/13
General Supervisor
Operations Training (Designee) Date

N/A – Exam Security / _____
General Supervisor
Operations (Designee) Date

N/A – Exam Security / _____
Configuration Control Date

Performer: _____ (RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: X Perform _____ Simulate

Evaluation Location: _____ Plant X Simulator

Expected Completion Time: 10 Minutes Time Critical Task: No Alternate Path Task: Yes

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluators Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

NMP Unit 1 Simulator

Simulator Set-up (if required):

1. Initialize Simulator to IC-163.
2. Insert malfunctions RP05A and RP05B to cause failure to scram.

Directions to the Instructor/Evaluator:

None

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the independent/peer verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading areas **Pass/Fail**.
2. During Evaluated JPM:
 - Self verification shall be demonstrated.
3. During Training JPM:
 - Self verification shall be demonstrated.
 - No other verification shall be demonstrated.

References:

1. N1-SOP-21.2
2. N1-SOP-1
3. NUREG 1123 295016 AA1.01 (3.8/3.9)

Tools and Equipment:

None

Task Standard: Control Room actions for Control Room Evacuation complete, including compensatory actions for failure of Mode Switch and RPS pushbuttons.

Initial Conditions:

1. The plant is operating at approximately 100% power.
2. The Shift Manager has determined that a Control Room Evacuation is required due to a fire in the Auxiliary Control Room.
3. Time permits completing all required actions of N1-SOP-21.2, Control Room Evacuation, before leaving the Control Room.
4. Ask the operator for any questions.

Initiating Cues:

“(Operator’s name), perform the Control Room actions for a Control Room Evacuation per N1-SOP-21.2.”

Performance Steps	Standard	Grade
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used (GAP-OPS-01)	Sat/Unsat

RECORD START TIME _____

2. Place Reactor Mode Switch in SHUTDOWN	Rotates Reactor Mode Switch CW to SHUTDOWN	Pass/Fail
--	--	------------------

Note: The Mode Switch and the RPS pushbuttons will fail to cause a Reactor scram. The Candidate may use guidance in N1-SOP-1 to immediately attempt manual ARI.

Role Play: If asked how to proceed with failure to scram, direct the Candidate to perform immediate actions of N1-SOP-1, Reactor Scram.

3. Verify ALL Control Rods inserted	Observes control rods failed to insert	Sat/Unsat
	May depress RPS pushbuttons	Sat/Unsat
	Depresses MANUAL ARI pushbutton	Pass/Fail
	Observes control rods insert	Sat/Unsat
4. Place BOTH VESSEL ISOLATION switches to ISOLATE	Rotates both VESSEL ISOLATION switches CCW to ISOLATION	Pass/Fail

Performance Steps	Standard	Grade
5. Verify ALL MSIVs close	Observes green light on, red light off, for all four MSIVs	Sat/Unsat
6. IF time permits, verify the following:		
• House service loads transfer	Observes PB 11 and PB 12 energized (voltmeters show ~4160V, breakers re-align)	Sat/Unsat
• Turbine/Generator trip	Observes Turbine trip and Generator lockout (TSVs indicate closed, 86G1/2 lockouts roll)	Sat/Unsat
• HPCI Initiation	Observes FW pumps 11 and 12 start / inject (green lights off, red lights on, amps, flow)	Sat/Unsat
• FW Pump 13 clutch disengaged	Observes FW pump 13 clutch disengaged (green light off, red light off, speed lowers)	Sat/Unsat
7. IF time permits, sound the station alarm AND announce Control Room evacuation	Depresses STA pushbutton on GAItronics	Sat/Unsat
	Depresses OFF pushbutton on GAItronics	Sat/Unsat
	Announces Control Room evacuation	Sat/Unsat
8. Obtain two sets of RSP keys (VA-1, GE-75, PA-235) AND obtain radios	Proper communications used (GAP-OPS-01)	Sat/Unsat
<u>Cue:</u> You have obtained radios and keys.		
9. Evacuate Control Room through East-West corridor, south side of Control Room	Proper communications used (GAP-OPS-01)	Sat/Unsat

Cue: Task complete.

Terminating Cue: Control Room actions for Control Room Evacuation complete, including compensatory actions for failure of Mode Switch and RPS pushbuttons.

RECORD STOP TIME _____

Initial Conditions:

1. The plant is operating at approximately 100% power.
2. The Shift Manager has determined that a Control Room Evacuation is required due to a fire in the Auxiliary Control Room.
3. Time permits completing all required actions of N1-SOP-21.2, Control Room Evacuation, before leaving the Control Room.

Initiating Cues:

“(Operator’s name), perform the Control Room actions for a Control Room Evacuation per N1-SOP-21.2.”

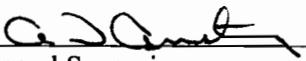
NRC JPM S-6
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Restore EC 11 To Service (Alternate Path)

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 3/8/17
General Supervisor Date
Operations Training (Designee)

N/A - Exam Security /
General Supervisor Date
Operations (Designee)

N/A - Exam Security /
Configuration Control Date

Performer: _____ (RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: X Perform Simulate

Evaluation Location: Plant X Simulator

Expected Completion Time: 20 minutes Time Critical Task: No Alternate Path Task: Yes

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator's Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

Unit 1 Simulator

Simulator Set-up (if required):

1. Initialize Simulator to IC-163.
2. Verify EC 11 is removed from service per N1-OP-13 section H.8.0.
3. Verify EC 11 steam pressure has been vented to near 0 psig.
4. Verify malfunction EC06A is set at 25% with a 15 second delay time on trigger 1.
5. Verify trigger 1 is set to initiate when valve 39-09R red light goes on (hzlecmovr(1)==1).

Directions to the Instructor/Evaluator:

None

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the independent/peer verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading areas **Pass/Fail**.
2. During Evaluated JPM:
 - Self verification shall be demonstrated.
3. During Training JPM:
 - Self verification shall be demonstrated.
 - Peer verification shall be demonstrated.

References:

1. NUREG 1123, K/A 207000 A4.05 (3.5/3.7)
2. N1-OP-13

Tools and Equipment:

1. None

Task Standard: EC 11 is isolated due to tube leakage.

Initial Conditions:

1. Emergency Condenser (EC) 11 is out of service per N1-OP-13 section H.8.1 following corrective maintenance.
2. Work is complete and EC 11 is ready to be returned to service.
3. Non-Destructive Evaluation (NDE) has determined EC steam leg level to be 6 ft 11 inches.
4. Instructor to ask operator for any questions.

Initiating Cues:

“(Operator’s name), return EC 11 to service per N1-OP-13 section H.8.0.”

Performance Steps	Standard	Grade
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary.</i>	Proper communications used (GAP-OPS-01)	Sat/Unsat

RECORD START TIME _____

2. Obtain a copy of the reference procedure and review/utilize the correct section of the procedure	N1-OP-13 is obtained, precautions & limitations reviewed, section H.8.3 utilized	Sat/Unsat
3. Verify proper keepfull level as follows: <ul style="list-style-type: none">• Contact Engineering Programs – NRC to perform UT of EC steam leg for level determination	Determines level is 6’ 11” per initial conditions	Sat/Unsat
<ul style="list-style-type: none">• IF EC steam leg level is greater than 6’ 10” THEN proceed to step 8.3.2	Proceeds to step 8.3.2	Sat/Unsat
4. Verify open the following valves: <ul style="list-style-type: none">• 05-11, EMERG COND VENT ISOLATION VALVE 112	Opens 05-11 by rotating control switch CW to OPEN	Pass/Fail
<ul style="list-style-type: none">• 05-01R, EMERG COND VENT ISOLATION VALVE 111	Opens 05-01R by rotating control switch CW to OPEN	Pass/Fail

Performance Steps	Standard	Grade
5. WHEN system pressure has returned to normal, open the following valves:		
• 39-11R, EMERG CONDSR STM SUPPLY DRAIN IV 111	Opens 39-11R by rotating control switch CW to OPEN	Pass/Fail
• 39-12R, EMERG CONDSR STM SUPPLY DRAIN IV 112	Opens 39-12R by rotating control switch CW to OPEN	Pass/Fail
6. Open 39-07R, EC STM ISOLATION VALVE 112	Opens 39-07R by rotating control switch CW to OPEN	Pass/Fail
Note: The candidate may throttle open 39-07R using the pull-to-stop feature, rather than open it in one continuous motion. However, it must be fully opened by the end of the manipulation.		
7. Throttle open 39-09R, EC STM ISOLATION VALVE 111 and monitor system parameters during heatup AND repressurization	Opens 39-09R by rotating control switch CW to OPEN	Pass/Fail
	Stops 39-09R by pulling control switch out to STOP	Sat/Unsat
	Monitors system temperature and pressures	Sat/Unsat
	Fully opens 39-09R by rotating control switch CW to OPEN	Sat/Unsat/ NA
Note: The alternate path begins when 39-09R red light comes on. This causes an EC tube leak to be initiated.		
8. Responds to alarm K1-1-2	Acknowledges and reports alarm	Sat/Unsat
9. Confirm alarm on computer printout	Observes computer points E478 and E480 in alarm	Sat/Unsat
10. Confirm radiation levels on J Panel and contact RP to check dose rates above elevation 340	Observes RE-RN04A-3 and RE-RN04A-4 reading on J Panel and determines readings indicate alarm condition	Sat/Unsat
Role Play: Acknowledge direction as RP.	Directs RP to check dose rates above elevation 340	Sat/Unsat

Performance Steps	Standard	Grade
11. IF High Rad Alarm is confirmed, (BOTH RE-RN04A-3 AND RE-RN04A-4 in alarm OR one in alarm with the other inoperable), AND shell side temperature $\geq 100^{\circ}\text{F}$:	Note: These steps are N/A if shell temperature is $< 100^{\circ}\text{F}$.	
<ul style="list-style-type: none"> Direct Shift Chemistry Technician to assess the possible unmonitored radiological release using Attachment 4A of EPIP-EPP-08 	Directs Chemistry Tech to assess for possible unmonitored release per EPIP-EPP-08	Sat/Unsat/ NA
<ul style="list-style-type: none"> Direct Shift Radiation Protection Technician to perform a downwind site boundary radiological survey 	Directs RP Tech to perform downwind survey at site boundary	Sat/Unsat/ NA
Role Play: Acknowledge direction as RP/Chemistry.		
12. IF High Rad Alarm is confirmed, (BOTH RE-RN04A-3 AND RE-RN04A-4 in alarm OR one in alarm with the other inoperable), AND shell side temperature is $< 100^{\circ}\text{F}$, direct the Shift Chemistry Technician to obtain AND evaluate an EC shell side sample	Note: This step is N/A if shell temperature is $> 100^{\circ}\text{F}$.	
	Directs Chemistry Tech to obtain and evaluate EC 11 shell side sample	Sat/Unsat/ NA
Role Play: Acknowledge direction as Chemistry.		

Performance Steps	Standard	Grade
13. IF alarm is valid THEN with SM concurrence, close the following valves:		
<input type="checkbox"/> 39-07R, EC STM ISOLATION VALVE 112	Closes 39-07R by rotating control switch CCW to CLOSE	Pass/Fail
<input type="checkbox"/> 39-09R, EC STM ISOLATION VALVE 111	Closes 39-09R by rotating control switch CCW to CLOSE	Pass/Fail
<input type="checkbox"/> 39-05, EMERG CNDSR COND RET ISOLATION VALVE 11	Observes 39-05 green light on, red light off	Sat/Unsat
<input type="checkbox"/> 39-11R, EMERG CNDSR STM SUPPLY DRAIN IV 111	Closes 39-11R by rotating control switch CCW to CLOSE	Pass/Fail
<input type="checkbox"/> 39-12R, EMERG CNDSR STM SUPPLY DRAIN IV 112	Closes 39-12R by rotating control switch CCW to CLOSE	Pass/Fail
<input type="checkbox"/> 05-01R, EMERG COND VENT ISOLATION VALVE 111	Closes 05-01R by rotating control switch CCW to CLOSE	Pass/Fail
<input type="checkbox"/> 05-11, EMERG COND VENT ISOLATION VALVE 112	Closes 05-11 by rotating control switch CCW to CLOSE	Pass/Fail

Role Play: As SM, provide concurrence for isolating EC 11.

Terminating Cue: EC 11 is isolated due to tube leak.

RECORD STOP TIME _____

Initial Conditions:

1. Emergency Condenser (EC) 11 is out of service per N1-OP-13 section H.8.1 following corrective maintenance.
2. Work is complete and EC 11 is ready to be returned to service.
3. Non-Destructive Evaluation (NDE) has determined EC steam leg level to be 6 ft 11 inches.

Initiating Cues:

“(Operator’s name), return EC 11 to service per N1-OP-13 section H.8.0.”

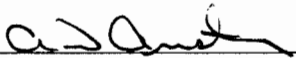
NRC JPM S-7
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: EDG 103 S/D-- PB 103 Return to Normal Power
(Alternate Path)

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 3/8/12
General Supervisor Date
Operations Training (Designee)

N/A – Exam Security /
General Supervisor Date
Operations (Designee)

N/A – Exam Security /
Configuration Control Date

Performer: _____(RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: X Perform _____ Simulate

Evaluation Location: _____ Plant X Simulator

Expected Completion Time: 20 Minutes Time Critical Task: No Alternate Path Task: Yes

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluators Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

NMP Unit 1 Simulator

Simulator Set-up (if required):

1. Initialize Simulator to IC-164.
2. Verify PB 103 is supplied by EDG 103 per N1-OP-45 section E.3.0.
3. Verify CRD Pump 11 in service.
4. Verify the Annunciator L1-4-5 is overridden to "Fail Off", to simulate alternate SFP pump in service.
5. Verify malfunction RD35B is inserted as "TRUE", to simulate prevent start of 12 CRD pump.
6. Verify override 5DS267LO2348 is inserted as "OFF", to simulate prevent start of 12 CRD pump.
7. Verify malfunction DG05B is inserted as "TRUE" for failure of EDG 103 to stop.

Directions to the Instructor/Evaluator:

None

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the independent/peer verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading areas **Pass/Fail**.
2. During Evaluated JPM:
 - Self verification shall be demonstrated.
3. During Training JPM:
 - Self verification shall be demonstrated.
 - No other verification shall be demonstrated.

References:

1. NUREG 1123, 264000, A4.04, RO 3.7, SRO 3.7
2. N1-OP-45

Tools and Equipment:

1. None

Task Standard: Shutdown EDG 103 and reenergize PB 103.

Initial Conditions:

1. EDG 103 is supplying PB 103 due to maintenance on breaker R1013.
2. EDG 103 has been at minimum load for the past hour and at 700 KW for the previous 24 hours.
3. 115 KV power is stable.
4. N1-OP-45 section G.2 is complete through step 2.6.
5. Instructor to ask operator for any questions.

Initiating Cues:

“(Operator’s name), shutdown EDG 103 and return PB 103 to normal power in accordance with N1-OP-45, beginning at step G.2.7.”

Performance Steps	Standard	Grade
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used (GAP-OPS-01)	Sat/Unsat

RECORD START TIME _____

2. Obtain a copy of the reference procedure and review/utilize the correct section of the procedure	N1-OP-45 obtained Precautions & limitations reviewed Section G.2 referenced	Sat/Unsat
3. Verify GREEN flagged R1013, PB 103 Normal Power Supply Breaker	Rotates R1013 control switch CW from PTL to neutral	Pass/Fail
4. Place and HOLD in TRIP position R1032, Diesel Generator 103 Output Breaker	Rotates R1032 control switch CCW and holds in trip position	Pass/Fail
5. When 3 to 5 seconds has elapsed, close R1013	Rotates R1013 control switch CW, observes red light on, green light off	Pass/Fail
6. Confirm normal voltage on PB 103 and PB 17B	Observes ~4160 VAC on PB 103 voltmeter, and observes ~600 VAC on PB 17B voltmeter	Sat/Unsat
7. Return R1032 to Neutral Position	Releases R1032 to the neutral position	Pass/Fail

Performance Steps	Standard	Grade
<p>8. Reset Lockout 86-17 device</p> <p>Note: Lockout device may not need to be reset if R1013 is closed closer to 3 seconds than 5 seconds (Step 5 above)</p>	Rotates 86-17 control switch CW to reset position	Pass/Fail/NA
<p>9. Install Close fuse for CRD pump 12</p> <p>Cue: Field operators will install fuse.</p> <p>Note: Delete malfunction RD35B & override 5DS267L02348, then report close fuse for CRD pump 12 has been installed and independently verified.</p>	Proper communications used (GAP-OPS-01)	Sat/Unsat
<p>10. Verify Green light ON for CRD pump 12</p> <p>Note: The green light will not be lit until the instructor note in step 9 above is completed.</p> <p>Role Play: If informed to exit Technical Specification for CRD pump, acknowledge report.</p>	Observes CRD pump 12 green light on	Sat/Unsat
<p>11. Verify EDG Raw Water Cooling Pump started</p> <p>Cue: EDG 103 Raw Water Cooling Pump has started.</p>	Proper communications used (GAP-OPS-01)	Sat/Unsat
<p>12. Restore normal loads on PB17B</p> <p>Cue: Another operator will restore PB17B loads.</p>	Proper communications used (GAP-OPS-01)	Sat/Unsat
<p>13. IF EDG has run idle for 8 hours OR operated less than 500 KW for 4.5 hours, THEN shutdown EDG per Section G, Recovery after Light Load Operation</p> <p>Note: This step is N/A based on initial conditions.</p>	Determines step is N/A based on initial conditions	Sat/Unsat
<p>14. Verify Speed Droop set to zero</p> <p>Cue: EDG 103 Speed Droop set to zero</p>	Proper communications used (GAP-OPS-01)	Sat/Unsat

Performance Steps	Standard	Grade
15. Adjust Governor to achieve greater than or equal to 60.1 Hz synchronous speed AND the Governor high speed light lit as follows.		
a. Adjust speed until governor yellow high speed light is lit	Raises EDG 103 speed as necessary by rotating governor control switch CCW, observes yellow high speed light lit	Sat/Unsat
b. Adjust speed to achieve greater than or equal to 60.1 Hz with a maximum of 60.2 Hz.	Raises EDG 103 speed as necessary by rotating governor control switch CCW, and observes EDG 103 frequency of 60.1-60.2 Hz	Sat/Unsat
Note: This step may be N/A based on EDG speed.		
16. Independently verify speed greater than or equal to 60.1 HZ (max 60.2 Hz)	Proper communications used (GAP-OPS-01)	Sat/Unsat
Cue: Speed is as you adjusted it.		
17. Adjust voltage to 4200 V using VOLT ADJ RHEO GEN 103	Raises EDG 103 voltage as necessary by rotating voltage regulator control switch CCW, and observes voltage ~4200V	Sat/Unsat
18. Place DIESEL GEN 103 control switch in STOP	Rotates EDG 103 control switch CCW to STOP position, observes EDG 103 output voltage lower	Pass/Fail
19. When approximately 3 minute cooldown has elapsed, verify EDG 103 stopped	Recognizes that EDG did not stop as it should have	Sat/Unsat
Cue: Time compression is in effect, 4 minutes have elapsed.		
Note: The applicant should recognize that the EDG should have stopped.		
20. If the EDG did not shutdown, refer to Section G.8.0, Emergency Shutdown	Refers to N1-OP-45 section G.8.0, Emergency Shutdown	Sat/Unsat
21. If offsite power is not available, THEN verify R1012 OR 1013 in Pull-To-Lock	Determines offsite power is available per initial conditions	Sat/Unsat
Note: This step is N/A, Offsite power is available per the initial conditions.		

Performance Steps	Standard	Grade
<p>22. IF loss of 125 VDC power is lost due to loss of Battery Board 11, THEN enter N1-SOP-47A.1 to restore 125 VDC power</p> <p>Note: This step is N/A, 125 VDC is available.</p>	Determines 125 VDC power is available based on various control room indications	Sat/Unsat
<p>23. Place DIESEL GEN control switch to EM STOP</p> <p>Role Play: If contacted to shutdown EDG locally, report that communications have failed and no one can be dispatched to shutdown the EDG locally</p>	Rotates EDG 103 control switch CCW to EM STOP position, observes EDG 103 frequency lower	Pass/Fail

Terminating Cue: EDG 103 stopped and PB 103 energized.

RECORD STOP TIME _____

Initial Conditions:

1. EDG 103 is supplying PB 103 due to maintenance on breaker R1013.
2. EDG 103 has been at minimum load for the past hour and at 700 KW for the previous 24 hours.
3. 115 KV power is stable.
4. N1-OP-45 section G.2 is complete through step 2.6.

Initiating Cues:

“(Operator’s name), shutdown EDG 103 and return PB 103 to normal power in accordance with N1-OP-45, beginning at step G.2.7.”

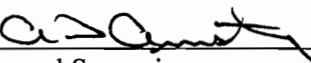
NRC JPM S-8
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Reset Reactor Scram

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 3/8/13
General Supervisor Date
Operations Training (Designee)

N/A - Exam Security /
General Supervisor Date
Operations (Designee)

N/A - Exam Security /
Configuration Control Date

Performer: _____ (RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: ☒ Perform ☐ Simulate

Evaluation Location: ☐ Plant ☒ Simulator

Expected Completion Time: 10 minutes Time Critical Task: No Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator's Signature: _____

Date: _____

Recommended Start Location: Simulator

Simulator Set-up (if required):

1. Initialize Simulator to IC-165.
2. Verify a Reactor scram is inserted and NOT yet reset.
3. Verify all automatic scram signals are clear, with the exception of SDV high level.
4. Verify all N1-SOP-1 steps are completed up to bypassing SDV high level trip.
5. Markup N1-SOP-1 to the conditional step to bypass SDV high level trip.
6. Set trigger 1 event as "zcrprest==1".
7. Set trigger 1 command as "set rdlldv = 390".

Directions to the Instructor/Evaluator:

None

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the independent/peer verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading area as **Pass/Fail**.
2. During Evaluated JPM:
 - Self verification shall be demonstrated.
3. During Training JPM:
 - Self verification shall be demonstrated.
 - Peer verification shall be demonstrated.

References:

1. NUREG 1123, 295006 AA1.07 (4.1/4.1)
2. N1-SOP-1

Tools and Equipment: None

Task Standard: Reactor scram reset, all control rods verified at position 00, and SDV high level scram un-bypassed.

Initial Conditions:

1. A manual Reactor scram was initiated 5 minutes ago due to high Turbine vibrations.
2. N1-SOP-1, Reactor Scram, is being executed.
3. Instructor to ask operator for any questions.

Initiating Cue:

“(Operator’s name), reset the Reactor scram, verify all control rods are at position 00, and un-bypass the SDV high level trip, per N1-SOP-1.”

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used (GAP-OPS-01)	Sat/Unsat
RECORD START TIME _____		
2. Obtain a copy of the reference procedure and review/utilize the correct section of the procedure	N1-SOP-1 obtained	Sat/Unsat
3. If ALL rod motion has stopped, then place both SCRAM DISCHARGE VOLUME HIGH LEVEL BYPASS switches in BYPASS	Rotates SCRAM DISCHARGE VOL HIGH LEVEL BYPASS CH 11-1/12-1 switch CW to BYPASS	Pass/Fail
	Rotates SCRAM DISCHARGE VOL HIGH LEVEL BYPASS CH 11-2/12-2 switch CW to BYPASS	Pass/Fail
4. If auto-initiated scram signals have cleared on CH 11 or CH 12, then:	Observes all auto-initiated scram signals have cleared or been bypassed (SDV high level)	Sat/Unsat
5. Verify at least 1 CRD pump in service	Observes CRD pump green light off, red light on, amps	Sat/Unsat
6. Reset Reactor Scram	Depresses REACTOR TRIP RESET pushbutton	Pass/Fail
7. Verify ALL control rods inserted to position 04 OR beyond by observing one OR more of the following: <ul style="list-style-type: none"> • Full Core Display • Demand new OD-7 Option 2 (Control Rod Notch Positions) • K104A&B Red LED lights LIT (1S20 Aux CR) • All RODS IN Light Illuminated (Remote Shutdown Panel) 	Observes all control rods are inserted to position 00	Sat/Unsat

<i>Performance Steps</i>	<i>Standard</i>	<i>Grade</i>
8. Confirm the following valves open:		
• 44.2-15 AND 44.2-16, CONTROL ROD DRIVE DUMP VOL VENT VALVE	Observes 44.2-15 green light off, red light on	Sat/Unsat
	Observes 44.2-16 green light off, red light on	Sat/Unsat
• 44.2-17 AND 44.2-18, CONTROL ROD DUMP VOL DRAIN IV	Observes 44.2-17 green light off, red light on	Sat/Unsat
	Observes 44.2-18 green light off, red light on	Sat/Unsat
9. Confirm F3-2-4, CRD DRAIN - VENT VALVE CLOSED, clear.	Observes F3-2-4 NOT lit	Sat/Unsat
10. If:		
• F3-1-4, CONT ROD DRIVE SCRAM DUMP VOLUME WTR LVL HIGH, clears	Observes F3-1-4 NOT lit	Sat/Unsat
AND		
• F1-1-8, RPS CH 11 SCRAM DUMP VOL WTR LVL HIGH, clears	Observes F1-1-8 NOT lit	Sat/Unsat
AND		
• F4-1-1, RPS CH 12 SCRAM DUMP VOL WTR LVL HIGH, clears	Observes F4-1-1 NOT lit	Sat/Unsat
then:		
Note: It will take a few minutes after the scram is reset for these annunciators to clear.		
11. Place SCRAM DISCHARGE VOL HIGH LEVEL BYPASS switches to DISCH VOL.	Rotates SCRAM DISCHARGE VOL HIGH LEVEL BYPASS CH 11-1/12-1 switch CCW to DISCH VOL.	Pass/Fail
	Rotates SCRAM DISCHARGE VOL HIGH LEVEL BYPASS CH 11-2/12-2 switch CCW to DISCH VOL.	Pass/Fail
12. Confirm F3-3-4, RPS CRD SCRAM DUMP VOL BY-PASS, clears.	Observes F3-3-4 NOT in alarm	Sat/Unsat

Terminating Cue: Reactor scram reset, all control rods verified at position 00, and SDV high level scram un-bypassed.

RECORD STOP TIME _____

Initial Conditions:

1. A manual Reactor scram was initiated 5 minutes ago due to high Turbine vibrations.
2. N1-SOP-1, Reactor Scram, is being executed.

Initiating Cue:

“(Operator’s name), reset the Reactor scram, verify all control rods are at position 00, and un-bypass the SDV high level trip, per N1-SOP-1.”

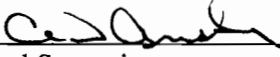
NRC JPM P-1
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Initiating Emergency Cooling System #11 Locally

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 3/8/17
General Supervisor Date
Operations Training (Designee)

N/A – Exam Security /
General Supervisor Date
Operations (Designee)

N/A – Exam Security /
Configuration Control Date

Performer: _____ (RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: _____ Perform X Simulate

Evaluation Location: X Plant _____ Simulator

Expected Completion Time: 15 minutes Time Critical Task: No Alternate Path Task: Yes

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluators Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

Turbine Building elevation 261'

Simulator Set-up (if required):

None

Directions to the Instructor/Evaluator:

Prior to performance of this JPM, obtain SM / CRO general permission to open equipment cabinets and inspection covers. If opening the equipment cabinet or inspection cover will affect Tech. Spec. Operability, operational status, or the effects are unknown, obtain specific SM / CRO permission.

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the independent/peer verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading areas **Pass/Fail**. All steps are sequenced critical unless denoted by a "•".
2. During Evaluated JPM:
 - Self verification shall be demonstrated.
3. During Training JPM:
 - Self verification shall be demonstrated.

References:

1. NUREG 1123, 207000, A2.08, RO 3.8, SRO 3.8
2. N1-OP-13

Tools and Equipment:

None

Task Standard: Emergency Condenser Loop 12 placed in service locally.

Initial Conditions:

1. The Reactor has failed to scram and N1-EOP-3 has been entered.
2. The Emergency Condenser Condensate Return Valves have failed to open.
3. N1-OP-13 section H.2 is complete through step 2.3.
4. Instructor to ask operator for any questions.

Initiating Cues:

“(Operator’s name), place Emergency Condenser Loop 11 in service by opening the Condensate Return Valve locally in accordance with N1-OP-13 starting at step H.2.4.”

Performance Steps	Standard	Grade
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used for repeat back (GAP-OPS-01)	Sat/Unsat

RECORD START TIME _____

2. Obtain a copy of the reference procedure and review/utilize the correct section of the procedure	N1-OP-13 obtained, precautions & limitations reviewed & section H.2 referenced	Sat/Unsat
3. Close 113-529, BV-IA Manifold Supply to – A-22110-C SH. 14.	113-529 handwheel rotated fully CW	Pass/Fail

Cue: The indicated handwheel is rotated fully in the direction indicated.

4. Using wrench, remove cap from 113-530, Vent-IA Manifold	Cap removed from 113-530 by rotating CCW	Pass/Fail
--	--	------------------

Cue: The cap is removed.

Note: A wrench is hanging below the air pipe.

5. Open 113-530	113-530 handwheel rotated fully CCW	Pass/Fail
-----------------	-------------------------------------	------------------

Cue: The indicated handwheel is rotated fully in the direction indicated. No air flow is heard.

Role Play: If contacted as Control Room, report that Emergency Condenser 11 has NOT gone into service.

Performance Steps	Standard	Grade
<u>Role Play:</u> If contacted as Control Room on how to proceed, direct initiation of Emergency Condenser 12 locally.		
6. Close 113-532, BV-IA MANIFOLD SUPPLY TO - A-22110-C SH.14	113-532 handwheel rotated fully CW	Pass/Fail
<u>Cue:</u> The indicated handwheel is rotated fully in the direction indicated.		
7. Using wrench, remove cap from 113-533, Vent-IA Manifold	Cap removed from 113-533 by rotating CCW	Pass/Fail
<u>Cue:</u> The cap is removed.		
<u>Note:</u> A wrench is hanging below the air pipe.		
8. Open 113-533	113-533 handwheel rotated fully CCW	Pass/Fail
<u>Cue:</u> The indicated handwheel is rotated fully in the direction indicated. Air flow is heard.		
<u>Role Play:</u> If contacted as Control Room, report that Emergency Condenser 12 has gone into service.		
9. Reports task completion.	Proper communications used for repeat back (GAP-OPS-01)	Sat/Unsat

Terminating Cue: Emergency Condenser Loop 12 placed in service locally.

RECORD STOP TIME _____

Initial Conditions:

1. The Reactor has failed to scram and N1-EOP-3 has been entered.
2. The Emergency Condenser Condensate Return Valves have failed to open.
3. N1-OP-13 section H.2 is complete through step 2.3.

Initiating Cues:

"(Operator's name), place Emergency Condenser Loop 11 in service by opening the Condensate Return Valve locally in accordance with N1-OP-13 starting at step H.2.4."

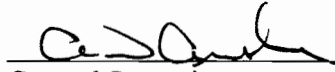
NRC JPM P-2
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Respond to RBCLC Makeup Tank Level Alarm

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 3/8/0
General Supervisor Date
Operations Training (Designee)

N/A – Exam Security /
General Supervisor Date
Operations (Designee)

N/A – Exam Security /
Configuration Control Date

Performer: _____ (RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: _____ Perform _____ X Simulate

Evaluation Location: X Plant _____ Simulator

Expected Completion Time: 15 minutes Time Critical Task: No Alternate Path Task: Yes

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluators Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

Turbine Building elevation 261'

Simulator Set-up (if required):

None

Directions to the Instructor/Evaluator:

Prior to performance of this JPM, obtain SM / CRO general permission to open equipment cabinets and inspection covers. If opening the equipment cabinet or inspection cover will affect Tech. Spec. Operability, operational status, or the effects are unknown, obtain specific SM / CRO permission.

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the independent/peer verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading areas **Pass/Fail**.
2. During Evaluated JPM:
 - Self verification shall be demonstrated.
3. During Training JPM:
 - Self verification shall be demonstrated.

References:

1. NUREG 1123, 295018, AA2.04 (2.9/2.9)
2. ARP H1-4-4

Tools and Equipment:

None

Task Standard: CLC makeup tank level restored to normal band.

Initial Conditions:

1. The Control Room has received annunciator H1-4-4, CLOSED LOOP COOL MAKEUP TANK LEVEL HIGH-LOW.
2. Computer point B115, CLC MU TK LVL – HIGH, is in alarm.
3. Control Room indications show CLC Makeup tank level is 7' and rising.
4. Annunciator H1-4-5, LQ PROCESS RAD MON, is NOT in alarm.
5. Instructor to ask operator for any questions.

Initiating Cues:

“(Operator’s name), perform the field actions for the high CLC Makeup tank level per ARP H1-4-4.”

Performance Steps	Standard	Grade
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used for repeat back (GAP-OPS-01)	Sat/Unsat
RECORD START TIME _____		
2. Obtain a copy of the reference procedure and review/utilize the correct section of the procedure	ARP H1-4-4 obtained	Sat/Unsat
3. Check status of annunciator H1-4-5 AND if in alarm, perform applicable actions of Ann. H1-4-5 AND continue with actions below	Determines from initial conditions that H1-4-5 is NOT in alarm	Sat/Unsat
4. Close 71-229, BV-CLC MAKE-UP TANK INLET FROM MAKE-UP LCV	Closes 71-229 by rotating handwheel fully CW	Pass/Fail
<u>Cue:</u> The indicated handwheel is rotated fully in the indicated direction.		
5. Open 71-224, DRAIN - CLC MAKE-UP TANK	Opens 71-224 by rotating handwheel CCW	Pass/Fail
<u>Cue:</u> The indicated handwheel is rotated in the direction indicated.		
6. WHEN level is restored to normal range, close 71-224, DRAIN - CLC MAKE-UP TANK	Observes CLC Makeup tank level	Sat/Unsat
<u>Cue:</u> CLC Makeup tank level indicates 6' and slowly lowering.		
<u>Cue:</u> The indicated handwheel is rotated fully in the direction indicated.	Closes 71-224 by rotating handwheel fully CW	Pass/Fail

Performance Steps	Standard	Grade
7. IF level is steady, THEN reopen 71-229 and monitor operation	Observes CLC Makeup tank level	Sat/Unsat
Cue: CLC Makeup tank level indicates 7' and slowly rising.	Does NOT reopen 71-229	Sat/Unsat
8. IF level continues to rise, THEN throttle 71-224, CLC MU TANK DRAIN as necessary and notify SM	Opens 71-224 by rotating handwheel CCW	Pass/Fail
Cue: The indicated handwheel is rotated in the direction indicated.		
Cue: CLC Makeup tank level indicates 6' and stable.	Observes CLC Makeup tank level	Sat/Unsat
9. Reports task completion.	Proper communications used (GAP-OPS-01)	Sat/Unsat

Terminating Cue: CLC makeup tank level restored to normal band.

RECORD STOP TIME _____

Initial Conditions:

1. The Control Room has received annunciator H1-4-4, CLOSED LOOP COOL MAKEUP TANK LEVEL HIGH-LOW.
2. Computer point B115, CLC MU TK LVL – HIGH, is in alarm.
3. Control Room indications show CLC Makeup tank level is 7' and rising.
4. Annunciator H1-4-5, LQ PROCESS RAD MON, is NOT in alarm.

Initiating Cues:

“(Operator’s name), perform the field actions for the high CLC Makeup tank level per ARP H1-4-4.”

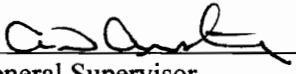
NRC JPM P-3
Constellation Energy Nuclear Group
NINE MILE POINT UNIT 1
OPERATOR JOB PERFORMANCE MEASURE

Title: Lineup to Flood the Reactor Vessel Using the Diesel Fire Pump

Revision: NRC 2013

Task Number: N/A

Approvals:

 / 3/11/13
General Supervisor Date
Operations Training (Designee)

N/A – Exam Security /
General Supervisor Date
Operations (Designee)

N/A – Exam Security /
Configuration Control Date

Performer: _____ (RO/SRO)

Trainer/Evaluator: _____

Evaluation Method: _____ Perform X Simulate

Evaluation Location: X Plant _____ Simulator

Expected Completion Time: 15 minutes Time Critical Task: No Alternate Path Task: No

Start Time: _____ Stop Time: _____ Completion Time: _____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluators Signature: _____

Date: _____

Recommended Start Location: (Completion time based on the start location)

NMP Unit 1 Turbine Building Elevation 261'

Simulator Set-up (if required):

None

Directions to the Instructor/Evaluator:

Prior to performance of this JPM, obtain SM / CRO general permission to open equipment cabinets and inspection covers. If opening the equipment cabinet or inspection cover will affect Tech. Spec. Operability, operational status, or the effects are unknown, obtain specific SM / CRO permission.

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CRO, and Plant Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

With the exception of accessing panels, NO plant equipment will be physically manipulated. Repositioning of devices will be simulated by discussion and acknowledged by my cues.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore, it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the independent/peer verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified in grading areas **Pass/Fail**.
2. During Evaluated JPM:
 - Self verification shall be demonstrated.
3. During Training JPM:
 - Self verification shall be demonstrated.
 - No other verification shall be demonstrated.

References:

1. NUREG 1123 KA 295031 EA1.08, RO 3.8, SRO 3.9
2. N1-SOP-21.2, Attachment 4

Tools and Equipment:

1. None

Task Standard: Fire system water entering the RPV through the Feedwater System

Initial Conditions:

1. The Control Room has been evacuated due to a fire.
2. N1-SOP-21.2 has been entered.
3. Instructor to ask for any questions.

Initiating Cues:

“(Operator’s name), inject water into the RPV in accordance with N1-SOP-21.2, Attachment 4, using the Diesel Fire Pump.”

Performance Steps	Standard	Grade
1. Provide repeat back of initiating cue <i>Evaluator acknowledge repeat back providing correction if necessary</i>	Proper communications used (GAP-OPS-O1)	Sat/Unsat

RECORD START TIME _____

2. Obtain a copy of the reference procedure and review/utilize the correct section of the procedure.	N1-SOP-21.2, Attachment 4 obtained	Sat/Unsat
3. Verify locked closed the following valves (TB 261’):		
• 29-07, FIRE WATER TO FEED WATER AFTER SPOOL PIECE (FS-62)	29-07 verified closed by ensuring handwheel in fully CW position and locking device installed	Sat/Unsat
• 100-33, FIRE WATER FEED WATER SPOOL PIECE INLET (FS-63)	100-33 verified closed by ensuring handwheel in fully CW position and locking device installed	Sat/Unsat

Cue: Valves 29-07 and 100-33 are LOCKED closed.

Note: Have applicant show where the spool piece and tools are located (next to entrance of the Demin Recycle Valve Room, TB 261’, and in the gang box labeled “For EOP Use Only, Box 1” on the floor beneath the spool piece) and where spool piece is to be installed. The EOP tool box should not be entered.

Locates spool piece and tools

Pass/Fail

Cue: The spool piece has been installed by a Damage Control Team. N1-SOP-21.2 Attachment 4 steps 2-4 have been verified complete.

Proper communications used (GAP-OPS-O1)

Sat/Unsat

Performance Steps	Standard	Grade
7. Unlock the following valves:		
<ul style="list-style-type: none"> 100-33, FIRE WATER TO FEED WATER SPOOL PIECE INLET (FS-63) 	Lock and restraint removed from 100-33	Pass/Fail
<ul style="list-style-type: none"> 29-07, FIRE WATER TO FEED WATER AFTER SPOOL PIECE (FS-62) 	Lock and restraint removed from 29-07	Pass/Fail
Cue: Valves 100-33 and 29-07 are unlocked		
8. Supply the fire header by performing one of the following:		
<ul style="list-style-type: none"> Start Diesel Fire Pump. 	Examinee utilizes Diesel Fire Pump option per initial conditions	Sat/Unsat
Cue: Once Candidate addresses the need to start the Diesel Fire Pump, report that another Operator in the screenhouse has started the Diesel Fire Pump.	Proper communications used (GAP-OPS-01)	Sat/Unsat
9. When directed by the CRS/SM, open the following valves to begin injection into RPV:	Determines direction has already been given in initiating cue	
<ul style="list-style-type: none"> 29-07, FIRE WATER TO FEED WATER AFTER SPOOL PIECE 	29-07 opened by turning handwheel fully CCW	Pass/Fail
<ul style="list-style-type: none"> 100-33, FIRE WATER TO FEED WATER SPOOL PIECE INLET 	100-33 opened by turning handwheel fully CCW	Pass/Fail
Cue: Valves 29-07 and 100-33 are open and injection to the RPV has commenced		
10. Verify no leakage at spool piece connections	Verifies by visual inspection that there is no leakage at the spool piece connections	Sat/Unsat
Cue: There is no leakage from the spool piece connections		
11. Notifies CRS/SM that fire water is being injected to the RPV	Proper communications used (GAP-OPS-01)	Sat/Unsat
Role Play: Acknowledge report		

Terminating Cue: Fire System water entering the RPV through the Feedwater System

RECORD STOP TIME _____

Initial Conditions:

1. The Control Room has been evacuated due to a fire.
2. N1-SOP-21.2 has been entered.

Initiating Cues:

“(Operator’s name), inject water into the RPV in accordance with N1-SOP-21.2, Attachment 4, using the Diesel Fire Pump.”

NMP SIMULATOR SCENARIO

NRC Scenario 1

REV. 0

No. of Pages: 24

FWBP Trip, Loss of PB 11, Steam Leak in Containment, HPCI & CS Fail to Auto-Initiate,
Containment Spray Pump Trips

PREPARER

 PAUL ISHAM

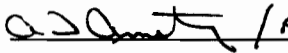
DATE 3/7/13

VALIDATED

Grapes, Lavallee, M. O'Brien

DATE 12/19/12

GEN SUPERVISOR
OPS TRAINING

 J. J. Armstrong

DATE 3/7/13

OPERATIONS
MANAGER

N/A – Exam Security

DATE _____

CONFIGURATION
CONTROL

N/A – Exam Security

DATE _____

SCENARIO SUMMARY

Length: 60 minutes

Initial Power Level: Approximately 95%

The scenario begins at approximately 95% power. Containment Spray pump 112 is out of service for maintenance. Steam Packing Exhauster 12 is caution tagged due to high vibrations. The crew will remove Recirculation pump 12 from service for maintenance while maintaining Reactor power near the initial value. The CRS will determine the appropriate four-loop operating limitations per Tech Specs.

Then, Feedwater Booster pump 11 will trip. The standby Feedwater Booster pump will fail to auto-start. The crew will manually start the standby Feedwater Booster pump to restore normal system pressures. The CRS will determine the Tech Spec impact for loss of a redundant HPCI component.

Next, Powerboard 11 will de-energize due to an electrical fault. This will cause loss of multiple major loads, including a second Recirculation pump, a Service Water pump, and a Circulating Water pump. The crew will respond per N1-SOP-30.1. This will include lowering Reactor power to restore the plant within single Circulating Water pump operating limitations. The CRS will determine the Tech Spec impact of this power loss.

Next, a steam leak will develop inside Primary Containment. The crew will scram the Reactor and execute N1-EOP-2, RPV Control, and N1-EOP-4, Primary Containment Control. After the scram, Feedwater pump 13 will dis-engage early and Feedwater will fail to automatically shift to the HPCI flow-control mode on low Reactor water level. At lower Reactor pressure, Core Spray Isolation Valves will also fail to automatically open. The crew will be able to restore and maintain Reactor water level by manually injecting with preferred and alternate systems

(Critical Task). Two Torus-to-Drywell vacuum breakers will fail open, resulting in some steam escaping from the Drywell directly into the Torus airspace. When the crew initiates Containment Spray, Containment Spray pump 111 will trip. These failures will further degrade Primary Containment pressure control. The Pressure Suppression Pressure (PSP) will be exceeded. The crew will blowdown the Reactor per N1-EOP-8 **(Critical Task)**.

Major Procedures: N1-OP-1, N1-SOP-16.1, N1-SOP-30.1, N1-SOP-1.3, N1-SOP-1.1, N1-SOP-1, N1-EOP-1, N1-EOP-2, N1-EOP-4, and N1-EOP-8

Dynamic Mitigation Strategy Code: PC4, RPV Blowdown due to PSP

EAL Classification: Alert EAL 3.1.1 – High Drywell Pressure

Termination Criteria: RPV water level controlled in assigned band, RPV Blowdown in progress, Primary Containment pressure maintained per N1-EOP-4

I. SIMULATOR SET UP

A. IC Number: IC-151

B. Presets/Function Key Assignments

1. Malfunctions:

- | | |
|---|--------|
| a. CT01B, CT Pump 112 Trip | PRESET |
| b. FW02A, FEEDWATER BOOSTER PUMP TRIP 11 | TRG 1 |
| c. ED04, PB 11 Electrical Fault | TRG 2 |
| d. EC01, Steam Supply Line Break in PC, FV=11% | TRG 3 |
| e. FW06, SHAFT DRIVEN FEEDWATER PUMP CLUTCH FAILS
– DISENGAGES, Delay=20 seconds | TRG 23 |
| f. PC10A, BV 68-01 Fails Open, Delay=2:00 | TRG 23 |
| g. PC10C, BV 68-03 Fails Open, Delay=2:00 | TRG 23 |
| h. FW28A, HPCI MODE FAILURE TO INITIATE 11 | PRESET |
| i. FW28B, HPCI MODE FAILURE TO INITIATE 12 | PRESET |
| j. CS07, CS Injection Valves Failure to Auto Open | PRESET |
| k. CT01A, CT Pump 111 Trip | PRESET |

2. Remotes:

- a. None

3. Overrides:

- | | |
|--|--------|
| a. 7S43DI4116, POS_3 4H17/51-02A C FRM B, FV=off
(FWBP 13 auto-start failure) | PRESET |
|--|--------|

4. Annunciators:

- a. None

5. Triggers:

- | | |
|---|--|
| a. TRG 23 – Initiates when the mode switch is taken to SHUTDOWN | |
| i. Event Action: zdrpstdn==1 | |
| ii. Command: imf ec01 (0 0) 30 4:00 11 | |
| b. TRG 24 – Initiates when Containment Spray flow is initiated | |
| i. Event Action: ctfdw>100 | |
| ii. Command: imf ec01 (0 0) 45 1:00 30 | |

C. Equipment Out of Service

1. Containment Spray pump 112 in PTL with yellow tag
2. Containment Spray suction valve 112 closed with yellow tag
3. Steam Packing Exhauster 12 green-flagged with yellow tag

D. Support Documentation

1. RMI for Recirculation pump stop

E. Miscellaneous

1. Note the failure of Core Spray to automatically inject is required to make the manual establishment of preferred and alternate injection sources a critical task when HPCI fails to automatically initiate.
2. Ensure Drywell cooling fan 11 is secured with control switch in neutral.
3. Ensure Service Water pump 11 is running and Service Water pump 12 is secured.
4. Protect the following equipment: EDG 103, PB 103, PB 12
5. Update Divisional Status Board

II. SHIFT TURNOVER INFORMATION

OFF GOING SHIFT: ☐ N ☒ D DATE: Today

PART I: To be performed by the oncoming Operator before assuming the shift.

- Control Panel Walkdown (all panels) (SM, CRS, STA, RO, CRE)

PART II: To be reviewed by the oncoming Operator before assuming the shift.

- Shift Manager Log (SM, CRS, STA)
- RO Log (RO)
- Lit Control Room Annunciators (SM, CRS, STA, RO, CRE)
- Shift Turnover Checklist (ALL)
- LCO Status (SM, CRS, STA)
- Computer Alarm Summary (RO)

Evolutions/General Information/Equipment Status:

- Reactor power is approximately 95%.
- Containment Spray pump 112 is out of service for maintenance (Day 1 of planned 2 day window; 15 day LCO per TS 3.3.7.b).
- Steam Packing Exhauster 12 is caution tagged due to high vibrations.

PART III: Remarks/Planned Evolutions:

Remove Recirculation pump 12 from service per N1-OP-1 Section H.1.0. Maintain Reactor power near the initial value as Recirculation pump 12 is secured. Recirculation pump 12 will be out of service for greater than 24 hours.

PART IV: To be reviewed/accomplished shortly after assuming the shift:

- Review new Clearances (SM)
- Shift Crew Composition (SM/CRS)
- Test Control Annunciators (CRE)

TITLE	NAME	TITLE	NAME
SRO			
ATC RO			
BOP RO			

ATTACHMENT 2: REACTIVITY MANEUVER INSTRUCTION

Reactivity Maneuver: Recirc Pump Shutdown

Step: 1

INITIAL CONDITIONS/STEP DESCRIPTION					
RE presence required in the Control Room? Yes ___ No <u>✓</u> If YES above, RE presence not required for steps _____. Initial conditions to be verified prior to initiation of step:					
Parameter	Expected Range	Actual	Parameter	Expected Range	Actual
CTP	1740-1780 MWth				
Description of Step: Secure Recirculation pump 12 per N1-OP-1 Section H.1.0. Maintain Reactor power near the initial value as the pump is secured.					
Critical parameters to be monitored DURING Step: Critical parameters not used must be deleted OR marked N/A					
Critical Parameter	Limit	Owner	Frequency	Contingency	
Recirc Flow	35-67.5 Mlbm/hr	RO	Continuous	Stop evolution and consult RE.	
RMI evaluated against approved power profile: <input checked="" type="checkbox"/> N/A <input type="checkbox"/> .					
Other Comments:					
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Step Prepared by: <u>Alex Reed</u> / <u>Today</u> <div style="display: flex; justify-content: space-between; width: 100%;"> RE/STA Date </div> </div> <div style="width: 45%;"> Step Reviewed by: <u>Jack Dean</u> / <u>Today</u> <div style="display: flex; justify-content: space-between; width: 100%;"> RE/STA/SRO Date </div> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> Approval to perform Step <u>John Aaron</u> / <u>Today</u> <div style="display: flex; justify-content: space-between; width: 100%;"> Shift Manager Date </div> </div> <div style="width: 45%;"> Step Completed by: _____ / _____ <div style="display: flex; justify-content: space-between; width: 100%;"> SRO Date </div> </div> </div>					

Critical Tasks:

- CT-1.0 Given a LOCA in the Drywell and a failure of HPCI to initiate, inject with preferred and alternate injection systems to restore and maintain RPV water level above -84 inches, in accordance with N1-EOP-2.

Safety Significance: Maintaining Reactor water level above -84 inches ensures adequate core cooling through the preferred method of core submergence. This protects the integrity of the fuel cladding.

Cueing: Multiple Reactor water level indicators and annunciators will provide indications of lowering Reactor water level. N1-EOP-2 provides multiple procedure steps directing injection with preferred and alternate injection systems.

Measurable Performance Indicators: Manipulation of pumps and/or valves in the preferred or alternate injection system(s) will provide observable actions for the evaluation team.

Performance Feedback: Multiple Reactor water level indicators and annunciators will provide performance feedback regarding the success of injection with preferred and alternate injection systems.

- CT-2.0 Given a LOCA in the Drywell and degraded Containment Spray capability, execute N1-EOP-8, RPV Blowdown, when it is determined Torus pressure cannot be maintained below the Pressure Suppression Pressure limit, in accordance with N1-EOP-4.

Safety Significance: A Blowdown is required to limit further release of energy into the Primary Containment and to ensure that the RPV is depressurized while pressure suppression capability is still available. This protects the integrity of the Primary Containment.

Cueing: Multiple Primary Containment pressure indicators and annunciators will provide indications. N1-EOP-4 provides direction to monitor the Pressure Suppression Pressure limit and blowdown if required.

Measurable Performance Indicators: The crew will manually open valves to initiate Emergency Condensers. The crew will manually open ERVs.

Performance Feedback: Emergency Condenser and ERV instrumentation will provide indication that these systems are functioning properly once placed in service. Multiple Reactor pressure indicators and annunciators will provide performance feedback regarding the success of the blowdown.

INSTRUCTOR ACTIONS/ PLANT RESPONSE

Take the simulator out of freeze before the crew enters for the pre-shift walkdown and briefing.
Allow no more than 5 minutes for panel walkdown.

Event 1 – Secure Recirculation Pump 12 While Maintaining Reactor Power

OPERATOR ACTIONS

CREW

- Conducts pre-brief, walks down the panels, assumes the shift

SRO

- Directs securing Recirculation pump 12 per N1-OP-1 Section H.1.0
- Provides oversight for evolution
- Determines Technical Specification 3.1.7.e allows Reactor power up to 100% with idled Recirculation loop
- Determines Core Operating Limits Report (COLR) requires APLHGR penalty

BOP

- Reviews N1-OP-1 Section H.1.0
- Determines Recirculation pump 12 is NOT in local lock
- Places RRECIRC PUMP 12 SPEED CONTROL in BAL AND nulls out Deviation Meter (top meter)
- Places RRECIRC PUMP 12 SPEED CONTROL AUTO/BAL/MAN switch to MAN
- Verifies open REACTOR R PUMP 12 BYPASS VALVE

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 1 continued

BOP continued

- IF desired by the Shift Manager to maintain the plant close to present power level, THEN perform next two steps alternately using up to 1.0×10^6 lbm/hr increments UNTIL Reactor Recirc Pump 12 flow is 6 to 8×10^6 lbm/hr:
 - Reduces Recirculation pump 12 flow up to 1×10^6 lbm/hr
 - Coordinates with ATC to maintain initial power level

ATC

- Monitors plant parameters
- Raises Total Recirc flow using the Master Recirc Controller to initial power level as required based on BOP actions
- Monitors APRMs, core flow, CTP, and Feedwater response

BOP

- Closes REACTOR R PUMP 12 DISCHARGE VALVE
- WHEN Discharge Valve is closed, places REACTOR RP MOTOR 12 MG SET switch to STOP
- Holds in OPEN position for 2 to 3 seconds, REACTOR R PUMP 12 DISCHARGE VALVE

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 1 continued

BOP continued

- IF MG set is to be out of service for greater than 24 hours, THEN verifies Electrical Maintenance notified to lift brushes off the Generator AND Exciter slip rings
- Refers to N1-OP-1 Section H.2.0 for 4 loop operations

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 2 – Feedwater Booster Pump 11 Trips,

Standby Pump Fails to Auto-Start

When directed by lead examiner, **insert malfunction:**

**FW02A, FEEDWATER BOOSTER PUMP TRIP 11
TRG 1**

The following **override** prevents Feedwater
Booster Pump 12 from Auto Starting on low header
discharge pressure:

**OVR-7S43DI4116 POS_3 4H17/51-02A C FRM B,
FV=off**

PRESET

RPV water level lowers

Feedwater Booster Pump header pressure lowers

Expected Annunciators:

H3-1-6, REACTOR FW BOOSTER P11 TRIP

H3-3-7, REACTOR FW PUMP 13 SUCTION

CREW

- Acknowledge/report annunciator H3-1-6 REACTOR FW BOOSTER P11 TRIP
- Diagnose trip of Feedwater Booster Pump 11

SRO

- Acknowledges report
- If BOP does not manually start FWBP 12, directs starting FWBP 12
- Enters Tech Spec 3.1.8.b
- Determines redundant component inoperable in HPCI train 11, thus 15 day LCO applies
- Initiates surveillance requirement 4.1.8.c for redundant component operability verification
- Notifies WEC/WWM
- Notifies Ops Management

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 2 continued

Role Play: When dispatched as Operator to investigate, wait 2 minutes, then report:

- FWBP 11 breaker tripped on overcurrent
- No abnormal indications at FWBP 12 breaker
- No abnormal indications at FWBP 11 or 12.

Role Play: When dispatched as Operator to swap HWC, wait 5 minutes and report that HWC injection has been transferred from FWBP 11 to FWBP 12.

ATC

- Monitors plant parameters
- May perform Emergency Power Reduction per N1-SOP-1.1 as required to maintain RPV water level

BOP

- Report alarm and respond per H3-1-6
- Confirms alarm on computer (E049 RX FW BOOST PMP 11 TRIP)
- Recognizes/diagnoses failure of the standby pump to automatically start
- Manually starts FWBP 12
- Notifies crew of failure of FWBP 12 to auto start
- Dispatches operators to shift Hydrogen Water Chemistry injection from FWBP 11 to FWBP 12

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 3 – Powerboard 11 Electrical Fault

When directed by lead examiner, **insert malfunction:**

ED04, PB 11 Electrical Fault

TRG 2

Reactor power lowers due to RRP trips

Reactor water level rises due to RRP trips

Expected Annunciators:

A4-1-1, PB 11 R113 TRIP

A4-4-2, POWER BD 16 LOW BUS VOLTAGE

L1-3-4, REACT BLDG/ATM DIFF PRESS

Also the following equipment trips:

Reactor Recirculation Pump 11

Drywell Fans 14, 15, 16

Condensate Pump 11

Circulating Water Pump 11

Service Water Pump 11

RBCLC Pump 11

TBCLC Pump 11

IAC 11

Reactor Building Exhaust Fan 11

CREW

- Diagnose/report loss of PB 11
- Recognize/report loss of:
 - Reactor Recirculation Pump 11
 - Drywell Fans 14, 15, 16
 - Condensate Pump 11
 - Circulating Water Pump 11
 - Service Water Pump 11
 - RBCLC Pump 11
 - TBCLC Pump 11
 - IAC 11
 - Reactor Building Exhaust Fan 11
- Recognize/report drop in Reactor power
- Recognize/report lowering condenser vacuum
- Recognize/report loss of Reactor Building D/P

SRO

- Acknowledges reports from crew
- Directs entry into N1-SOP-30.1
- Directs Emergency Power Reduction per N1-SOP-1.1 to stabilize condenser vacuum, as necessary
- Provides oversight for reactivity manipulation
- Directs entry into N1-SOP-1.3, Recirculation Pump Trip

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 3 continued

Note: On the loss of Powerboard 11, Recirc pump 11 trips. The APRMs are inoperable due to reverse flow through the tripped Recirc loop. The APRMs will be declared operable once the discharge valve is closed.

SRO continued

- Directs RO to re-energize Powerboards 16A and 13A-15A
- May enter N1-EOP-5, Secondary Containment Control, on loss of Reactor Building D/P
- Directs restoration of Reactor Building D/P with either RBVS or RBEVS
- May direct entry into N1-SOP-6.1 for loss of Spent Fuel Pool Cooling, as time permits
- Reviews Technical Specifications
- Acknowledges that the APRMs are inoperable while the RRP discharge valves are still open
- Determines Technical Specification 3.1.7.e limits Reactor power to 90% in 3 loop operation
- Determines Core Operating Limits Report (COLR) requires APLHGR and MCPR penalties
- Determines Technical Specification 3.1.8.b is entered again for loss of power to Feedwater pump 11 and Condensate pump 11

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 3 continued

Role Play:

If dispatched to investigate Powerboard 11, wait 2 minutes then report that the normal supply breaker (R113) tripped on overcurrent.

If dispatched to investigate Powerboard 16A, wait 2 minutes then report that there are no problems evident at Powerboard 16. Report that electrical maintenance has also looked at the Powerboard and concurs with re-energizing it.

Role Play:

If dispatched to lineup Steam Packing Exhauster 12, wait 4 minutes, then **insert remote:**

MS09, SPE 12 SUCTION VLV, FV=open

Then report task completion.

If asked to also close suction valve to Steam Packing Exhauster, wait 2 minutes, then **insert remote:**

MS08, SPE 11 SUCTION VLV, FV=close

Then report task completion.

ATC

- Acknowledges direction from SRO
- Confirms plant is stable by verifying:
 - No thermal hydraulic Instability
 - 3 Recirc pumps running
 - Not operating in the Restricted Zone
- Executes N1-SOP-1.1, Emergency Power Reduction, to lower recirc flow and/or insert CRAM rods to stabilize condenser vacuum, as required
- Determines plant operating point on the 3-loop power to flow curves

BOP

- Executes N1-SOP-30.1, Loss of Power Board 11
- Starts Service Water pump 12
- Coordinates with ATC to monitor APRMs and LPRMs
- Verifies TBCLC pump 12 running
- Verifies IAC 12 and/or 13 running
- Verifies RBCLC pump 12 running
- Verifies Steam Packing Exhauster 12 running
- Answers "Are A4-4-6, A4-4-7, A4-1-3 OR A5-2-8 in alarm" YES
- Determines Power Board 11 is faulted and cannot be reenergized

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 3 continued

Role Play: As operator when directed to energize Powerboards 13A-15A, acknowledge order. If asked about status during remainder of scenario, report that you are being briefed by the WEC.

Role Play: As operator when directed to restore Offgas vacuum pump, acknowledge order. If called for a status on actions, report that you are being briefed by the WEC.

Role Play: As operator when directed to investigate Spent Fuel Pool Cooling, wait 3 minutes and then report that SFPC pump 11 has tripped.

BOP continued

- Restores power to Powerboard 16A as follows:
 - Opens R1041
 - Closes R1042
 - Verifies Power Board 16B amps <962
- Dispatches operator to re-energize Power Boards 13A, 14A, and 15A
- Notifies SRO that APRMs are inoperable
- Closes Recirc pump 11 discharge valve
- Holds open for 2-3 seconds Recirc pump 11 discharge valve
- Records time when Recirc pump 11 discharge valve is cracked open
- Executes N1-SOP-1.3, Recirc Pump Trip, as time permits
- Dispatches operator to restore Offgas Vacuum Pump
- Enters N1-SOP-6.1 for loss of Spent Fuel Pool Cooling, as time permits
- Dispatches operator to investigate loss of Spent Fuel Pool Cooling, as time permits

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 3 continued

BOP continued

- Respond to either annunciator (or as directed by CRS) and restore RB D/P:
 - L1-1-5, RB VENT EXH FAN 11-12 TRIP – VIB
 - Verifies closed Reactor Building Exhaust Fan 11 outlet damper
 - Starts Reactor Building Exhaust Fan 12
 - L1-3-4, REACT BLDG/ATM DIFF PRESS
 - Starts RBEVS per OP-10

Possible actions in OP-10 Section H.1.0 to start RBEVS

- Verifies open 202-36, EM VENTILATION FROM REACTOR BLDG BV
- Verifies closed the following valves:
 - 202-47, EM VENTILATION TIE BV
 - 202-74, EM VENTILATION LOOP 11 COOLING BV
 - 202-75, EM VENTILATION LOOP 12 COOLING BV
- Places 202-37(38), EM VENTILATION LOOP 11(12) INLET BV control switch to OPEN

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 3 continued

Role Play: As RP, acknowledge report that RBEVS is in service and RBVS is secured.

BOP continued

- Verifies open 202-37(38), EM VENTILATION LOOP 11(12) INLET BV
- Starts 202-53(33), EVS FAN 11(12)
- Verifies open 202-34(35), EM VENT EXHAUST FAN 11(12) OUTLET BV
- Confirms proper operation of 202-50(51), EM VENT EXHAUST FAN 11(12) INLET FCV, by observing indicating lights and flow indication
- Notifies Rad Protection that the Reactor Building Emergency Ventilation system is in service

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 4, 5, 6, & 7 - Steam Leak Inside Primary

Containment, Vacuum Breaker Fails Open,
Failure of HPCI to Auto-Initiate and Trip of
Containment Spray Pump 111

When directed by the lead examiner, **insert malfunction:**

EC01, Steam Supply Line Break in PC, FV=11

TRG 3

Drywell humidity, pressure and temperature rise

Drywell leakage rises

Expected annunciators:

H2-1-1, Drywell Floor Drain Level High

H2-4-7, Drywell Water Leak Detection Sys

K2-4-3, Drywell Pressure High-Low

F1-1-5(4-1-4), RPS Ch 11(12) Drywell Press High

Verify the following **malfunctions** are **preset**:

FW28A, HPCI Mode Failure to Initiate 11

FW28B, HPCI Mode Failure to Initiate 12

CT01A, CT Pump 111 Trip

CS07, CS Injection Valves Failure to Auto Open

Feedwater pump 12 running but not injecting

RPV water level slowly lowering

*Containment Spray pump 111 red light off, green
light on and amps go to zero*

Core Spray IVs do NOT open at 365 psig

Expected annunciator:

*K1-1-7, Containment Spray Pump 111 Trip Fail to
Run*

CREW

- Diagnose/report degrading containment parameters
- Acknowledge/report annunciators
- Diagnose failure of HPCI to automatically initiate
- Diagnose the trip of Containment Spray pump 111

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 4, 5, 6, & 7 continued

Verify the following **malfunctions automatically insert** when the mode switch is taken to SHUTDOWN:

FW06, SHAFT DRIVEN FEEDWATER PUMP CLUTCH FAILS – DISENGAGES, Delay=20 seconds

EC01, Steam Supply Line Break in PC, IV=11, RT=4:00, FV=30

PC10A, BV 68-01 Fails Open, Delay=2:00

PC10C, BV 68-03 Fails Open, Delay=2:00

TRG 23

Containment conditions further degrade

Feedwater pump 13 disengages

Reactor water level remains low

Two Torus-to-Drywell vacuum breakers indicate open

Expected annunciator:

K1-4-6, Torus-DW Vac Relief Check Valve Open

Verify the following **malfunction automatically inserts** when Containment Spray flow is initiated to the Drywell:

EC01, Steam Supply Line Break in PC, IV=30, RT=1:00, FV=45

SRO

- Acknowledges reports
- Directs manual scram
- Acknowledges scram report
- Enters N1-EOP-2 on low RPV water level
- Directs N1-SOP-1 actions
- Directs RPV water level controlled 53-95" with Condensate/FW and CRD
- **When notified of the failure of HPCI to initiate, directs manual control of Feedwater (preferred and alternate injection systems)**

CT-1

- Directs RPV pressure controlled 800-1000 psig with Turbine Bypass Valves or Emergency Condensers
- May direct closure of MSIVs to limit cooldown rate
- Enters N1-EOP-4 due to high drywell pressure and temperature
 - Direct lockout of Containment Spray pumps
- Re-enters N1-EOP-2 due to high drywell pressure

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 4, 5, 6, & 7 continued

Note: Core Spray injection will only be prevented if not needed for core cooling. If the crew has not yet re-established RPV injection when this step is evaluated, the Core Spray jumpers may not be installed until later. EOP-2 step P-1 provides continuous guidance for this consideration.

SRO continued

- When Torus pressure exceeds 13 psig or Drywell temperature approaches 300°F:
 - Answers "Below the Containment Spray Initiation Limit?" – Yes
 - Verifies all Recirc pumps tripped
 - Directs trip of all Drywell cooling fans
 - Directs operation of Containment Spray per N1-EOP-1 attachment 17
- Evaluates/monitors position on Pressure Suppression Pressure curve
- Acknowledges report of Containment Spray pump 111 trip
- May direct rapid depressurization with ECs in anticipation of RPV Blowdown
- Determines Torus pressure cannot be maintained within Pressure Suppression Pressure limit
- **Enters N1-EOP-8, RPV Blowdown**

CT-2

- Answers "Are all control rods inserted to at least 04?" YES
- Answers "Drywell pressure?" At or above 3.5 psig
- May direct prevention of Core Spray injection per N1-EOP-1 attachment 4
- Directs EC initiation
- Answers "Torus water level?" Above 8.0 ft
- Directs open 4 ERVs

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Events 4, 5, 6, & 7 continued

ATC

- Monitors plant parameters
- When directed, places Mode Switch in Shutdown
- Provides scram report
- Performs N1-SOP-1, Reactor Scram, scram verification actions
 - Places IRMs on range 9
 - Inserts IRM and SRM detectors
 - Down-ranges IRMs as necessary to monitor power decrease
 - If recirc pumps have not yet tripped, reduces recirc flow to 25-43 Mlbm/hr
 - Maintains RPV pressure below 1080 psig and in assigned band

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Events 4, 5, 6, & 7 continued

Note: Feedwater level control actions will vary depending on when the operator diagnoses the failure of HPCI to automatically control injection through Feedwater flow control valves 11 and 12.

BOP

- Monitors/reports degrading Containment parameters
- Performs RPV water level control actions of N1-SOP-1, Reactor Scram:
 - Restores RPV level to 53-95" by controlling injection and rejecting through RWCU
 - Determines #13 FWP was running
 - Determines RPV water level is recovering
 - Terminates 13 FWP injection as follows:
 - Closes 13 FWP VALVE CONTROL
 - Disengages 13 FWP
 - Closes 29-10, Feedwater Pump 13 Blocking Valve
 - Verifies RPV water level above 53"
 - Verifies 11/12 FWP controllers in MANUAL and set to zero output
 - Places FWP BYPASS Valve 11 or 12 in AUTO, sets to 65-70 inches
 - If RPV level reaches 85 inches and rising, then:
 - Verifies off all FW Pumps
 - Secures CRD Pumps not required
 - Diagnoses failure of HPCI to automatically initiate
 - Notifies SRO/Crew of HPCI failure
 - **Manually controls RPV injection to restore and maintain level**

CT-1

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Events 4, 5, 6, & 7 continued

Note: Core Spray pumps may be placed in PTL if needed before EOP-1 attachment 4 jumpers can be installed due to scenario progression and resource limitations. If Core Spray pumps are placed in PTL, at least one Core Spray pump should be restarted after jumper installation for App J water seal. Core Spray may also be used as an alternate injection source.

Terminating Cues:

- RPV water level controlled in assigned band
- RPV Blowdown in progress
- Primary Containment pressure maintained per N1-EOP-4

ATC/BOP

- Places Containment Spray pumps in PTL
- Closes MSIVs, as directed
- Reports when Torus pressure exceeds 13 psig or Drywell temperature approaches 300°F
- Verifies Recirc pumps tripped
- Trips Drywell cooling fans
- Initiates Containment Spray per N1-EOP-1 attachment 17
 - Diagnoses/reports Containment Spray pump 111 trip
 - Verifies started Containment Spray pumps 121 and 122
 - If 80-118 is open for Torus Cooling:
 - Opens 80-35
 - Closes 80-118
 - Verifies open 80-40 and 80-45
- Prevents Core Spray injection installing N1-EOP-1 attachment 4 jumpers (17, 18, 19, 24, 25, 26), if directed
- Initiates both ECs
- **Opens 4 ERVs**

CT-2

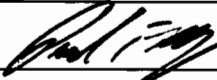
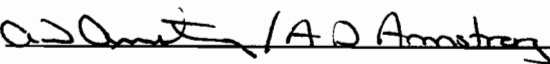
NMP SIMULATOR SCENARIO

NRC Scenario 2

REV. 0

No. of Pages: 22

Recirc Flow Unit Failure, Emergency MVAR Support, Inadvertent EC Initiation, Intake Grassing,
FWLC Fails As-Is, Un-Isolable EC Steam Leak in Secondary Containment

PREPARER	<u> PAUL ISHAM</u>	DATE <u>3/7/13</u>
VALIDATED	<u>Grapes, Lavallee, M. O'Brien</u>	DATE <u>12/19/12</u>
GEN SUPERVISOR OPS TRAINING	<u> A.D. Armstrong</u>	DATE <u>3/7/13</u>
OPERATIONS MANAGER	<u>N/A – Exam Security</u>	DATE _____
CONFIGURATION CONTROL	<u>N/A – Exam Security</u>	DATE _____

SCENARIO SUMMARY

Length: 60 minutes

Initial Power Level: Approximately 50%

The scenario begins at approximately 50% power. Containment Spray pump 112 is out of service for maintenance. Steam Packing Exhauster 12 is caution tagged due to high vibrations. Circulating Water pump 11 is out of service following maintenance. The crew will start Circulating Water pump 11, then raise Reactor power with recirculation flow.

Then, Recirculation flow unit 11 fails upscale. The crew will respond per the alarm response procedure and the CRS will determine the Tech Spec impact.

Power Control will call the Control Room and request increased reactive load support to ensure grid voltage is maintained due to loss of generation capacity. The crew will utilize N1-OP-32 and raise MVARs to the grid using the Main Generator automatic voltage regulator.

Next, Emergency Condenser 12 will inadvertently initiate. The crew will secure Emergency Condenser 12. This action will make Emergency Condenser 12 inoperable, but available. The CRS will determine the Tech Spec impact.

An in-flux of grass will lead to clogging of the intake structure. The crew will enter N1-SOP-18.1, trip one Circulating Water pump, and lower Reactor power. During the power reduction, Feedwater Level Control will fail as-is in automatic. The crew will enter N1-SOP-16.1 and take manual control of Feedwater to restore Reactor water level. Once the Circulating Water pump is secured (**Critical Task**), intake conditions will improve.

Next, a steam leak will develop from Emergency Condenser 11. The crew will attempt to isolate the leak, however the Emergency Condenser will fail to isolate both automatically and manually. The crew will scram the Reactor (**Critical Task**) and execute N1-EOP-2, RPV Control, and N1-EOP-5, Secondary Containment Control. Two General Areas of the Reactor Building will exceed the maximum safe temperatures. The crew will blowdown the Reactor per N1-EOP-8 (**Critical Task**).

Major Procedures: N1-OP-19, N1-OP-32, N1-SOP-18.1, N1-SOP-1.1, N1-SOP-16.1, N1-SOP-1, N1-EOP-2, N1-EOP-5, and N1-EOP-8

Dynamic Mitigation Strategy Code: SC1, Primary System Leak in Secondary Containment, Blowdown Required

EAL Classification: Site Area Emergency per EALs 3.4.1 (Emergency Condenser Isolation Failure and Release Outside Primary Containment) and/or 4.1.1 (Primary System Discharging Outside Primary Containment, >135°F in Two General Areas)

Termination Criteria: RPV water level controlled in assigned band, RPV Blowdown in progress

I. SIMULATOR SET UP

A. IC Number: IC-152

B. Presets/Function Key Assignments

1. Malfunctions:

- | | |
|--|--------|
| a. CT01B, CT Pump 112 Trip | PRESET |
| b. NM36A, RECIRC FLOW CONVERTER CHANNEL 11
FAILURE- UPSCALE | TRG 1 |
| c. EC03B, EC RETURN VALVE FAILS OPEN(IV 39-06) | TRG 2 |
| d. CW17, Intake Traveling Screens Blockage, FV=65%, RT=10:00 | TRG 3 |
| e. FW14C, Feedwater Master Controller - Fail As Is | TRG 3 |
| f. EC02, Steam Supply Line Break in RB, FV=20% | TRG 4 |
| g. EC07A, Emergency Condenser 11 Fails to Isolate | PRESET |
| h. EC08A, EC LOOP 11 STM IV FAIL TO CLOSE 111 , FV=50% | PRESET |
| i. EC08B, EC LOOP 11 STM IV FAIL TO CLOSE 112 , FV=50% | PRESET |

2. Remotes:

- | | |
|---|--------|
| a. FW24, REMOVAL OF HPCI FUSES FU8/FU9, FV=pulled | TRG 24 |
|---|--------|

3. Overrides:

- a. None

4. Annunciators:

- a. None

5. Triggers:

- a. None

C. Equipment Out of Service

1. Containment Spray pump 112 in PTL with yellow tag
2. Containment Spray suction valve 112 closed with yellow tag
3. Steam Packing Exhauster 12 green-flagged with yellow tag
4. Circulating Water pump 11 secured with control switch green-flagged and no tag

D. Support Documentation

1. RMI for power ascension with Recirculation flow

E. Miscellaneous

1. Ensure Drywell cooling fan 11 is secured with control switch in neutral.
2. Ensure the Main Generator is supplying approximately 100 MVARs to the grid with the voltage regulator in automatic.
3. Markup N1-OP-19 Section E.2.0 up to step E.2.7.
4. Markup N1-OP-43B Section F.3.0 to the appropriate steps for 50% power level.

5. Protect the following equipment: EDG 103, PB 103, PB 12, Circ Water pump 12
6. Update Divisional Status Board

II.

SHIFT TURNOVER INFORMATION

OFF GOING SHIFT: ☐ N ☒ D

DATE: Today

PART I: To be performed by the oncoming Operator before assuming the shift.

- Control Panel Walkdown (all panels) (SM, CRS, STA, RO, CRE)

PART II: To be reviewed by the oncoming Operator before assuming the shift.

- Shift Manager Log (SM, CRS, STA)
- RO Log (RO)
- Lit Control Room Annunciators (SM, CRS, STA, RO, CRE)
- Shift Turnover Checklist (ALL)
- LCO Status (SM, CRS, STA)
- Computer Alarm Summary (RO)

Evolutions/General Information/Equipment Status:

- Reactor power is approximately 50%.
- Containment Spray pump 112 is out of service for maintenance (Day 1 of planned 2 day window; 15 day LCO per TS 3.3.7.b).
- Steam Packing Exhauster 12 is caution tagged due to high vibrations.

PART III: Remarks/Planned Evolutions:

1. Start Circulating Water pump 11 per N1-OP-19 Section E.2.0. The section is complete up to step E.2.7. In step E.2.11, it is desired to stop both Circulating Water Priming pumps
2. Raise Reactor power with Recirculation flow per the provided RMI and N1-OP-43B. N1-OP-43B Section F.3.0 is in progress.

PART IV: To be reviewed/accomplished shortly after assuming the shift:

- Review new Clearances (SM)
- Shift Crew Composition (SM/CRS)
- Test Control Annunciators (CRE)

TITLE	NAME	TITLE	NAME
SRO			
ATC RO			
BOP RO			

ATTACHMENT 2: REACTIVITY MANEUVER INSTRUCTION

Reactivity Maneuver: Power Ascension from 50%

Step: 1

INITIAL CONDITIONS/STEP DESCRIPTION					
RE presence required in the Control Room? Yes ___ No <u>✓</u> If YES above, RE presence not required for steps _____. Initial conditions to be verified prior to initiation of step:					
Parameter	Expected Range	Actual	Parameter	Expected Range	Actual
CTP	900-950 MWth				
Description of Step: Raise Reactor power to approximately 85% with Recirculation flow per N1-OP-43B.					
Critical parameters to be monitored DURING Step: Critical parameters not used must be deleted OR marked N/A					
Critical Parameter	Limit	Owner	Frequency	Contingency	
Recirc Flow	67.5 Mlbm/hr	RO	Continuous	Stop evolution and consult RE.	
CTP	1850 MWth	RO	Continuous	Lower power to less than 1850 MWth with Recirculation flow.	
Rod line	108%	RO	15 minutes	Stop evolution and consult RE.	
RMI evaluated against approved power profile: <input checked="" type="checkbox"/> N/A <input type="checkbox"/> .					
Other Comments:					
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Step Prepared by: <u>Alex Reed</u> / <u>Today</u> <div style="display: flex; justify-content: space-between; width: 100%;"> RE/STA Date </div> </div> <div style="width: 45%;"> Step Reviewed by: <u>Jack Dean</u> / <u>Today</u> <div style="display: flex; justify-content: space-between; width: 100%;"> RE/STA/SRO Date </div> </div> </div> <div style="margin-top: 10px;"> Approval to perform Step <u>John Aaron</u> / <u>Today</u> Step Completed by: _____ / _____ <div style="display: flex; justify-content: space-between; width: 100%;"> Shift Manager Date SRO Date </div> </div>					

Critical Tasks:

- CT-1.0 Given the plant at power with lowering intake water level, remove a Circulating Water pump from service in order to preserve use of the lake as a heat sink, in accordance with N1-SOP-18.1.

Safety Significance: Circulating Water pumps draw a large volume of water from the cooling water intake. This intake is shared with pumps from safety significant systems such as Emergency Service Water, Containment Spray Raw Water, and Diesel Generator Raw Water. In the event of lowering intake water level with the plant at power, a Circulating Water pump must be removed from service in order to preserve water in the intake for other systems to maintain use of the lake as a heat sink.

Cueing: Annunciators will alert the crew to the low intake level. Field reports will provide additional information about lowering intake level. N1-SOP-18.1 provides direction to remove a Circulating Water pump from service.

Measurable Performance Indicators: Manipulation of a Circulating Water pump control switch will provide the observable action for the evaluation team.

Performance Feedback: Lowering Circulating Water pump amps and indications of rising intake water level will provide performance feedback regarding the success of removing the Circulating Water pump from service.

- CT-2.0 Given an un-isolable Emergency Condenser leak outside primary containment and one general area temperature above the maximum safe limit, insert a manual reactor scram, in accordance with N1-EOP-5.

Safety Significance: With an un-isolable primary system discharging outside of Primary Containment resulting in general area temperature above the maximum safe limit, the Reactor must be scrammed. This reduces the rate of energy production and thus the heat input, radioactivity release, and break flow into the Secondary Containment. This also ensures the Reactor is shutdown prior to need for a blowdown.

Cueing: Multiple annunciators will provide indications of a primary system discharging into Secondary Containment. Emergency Condenser valve position indicators will provide indication that the system is un-isolable. Field reports will provide indication that a general area is above the maximum safe temperature limit. N1-EOP-5 provides direction to scram the Reactor.

Measurable Performance Indicators: Rotation of the Mode Switch to SHUTDOWN or depressing the manual scram pushbuttons will provide observable actions for the evaluation team.

Performance Feedback: Control rod position and Reactor power indications will provide performance feedback regarding the success of the scram.

CT-3.0 Given an un-isolable Emergency Condenser leak outside primary containment and two general area temperatures above the maximum safe limit, execute N1-EOP-8, RPV Blowdown, in accordance with N1-EOP-5.

Safety Significance: An un-isolable primary system discharging outside of Primary Containment resulting in two general area temperatures above the maximum safe limit indicates a wide-spread problem posing a direct and immediate threat to Secondary Containment. A blowdown minimizes flow through the break, rejects heat to the suppression pool in preference to outside the containment, and places the primary system in the lowest possible energy state.

Cueing: Multiple annunciators will provide indications of a primary system discharging into Secondary Containment. Emergency Condenser valve position indicators will provide indication that the system is un-isolable. Field reports will provide indication that two general areas is above the maximum safe temperature limit. N1-EOP-5 provides direction to blowdown the Reactor.

Measurable Performance Indicators: The crew will manually open ERVs.

Performance Feedback: ERV instrumentation will provide indication that these valves are functioning properly once placed in service. Multiple Reactor pressure indicators and annunciators will provide performance feedback regarding the success of the blowdown.

INSTRUCTOR ACTIONS/ PLANT RESPONSE

Take the simulator out of freeze before the crew enters for the pre-shift walkdown and briefing.
Allow no more than 5 minutes for panel walkdown.

Event 1 – Start Circulating Water Pump 11

Role Play:

When requested, report a good start on Circulating Water pump 11.

Role Play:

When requested, report normal circulating water pump discharge pressure in Screen House.

Role Play:

If asked as Shift Manager, direct securing both Water Box Priming pumps.

OPERATOR ACTIONS

CREW

- Conducts pre-brief, walks down the panels, assumes the shift

SRO

- Directs starting Circulating Water pump 11 per N1-OP-19 Section E.2.0
- Provides oversight for evolution

BOP

- Reviews N1-OP-19 Section E.2.0
- Verifies running CRD Pump flow greater than 60 GPM
- Starts 74-01, CONDSR
CIRCULATING WATER PUMP 11
- Closes 74-20, FISH SCREEN DRAIN VALVE 11
- Contacts Operator to confirm normal circulating water pump discharge pressure in Screen House
- Verifies the following pumps are stopped per SM direction:
 - 75-09, COND. WATER BOX PRIMING PUMP NO. 11
 - 75-08, COND. WATER BOX PRIMING PUMP NO. 12

ATC

- Monitors plant parameters

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 2 – Power Ascension With Recirculation

Flow

Note:

N1-OP-43B includes the following power-to-flow map restrictions:

- PRIOR to exceeding 65% flow, verify greater than 50% Rod Line OR that RIP region will NOT be entered.
- PRIOR to 100% rodline raise recirc flow to greater than 59% flow (approximately 40 x 10⁶ lb/hr) to avoid the flow biased control rod block line.

Note:

Recommend initiating the next event when Reactor power is between 55-60% power to achieve the desired response in Event 6.

SRO

- Directs power ascension with Recirculation flow in accordance with N1-OP-43B and the Reactivity Maneuver Instruction (RMI)
- Provides oversight of reactivity maneuver

ATC

- Acknowledges direction from SRO
- Raises Recirculation flow with master Recirculation flow controller
- Monitors APRMs
- Monitors Recirculation flow
- Monitors Feedwater flow and RPV water level
- Observes power-to-flow map restrictions

BOP

- Monitors individual RRP's for response
 - Individual M/A-Speed Control stations trending uniformly
 - Individual RRP indications trending normally for speed increase
- Monitors Feedwater controls for proper response
 - FWP 13 FCV responding to power change
 - RPV water level remains within program band (65" - 83")

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 3 – Recirculation Flow Unit Fails Upscale

When directed by lead examiner, **insert malfunction:**

**NM36A, RECIRC FLOW CONVERTER CHANNEL
11 FAILURE- UPSCALE**

TRG 1

*Comparator trip occurs resulting in a Rod Block.
The "FLOW COMPARATOR" lamps on the Rod
Block Display (PANEL E) will light.*

Expected Annunciators:

F2-2-6, APRM FLOW UNIT 11

F3-2-1, APRM FLOW UNIT 12

F3-4-4, ROD BLOCK

CREW

- Recognize/report Recirculation flow unit 11 failed upscale

SRO

- Acknowledges reports from crew
- Directs response with ARP F2-2-6
- Consults Tech Spec Tables 3.6.2.a and 3.6.2.g
- Declares APRMs 11-14 inoperable for the upscale scram and rod block functions
- Determines a half scram must be placed on RPS channel 11 within 1 hour
- Contacts I&C Department for troubleshooting

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 3 continued

ATC

- Verifies proper power to flow ratio on Power Flow Map on E Panel

BOP

- Executes ARP F2-2-6
- Confirms alarm by observing the following:
 - Computer Printout
 - APRM Flow Comparator on G Panel
 - LPRM/APRM Trip Auxiliary Panels on G Panel
 - Rod Block Monitor on E Panel

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Event 4 - Power Control Requests Emergency MVAR Support

When directed by lead examiner, **call the crew as Power Control and make the following report:**

“This is Power Control. We are about to lose some generation capacity on the grid due an emergent shutdown of another plant. We need Nine Mile Point Unit 1 to supply an additional 100 MVARs to the grid as soon as possible to ensure stable grid voltage.”

Role Play:

If informed as Shift Manager, GSO, Operations Manager or CENG Generation Dispatch, acknowledge report and concur with actions to raise MVARs as needed.

CREW

- Acknowledge/report Power Control communication

SRO

- Acknowledges report from crew
- Directs raising Main Generator reactive load by 100 MVARs per N1-OP-32 section F

BOP

- Executes N1-OP-32 section F
- Adjusts VOLTAGE REG ADJUSTMENT switch at E console to raise 100 MVARs
- Adjusts EXCITER RHEOSTAT switch at E console to establish AND maintain between 10 AND 20 Volts Boost on the VOLTAGE REG AMPLIDYNE meter

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 5 - Emergency Condenser 12 Inadvertent

Initiation

When directed by lead examiner, **insert malfunction:**

EC03B, EC RETURN VALVE FAILS OPEN (IV 39-06)

TRG 2

EC 12 Condensate Return Valve (39-06) opens

Reactor power rises

Reactor water level initially rises

Expected Annunciators:

*K1-1-5, EMER COND CONDEN RET ISOL VALVE
12 OPEN*

Role Play:

If dispatched to investigate 39-06, wait 2 minutes and then report that there is a significant air leak on the air supply line to 39-06.

Note:

The next event should NOT be inserted until Reactor water level has stabilized from this event.

CREW

- Recognize/report Emergency Condenser 12 initiation
- Recognize/report Reactor power and water level rising
- Recognize/report no valid Emergency Condenser initiation signal

SRO

- Acknowledges reports from crew
- Directs response with ARP K1-1-5
- Directs securing Emergency Condenser 12
- Declares Emergency Condenser 12 inoperable but available
- Enters a 7 day LCO per Tech Spec 3.1.3.b

BOP

- Executes ARP K1-1-5
- Closes:
 - 39-08R EC STM ISOLATION VALVE 122, and/or
 - 39-10R EC STM ISOLATION VALVE 121

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 6 – Intake Grassing

When directed by lead examiner, **insert malfunction:**

**CW17, Intake Traveling Screens Blockage,
FV=65%, RT=10:00**

TRG 3

Traveling screen D/P rises

Forebay water level lowers

Expected Annunciators:

*H1-4-3, SCREEN WASH PUMP-SCREEN TRIP-
LO VOLT DIFF PRESS*

*H2-1-3, CIRCULATING WATER PUMP INTAKE
LEVEL LOW*

Note:

The malfunction for Event 6 is inserted with Event 5. Event 6 will become evident when the crew initiates a Reactor power reduction.

Booth Operator:

When one Circulating Water pump is tripped, modify malfunction CW17 to 40% over 1 minute.

CREW

- Recognize/report annunciator
- Recognize/report lowering intake level

SRO

- Acknowledges reports
- Directs entry into N1-SOP-18.1, Service Water Failure / Low Intake Level
- Directs emergency power reduction per N1-SOP-1.1 as needed
- Provides oversight for reactivity manipulation
- Acknowledges improving intake level

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Event 6 continued

Role Plays:

If requested as Operator in field to investigate, wait 2 minutes, then report:

- A large amount of lake grass is coming in the intake and accumulating on the traveling screens.
- The traveling screens are operating properly but not keeping up with the influx of grass.
- Report intake level as indicated by simulator (use screen CW04, Secondary Forebay water level – CWL(4)).

Subsequent reports may be given with no delay.

Once one Circulating Water pump is tripped and intake level is improving, report that the traveling screens are catching up and intake level is improving.

BOP

- Executes N1-SOP-18.1, Service Water Failure / Low Intake Level
- Updates crew on override requirements to trip a Circulating Water pump and perform an emergency power reduction

Trips one Circulating Water pump

CT-1

- Monitors intake level
- Monitors condenser vacuum, Circulating Water temperatures, and Feedwater response during power reduction
- Determines/reports intake level improves following Circulating Water pump trip

ATC

- Performs emergency power reduction by lowering Recirculation flow and/or inserting CRAM rods per N1-SOP-1.1, as needed for single Circ Water pump operation
- Observes APRMs, CTP, and Recirculation flow

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 7 - Feedwater Level Control Fails As-is In Automatic

Verify the following **malfunction** is **inserted** along with Event 5:

FW14C, FW14C, Feedwater Master Controller - Fail As Is

TRG 3

Reactor water level deviates from setpoint

Feedwater FCV 13 does NOT change position

Feedwater flow remains constant

Expected Annunciators:

F2-3-3, REACT VESSEL LEVEL HIGH-LOW

Note:

If crew does not respond to the malfunction, a Turbine trip / Reactor scram will occur. Continue to Event 7 and initiate TRG 5.

CREW

- Recognize/report Reactor water level deviation from setpoint
- Recognize/report Feedwater FCV 13 and/or Feedwater master controller is not responding properly

SRO

- Acknowledges reports
- Directs entry into N1-SOP-16.1, Feedwater System Failures
- Directs placing FW FCV 13 in manual

ATC

- Monitors RPV water level
- Monitors plant parameters

BOP

- Enters N1-SOP-16.1, Feedwater System Failures
- Answers "Problem with FWLC, FW Pumps OR FW heating?" FWLC
- Answers "FCV lockup?" NO
- Answers "FWLC malfunction?" YES
- Places FW FCV 13 controller in MAN
- Controls RPV water level in manual

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 8 & 9 - Emergency Condenser 11 Steam

Leak In Reactor Building, Emergency

Condenser 11 Fails To Isolate

When directed by the lead examiner, **insert malfunction:**

EC02, Steam Supply Line Break in RB, FV=20%

TRG 4

Reactor Building D/P lowers

*Rising temperatures, pressures and radiation levels
in the Secondary Containment*

RBEVS auto-starts

RBVS isolates

Expected Annunciators:

L1-3-4, REACT. BLDG/ATM DIFF PRESS

*L1-4-3, REACT BLDG VENT RAD MONITOR OFF
NORMAL*

*L1-3(4)-6, EMER VENT SYS CHANNEL 11(12)
RELAY OPERATE*

*MFP2 2-1-1-7, REAC BLDG 318 LOCAL PNL
NO.7 FIRE*

*K1-4-3, EMER COOLING SYSTEM 11 STEAM
LEAK AREA T HI*

*K1-4-5, EMER COOLING SYSTEM 12 STEAM
LEAK AREA T HI*

L1-3-3, CONTINUOUS AIR RAD MONITOR

H1-4-8, AREA RADIATION MONITORS

CREW

- Acknowledge/report annunciators
- Recognize/report Emergency
Condenser 11 steam leak
- Recognize/report failure of Emergency
Condenser 11 to isolate

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 8 & 9 continued

Verify the following **malfunctions** are **preset**:

EC07A, Emergency Condenser 11 Fails to Isolate

EC08A, EC LOOP 11 STM IV FAIL TO CLOSE 111 , FV=50%

EC08B, EC LOOP 11 STM IV FAIL TO CLOSE 112 , FV=50%

Emergency Condenser 11 fails to isolate.

SRO

- Acknowledges reports
- Enters N1-EOP-5 on high Reactor Building Vent rad levels, high Reactor Building area temperatures / rad levels, and/or loss of RB D/P
- Directs manual isolation of Emergency Condenser 11
- Directs Reactor Building evacuation
- Acknowledges manual isolation failure
- Directs dispatching of an operator and RP tech to obtain general area temperatures and radiation levels in the Reactor Building
- When Reactor Building Ventilation exhaust radiation exceeds 5 mR/hr, directs verification of RB Vent isolation and RBEVS initiation
- Determines area temperatures and/or radiation levels are above setpoints in Tables T and R, and transitions to N1-EOP-5 circle 27

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 8 & 9 continued

SRO continued

- Determines a primary system is discharging into the Reactor Building and the discharge cannot be isolated, and transitions to N1-EOP-5 circle 28
- When any area temperature or radiation level approaches or reaches 135°F or 8 R/hr, respectively:

- **Directs manual Reactor scram**

CT-2

- Acknowledges scram report
- Enters N1-EOP-2, RPV Control, on low RPV water level

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Events 8 & 9 continued

Note:

If the Reactor scrammed due to an earlier event, CT-2 will be N/A.

Note: Anticipatory blowdown is likely to be directed from N1-EOP-2 once one Reactor Building General Area temperature is above 135°F with a second temperature trending towards 135°F.

Note:

Emergency Condenser 12 is available even though it was isolated earlier due to inadvertent initiation. The crew may decide not to use Emergency Condenser 12 due to actuation of Annunciator K1-4-5, EMER COOLING SYSTEM 12 STEAM LEAK AREA T HI.

SRO continued

- Answers "Are all control rods inserted to at least position 04?" YES
- Directs entry into N1-SOP-1, Reactor Scram
- Directs RPV water level control 53-95" using Feedwater/Condensate and CRD
- Directs RPV pressure maintained <1080 psig using TBVs
- May direct anticipatory blowdown with TBVs and/or Emergency Condenser 12 with cooldown in excess of 100°F/hr
- Acknowledges reports of Reactor Building temperatures and radiation levels
- When report is received that 2 General Areas temperatures are above 135°F, enters N1-EOP-8, RPV Blowdown
- Answers "Are all control rods inserted to at least position 04" YES
- Answers "Drywell pressure?" <3.5 psig
- May direct initiation of Emergency Condenser 12
- Answers "Torus water level?" >8 ft
- **Directs open 4 ERVs**

CT-3

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Events 8 & 9 continued

Note: Prior to the scram, the ATC may also perform response actions for BOP since Feedwater level control is in manual.

ATC

- Monitors plant parameters
- Makes evacuation announcements due to steam leak
- Places Reactor Mode Switch to SHUTDOWN
- Provides scram report
- Performs scram verification actions of N1-SOP-1, Reactor Scram:
- Confirms all rods inserted
- Observes Reactor power lowering
- Places IRMs on range 9
- Inserts IRM and SRM detectors
- Down-ranges IRMs as necessary
- Reduces Recirc Master flow to 25-43 x 10⁶ lbm/hr
- Verifies main turbine and generator tripped
- Controls RPV pressure as directed using TBVs and/or Emergency Condenser 12

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Events 8 & 9 continued

Note: No General Area temperature information is available until an Operator has been dispatched to the Reactor Building to monitor area temperatures. The timeline of field reports may be adjusted by examiner as necessary for evaluation purposes.

Role Play: When directed as Operator and RP tech to obtain General Area temperatures and radiation levels in the Reactor Building:

Wait 4 minutes and report RB 318' west side temperature is 125°F and rising, radiation level is 2 mr/hr and rising. Also report that you see steam coming from the area of the EC steam IV room.

Note: When one general area temperature is reported above 135°F and a second general area temperature is reported as approaching 135°F, the crew is likely to perform an anticipatory blowdown per EOP-2.

Wait 2 more minutes and report RB 318' west side temperature is 137°F and rising, radiation level is 4 mr/hr and rising. Report RB 318' east side temperature is 123°F and rising, radiation level is 2 mr/hr and rising.

Wait 3 more minutes and report RB 318' west side temperature is 145°F and rising, radiation level is 6 mr/hr and rising. Report RB 318' east side temperature is 136°F and rising, radiation level is 3 mr/hr and rising.

BOP/ATC

- Attempts to isolate Emergency Condenser 11 by closing the following valves per ARP K1-4-3:
 - 39-07R, EC STM ISOLATION VALVE 112
 - 39-09R, EC STM ISOLATION VALVE 111
 - 39-05, EMERG CNDSR COND RET ISOLATION VALVE 11
 - 39-11R, EMERG CNDSR STM SUPPLY DRAIN IV 111
 - 39-12R, EMERG CNDSR STM SUPPLY DRAIN IV 112
 - 05-01R, EMERG COND VENT ISOLATION VALVE 111
 - 05-11, EMERG COND VENT ISOLATION VALVE 112
- Reports failure of 39-07R and 39-09R to close
- Dispatches operator and RP tech to obtain Reactor Building General Area temperatures and radiation levels
- Notifies crew of reports on General Area temperatures and radiation levels

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Events 8 & 9 continued

BOP

- Performs RPV water level control actions of N1-SOP-1, Reactor Scram:
 - Restores RPV level to 53-95" by controlling injection and rejecting through RWCU
 - Determines #13 FWP was running
 - Determines RPV water level is recovering
 - Terminates 13 FWP injection as follows:
 - Closes 13 FWP VALVE CONTROL
 - Disengages 13 FWP
 - Closes 29-10, Feedwater Pump 13 Blocking Valve
 - Verifies RPV water level above 53"
 - Verifies 11/12 FWP controllers in MANUAL and set to zero output
 - Places FWP BYPASS Valve 11 or 12 in AUTO, sets to 65-70 inches
 - If RPV level reaches 85 inches and rising, then:
 - Verifies off all FW Pumps
 - Secures CRD Pumps not required
- May initiate Emergency Condenser 12
- **Opens 4 ERVs**

CT-3

Terminating Cues:

- RPV water level controlled in assigned band
- RPV Blowdown in progress

NMP SIMULATOR SCENARIO

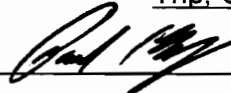
NRC Scenario 3

REV. 0

No. of Pages: 18

RPS MG Set Trip, CRD FCV Fails Closed, MPR Failure, Failure to Scram, Liquid Poison Pumps Trip, CRD Pump Trip

PREPARER

 PAUL ISHAM

DATE

3/7/13

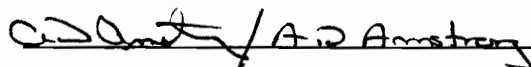
VALIDATED

Grapes, Lavallee, M. O'Brien

DATE

12/19/12

GEN SUPERVISOR
OPS TRAINING

 A.D. Armstrong

DATE

3/7/13

OPERATIONS
MANAGER

N/A – Exam Security

DATE

CONFIGURATION
CONTROL

N/A – Exam Security

DATE

SCENARIO SUMMARY

Length: 60 minutes

Initial Power Level: Approximately 100%

The scenario begins at approximately 100% power. Containment Spray pump 112 is out of service for maintenance. Steam Packing Exhauster 12 is caution tagged due to high vibrations.

Shortly after the crew assumes the shift, RPS MG Set 131 will trip. This will result in a half-scam and loss of two strings of Feedwater heating. The crew will enter N1-SOP-16.1, Feedwater System Failures, and lower power as required to maintain below the license limit. The crew will re-energize RPS trip bus 131 from I&C Bus 130A, and then reset the half-scam and Feedwater heaters.

Next, Reactor pressure instrument 36-07B will fail downscale. This failure makes one channel inoperable for the RPS high pressure scram. The CRS will determine the Tech Spec impact.

Next, the in-service CRD flow control valve will fail closed. The crew will enter N1-SOP-5.1, Loss of Control Rod Drive, and take action to place the standby flow control valve in service. The CRS will determine the Tech Spec impact.

Next, the MPR setpoint begins drifting low. This will cause the MPR to take control of and further open Turbine Control/Bypass valves. Reactor pressure will lower until either the crew manually scrams the Reactor, or the Reactor scrams from MSIV closure at 850 psig. The crew will enter N1-SOP-31.2, Pressure Regulator Malfunction, and N1-SOP-1, Reactor Scram. Multiple control rods will fail to fully insert on the scram. The crew will enter N1-EOP-3, Failure to Scram. The crew will lower Reactor power by tripping Reactor Recirculation pumps and/or terminating and preventing all RPV injection except boron and CRD (**Critical Task**). The crew

will also take action to insert control rods (**Critical Task**). The crew will be challenged by a failure of Liquid Poison to inject. Both Liquid Poison pumps will trip shortly after being started. Once control rod insertion is in progress, the running CRD pump will trip. The crew will be able to start an alternate CRD pump to continue control rod insertion.

Major Procedures: N1-ST-W15, N1-SOP-16.1, N1-SOP-1.1, N1-OP-48, N1-SOP-5.1, N1-SOP-31.2, N1-SOP-1, N1-EOP-3, N1-EOP-3.1, N1-SOP-5.1

Dynamic Mitigation Strategy Code: AT1, High power ATWS, RPV level controlled below feedwater spargers, RPV Blowdown not required

EAL Classification: Site Area Emergency per EAL 2.2.2 (Any RPS scram setpoint has been exceeded AND automatic and manual scrams fail to result in a control rod pattern which assures reactor shutdown under all conditions without boron AND either: Reactor power > 6% OR Torus temperature > 110°F)

Termination Criteria: RPV water level controlled in assigned band, RPV pressure controlled in assigned band, control rod insertion in progress or completed

I. SIMULATOR SET UP

A. IC Number: IC-153

B. Presets/Function Key Assignments

1. Malfunctions:

a. CT01B, CT Pump 112 Trip	PRESET
b. RP01A, REACTOR TRIP BUS MOTOR GENERATOR TRIPS 131	TRG 1
c. RP16B, RPV PT 36-07B FAILED LOW	TRG 2
d. RD36A, CRD FCV 44-151 FAILURE - CLOSED	TRG 3
e. TC08, MECHANICAL PRES. REGULATOR FAILS - LOW	TRG 20
f. RD33A, CONTROL ROD BANK BLOCKED BANK 1, FV=8	PRESET
g. RD33B, CONTROL ROD BANK BLOCKED BANK 2, FV=8	PRESET
h. RD33C, CONTROL ROD BANK BLOCKED BANK 3, FV=18	PRESET
i. RD33D, CONTROL ROD BANK BLOCKED BANK 4, FV=8	PRESET
j. RD33E, CONTROL ROD BANK BLOCKED BANK 5, FV=8	PRESET
k. LP01A, Liquid Poison Pump 11 Trip, DT=5	TRG 11
l. LP01B, Liquid Poison Pump 12 Trip, DT=5	TRG 12
m. RD35B, CRD Hydraulic Pump 12 Trip	TRG 5

2. Remotes:

a. RP01, RX TRIP BUS 131 PWR SOURCE, FV=maint	TRG 29
b. MS01, HP FW HTR 115 RESET, FV=reset	TRG 30
c. MS03, HP FW HTR 135 RESET, FV=reset	TRG 30
d. MS04, FW HTR STRING 11 RESET, FV=reset	TRG 30
e. MS06, FW HTR STRING 13 RESET, FV=reset	TRG 30
f. RD05, CRD FLOW CONTROL VALVE ISOL, FV=nc30b	TRG 21
g. FW24, REMOVAL OF HPCI FUSES FU8/FU9, FV=pulled	TRG 24

3. Overrides:

a. 13S73DI46713, POS_2 1E70 TC MPR POS C, FV=on (MPR setpoint drifts low)	TRG 4
--	-------

4. Annunciators:

- a. None

5. Triggers:

- a. TRG 11 – Initiates when Liquid Poison pump keylock switch is taken to SYS 11 position.
 - i. Event Action: `zdlpsys2==1`

- ii. Command: None
 - b. TRG 12 - Initiates when Liquid Poison pump keylock switch is taken to SYS 12 position.
 - i. Event Action: zdlpsys1==1
 - ii. Command: None
 - c. TRG 20 – Initiates when the Mode Switch is taken to SHUTDOWN
 - i. Event Action: zdrpstdn==1
 - ii. Command: dor 13s73di46713
 - d. TRG 21 – Initiates when the CRD FCV selector switch is re-positioned
 - i. Event Action: zdrdfcvb==1
 - ii. Command: None
- C. Equipment Out of Service
 - 1. Containment Spray pump 112 in PTL with yellow tag
 - 2. Containment Spray suction valve 112 closed with yellow tag
 - 3. Steam Packing Exhauster 12 green-flagged with yellow tag
- D. Support Documentation
 - 1. None.
- E. Miscellaneous
 - 1. Ensure Drywell cooling fan 11 is secured with control switch in neutral.
 - 2. Ensure CRD pump B is running and CRD pump A is in standby.
 - 3. Protect the following equipment: EDG 103, PB 103
 - 4. Update Divisional Status Board

II.

SHIFT TURNOVER INFORMATION

OFF GOING SHIFT: ☐ N ☒ D

DATE: Today

PART I: To be performed by the oncoming Operator before assuming the shift.

- Control Panel Walkdown (all panels) (SM, CRS, STA, RO, CRE)

PART II: To be reviewed by the oncoming Operator before assuming the shift.

- Shift Manager Log (SM, CRS, STA)
- RO Log (RO)
- Lit Control Room Annunciators (SM, CRS, STA, RO, CRE)
- Shift Turnover Checklist (ALL)
- LCO Status (SM, CRS, STA)
- Computer Alarm Summary (RO)

Evolutions/General Information/Equipment Status:

- Reactor power is approximately 100%.
- Containment Spray pump 112 is out of service for maintenance (Day 1 of planned 2 day window; 15 day LCO per TS 3.3.7.b).
- Steam Packing Exhauster 12 is caution tagged due to high vibrations.

PART III: Remarks/Planned Evolutions:

Maintain operation at rated power.

PART IV: To be reviewed/accomplished shortly after assuming the shift:

- Review new Clearances (SM)
- Shift Crew Composition (SM/CRS)
- Test Control Annunciators (CRE)

TITLE	NAME	TITLE	NAME
SRO			
ATC RO			
BOP RO			

Critical Tasks:

CT-1.0 Given a failure of the Reactor to scram with power above 6% or unknown and RPV water level above -41 inches, lower power to below 6% by:

- Tripping Reactor Recirculation pumps, and/or
- Terminating and preventing all injection except boron and CRD, in accordance with N1-EOP-3.

Safety Significance: High Reactor power after a scram is attempted indicates a challenge to nuclear fuel and to plant heat sinks. In the event of a loss of the normal heat sink, this may result in adding heat to the Torus and challenging the Primary Containment. Lowering Reactor power reduces these challenges.

Cueing: Control rod position and Reactor power indications will indicate a failure to scram with Reactor power above 6%. N1-EOP-3 provides direction to trip Recirculation pumps and terminate and prevent injection based on Reactor power.

Measurable Performance Indicators: Manipulation of Recirculation pump control switches, Feedwater system components, and Core Spray jumpers will provide observable actions for the evaluation team.

Performance Feedback: Lowering Recirculation flow, Feedwater flow, Reactor water level, and Reactor power will provide performance feedback regarding the success of crew actions.

CT-2.0 Given a failure of the Reactor to scram, insert control rods, in accordance with N1-EOP-3.

Safety Significance: Inserting control rods lowers Reactor power, which reduces challenges to the plant during a failure to scram. Additionally, inserting control rods ultimately provides a long-term, stable core shutdown. Boron injection alone may not provide a stable shutdown condition.

Cueing: Control rod position and Reactor power indications will indicate a failure to scram. N1-EOP-3 provides direction to insert control rods.

Measurable Performance Indicators: Manipulation of RPS, CRD, and RMCS controls will provide observable actions for the evaluation team.

Performance Feedback: Control rod position and Reactor power will provide performance feedback regarding success of crew actions to insert control rods.

INSTRUCTOR ACTIONS/ PLANT RESPONSE

Take the simulator out of freeze before the crew enters for the pre-shift walkdown and briefing.
Allow no more than 5 minutes for panel walkdown.

Event 1 – RPS MG Set 131 Trip

When directed by lead examiner, **insert malfunction:**

RP01A, REACTOR TRIP BUS MOTOR GENERATOR TRIPS 131

TRG 1

Scram solenoid lights for RPS 11 de-energize

Feedwater temperature slowly lowers

Reactor power slowly rises

Expected annunciators:

F1-3-7, RX. TRIP BUS M-G SET 131 TROUBLE

F1-3-1, RPS CH 11 MAN REACTOR TRIP

F1-2-1, RPS CH 11 AUTO REACTOR TRIP

OPERATOR ACTIONS

CREW

- Conducts pre-brief, walks down the panels, assumes the shift

CREW

- Recognize/report RPS 11 half scram
- Diagnose trip of RPS MG set 131

SRO

- Acknowledges reports
- Directs execution of ARP F1-3-7
- Directs entry into N1-OP-48 H.4.0
- Directs entry into N1-SOP-16.1 for loss of Feedwater heating
- May direct emergency power reduction per N1-SOP-1.1 if needed to control Feedwater temperatures or Reactor power
- Provides oversight of reactivity changes

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Event 1 continued

Role Play: When dispatched as operator to investigate problem with MG Set 131, wait two minutes then report that you can smell burnt insulation in the vicinity of MG Set 131 motor. Report that the drive motor breaker tripped on overcurrent. If asked, report no overvoltage trip occurred.

Role Play: When dispatched as operator to transfer Reactor Trip Bus 131 to I&C Bus 130A, wait 2 minutes and **insert remote:**

RP01, RP01, RX TRIP BUS 131 PWR SOURCE, FV=maint

TRG 29

Then report Reactor Trip Bus 131 has been re-energized from I&C Bus 130A, and that half scram and Feedwater heaters can be reset.

Role Play: When dispatched as operator to reset Feedwater heaters, wait 2 minutes and **insert remotes:**

MS01, HP FW HTR 115 RESET, FV=reset

MS03, HP FW HTR 135 RESET, FV=reset

MS04, FW HTR STRING 11 RESET, FV=reset

MS06, FW HTR STRING 13 RESET, FV=reset

TRG 30

Then report Feedwater heaters have been reset.

ATC

- Monitors plant parameters
- Lowers power per N1-SOP-1.1 as required to control Feedwater temperatures or Reactor power
- Resets half scram

BOP

- Executes ARP F1-3-7
- Dispatches an operator to investigate MG Set 131
- Determines I&C Bus 130A is available
- Obtains SRO permission to perform dead bus transfer of Reactor Trip Bus 131
- Dispatches an operator to perform dead bus transfer of Reactor Trip Bus 131 per N1-OP-48 section H.4.0
- Enters N1-SOP-16.1 due to loss of Feedwater heating
- Monitors Feedwater temperatures
- Acknowledges that Reactor Trip Bus 131 is re-energized
- Coordinates with ATC to reset half scram
- Dispatches operator to reset Feedwater heaters

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Event 2 – Reactor Pressure Instrument Fails

Downscale

When directed by lead examiner, **insert malfunction:**

RP16B, RPV PT 36-07B FAILED LOW

TRG 2

RPV pressure instrument indicates downscale

Expected Annunciators:

F4-4-2, RPS CH 12 REACTOR PRESS LOW

F4-4-7, RPS CH 12 MAIN STEAM ISOLATION

AUTO OPERATE

Role Play: When directed as Operator to check ATS cabinet indication, wait 2 minutes and report that PT 36-07B is downscale with the gross failure light lit.

CREW

- Recognize/report Reactor pressure instrument failed downscale

SRO

- Acknowledges reports from crew
- Enters T.S. Table 3.6.2.a (o), for pressure transmitter 36-07B (Place RPS Channel 11 in the tripped condition within 12 hours)

ATC

- Monitors plant parameters
- Observes other Reactor pressure indications stable

BOP

- Executes ARPs F4-4-2 and F4-4-7
- Dispatches operator to investigate indications at ATS Cabinet

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 3 - CRD Flow Control Valve Fails Closed

When directed by lead examiner, **insert malfunction:**

RD36A, CRD FCV 44-151 FAILURE - CLOSED

TRG 3

CRD flow indication indicates low

Expected Annunciator:

F3-1-5 CRD CHARGING WTR PRESS HI/LO

CREW

- Acknowledge/report Annunciator F3-1-5
- Diagnose CRD FCV 11 failed closed

SRO

- Directs execution of ARP F3-1-5
- Directs entry into N1-SOP-5.1
- Directs shifting CRD FCVs per N1-OP-5, Sect. F.5.0
- Determines Technical Specification 3.1.6.c applies for a loss of CRD injection flow
- Acknowledges report that CRD FCV 12 is in service
- After CRD FCV 12 is in service, exits TS 3.1.6

ATC

- Monitors plant parameters

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 3 continued

Role Play: If requested to investigate CRD FCV failure, wait 2 minutes and report that CRD FCV 11 (44-151) appears to have failed closed.

Role Play: When requested to open 44-148 and 44-152 (step F.5.3.1), wait 1 minute and report valves are open.

Role Play: When requested to countdown and re-position RB Air Transfer Switch (step F.5.3.2.a), perform countdown and report RB Air Transfer Switch is in the Up position.

Note: Verify the following **remote automatically inserts** when the CRD FCV selector switch is swapped:

**RD05, CRD FLOW CONTROL VALVE ISOL,
FV=nc30b**

TRG 21

Role Play: When requested to close 44-150 and 44-153 (step F.5.3.3), wait 1 minute and report valves are closed.

BOP

- Executes ARP F3-1-5
- Determines CRD FCV is failed closed
- Enters N1-SOP-5.1
- Determines standby FCV is to be placed in service per N1-OP-5 section F.5.0
- Establishes communications between Control Room and CRD Flow Control Valves
- Places FIC 44-146B, CRD FLOW CONTROL, M/A station in MANUAL
- Directs operator to open the following valves:
 - 44-148, CRD FCV 12 INLET
 - 44-152, CRD FCV 12 OUTLET
- Directs operator to place 113-297 SEL-CRD FCV Service Selector in Up position following countdown
- Places CRD FLOW CONTROL VALVE TRANSFER switch in VALVE 12 position
- Directs operator to close the following valves:
 - 44-150, CRD FCV 11 INLET
 - 44-153, CRD FCV 11 OUTLET
- Confirms CRD Flow between 64-66 gpm
- Places FIC 44-146B, CRD FLOW CONTROL, M/A Station in AUTO

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

**Events 4, 5, 6 and 7 – MPR Setpoint Drifts Low,
Failure to Scram, Liquid Poison Pumps Trip,
CRD Pump Trips**

When directed by lead examiner, **insert override:**

**13S73DI46713, POS_2 1E70 TC MPR POS C,
FV=on**

TRG 4

Turbine Control Valves open further

Turbine Bypass Valves being to open

Reactor pressure lowers

Expected Annunciators:

*A2-4-4, TURBINE MECHANICAL PRESS. REG. IN
CONTROL*

A1-4-6, TURBINE BY-PASS VALVES OPEN

Verify the following **malfunctions** are **preset**:

**RD33A, CONTROL ROD BANK BLOCKED
BANK 1, FV=8**

**RD33B, CONTROL ROD BANK BLOCKED
BANK 2, FV=8**

**RD33C, CONTROL ROD BANK BLOCKED
BANK 3, FV=18**

**RD33D, CONTROL ROD BANK BLOCKED
BANK 4, FV=8**

**RD33E, CONTROL ROD BANK BLOCKED
BANK 5, FV=8**

Verify the following **malfunctions** automatically
insert when the respective pump is started:

LP01A, Liquid Poison Pump 11 Trip, DT=5

TRG 11

LP01B, Liquid Poison Pump 12 Trip, DT=5

TRG 12

Control rods partially insert

Reactor power remains > 6%

Liquid Poison pumps trip

CREW

- Recognize/report MPR taking control
- Recognize/report lowering Reactor pressure
- Recognize/report Turbine Bypass valves opening
- Later:
 - Recognize/report failure to scram
 - Recognize/report trip of Liquid Poison pumps
 - Recognize/report trip of CRD pump B

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Events 4, 5, 6 and 7 continued

Note:

When the Mode Switch is taken to SHUTDOWN, verify **TRG 20** automatically:

- **Inserts malfunction TC08, MECHANICAL PRES. REGULATOR FAILS – LOW**
- **Deletes override 13S73DI46713, POS_2 1E70 TC MPR POS C, FV=on**

This fails the MPR completely.

Note:

Once 2-3 control rods have been inserted by the ATC and directed by lead examiner, insert malfunction:

RD35B, CRD Hydraulic Pump 12 Trip

TRG 5

CRD pump 12 trips

SRO

- Acknowledges reports
- Directs entry into N1-SOP-31.2, as time permits
- Directs manual Reactor scram per N1-SOP-1
- Acknowledges failure to scram
- Enters N1-EOP-2 due to Reactor power above 6% when scram required
- Answers "All rods in to at least 04" NO
- Answers "Will the reactor stay shutdown without boron" NO
- Exits N1-EOP-2, enters N1-EOP-3
- Directs ADS bypassed
- Directs prevention of Core Spray injection per N1-EOP-1 Att 4

N1-EOP-3 Level Leg Actions (Initial)

- Directs bypass of the low-low RPV water level MSIV isolation per N1-EOP-1 Att 2
- Determines Reactor power is above 6% and RPV water level is above -41 inches
- **Directs terminate and prevent of all injection except boron and CRD per N1-EOP-1 Att 24**

CT-1

- Directs RPV water level lowered to at least -41 inches

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 4, 5, 6 and 7 continued

SRO continued

N1-EOP-3 Pressure Leg Actions

- If an ERV is cycling:
- Directs initiation of Emergency Condensers
- Directs open ERVs to lower RPV pressure to less than 965 psig
- Directs RPV pressure controlled below 1080 psig using Turbine Bypass valves, Emergency Condensers, and ERVs
- Monitors Figure M, Heat Capacity Temperature Limit

N1-EOP-3 Power Leg Actions

- Directs initiation of ARI
- Answers "Turbine Generator on-line?"
NO
- Answers "Reactor power?" Above 6%
- **Verifies Recirc Pumps tripped**

CT-1

- **Directs execution of N1-EOP-3.1**

CT-2

- Acknowledges trip of CRD pump 12
- May enter N1-SOP-5.1
- Directs start of CRD pump 11
- If power oscillates more than 25% or before Torus water temperature reaches 110°F:
- Records Liquid Poison tank level
- Directs Liquid Poison injection
- Acknowledges trip of Liquid Poison pumps
- Directs alternate boron injection per N1-EOP-3.2

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 4, 5, 6 and 7 continued

SRO continued

EOP-3 Level Leg Actions (Subsequent)

- Acknowledges RPV water level below -41 inches
- If Torus temperature is above 110°F, then directs level lowered until:
- Power drops below 6%, OR
- Level drops to -84 inches (TAF)
- Records final actual level
- Directs RPV injection with Condensate/Feedwater and CRD

ATC

- Places Mode Switch in SHUTDOWN
- Depresses manual scram pushbuttons
- Provides scram report
- Bypasses Core Spray IV interlocks per N1-EOP-1 Att 4 by installing six jumpers inside Panel N (17, 18, 19, 24, 25, 26)
- Bypass low-low MSIV isolation per N1-EOP-1 Att 2 by installing four jumpers inside Panel N (1, 2, 8, 9)
- **When directed, performs N1-EOP-3.1 (See actions below)**

CT-2

- Reports when APRMs <6%
- Reports status of control rod insertion
- Recognizes/reports trip of CRD pump 12
- Starts CRD pump 11
- Injects Liquid Poison, if directed
- Recognizes/reports trip of Liquid Poison pumps

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 4, 5, 6 and 7 continued

ATC continued

Possible N1-EOP-3.1 Section 3 Actions:

- Verifies a CRD Pump running
- Places Reactor Mode Switch in REFUEL
- Places ARI OVERRIDE switch in OVERRIDE
- Installs RPS jumpers (5, 6, 12, 13)
- Resets the scram
- **Inserts rods to 00 using EMER ROD IN starting with high power regions of core (use LPRM indications)**

CT-2

- If more drive pressure is required, then perform one or more of the following:
 - Fully open CRD Flow Control Valve (F panel)
 - Close 44-04, Control Rod Drive Water Cont V (F Panel)
 - Close 44-167, Charging Water Header Blocking Valve (RB 237')

Possible N1-EOP-3.1 Section 4 Actions:

- Places ARI OVERRIDE switch in OVERRIDE
- Installs RPS jumpers (5, 6, 12, 13)
- Resets the scram
- Verify open 44-167, Charging Water Header Blocking Valve (RB 237')
- When the SDV is drained, then initiate a manual scram

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 4, 5, 6 and 7 continued

Role Play:

When directed to pull HPCI fuses, wait one minute,
then insert remote:

**FW24, REMOVAL OF HPCI FUSES FU8/FU9,
FV=pulled**

TRG 24

Then report task completion.

BOP

- Manually initiates ARI
- Bypasses ADS
- **Terminates and prevents all injection except boron and CRD per N1-EOP-1 Att 24:**

CT-1

- Closes both Feedwater Isolation Valves 11 and 12 OR places Feedwater pumps 11 and 12 in PTL
- Selects Manual on 11, 12 and 13 FWP Valve Control selector switches
- Closes 11, 12 and 13 Feedwater FCV (Knurled Knob) full counterclockwise
- Places FW LVL SETPOINT SETDOWN to OVERRIDE
- Directs operator to remove fuses FU-8 and FU-9 from Panel IS34 in the Aux Control Room
- Verifies closed, FEEDWATER PUMP 13 BLOCKING VALVE
- Verifies in MAN, FWP 11 BYPASS VALVE, AND set to zero output
- Verifies in MAN, FWP 12 BYPASS VALVE, AND set to zero output
- May re-open Feedwater Isolation Valve
- Informs SRO when RPV water level reaches -41 inches

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 4, 5, 6 and 7 continued

BOP continued

- If any ERV is cycling:
 - Initiates Emergency Condensers
 - Manually opens ERVs to lower RPV pressure <965 psig
- Controls RPV pressure below 1080 psig with Turbine Bypass Valves, Emergency Condensers and ERVs
- Closes MSIVs, as directed
- Initiates ARI
- **Verifies all Recirc pumps tripped**

CT-1

- Initiates Liquid Poison as directed
 - Reports initial tank level
 - Attempts to start Liquid Poison pump 11 and/or 12
 - Determines/reports Liquid Poison pump(s) trip
- Acknowledges direction to re-establish RPV injection with Condensate/Feedwater and CRD
- Re-injects with Condensate/Feedwater per N1-EOP-1 Att 24:
 - Reopens at least one Feedwater Isolation Valve 11 and / or 12, if closed
 - Controls injection with Feedwater flow control valves

Terminating Cues:

- RPV water level controlled in assigned band
- RPV pressure controlled in assigned band
- Control rod insertion in progress or complete

NMP SIMULATOR SCENARIO

NRC Scenario 4

REV. 0

No. of Pages: 22

ERV Inadvertently Opens, Powerboard 16A Fault, Loss of All RBCLC, Loss of High Pressure Feedwater, Coolant Leak Inside Primary Containment, RPV Flooding

PREPARER

 PAUL ISHAM

DATE

3/8/13

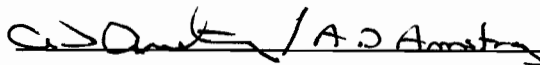
VALIDATED

Grapes, Lavallee, M. O'Brien

DATE

12/21/12

GEN SUPERVISOR
OPS TRAINING

 A.D. Amet

DATE

3/8/13

OPERATIONS
MANAGER

N/A – Exam Security

DATE

CONFIGURATION
CONTROL

N/A – Exam Security

DATE

SCENARIO SUMMARY

Length: 60 minutes

Initial Power Level: Approximately 100%

The scenario begins at approximately 100% power. Containment Spray pump 112 is out of service for maintenance. Steam Packing Exhauster 12 is caution tagged due to high vibrations. The crew will remove Line 4 from service for maintenance. The CRS will determine the Tech Spec impact.

Next, ERV 111 will inadvertently open. The crew will enter N1-SOP-1.4, Stuck Open ERV. The crew will perform an emergency power reduction to approximately 85% power, then take actions to close ERV 111 (**Critical Task**). These actions will close the ERV, but leave it inoperable. The CRS will determine the Tech Spec impact.

Next, Powerboard 16A will develop an electrical fault. This will cause a loss of power to three Drywell cooling fans. The crew will start an additional Drywell cooling fan to stabilize Drywell temperature and pressure. The electrical loss will also affect EDG 103 auxiliary equipment. The CRS will determine the Tech Spec impact.

Next, the running RBCLC pumps will trip. The standby RBCLC pump will trip upon being started. The crew will enter N1-SOP-11.1, RBCLC Failure. The crew will scram the Reactor, trip Recirculation pumps, initiate Emergency Condensers, and shut the MSIVs. The high pressure Feedwater pumps will trip on the scram, complicating Reactor water level control.

Once the crew stabilizes the plant after the scram, a coolant leak will develop inside the Primary Containment. The crew will re-enter N1-EOP-2, RPV Control, and N1-EOP-4, Primary

Containment Control. Containment parameters will degrade and the crew will initiate Containment Sprays (**Critical Task**). The elevated Containment temperature will cause the Fuel Zone level indicators to flash. With all other Reactor water level indicators downscale, the crew will execute N1-EOP-7, RPV Flooding, to lower Reactor pressure and flood the Reactor to the Main Steam lines (**Critical Task**).

Major Procedures: N1-OP-33A, N1-SOP-1.4, N1-SOP-1.1, N1-SOP-11.1, N1-SOP-1, N1-EOP-2, N1-EOP-4, N1-EOP-1, N1-EOP-7

Dynamic Mitigation Strategy Code: RL4, loss of all RPV level indication (non-ATWS), RPV Blowdown, RPV Flooding

EAL Classification: Site Area Emergency per EAL 2.1.2, RPV water level CANNOT BE RESTORED AND MAINTAINED >-84 in. (TAF) OR RPV Flooding is required

Termination Criteria: RPV Flooding in progress, Reactor water level on scale or upscale, Containment pressure and temperature controlled in accordance with N1-EOP-4

I. SIMULATOR SET UP

A. IC Number: IC-154

B. Presets/Function Key Assignments

1. Malfunctions:

- | | |
|---|--------|
| a. CT01B, CT Pump 112 Trip | PRESET |
| b. AD05, ERV 111 Failure - Opens Inadvertently | TRG 1 |
| c. ED12A, PB 16A Electrical Fault | TRG 3 |
| d. CW04A, RBCLC Pump 11 Trip | TRG 4 |
| e. CW04B, RBCLC Pump 12 Trip | TRG 4 |
| f. CW04C, RBCLC Pump 13 Trip | TRG 4 |
| g. FW03A, FEEDWATER PUMP TRIP 11 | TRG 5 |
| h. FW03B, FEEDWATER PUMP TRIP 12 | TRG 5 |
| i. FW06, SHAFT DRIVEN FEEDWATER PUMP CLUTCH FAILS –
DISENGAGES | TRG 5 |
| j. CU01, CU COOLANT LEAK INSIDE OF DRYWELL, FV=70,
RT=5:00 | TRG 6 |
| k. EC01, Steam Supply Line Break in PC, FV=5, RT=5:00 | TRG 6 |
| l. RR87, FUEL ZONE LEVEL INSTRUMENT FLASHING | TRG 7 |

2. Remotes:

- | | |
|---|--------|
| a. AD01A, ERV 111 Fuses, FV=pulled | TRG 27 |
| b. AD07, Acoustic Monitor Alarm Reset, FV=reset | TRG 28 |

3. Overrides:

- a. None

4. Annunciators:

- a. None

5. Triggers:

- a. TRG 5 – Activates on Reactor scram to insert loss of Feedwater
- i. Event Action: `zdrpstdn==1`
 - ii. Command: None
- b. TRG 7 – Activates on DW temp >200°F, LLL level below -20", and Containment Spray flow to Drywell >100 gpm to insert Fuel Zone flashing
- i. Event Action: `hzar19<0.075&&hzar120<0.075&&pctdw8>200&&ctfdw>100`
 - ii. Command: None

C. Equipment Out of Service

1. Containment Spray pump 112 in PTL with yellow tag

2. Containment Spray suction valve 112 closed with yellow tag
3. Steam Packing Exhauster 12 green flagged with yellow tag

D. Support Documentation

1. N1-OP-33A Section H.12 marked up to Step H.12.9.

E. Miscellaneous

1. Ensure Drywell cooling fan 11 is secured with control switch in neutral.
2. Protect the following equipment: EDG102, EDG 103, PB 102, PB 103, Line 1, MOD 8106.
3. Update Divisional Status Board.

II.

SHIFT TURNOVER INFORMATION

OFF GOING SHIFT: ☐ N ☒ D

DATE: Today

PART I: To be performed by the oncoming Operator before assuming the shift.

- Control Panel Walkdown (all panels) (SM, CRS, STA, RO, CRE)

PART II: To be reviewed by the oncoming Operator before assuming the shift.

- Shift Manager Log (SM, CRS, STA)
- RO Log (RO)
- Lit Control Room Annunciators (SM, CRS, STA, RO, CRE)
- Shift Turnover Checklist (ALL)
- LCO Status (SM, CRS, STA)
- Computer Alarm Summary (RO)

Evolutions/General Information/Equipment Status:

- Reactor power is approximately 100%.
- Containment Spray pump 112 is out of service for maintenance (Day 1 of planned 2 day window; 15 day LCO per TS 3.3.7.b).
- Steam Packing Exhauster 12 is caution tagged due to high vibrations.

PART III: Remarks/Planned Evolutions:

Remove Line 4 from service per N1-OP-33A Section H.12 to support National Grid maintenance. The procedure has been completed up to Step H.12.9.

PART IV: To be reviewed/accomplished shortly after assuming the shift:

- Review new Clearances (SM)
- Shift Crew Composition (SM/CRS)
- Test Control Annunciators (CRE)

TITLE	NAME	TITLE	NAME
SRO			
ATC RO			
BOP RO			

Critical Tasks:

- CT-1 Given an inadvertently open ERV at power, close the ERV or insert a manual scram prior to Torus temperature exceeding 110°F, in accordance with N1-SOP-1.4.

Safety Significance: A manual Reactor scram is required before Torus temperature exceeds 110°F. This reduces the rate of energy production and thus heat input to the Torus. Additionally, this allows evaluating the success of the Reactor scram before boron injection would be required due to Torus temperature in the event of a failure to scram. Closing the ERV prior to the need for the scram avoids the need for these more substantial actions, prevents challenging the plant with a scram, and stops heat input to the Torus.

Cueing: ERV position, ERV acoustic monitors, ERV tailpipe temperature, Torus temperature, Reactor pressure, and steam flow indicate an open ERV. N1-SOP-1.4 provides direction to close the ERV or scram the Reactor.

Measurable Performance Indicators: Pulling ERV fuses, directing an operator to pull ERV fuses in the field, rotating the Mode Switch to SHUTDOWN, and/or depressing the manual scram pushbuttons will provide observable actions for the evaluation team.

Performance Feedback: ERV position, ERV acoustic monitors, ERV tailpipe temperature, Torus temperature, Reactor pressure, and steam flow will provide performance feedback regarding success of crew actions to close the ERV. Control rod position and Reactor power will provide performance feedback regarding success of crew actions to scram the Reactor.

- CT-2 Given a LOCA in the Drywell, initiate Containment Sprays prior to exceeding the Pressure Suppression Pressure limit, in accordance with N1-EOP-4.

Safety Significance: Initiating Containment Sprays reduces Primary Containment pressure. This reduces stresses on the Drywell and Torus, assists in avoiding “chugging” that may cause fatigue failure of the LOCA downcomers, and avoids the need for a blowdown. These benefits reduce challenges to the fuel cladding, the RPV, and the Primary Containment.

Cueing: Multiple Primary Containment pressure and temperature indications and annunciators will indicate degrading conditions. N1-EOP-4 provides direction to initiate Containment Sprays.

Measurable Performance Indicators: Manipulation of Containment Spray pump control switches will provide observable actions for the evaluation team.

Performance Feedback: Containment Spray flow and lowering Primary Containment pressure and temperature indications will provide performance feedback regarding success of crew actions to initiate Containment Sprays.

CT-3 Given the plant with RPV water level unknown, execute N1-EOP-7, RPV Flooding, in accordance with N1-EOP-2.

Safety Significance: With Reactor water level unknown, the status of core cooling is unknown. RPV flooding is required to establish conditions to cool the core. This protects the fuel cladding integrity.

Cueing: Multiple Reactor water level indications will indicate either downscale or invalid. N1-EOP-2 provides direction to implement N1-EOP-7, RPV Flooding.

Measurable Performance Indicators: Manipulation of ERVs, MSIVs, ECIVs, and injection system controls provide observable actions for the evaluation team.

Performance Feedback: ERV, MSIV, and ECIV position indications, Reactor pressure, ERV tailpipe temperatures, and ERV acoustic monitors provide performance feedback regarding success of RPV flooding actions.

INSTRUCTOR ACTIONS/ PLANT RESPONSE

Take the simulator out of freeze before the crew enters for the pre-shift walkdown and briefing.
Allow no more than 5 minutes for panel walkdown.

Event 1 – Remove Line 4 From Service

Role Play:

When asked as Operator to confirm R40 position, immediately report all three phases of R-40 are open.

OPERATOR ACTIONS

CREW

- Conducts pre-brief, walks down the panels, assumes the shift

SRO

- Directs removing Line 4 from service per N1-OP-33A Section H.12
- Provides oversight for evolution
- Determines Technical Specification 3.6.3.b requires returning Line 4 to service within 7 days.

BOP

- Reviews N1-OP-33A Section H.12
- Verifies Auto Reclosure for R-40 breaker is OFF
- Opens breaker R-40
- Dispatches Operator to confirm R-40 open locally on ALL 3 phases
- Notifies SM to review TS for appropriate LCO applicability
- Continues at Section H.9.0, Loss of 115 KV Line 4

ATC

- Monitors plant parameters

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 2 – ERV 111 Inadvertently Opens

When directed by lead examiner, **insert malfunction:**

AD05, ERV 111 Failure – Opens Inadvertently

TRG 1

ERV 111 opens

Reactor pressure lowers slightly

Reactor power lowers and then rises slightly

Torus temperature rises

Torus level rises

Expected annunciators:

*F1-4-8, STEAM LINE DETECTION SYS FLOW
OFF NORM*

*F2-4-1, MAIN STM LINE ELECTROMATIC RELIEF
VALVE OPEN*

H3-4-5, PRESS SAFETY/RELIEF VALVES FLOW

CREW

- Acknowledges/reports annunciators
- Diagnoses ERV 111 has inadvertently opened

SRO

- Acknowledges reports
- Directs entry into N1-SOP-1.4, Stuck Open ERV
- Directs emergency power reduction to approximately 85% power
- Provides oversight for reactivity manipulation
- Determines that ERV 111 is inoperable per TS 3.1.5.a, requiring a 10 hour shutdown
- **Directs taking action to close ERV 111 or directs a manual scram prior to Torus temperature exceeding 110°F, in accordance with N1-SOP-1.4**

CT-1

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 2 continued

SRO continued

- Acknowledges that ERV 111 has closed
- Enters N1-EOP-4 if Torus temp rises above 85°F or Torus level rises above 11.25'
 - Directs Containment Spray to PTL
- May direct initiation of Torus Cooling per N1-EOP-1 att 16 or N1-SOP-1.4

ATC

- Performs emergency power reduction per N1-SOP-1.1
- Reduces Recirculation master controller to lower power to approximately 85%
- Monitors APRMs
- Monitors Recirculation flow
- Monitors Feedwater flow and RPV water level
- Monitors position on power to flow map
- **If Torus temperature approaches 110°F, inserts manual Reactor scram**

CT-1

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Event 2 continued

Role Play:

When directed as Operator to go to Auxiliary Control Room and verify ERV 111 is open, wait one minute and report ERV 111 is open. Subsequent reports on acoustic monitor status may be given immediately, with close attention paid to the actual status of the ERV.

Note:

Safety glasses and gloves are required for pulling fuses in F panel.

Role Play:

If the Operator is directed to pull fuses in the RB wait 3 minutes and **insert remote:**

AD01A, ERV 111 Fuses, FV=pulled

TRG 27

Report fuses are pulled.

Role Play:

When directed as operator to reset the acoustic monitor, wait 1 minute and **insert remote:**

AD07, Acoustic Monitor Alarm Reset, FV=reset

TRG 28

Report acoustic monitor is reset.

BOP

- Enters N1-SOP-1.4
- Determines ERV 111 is open using:
 - Valve indicating lights on F panel
 - Red ERV flow indicating light on F panel
- Sends an operator to the Aux Control Room to verify ERV open using Acoustic Monitor
- May send an operator to RB 237' to standby for pulling local ERV fuses
- Attempts to close ERV 111 by performing one or all of the following:
 - Depresses ADS Timer Reset pushbuttons
 - Cycles Control Switch for ERV 111
 - **Pulls control power fuses F15 and F30 in F panel (ERV 111)**
- **OR**
- **Directs operator to pull ERV 111 fuses on RB 237'**

CT-1

- Checks with operator in Aux Control Room to see if ERV is still open
- Determines/verifies ERV closes
- Directs reset of acoustic monitor
- Notifies crew that ERV 111 has closed
- Monitors Torus temperature
- Reports if/when Torus temperature exceeds 85°F or Torus level exceeds 11.25'
- Places Containment Spray pumps in PTL if directed

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 2 continued

BOP continued

- Places Torus cooling in service when directed, per N1-SOP-1.4, att 2 or N1-EOP-1 att 16:
 - Close CONT SPRAY BYPASS BV(s) for selected loop
 - Verifies closed 80-115
 - Verifies closed 80-114
 - Verifies closed Cont Spray Discharge IV for selected loop
 - Verifies open CONT SPRAY BYPASS BV for selected loop
 - Fully opens 80-118
 - Starts Containment Spray Raw Water pump in selected loop
 - Starts Containment Spray pump in selected loop

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 3 - Powerboard 16A Electrical Fault

When directed by lead examiner, **insert malfunction:**

ED12A, PB 16A Electrical Fault

TRG 3

Three Drywell cooling fans de-energize

Drywell pressure and temperature rise

Spent Fuel Pool Cooling pump 11 trips

RBCLC pump 11 trips

Expected Annunciators:

L4-3-6, DRYWELL COOLING FAN TRIP-VIB

A4-3-1, POWER BD. 16 R1041 TRIP

A4-4-2, POWER BD. 16 LOW BUS VOLTAGE

L1-4-5, FUEL POOL ANNUNCIATOR

CREW

- Recognize/report loss of Powerboard 16A
- Recognize/report trip of three Drywell cooling fans
- Recognize/report trip of RBCLC pump 11
- Recognize/report Spent Fuel Pool trouble alarm

SRO

- Directs execution of ARPs
- Directs start of Drywell cooling fan 11
- May direct lowering RBCLC temperature
- May direct Reactor power reduction per N1-SOP-1.1
- If Drywell average temperature exceeds 150°F, enters N1-EOP-4
 - Directs placing Containment Spray pumps in PTL
- Directs entry into N1-SOP-6.1, Loss of SFP/Rx Cavity Level/Decay Heat Removal
- May direct start of RBCLC pump 12

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Event 3 continued

Role Play:

If requested to investigate Powerboard 16A, wait 2 minutes, then report the feeder breaker is tripped and there is an acrid odor in the area. Electrical Maintenance does NOT recommend re-energizing Powerboard 16A.

Role Play:

If requested to investigate SFPC trouble, wait 2 minutes, then report SFPC pump 11 tripped. If directed to restore SFPC, acknowledge order, but delay any action for rest of scenario.

ATC

- Monitors plant parameters
- If directed, lowers Reactor power per N1-SOP-1.1

BOP

- Executes ARPs
- Dispatches operator/maintenance to investigate Powerboard 16A
- Dispatches operator to investigate Spent Fuel Pool alarm
- Acknowledges/reports Powerboard 16A is faulted
- Starts Drywell cooling fan 11
- Green flags Drywell cooling fans 14, 15, and 16
- May start RBCLC pump 12
- May green flag RBCLC pump 11
- If directed, lowers RBCLC temperature per N1-OP-11:
 - Places RBCLC TCV in manual:
 - Depresses the A/M Button UNTIL red LED is illuminated next to "M"
 - Verifies 70-23B.V is displayed in the LED readout
 - IF 70-23B.V is NOT displayed, THEN depresses the "D" button UNTIL the display shows 70-23B.V
 - Adjusts RBCLC temperature as desired
 - May lower RBCLC TCV automatic setpoint per N1-OP-11 Section H.24.0

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 3 continued

BOP continued

- May place RBCLC TCV back in automatic:
- Depresses the A/M Button UNTIL green LED is illuminated next to "A"
- Verifies 70-23B.P is displayed in the LED readout
- IF 70-23B.P is NOT displayed, THEN depresses the "D" button UNTIL the display shows 70-23B.P
- Verifies TCV-70-137 is responding properly to automatic control
- If directed, places Containment Spray pumps in PTL

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 4 and 5 – All RBCLC Pumps Trip,

Feedwater Pumps Trip

When directed by lead examiner, **insert malfunction:**

CW04A, RBCLC Pump 11 Trip

CW04B, RBCLC Pump 12 Trip

CW04C, RBCLC Pump 13 Trip

TRG 4

RBCLC pumps trip

RBCLC pressure lowers

RBCLC temperature

Expected Annunciators:

*H1-1-1, REACTOR BLDG COOL PUMP 11 TRIP-
V-SUCT*

*H1-2-1, REACTOR BLDG COOL PUMP 12 TRIP-
V-SUCT*

*H1-3-1, REACTOR BLDG COOL PUMP 13 TRIP-
V-SUCT*

*H1-4-1, R BUILDING COOLING WATER PRESS
TEMP MAKEUP FLOW*

K2-4-3, DRYWELL PRESSURE HIGH-LOW

K3-4-4, CLEAN-UP SYSTEM ISOLATION

CREW

- Recognize/report trip of all RBCLC pumps
- Later:
 - Recognize/report Feedwater pump 11 and 12 trips
 - Recognize/report Feedwater pump 13 disengages
 - Recognize/report low Reactor water level

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Events 4 and 5 continued

Verify the following **malfunctions** are **automatically inserted** when the Reactor scrams:

FW03A, FEEDWATER PUMP TRIP 11

FW03B, FEEDWATER PUMP TRIP 12

**FW06, FW06, SHAFT DRIVEN FEEDWATER
PUMP CLUTCH FAILS – DISENGAGES**

TRG 5

*Feedwater pumps 11 and 12 trip immediately after
starting, Feedwater pump 13 disengages*

Reactor water level remains lower than normal

Expected Annunciators:

H3-1-7, REACTOR FW PUMP 11 TRIP

OVERLOAD SUCTION HI-LEVEL

H3-2-7, REACTOR FW PUMP 12 TRIP

OVERLOAD SUCTION HI-LEVEL

*H3-4-8, REACTOR FW SHAFT P13 CLUTCH
TROUBLE*

F2-3-3, REACT VESSEL LEVEL HIGH-LOW

Note: Expected initial RPV water level control
band is narrower (ex. 0" to 95").

SRO

- Acknowledges reports
- Directs entry into N1-SOP-11.1
- Direct start of standby RBCLC pump
- Acknowledges trip of all RBCLC pumps
- Directs execution of override, including:
 - Manual Reactor scram
 - Trip Recirculation pumps
 - Initiate Emergency Condensers
 - Close MSIVs
 - Trip RWCU pump
- Acknowledges scram report
- Enters N1-EOP-2, RPV Control, on low RPV water level
- Answers "Are all control rods inserted to at least position 04?" YES
- Directs entry into N1-SOP-1, Reactor Scram
- Acknowledges trip of Feedwater pumps
- Directs RPV water level controlled between -84" and 95" using CRD and/or Liquid Poison
- Directs RPV cooldown <100°F/hr using Emergency Condensers
- Enters N1-EOP-4, Primary Containment Control, on high Drywell temperature
 - Directs lockout of Containment Spray pumps

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Events 4 and 5 continued

Note:

Depending on timing, Lo-Lo Reactor water level may trip Recirculation pumps, initiate Emergency Condensers, and close MSIVs before operator action.

Note:

RWCU will likely trip on high temperature before operator action.

ATC

- Places Reactor Mode Switch to SHUTDOWN
- Provides scram report
- Performs scram verification actions of N1-SOP-1, Reactor Scram:
- Confirms all rods inserted
- Observes Reactor power lowering
- Places IRMs on range 9
- Inserts IRM and SRM detectors
- Down-ranges IRMs as necessary
- Verifies main turbine and generator tripped
- Controls RPV pressure as directed using Emergency Condensers

BOP

- Executes N1-SOP-11.1
- Attempts to start standby RBCLC pump
- Informs crew of need to execute override
- Enters N1-SOP-1
- Informs crew of Feedwater pump trips and low Reactor water level
- Trips Recirculation pumps
- Initiates Emergency Condensers
- Closes MSIVs
- Verifies RWCU pump tripped
- May maximize CRD flow by starting second CRD pump and/or taking FCV to manual and opening further
- May start Liquid Poison
- Places Containment Spray pumps in PTL

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

**Events 6 and 7 - Coolant Leak Inside Primary
Containment and Fuel Zone Level Instrument
Flashing**

When directed by lead examiner, **insert
malfunctions:**

**CU01, CU Coolant Leak Inside of Drywell,
RT=5:00, FV=70**

**EC01, Steam Supply Line Break in PC, RT=5:00,
FV=5**

TRG 6

Containment parameters degrade

RPV water level lowers

Expected annunciators:

*H2-4-7, DRYWELL WATER LEAK DETECTION
SYS*

K2-4-3, DRYWELL PRESSURE HIGH-LOW

L1-4-4, DRYWELL – TORUS TEMP HIGH

F1-1-5, RPS CH 11 DRYWELL PRESS HIGH

F4-1-4, RPS CH 12 DRYWELL PRESS HIGH

F1-2-3, RPS CH 11 REACTOR LEVEL LOW-LOW

F4-2-6, RPS CH 12 REACTOR LEVEL LOW-LOW

*F1-3-3, RPS CH 11 REACTOR LEVEL LOW-LOW-
LOW*

*F4-3-6, RPS CH 12 REACTOR LEVEL LOW-LOW-
LOW*

CREW

- Recognize/report degrading
Containment parameters

SRO

- Acknowledges reports from the crew
- Re-enters N1-EOP-4 on high Drywell
pressure
- Re-enters N1-EOP-2 on high Drywell
pressure

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Events 6 and 7 continued

Note: Due to an already low RPV water level when Drywell pressure reaches 3.5 psig, Containment Spray may auto-start before the crew can prevent it. In accordance with the EOPs, the crew will then verify proper operation per N1-EOP-1 attachment 17. In this case, Critical Task 2 shall be evaluated as "Not Applicable".

Verify the following **malfunction** is **automatically inserted** when DW temp is above 200°F, LLL level indicates below -20", and Containment Spray has been initiated:

RR87, FUEL ZONE LEVEL INSTRUMENT FLASHING

TRG 7

Fuel Zone indications blink on and off with sporadic numbers

All other RPV water level instruments are either downscale or below minimum usable levels

SRO continued

- Transitions to Alternate Level Control leg of N1-EOP-2
- Direct ADS bypassed
- Verifies EC initiation
- If either Drywell temperature approaches 300°F or Torus pressure exceeds 13 psig:
 - Answers "Below the Containment Spray Initiation Limit?" Yes
 - Verifies all Recirc pumps tripped
 - Directs trip of all Drywell cooling fans
 - **Direct Containment Sprays per N1-EOP-1 attachment 17**

CT-2

- Monitors location on Pressure Suppression Pressure curve
- Acknowledges flashing of Fuel Zones
- Acknowledges RPV water level is unknown
- **Exits N1-EOP-2, enters N1-EOP-7, RPV Flooding**

CT-3

- Answers "Are all control rods inserted to at least position 04?" Yes
- Answers "Torus water level?" Above 8.0 ft
- Directs open 4 ERVs

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 6 and 7 continued

SRO continued

- Directs injection to flood the RPV to the main steam lines using low pressure Feedwater, CRD, Core Spray or Alternate Injection Systems
- Answers "Can any ERV be opened?"
Yes
- Directs MSIVs and EC steam IVs verified closed
- Acknowledges RPV water level rising

ATC/BOP

- Places Containment Spray pumps in PTL, or verifies proper operation per N1-EOP-1 attachment 17
- Bypasses ADS
- Verifies EC initiation
- Monitors Containment parameters
- Reports if either Drywell temperature approaches 300°F or Torus pressure exceeds 13 psig
- If Containment Spray did not auto-start earlier:
 - Verifies all Recirc pumps tripped
 - Trips all Drywell cooling fans
 - **Initiates Containment Sprays per N1-EOP-1 attachment 17:**

CT-2

- Verifies started, two Containment Spray pumps
- IF required to lower Containment pressure, start additional Containment Spray Pumps
- Reports Containment pressure and temperature lowering

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Events 6 and 7 continued

ATC/BOP Continued

- Recognizes/reports flashing of Fuel Zones
- Recognizes/reports RPV water level is unknown
- **Opens 4 ERVs**
- **Injects to flood the RPV to the main steam lines using low pressure Feedwater, CRD, Core Spray or Alternate Injection Systems**

CT-3

- Verifies MSIVs and EC steam IVs closed
- Monitors for indications of successful flooding
- Reports RPV water level rising

Terminating Cues:

- RPV Flooding in progress
- Reactor water level on scale or upscale
- Containment pressure and temperature controlled in accordance with N1-EOP-4

NMP SIMULATOR SCENARIO

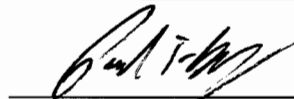
NRC Scenario 5

REV. 0

No. of Pages: 27

Startup, APRM Fails Upscale, Sequential Loss of 115 KV Lines, Loss of Vacuum, Loss of Coolant Accident, Core Spray Fails to Auto-Start

PREPARER

 PAUL ISHAM

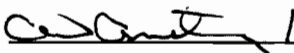
DATE 3/8/13

VALIDATED

Grapes, Lavallee, M. O'Brien

DATE 12/21/12

GEN SUPERVISOR
OPS TRAINING

 LAD ARMSTRONG

DATE 3/8/13

OPERATIONS
MANAGER

N/A – Exam Security

DATE _____

CONFIGURATION
CONTROL

N/A – Exam Security

DATE _____

SCENARIO SUMMARY

Length: 75 minutes

Initial Power Level: Approximately 5%

The scenario begins at approximately 5% power during a plant startup. Steam Packing Exhauster 12 is caution tagged due to high vibrations. The crew will raise Reactor power by withdrawing control rods. The crew will then place the Mode Switch in RUN and withdraw IRMs. APRM 12 then fails upscale. The crew will bypass the APRM. The CRS will determine the Tech Spec impact.

Next, 115 KV Line 1 will de-energize. The CRS will determine the Tech Spec impact. Then, Main Condenser vacuum will begin to degrade. The crew will enter N1-SOP-25.1, Unplanned Loss of Condenser Vacuum. The crew will scram the Reactor before vacuum lowers to 10" Hg. The continued loss of vacuum will lead to trip of the Turbine Bypass Valves and closure of the MSIVs. The crew will respond to the scram in accordance with N1-SOP-1, Reactor Scram. The crew will establish pressure control using the Emergency Condensers.

Next, 115 KV Line 4 will de-energize. Combined with the earlier loss of Line 1, this will result in a loss of all offsite power. Powerboards 102 and 103 will be powered by the Emergency Diesel Generators. Powerboards 11, 12, and 101 will de-energize. This results in a loss of all Feedwater. The crew will enter N1-SOP-33A.1, Loss of 115 KV.

Once the crew stabilizes the plant, a coolant leak will develop inside the Primary Containment. The crew will enter N1-EOP-2, RPV Control, and N1-EOP-4, Primary Containment Control. The crew will initiate Containment Spray as Primary Containment conditions degrade (**Critical Task**). The leak will be beyond the capacity of available high pressure injection sources and

Reactor pressure will be above the range of low pressure injection sources. When Reactor water level reaches the top of active fuel, the crew will perform an emergency depressurization per N1-EOP-8, RPV Blowdown **(Critical Task)**. Core Spray will fail to auto-start. The crew will control injection systems to restore and maintain Reactor water level above the top of active fuel **(Critical Task)**.

Major Procedures: N1-OP-5, N1-OP-43A, N1-OP-38C, N1-SOP-25.1, N1-SOP-1, N1-EOP-2, N1-EOP-4, N1-EOP-8, N1-EOP-1

Dynamic Mitigation Strategy Code: RL2, Small break LOCA or loss of high pressure injection, RPV level cannot be maintained above the top of active fuel, RPV Blowdown, recover level above TAF with low pressure systems and / or alternate coolant injection systems.

EAL Classification: Alert per EAL 3.1.1, Drywell pressure CANNOT BE MAINTAINED < 3.5 psig due to coolant leakage

Termination Criteria: RPV Blowdown in progress, Reactor water level controlled above top of active fuel, Containment pressure and temperature controlled in accordance with N1-EOP-4

I. SIMULATOR SET UP

A. IC Number: IC-155

B. Presets/Function Key Assignments

1. Malfunctions:

- | | |
|---|--------|
| a. NM19B, APRM CHANNEL 12 FAILURE - UPSCALE | TRG 1 |
| b. ED02A, 115 kV Line 1 (South Oswego) Loss of Offsite Power | TRG 2 |
| c. MC01, MAIN CONDENSER AIR INLEAKAGE, FV=18 | TRG 3 |
| d. ED01A, 115 kV Line 4 (JAF) Loss of Offsite Power, Delay=1:30 | TRG 4 |
| e. RR29, RR Loop Rupture on Pump 15 Suction Line (LOCA), FV=17 | TRG 5 |
| f. CS06, CS Pumps Failure to Auto Start | PRESET |

2. Remotes:

- | | |
|--|--------|
| a. RP21, RPS UPS 162 TROUBLE ANN RESET, FV=reset | TRG 28 |
| b. RP22, RPS UPS 172 TROUBLE ANN RESET, FV=reset, DT=10 | TRG 28 |
| c. ED40A, I&C Bus 130 NC Supply Breaker from PB 13B, FV=open | TRG 29 |
| d. ED40B, I&C Bus 130 NO Supply Breaker from PB 167A, FV=close, DT=5 | TRG 29 |
| e. FP04, FIRE WTR TO FW BLOCKING VLVS, FV=100 | TRG 21 |
| f. CT03A, CT Raw Water Pump 111 Disch. Throttle Valve 93-14, FV=10 | TRG 22 |
| g. FW25, MANUAL OPER. FW FCV-11, FV=0 | TRG 23 |
| h. FW26, MANUAL OPER. FW FCV-12, FV=0 | TRG 24 |
| i. FW27, MANUAL OPER. FW FCV-13, FV=0 | TRG 25 |

3. Overrides:

- a. None

4. Annunciators:

- a. None

5. Triggers:

- a. TRG 4 – Causes loss of Line 4 after the Mode Switch is taken to shutdown
- i. Event Action: zdrpstdn==1
 - ii. Command: None
- b. TRG 5 – Causes the LOCA to begin when Powerboard 16 is crosstied
- i. Event Action: zded602c==1
 - ii. Command: None
- c. TRG 10 – Makes Condenser vacuum degrade faster once the Turbine is tripped

i. Event Action: tc:trip==1

ii. Command: imf mc01 (0 0) 50

C. Equipment Out of Service

1. Steam Packing Exhauster 12 green-flagged with yellow tag.

D. Support Documentation

1. N1-OP-43A marked up to appropriate point for startup.

2. Startup control rod sequence marked up to current rod (06-31 from 04 to 08).

E. Miscellaneous

1. None

II. SHIFT TURNOVER INFORMATION

OFF GOING SHIFT: ☐ N ☒ D DATE: Today

PART I: To be performed by the oncoming Operator before assuming the shift.

- Control Panel Walkdown (all panels) (SM, CRS, STA, RO, CRE)

PART II: To be reviewed by the oncoming Operator before assuming the shift.

- Shift Manager Log (SM, CRS, STA)
- RO Log (RO)
- Lit Control Room Annunciators (SM, CRS, STA, RO, CRE)
- Shift Turnover Checklist (ALL)
- LCO Status (SM, CRS, STA)
- Computer Alarm Summary (RO)

Evolutions/General Information/Equipment Status:

- Reactor power is approximately 5% with a startup in progress.
- Steam Packing Exhauster 12 is caution tagged due to high vibrations.

PART III: Remarks/Planned Evolutions:

- Withdraw control rods per the startup sequence. The next control rod to be moved is 06-31 from 04 to 08. Use notch control rod withdrawal. Withdraw the first four rods in the current group, then perform next planned evolution.
- Place the Mode Switch in RUN per N1-OP-43A steps 4.4 through 4.7.
- Withdraw the IRMs per N1-OP-43A step 4.10.

Note: Another group of operators has already been assigned the task of inerting the Containment and will control that evolution.

PART IV: To be reviewed/accomplished shortly after assuming the shift:

- Review new Clearances (SM)
- Shift Crew Composition (SM/CRS)
- Test Control Annunciators (CRE)

TITLE	NAME	TITLE	NAME
SRO			
ATC RO			
BOP RO			

Critical Tasks:

- CT-1 Given a LOCA in the Drywell, initiate Containment Sprays prior to exceeding the Pressure Suppression Pressure limit, in accordance with N1-EOP-4.

Safety Significance: Initiating Containment Sprays reduces Primary Containment pressure. This reduces stresses on the Drywell and Torus, assists in avoiding “chugging” that may cause fatigue failure of the LOCA downcomers, and avoids the need for a blowdown. These benefits reduce challenges to the fuel cladding, the RPV, and the Primary Containment.

Cueing: Multiple Primary Containment pressure and temperature indications and annunciators will indicate degrading conditions. N1-EOP-4 provides direction to initiate Containment Sprays.

Measurable Performance Indicators: Manipulation of Containment Spray pump control switches will provide observable actions for the evaluation team.

Performance Feedback: Containment Spray flow and lowering Primary Containment pressure and temperature indications will provide performance feedback regarding success of crew actions to initiated Containment Sprays.

- CT-2 Given Reactor water level below the top of active fuel and Reactor pressure above the capacity of available low pressure injection systems, perform an emergency depressurization of the Reactor, in accordance with N1-EOP-2 and N1-EOP-8.

Safety Significance: Reactor water level must be maintained above limits to ensure adequate core cooling. With only low pressure systems available to inject and Reactor pressure above the pressure limits of these systems, Reactor pressure must be quickly lowered to allow injection. This protects the integrity of the fuel cladding.

Cueing: Multiple Reactor water level and pressure indications and annunciators will indicate low Reactor water level with Reactor pressure too high for available injection systems to inject. N1-EOP-2 provides direction to initiate a blowdown.

Measurable Performance Indicators: Manipulation of Emergency Condenser valve and ERV control switches will provide observable actions for the evaluation team.

Performance Feedback: Emergency Condenser and ERV instrumentation will provide indication that these systems are functioning properly once placed in service. Multiple Reactor pressure indicators and annunciators will provide performance feedback regarding the success of the blowdown.

CT-3 Given a LOCA in the Drywell and Reactor water level below the top of active fuel, inject with Preferred and Alternate Injection Systems to restore and maintain Reactor water level above -84 inches, in accordance with N1-EOP-2.

Safety Significance: Maintaining Reactor water level above -84 inches ensures adequate core cooling through the preferred method of core submergence. This protects the integrity of the fuel cladding.

Cueing: Multiple Reactor water level indicators and annunciators will provide indications of lowering Reactor water level. N1-EOP-2 provides multiple procedure steps directing injection with preferred and alternate injection systems.

Measurable Performance Indicators: Manipulation of pumps and/or valves in the preferred or alternate injection system(s) will provide observable actions for the evaluation team.

Performance Feedback: Multiple Reactor water level indicators and annunciators will provide performance feedback regarding the success of injection with preferred and alternate injection systems.

INSTRUCTOR ACTIONS/ PLANT RESPONSE

Take the simulator out of freeze before the crew enters for the pre-shift walkdown and briefing.
Allow no more than 5 minutes for panel walkdown.

Event 1 – Raise Reactor Power with Control Rods

OPERATOR ACTIONS

CREW

- Conducts pre-brief, walks down the panels, assumes the shift

SRO

- Directs ATC to withdraw rods per Startup Rod Sequence and N1-OP-5 section F.1.0
- Provides oversight for reactivity manipulation

ATC

- Withdraws control rods per the rod sequence sheet
 - Verifies Control Rod Power is On
 - Depresses Rod Select pushbutton for control rod
 - Places 4S1 Control Rod Movement switch to the rod out notch position
 - Observes SRM and period response
 - Observes RMCS, RPIS and CRD indications
- Informs SRO when the first four rods of the current control rod group are withdrawn

BOP

- Monitors plant parameters

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

**Event 2 – Place Mode Switch in RUN and
Withdraw IRMs**

OPERATOR ACTIONS

SRO

- Acknowledges first four rods of the current control rod group are withdrawn
- Directs placing Mode Switch in RUN and withdrawing IRMs per N1-OP-43A
- Provides oversight for evolution

ATC

- Monitors plant parameters

BOP

- Acknowledges direction from the SRO
- Confirms APRMs indicate greater than 5% power AND confirm APRM downscale alarms clear, E panel
- Confirm the following annunciators clear - F1-4-7 and F4-4-2
- Place Mode Switch to RUN
- Confirm Computer Point C057, MODE SWITCH RUN – YES
- Confirm annunciator F3-4-5, RPS REACTOR PRESS LOW BY-PASS clear
- Transfer recorder indication to APRM channels
- Depress the FULL OUT button for each IRM
- WHEN the IRM detectors indicate full out, THEN range down the individual IRM Range switches to Range 2 OR UNTIL the respective IRM Downscale AND Upscale lights are out on E Console

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 3 – APRM 12 Fails Upscale

When directed by lead examiner, **insert malfunction:**

**NM19B, APRM CHANNEL 12 FAILURE -
UPSCALE**

TRG 1

APRM 12 indicates upscale

APRM 12 upscale light illuminates

Expected Annunciators:

F1-1-1, RPS CH 11 REACT NEUTRON MONITOR

F1-2-1, RPS CH 11 AUTO REACTOR TRIP

F2-1-6, APRM 11-14

F3-4-4, ROD BLOCK

CREW

- Recognize/report APRM 12 upscale
- Recognize/report half scram

SRO

- Acknowledges reports from crew
- Directs response per ARPs
- Verifies Technical Specification 3.6.2
Tables a and g are met with one
APRM bypassed
- Directs bypass of APRM 12
- Directs reset of half scram

ATC

- Monitors plant parameters

BOP

- Executes ARPs
- Observes E Panel and determines
APRM 12 UPSCALE HI and
UPSCALE HI-HI lights are lit

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 3 continued

BOP continued

- Observes G Panel to determine if any APRM INOP lights are lit on respective LPRM-APRM AUXILIARIES drawer
- Monitors APRM recorder for power level
- Verifies proper power to flow ratio on Power Flow Operation Map in E Panel
- Notifies SRO to verify Technical Specifications
- Refers to N1-OP-38C to bypass APRM 12
- Places APRM 12 bypass switch to BYPASS
- Confirms APRM BYPASS light is lit on Panel E
- Confirms computer printout "APRM 12 BYPASS YES"
- Confirms APRM BYPASS light is lit on the LPRM-APRM auxiliaries drawer
- Resets half scram

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 4 – Loss of Line 1

When directed by lead examiner, **insert malfunction:**

ED02A, 115 kV Line 1 (South Oswego) Loss of Offsite Power

TRG 2

Breaker R10 opens

Expected Annunciators:

A8-1-1, OSW-NMP 1 R10 TRIP

A8-1-2, OSW-NMP 1 LINE RELAY TRIP

Role Play:

If dispatched to Auxiliary Control Room, wait 2 minutes, then report an undervoltage target is in on panel 1D1 OSWEGO NINE MILE POINT 1.

If dispatched to switchyard, wait 4 minutes, then report R10 is open with no abnormal indications.

CREW

- Recognize/report loss of Line 1

SRO

- Acknowledges reports
- Directs execution of ARPs
- Reviews Technical Specification 3.6.3
- Determines Line 1 is inoperable
- Determines a 7 day LCO applies per Technical Specification 3.6.3.b

ATC

- Monitors plant parameters

BOP

- Executes ARPs
- Dispatches an operator to the Aux. Control Room to observe the following Panels for flags AND targets:
 - 1D1 OSWEGO NINE MILE POINT 1
 - 1D2 115 KV RESERVE BUS & BREAKER R10-R40
 - 1D3 NINE MILE POINT LIGHTHOUSE HILL 4

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 4 continued

Role Play:

If contacted as Power Control, report that you are dispatching a crew to investigate loss of line 1 and you have no reason for the loss yet. If asked to run a Load Flow, wait 3 minutes, then call back and report that the Low Contingency Voltage Alarm is NOT in alarm.

BOP continued

- Observes 86TN relay on Panel 8A to see if it has tripped
- Observes back of Panel 8B in the Control Room for flags AND targets
- Records time of trip AND targets
- Performs N1-OP-33A Section H., Loss 115 kV Line 1:
 - Places computer points F432, F433, AND F434 on a special log computer printout with a one minute scanning interval (Interval = 4) per N1-OP-42 AND monitors
 - Contacts System Power Control AND makes notification of the low voltage alarm AND to run a Load Flow
 - Contacts JAF Control Room in an expeditious manner AND informs them of the loss of 115 kV Line 1

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Event 5 – Loss of Condenser Vacuum

When directed by lead examiner, **insert malfunction:**

**MC01, MAIN CONDENSER AIR INLEAKAGE,
FV=18**

TRG 3

Main Condenser vacuum lowers

Offgas flow rate rises

Expected Annunciator:

A1-3-4, CONDENSER VACUUM BELOW 24" HG

Note:

Initial Reactor pressure control may be on the Turbine Bypass Valves, but will transition soon after the scram to the Emergency Condensers as Main Condenser vacuum degrades.

Note:

May close MSIVs earlier to control cooldown rate.

CREW

- Recognize/report lowering main condenser vacuum
- Acknowledge/report annunciators:
 - A1-3-4, CONDENSER VACUUM BELOW 24" HG

SRO

- Acknowledges reports
- Directs execution of N1-SOP-25.1, Unplanned Loss of Condenser Vacuum
- Determines condenser vacuum can NOT be maintained above 22.1" Hgv
- Directs Turbine trip
- Determines condenser vacuum can NOT be maintained above 10" Hgv
- Directs a Reactor Scram
- Acknowledges scram report
- Directs entry into N1-SOP-1, Reactor Scram
- Directs Reactor water level controlled 53-95" with Condensate, Feedwater, and CRD
- Directs Reactor pressure controlled 800-1000 psig with Emergency Condensers
- When vacuum approaches 10" Hgv, directs trip of Vacuum Trip 2
- When vacuum approaches 7.0" Hgv, directs closing the MSIVs

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 5 continued

Note:

Initial Reactor pressure control may be on the Turbine Bypass Valves, but will transition soon after the scram to the Emergency Condensers as Main Condenser vacuum degrades.

ATC

- Monitors plant parameters
- Assists BOP with Turbine trip
- Places Reactor Mode Switch to SHUTDOWN
- Provides scram report
- Performs scram verification actions of N1-SOP-1, Reactor Scram:
- Confirms all rods inserted
- Observes Reactor power lowering
- Places IRMs on range 9
- Inserts IRM and SRM detectors
- Down-ranges IRMs as necessary
- Verifies main turbine and generator tripped
- Controls RPV pressure as directed using Emergency Condensers

BOP

- Executes N1-SOP-25.1, Unplanned Loss of Condenser Vacuum
- Verifies proper operation of the following:
 - Circ Water System
 - SJAEs
 - Off Gas System
 - Condensate System
 - Turbine Gland Seal System
- Dispatches operator to check for condenser leakage

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 5 continued

Note:

When the Turbine is tripped, verify **TRG 10**

automatically inserts:

**MC01, MAIN CONDENSER AIR INLEAKAGE,
FV=50**

Main Condenser vacuum lowers quicker

BOP continued

- Coordinates with ATC to trip Turbine:
 - Depresses AND holds down FEEDWATER RETURN TO NORMAL AFTER HPCI CH 11 and 12 pushbuttons.
 - Depresses UNIT EMERGENCY TRIP pushbutton AND executes N1-SOP-31.1, Turbine Trip
 - Releases FEEDWATER RETURN TO NORMAL AFTER HPCI CH 11 and 12 pushbuttons
- Enters N1-SOP-1
- Controls Reactor water level 53-95" using Condensate, Feedwater, and CRD
- When directed, trips Vacuum Trip 2 and verifies Turbine Bypass Valves closed
- When directed, closes MSIVs

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 6 – Loss of Line 4

Verify the following **malfunction automatically inserts** when the Mode Switch is taken to SHUTDOWN:

ED01A, 115 kV Line 4 (JAF) Loss of Offsite Power, Delay=1:30

TRG 4

Breaker R40 opens

Control Room lights go out

Both Emergency Diesel Generators (EDG) start

Power is lost to the following major loads:

- *Recirc pumps*
- *Condensate and Feedwater pumps*
- *Circulating Water pumps*
- *Service Water pumps*

Expected Annunciators:

A8-1-3, 115 KV. BUS LOW VOLTAGE

A8-1-7, NMP – FITZ 4 R40 TRIP

A8-1-8, NMP - FITZ 4 LINE RELAY TRIP

CREW

- Recognize/report loss of Line 4
- Recognize/report start of EDGs

SRO

- Acknowledges reports from the crew
- Directs execution of N1-SOP-33A.1
- Directs Reactor water level controlled 53-95" using CRD
- Enters N1-EOP-5, Secondary Containment Control, on low Reactor Building D/P
- Exits N1-EOP-5 when Reactor Building D/P is restored

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 6 continued

ATC/BOP

- Executes N1-SOP-33A.1
- Verifies start of both Emergency Diesel Generators AND confirms the following has occurred:
 - EDG 102 SUPPLY BKR R-1022 has closed
 - Powerboards 102 AND 16B are energized
 - EDG 103 SUPPLY BKR R-1032 has closed
 - Powerboards 103 AND 17B are energized
- Answers "Are PB 11 AND 12 energized?" No
- Answers "Is any EDG running?" Yes
- Verifies the following:
 - PB 16A-B Tie Bkr R-1042 is tripped
 - PB 17A-B Tie Bkr R-1052 is tripped
 - Inst. Air Comp. (IAC) 11 and 12 in PTL
- Continues at Page 4, Arrow B
- Monitors EDG 102 AND 103 KW loading

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 6 continued

Note:

The EDG load override in N1-SOP-33A.1 will not be applicable initially, but may be executed later during the LOCA.

Role Play:

When dispatched for load reductions, wait 4 minutes, then report Attachment 2, Section 1 load reductions are complete.

ATC/BOP continued

- IF EDG KW exceeds 2300 KW (PB 102 or 103 Loading), THEN:
 - Verifies the following:
 - Trips all Containment Spray Raw Water Pumps that are running
 - R-1042 tripped, PB 16 A-B Tie Bkr
 - R-1052 tripped, PB 17 A-B Tie Bkr
 - Verifies Lockouts 86-16 and 86-17 reset
 - Places CRD Pump 11 AND 12 in PTL
 - RBCLC Pump 11, 12 AND 13 secured
 - ESW Pump 11 AND 12 secured
 - Place Core Spray and CSTP 111 OR 112 in PTL
 - Place Core Spray and CSTP 121 OR 122 in PTL
 - Operate Containment Sprays as required per N1-EOP-4
 - Equalize Containment Spray Raw Water Pump KW load (~450 KW) as required AND continue at next step
- WHILE continuing, sends operator to perform load reductions of Attachment 2, Section 1
- Verifies Lockouts 86-16 AND 86-17 reset

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 6 continued

Role Play:

When dispatched to check UPS 162 and 172, wait two minutes, then **insert remotes**:

RP21, RPS UPS 162 TROUBLE ANN RESET,

FV=reset

RP22, RPS UPS 172 TROUBLE ANN RESET,

FV=reset, DT=10

TRG 28

Then report that UPS 162 and 172 have transferred back to AC input and you have reset alarms.

Role Play:

When dispatched to restore power to I&C Bus 130, wait two minutes, then insert remotes:

ED40A, IC Bus 130 NC Supply Breaker From PB

13B, FV=open

ED40B, IC Bus 130 NO Supply Breaker From PB

167A, DT=5, FV=close

TRG 29

Then report that I&C Bus 130 is re-energized from the maintenance supply.

ATC/BOP continued

- Verifies RBCLC Pump 13 started, if available
- Verifies RBCLC Pump 12 started, if required
- Starts ESW PUMP 11 AND 12 AND monitors equipment temperature listed in N1-SOP-18.1, Tables 18.1 and 18.2
- Verifies the following:
 - CRD Pumps 11 AND 12 started, if required, UNLESS secured per override above
 - MG Set 167 transfers back to AC drive
 - UPS 162 AND 172 re-energizes
 - SBC 161 AND 171 re-energizes
- Re-establishes Rx Bldg. differential pressure as follows:
 - Verifies RB Supply AND Exhaust Fans tripped
 - Closes RB Supply AND Exhaust Isolation Valves
 - Verifies RBEV Train 12 initiated, secures RBEV Train 11
- Dispatches operator to restore power to I&C Bus 130
- Places FEEDWATER PUMP 11 AND 12 in PTL
- Verifies RBCLC Pump 12 in PTL
- Verifies ESW Pump 12 in PTL
- Verifies IAC 11 in PTL

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Event 6 continued

ATC/BOP continued

- Verifies one CRD Pump running as follows UNLESS secured per override above
 - CRD Pump 12 running
 - CRD Pump 11 in PTL
- Verifies load reductions of Attachment 2 Section 1 complete
- Restores power to PB 16A as follows:
 - Trips R-1041, PB 16A Supply Bkr
 - Closes R-1042, PB 16A-B Tie Bkr
- Verifies RBCLC Pumps 11 OR 13 running
- IF TSC Power is required, AND PB 16B load is less than 900 amps, THEN Places in ON, NDS-1 disconnect switch (TSC Emergency Power)
- Restores power to PB 17A as follows:
 - Trips R-1051, PB 17A Supply Bkr
 - Closes R-1052 PB 17A-B Tie Bkr
- Verifies IAC 12 started
- Follows N1-OP-6 for recovery of Spent Fuel Pool cooling requirements

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

**Events 7 & 8 – Loss of Coolant Accident and
Core Spray Fails to Auto-Start**

Verify the following **malfunction automatically
inserts** when Powerboard 16 is crosstied:

**RR29, RR Loop Rupture on Pump 15 Suction
Line, FV=17**

TRG 5

*Drywell leakage, humidity, temperature and
pressure rise*

Reactor water level and pressure lower

Expected Annunciators:

H2-4-7, Drywell Water Leak Detection Sys

K2-4-3, Drywell Pressure High-Low

F1-1-5, RPS Ch 11 Drywell Press High

F4-1-4, RPS Ch 12 Drywell Press High

Verify the following **malfunction** is **preset**:

CS06, CS Pumps Failure to Auto Start

Core Spray pumps do NOT auto-start

CREW

- Recognize/report degrading Primary Containment parameters
- Recognize/report lowering Reactor water level and pressure

SRO

- Acknowledges reports
- Enters N1-EOP-4 due to high Drywell pressure and temperature
- Enters N1-EOP-2 due to high Drywell pressure and low Reactor water level
- Directs Containment Spray pumps locked out
- Acknowledges failure of Core Spray to auto-start
- Directs start of Core Spray pumps

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 7 & 8 continued

SRO continued

- When Torus pressure exceeds 13 psig or Drywell temperature approaches 300°F:
 - Answers "Below the Containment Spray Initiation Limit?" – Yes
 - Verifies all Recirc pumps are tripped
 - Directs trip of all Drywell cooling fans
 - **Directs operation of Containment Spray per N1-EOP-1 attachment 17**

CT-1

- Evaluates/monitors position on Pressure Suppression Pressure curve
- Directs Reactor water level control -84" to 95" with CRD and Liquid Poison
- Transitions to alternate level control leg of N1-EOP-2
- Directs ADS bypassed
- Directs verification of EC initiation
- Answers "Are 2 or more Subsystems available?" – Yes (Both loops of Core Spray available)
- Waits until Reactor water level drops to -84"
- Answers "Is any Subsystem lined up with a pump running?" – Yes (Both loops of Core Spray running)
- Answers "Is any injection source lined up with a pump running?" – Yes

INSTRUCTOR ACTIONS/
PLANT RESPONSE

OPERATOR ACTIONS

Events 7 & 8 continued

SRO continued

- Enters N1-EOP-8, RPV Blowdown:
 - Answers "Are all control rods inserted to at least position 04?" – Yes
 - Answers "Drywell pressure?" – At or above 3.5 psig
 - Directs EC initiation
 - Answers "Torus water level?" – Above 8.0 ft
 - **Directs open 4 ERVs**

CT-2

- Verifies injection of entire contents of Liquid Poison tank
- **Directs injection with available systems to restore and maintain Reactor water level above -84 inches**

CT-3

- Directs installation of Core Spray jumpers (N1-EOP-1 attachment 4) to allow control of Core Spray IVs
- Transitions back to normal level control leg of N1-EOP-2
- Directs restoration of Reactor water level to 53-95"

ATC/BOP

- Updates crew on Reactor and containment parameters
- Locks out Containment Spray pumps
- Recognizes/reports failure of Core Spray to auto-start
- Starts Core Spray pumps

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Events 7 & 8 continued

ATC/BOP continued

- Maximizes RPV injection with CRD and Liquid Poison
- When Torus pressure exceeds 13 psig or drywell temperature approaches 300°F:
 - Verifies all Recirc pump are tripped
 - Trips all Drywell cooling fans
 - **Initiates Containment Spray per N1-EOP-1 attachment 17:**

CT-1

- Verifies started two Containment Spray pumps (111 or 122 preferred)
 - May start additional Containment Spray and Containment Spray Raw Water pumps as necessary
- Bypasses ADS
- Verifies EC initiation
 - Verifies 39-05 and 39-06 open or previously open
- May secure ECs for pressure control
 - If RPV water level is above 5", then closes 39-05 and/or 39-06
 - If RPV water level is below 5", then closes EC steam IVs
- When Reactor water level drops below -84":
 - Initiates ECs
 - Verifies open 39-05
 - Verifies open 39-06
 - **Opens 4 ERVs**

CT-2

INSTRUCTOR ACTIONS/ PLANT RESPONSE

OPERATOR ACTIONS

Events 7 & 8 continued

Role Plays:

If requested to lineup Firewater to Feedwater, wait five minutes, then **insert remote:**

**FP04, FIRE WTR TO FW BLOCKING VLVS,
FV=100**

TRG 21

Then report Firewater is lined up to Feedwater. Modify the remote as requested to throttle flow.

If requested to throttle Containment Spray Raw Water 111 discharge valve, wait 3 minutes, then **insert remote:**

**CT03A, CT Raw Water Pump 111 Disch. Throttle
Valve 93-14, FV=10**

TRG 22

Then report the valve is 5 turns open. Modify the remote as requested to throttle flow.

If requested to take local manual control of a Feedwater FCV, then wait 5 minutes and **insert** the appropriate **remote:**

FW25, MANUAL OPER. FW FCV-11, FV=0

TRG 23

FW26, MANUAL OPER. FW FCV-12, FV=0

TRG 24

FW27, MANUAL OPER. FW FCV-13, FV=0

TRG 25

Then report the appropriate FCV is pinned and fully closed. Modify the remote as requested to throttle flow.

ATC/BOP continued

- Verifies Liquid Poison injection to inject entire contents of Liquid Poison tank
- **Injects with available systems to restore and maintain Reactor water level above -84"**
- Bypasses Core Spray IV interlocks per N1-EOP-1 Att 4 by installing six jumpers (17, 18, 19, 24, 25, 26) inside Panel N
- Throttles Core Spray IVs as necessary to control Reactor water level
- Restores Reactor water level to 53-95"

CT-3

**INSTRUCTOR ACTIONS/
PLANT RESPONSE**

OPERATOR ACTIONS

Terminating Cues:

- RPV Blowdown in progress
- Reactor water level controlled above top of active fuel
- Containment pressure and temperature controlled in accordance with N1-EOP-4