ADMINISTRATIVE JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 000 DATE: _____

SYSTEM/DUTY AREA: A1 Conduct of Operations

TASK: Spent Fuel Pool Makeup

JTA#: ANO2-RO-SFP-NORM-3

Alternate Path Yes: _____ No: X Time Critical Yes: _____ No: X

KA VALUE RO: 4.6 SRO: 4.6 KA REFERENCE: 2.1.20

APPROVED FOR ADMINISTRATION TO: RO: X SRO: _____

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: _____ CLASSROOM: Perform

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 20 Minutes

REFERENCE(S): OP 2104.006, Fuel Pool Systems Attachment F

EXAMINEE'S NAME: _____ Badge # _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the briefing checklist of EN-TQ-114 with the examinee.

INITIAL CONDITIONS:

- Plant is at 100% power.
- PMS computer is out of service.
- Spent Fuel Pool Level = 401' 2"
- Tilt Pit Gate is installed and boot seal is inflated.
- Cask Loading Pit Gate is installed and boot seal is inflated.
- 'A' BAM tank concentration is 5950 ppm Boron
- SFP boron concentration is 2850 ppm Boron
- Required Feed Solution Concentration Calculation section has been marked as N/A by the CRS

TASK STANDARD:

RO candidates should calculate required SFP makeup volume to be within 1870 to 1880 gallons, determine Boric acid volume to be within 890 gallons to 910 gallons, determine DI water volume to be within 960 gallons to 1090 gallons.

TASK PERFORMANCE AIDS:

OP 2104.006 Attachment F

SIMULATOR SETUP:

N/A

EXAMINER NOTES:

None.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

INITIATING CUE:

Chemistry has just notified the Control Room that when SPF level is raised, we need to make a single feed solution using a combination of boric acid from the 'A' BAM tank and DI water maintaining SFP boron concentration 2850 PPM.

The SM/CRS directs, "Per OP 2104.006 step 10.3, manually calculate the total volume, the amount of boric acid and the amount of DI water required to raise the Spent Fuel Pool level four (4) inches due to cask loading pit operations using OP 2104.006, Attachment F."

START TIME: _____

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	1.	Procedure Step: OP-2104.006 Attachment F Determine appropriate section of Attachment F to use.	Using 2104.006, Attachment F examinee determined Fuel Pool Makeup Volume Calculation section is appropriate.	N/A SAT UNSAT
	2.	Procedure Step: OP-2104.006 Attachment F Fuel Pool Makeup Volume Calculation section NA appropriate parts of equation (Fuel Pool Makeup Volume Calculation)	Examinee N/A'd CLP (Cask Loading Pit) Examinee N/A'd FTP (Fuel Tilt Pit)	N/A SAT UNSAT
	3.	Procedure Step: OP-2104.006 Attachment F Fuel Pool Makeup Volume Calculation section Record desired Spent Fuel Pool Level (L_i).	On 2104.006, Attachment F examinee recorded desired Spent Fuel Pool level change of 4" (L_i).	N/A SAT UNSAT
(C)	4.	Procedure Step: OP-2104.006 Attachment F Fuel Pool Makeup Volume Calculation section	Examinee multiplied 4" x 5634.4 Gal. divided by 12 in and determined volume to be added is between 1870 and 1880 gallons (exact number is 1878.13 gallons).	N/A SAT UNSAT
	5.	Procedure Step: OP-2104.006 Attachment F Cask Loading Pit Makeup/fill Volume Calculation and Fuel Tilt Pit Makeup/fill Volume Calculation sections NA'd sections Cask Loading Pit Makeup/Fill Volume Calculation and Fuel Tilt Pit Makeup/Fill Volume Calculation and Concentration	Examinee determined sections Cask Loading Pit Makeup/Fill Volume Calculation and Fuel Tilt Pit Makeup/Fill Volume Calculation and Concentration Calculation are not needed.	N/A SAT UNSAT

ADMINISTRATIVE JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
		Calculation.		
	6.	Procedure Step: OP-2104.006 Attachment F Required Feed Solution Concentration Calculation section Recorded BAMT concentration from initial conditions (C_b) .	Examinee recorded 5950 PPM as feed source boron concentration.	N/A SAT UNSAT
(C)	7.	Procedure Step: OP-2104.006 Attachment F Required Feed Solution Concentration Calculation section	Examinee inserted values into formula and determined Boric acid volume to be between 890 and 910 gallons (exact amount is 899.55 gallons).	N/A SAT UNSAT
(C)	8.	Procedure Step: OP-2104.006 Attachment F Required Feed Solution Concentration Calculation section	Examinee inserted values into formula and determined DI water volume to be between 960 and 990 gallons (exact amount is 978.45 gallons).	N/A SAT UNSAT
END				

STOP TIME: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINER'S COPY

INITIAL CONDITIONS:

- Plant is at 100% power.
- PMS computer is out of service.
- Spent Fuel Pool Level = 401' 2"
- Tilt Pit Gate is installed and boot seal is inflated.
- Cask Loading Pit Gate is installed and boot seal is inflated.
- 'A' BAM tank concentration is 5950 ppm boron
- SFP boron concentration is 2850 ppm boron
- Required Feed Solution Concentration Calculation section has been marked as N/A by the CRS

INITIATING CUE:

Chemistry has just notified the Control Room that when SPF level is raised, we need to make a single feed solution using a combination of boric acid from the 'A' BAM tank and DI water maintaining SFP boron concentration 2850 PPM.

The SM/CRS directs, "Per OP 2104.006 step 10.3, manually calculate the total volume, the amount of boric acid and the amount of DI water required to raise the Spent Fuel Pool level four (4) inches using OP 2104.006, Attachment F."

ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINEE'S COPY

INITIAL CONDITIONS:

- Plant is at 100% power.
- PMS computer is out of service.
- Spent Fuel Pool Level = 401' 2"
- Tilt Pit Gate is installed and boot seal is inflated.
- Cask Loading Pit Gate is installed and boot seal is inflated.
- 'A' BAM tank concentration is 5950 ppm boron
- SFP boron concentration is 2850 ppm boron
- Required Feed Solution Concentration Calculation section has been marked as N/A by the CRS

INITIATING CUE:

Chemistry has just notified the Control Room that when SPF level is raised, we need to make a single feed solution using a combination of boric acid from the 'A' BAM tank and DI water maintaining SFP boron concentration 2850 PPM.

The SM/CRS directs, "Per OP 2104.006 step 10.3, manually calculate the total volume, the amount of boric acid and the amount of DI water required to raise the Spent Fuel Pool level four (4) inches using OP 2104.006, Attachment F."

ADMINISTRATIVE JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 001 DATE: _____

SYSTEM/DUTY AREA: Conduct of Operations A2

TASK: Calculate Time to Boil using computer program

JTA#: ANO2-RO-NORM4

Alternate Path Yes: _____ No: X Time Critical Yes: _____ No: X

KA VALUE RO: 4.3 SRO: 4.4 KA REFERENCE: 2.1.23

APPROVED FOR ADMINISTRATION TO: RO: X SRO: _____

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: Perform Classroom: Perform

POSITION EVALUATED: RO: X SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ Classroom: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 15 Minutes

REFERENCE(S): 1015.008 Shutdown Cooling control Attachment E

EXAMINEE'S NAME: _____ Badge #: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

INITIAL CONDITIONS:

Plant shutdown for repair of Steam Generator Tube Leak. Making preparations for draining the RCS to 24 inches above the bottom of the hot leg to install nozzle dams. PZR level is 40%.

Time after shutdown = 50 hours; one (1) PZR code safety valve is removed; PZR manway is installed; ECCS vent valves are de-energized OPEN; NO RCP seal work inprogress; NO RCS cold or hot leg openings; RCS Temperature is 105°F. Nozzle Dams are not installed.

TASK STANDARD:

Time to boil calculation(TTB) and time to core uncovery (TTCU)calculated using the computer program and

Values calculated are TTB = 15 min. to 16 min. and TTCU=2hrs to 2hrs 10 min.

TASK PERFORMANCE AIDS:

1015.008 attachment E, Computer operational with the current revision of LOSDC2 installed (SP-94-C-0001-01, Rev. 13), set up shortcut to program on the desktop.

SIMULATOR SETUP:

NA

EXAMINER'S NOTES:

ADMINISTRATIVE JOB PERFORMANCE MEASURE

INITIATING CUE:

CRS/SM directs: "Perform 1015.008 Attachment E steps 1 through 4, Time to boiling/Core Uncovery Estimate, for the projected level using data given."

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	1.	Start a time to boil (TTB) calculation using LOSDC2 program.	Computer program started	N/A SAT UNSAT
	2.	Time since shutdown: 2days 2 hours	Recorded time 50 hours	N/A SAT UNSAT
	3.	Decay Heat Produced 12,765.59 BTU/Sec	Recorded decay heat 12,765.59 BTU/Sec	N/A SAT UNSAT
(C)	4.	Time until coolant boils: 15 min	Recorded to boil 15 to 16 min.	N/A SAT UNSAT
(C)	5.	Time until core uncovery: 2 hours 5 min 15 sec	Recorded time to core uncovery 2 hours to 2 hours 10 min.	N/A SAT UNSAT
	6.	Makeup rate: 86 gpm	Recorded makeup rate 86 gpm	N/A SAT UNSAT
	4.	Heat Up rate: 7.13 °F/min	Recorded heat up rate 7.13 °F/min	N/A SAT UNSAT
	5.	RCS eq. Press: 47.1 psia	Recorded RCS eq. Press 47.1 psia	N/A SAT UNSAT
	6.	Time until 10 F from bulk boiling: 13.6 min	Recorded time to 10° from bulk boiling 13.6 min	N/A SAT UNSAT
EXAMINER'S NOTE: Prompt the Examinee that the file should not be printed or saved.				
END				

ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINER'S COPY

INITIAL CONDITIONS:

Given the following Plant conditions:

- Plant shutdown for repair of Steam Generator Tube Leak.
- Making preparations for draining the RCS to 24 inches above the bottom of the hot leg to install nozzle dams.
- PZR level is 40%.
- Time after shutdown = 50 hours;
- One (1) PZR code safety valve is removed;
- PZR manway is installed;
- ECCS vent valves are de-energized OPEN;
- NO RCP seal work in progress;
- NO RCS cold or hot leg openings;
- RCS Temperature is 105°F.
- Nozzle Dams are not installed.

INITIATING CUE:

CRS/SM directs: "Perform 1015.008 Attachment E steps 1 through 4, Time to boiling/Core Uncovery Estimate, for the projected level using data given." (Do not print data or save file.)

Record calculations below:

Time since shutdown: _____

Decay Heat Produced: _____

Time until coolant boils: _____

Time until core uncovery: _____

Makeup rate: _____

Heat Up rate: _____

RCS eq. Press: _____

Time until 10 °F from bulk boiling: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINEE'S COPY

INITIAL CONDITIONS:

Given the following Plant conditions:

- Plant shutdown for repair of Steam Generator Tube Leak.
- Making preparations for draining the RCS to 24 inches above the bottom of the hot leg to install nozzle dams.
- This is considered the initial calculation.
- PZR level is 40% and open to atmosphere.
- Time after shutdown = 50 hours;
- One (1) PZR code safety valve is removed;
- PZR manway is installed;
- ECCS vent valves are de-energized OPEN;
- NO RCP seal work in progress;
- NO RCS cold or hot leg openings;
- RCS Temperature is 105°F.
- Nozzle Dams are not installed.

INITIATING CUE:

CRS/SM directs: "Perform 1015.008 Attachment E steps 1 through 4, Time to boiling/Core Uncovery Estimate, for the projected level using data given." (Do not print data or save file.)

Record calculations below:

Time since shutdown: _____

Decay Heat Produced: _____

Time until coolant boils: _____

Time until core uncovery: _____

Makeup rate: _____

Heat Up rate: _____

RCS eq. Press: _____

Time until 10 °F from bulk boiling: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 000 DATE: _____

SYSTEM/DUTY AREA: Conduct of Operations A3

TASK: Evaluate Containment atmospheric conditions.

JTA#: ANO2-RO-CVENT-NORM-7

Alternate Path Yes: _____ No: X Time Critical Yes: _____ No: X

KA VALUE RO: 3.7 SRO: 4.1 KA REFERENCE: 2.2.12

APPROVED FOR ADMINISTRATION TO: RO: X SRO: _____

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: Perform Classroom: Perform

POSITION EVALUATED: RO: X SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ Classroom: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 15 Minutes

REFERENCE(S): 2104.033 Containment Atmosphere Control

EXAMINEE'S NAME: _____ Badge #: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

INITIAL CONDITIONS:

Plant is in Mode 1.

PMS printer is broken and TS surveillance 4.4.6.1 needs to be completed.

The following values were recorded from PMS: T5605-5 = 130.57 degrees F, T5606-6 is not available

P5601-1 = 14.02 psia, P5602-2 = 13.95 psia, P5603-3 = 14.16 psia, & P5604-4 = 13.99 psia

TASK STANDARD:

Determine that Containment Temperature and Pressure are in the not in the acceptable region of operation.

TASK PERFORMANCE AIDS:

OP 2104.033 Containment Atmosphere Control Supplement 4

SIMULATOR SETUP:

NA

EXAMINER'S NOTES:

ADMINISTRATIVE JOB PERFORMANCE MEASURE

INITIATING CUE:

The SM/CRS directs, "Perform an evaluation of containment atmospheric conditions using OP 2104.033 Supplement 4."

Start Time: _____

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	1.	Record containment temperature.	Recorded containment temperature readings in OP 2104.033 Supplement 4 Step 2.1.	N/A SAT UNSAT
(C)	2.	Calculate average containment temperature.	Used formulas provided in OP 2104.033 Supplement 4 and given temperatures to calculate average containment temperature. (134 to 135 F) Recorded average containment temperature on OP 2104.033 Supplement 4 Step 2.1.	N/A SAT UNSAT
	3.	Record containment pressure.	Recorded containment pressure readings in OP 2104.033 Supplement 4 Step 2.2.	N/A SAT UNSAT
(C)	4.	Calculate average containment pressure.	Used table provided in OP 2104.033 Supplement 4 Step 2.2 and given pressures to calculate average containment pressure. (14.0 to 14.1 psia) Recorded average containment pressure on OP 2104.033 Supplement 4 Step 2.2.	N/A SAT UNSAT
	5.	Plot average containment pressure vs average containment temperature.	Plotted calculated parameters on OP 2104.033 Supplement 4, Figure 1.	N/A SAT UNSAT
(C)	6.	Compare containment Atmospheric parameters to Technical Specification requirements.	Used containment pressure-temperature point plotted on Figure 4-1 to determine if containment atmospheric conditions are not within the region of acceptable operations. Completed OP 2104.033 Supplement 4 Section 3.0 to indicate Technical Specification 3.6.1.4 non-compliance.	N/A SAT UNSAT
END				

ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINER'S COPY

INITIAL CONDITIONS:

Plant is in Mode 1.

PMS printer is broken and TS surveillance 4.4.6.1 needs to be completed.

The following values were recorded from PMS:

- T5605-5 = 130.57 degrees F.
- T5606-6 is not available.
- P5601-1 = 14.02 psia.
- P5602-2 = 13.95 psia;
- P5603-3 = 14.16 psia;
- P5604-4 = 13.99 psia;

INITIATING CUE:

The SM/CRS directs, "Perform an evaluation of containment atmospheric conditions using OP 2104.033 Supplement 4."

Average Containment temperature: ____134 to 135 F_____

Average Containment pressure: _____14.0 to 14.1_ psia__

Is the plotted point in the acceptable region of figure 1? __Yes/No__.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINER'S COPY

INITIAL CONDITIONS:

Plant is in Mode 1.

PMS printer is broken and TS surveillance 4.4.6.1 needs to be completed.

The following values were recorded from PMS:

- T5605-5 = 130.57F.
- T5606-6 is not available.
- P5601-1 = 14.02 psia.
- P5602-2 = 13.95 psia;
- P5603-3 = 14.16 psia;
- P5604-4 = 13.99 psia;

INITIATING CUE:

The SM/CRS directs, "Perform an evaluation of containment atmospheric conditions using OP 2104.033 Supplement 4."

Average Containment temperature: _____

Average Containment pressure: _____

Is the plotted point in the acceptable region of figure 1? __Yes/No__.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 001 DATE: _____

SYSTEM/DUTY AREA: A4 Radiation Control

TASK: Review the emergency RWP and determine stay time based on radiation levels expected.

JTA#: _____

Alternate Path Yes: _____ No: X Time Critical Yes: _____ No: X

KA VALUE RO: 3.5 SRO: 3.6 KA REFERENCE: 2.3.7

APPROVED FOR ADMINISTRATION TO: RO: X SRO: _____

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: _____ Classroom: Perform

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ Classroom: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 15 Minutes

REFERENCE(S): 2014-0009; Emergency RWP and status board printout of Aux Building 354'.

EXAMINEE'S NAME: _____ Badge # _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

INITIAL CONDITIONS

- Plant is DEFUELED and all FUEL HANDLING operations are secured.
- Power has been lost to both SFP cooling pumps and 2K11-K5 “FUEL POOL TEMP HI” is in alarm and the alternate AC diesel is not available and #1 EDG has tripped and is not available.
- An Alert has been declared on Unit 2 due to only one power source available to vital buses.
- Makeup water from the RWT must be aligned to the SFP due to boiling and loss of inventory through the tilt pit gate.
- Fuel Pool low level alarm is in and SFP level is lowering.
- RP coverage will not be available.
- The SM has not authorized exposures exceeding 10 CFR 20 Limits.
- Your Dose to date is 100 millirem.

TASK STANDARD:

Using Emergency RWP:

- Identify General Area (GA) dose rates in SFP valve gallery is 490 MR/HR.
- Determine a maximum stay time of 1.8 hours to 1.9 hours based on EAD alarm set-points.

JPM time is based on the review of the emergency RWP and the calculation of the stay time.

TASK PERFORMANCE AIDS: Emergency RWP 2014-0009

SIMULATOR SETUP: NA

INITIATING CUE:

The Shift Manager directs that makeup water from the RWT must be aligned to the SFP.
Using the Emergency RWP, identify the maximum allowable time you could remain in the SFP valve gallery performing this evolution before you would need to be relieved based on your Emergency RWP dose limits and 10 CFR 20 dose limits.

START TIME: _____

PERFORMANCECHECKLIST			STANDARD	CIRCLE ONE
NOTE: Provide Emergency RWP.				
	1.	Review Emergency RWP for limits.	Determines that the alarming dosimeter is set to alarm in a 900mr/hr field and that the Dose alarm is set at 900 mrem.	N/A SAT UNSAT
(C)	2.	Determine that the area dose rate.	Using the status board printout provided determined that the General Area (GA) field is 490 MR/HR	N/A SAT UNSAT
(C)	3.	Determine stay time in SFP valve gallery.	Calculate the stay time to be 1.8 to 1.9 hours.	N/A SAT UNSAT
END				

STOP TIME: _____

EXAMINER's COPY

INITIAL CONDITIONS

Plant is DEFUELED and all FUEL HANDLING operations are secured.

Power has been lost to both SFP cooling pumps and 2K11-K5 "FUEL POOL TEMP HI" is in alarm and the alternate AC diesel is not available and #1 EDG has tripped and is not available.

An Alert has been declared on Unit 2 due to only one power source available to vital buses.

Makeup water from the RWT must be aligned to the SFP due to boiling and loss of inventory through the tilt pit gate.

Fuel Pool low level alarm is in and SFP level is lowering.

RP coverage will NOT be available.

The SM has not authorized exposures exceeding 10 CFR 20 Limits.

Your Dose to date is 100 millirem.

INITIATING CUE:

The Shift Manager directs that makeup water from the RWT must be aligned to the SFP. Using the Emergency RWP, identify the maximum allowable time you could remain in the SFP valve gallery performing this evolution before you would need to be relieved based on the Emergency RWP dose limits and 10 CFR 20 dose limits.

Assume no dose is received in transit to and from the work location.

EXAMINEE's COPY

INITIAL CONDITIONS

Plant is DEFUELED and all FUEL HANDLING operations are secured.

Power has been lost to both SFP cooling pumps and 2K11-K5 "FUEL POOL TEMP HI" is in alarm and the alternate AC diesel is not available and #1 EDG has tripped and is not available.

An Alert has been declared on Unit 2 due to only one power source available to vital buses.

Makeup water from the RWT must be aligned to the SFP due to boiling and loss of inventory through the tilt pit gate.

Fuel Pool low level alarm is in and SFP level is lowering.

RP coverage will NOT be available.

The SM has not authorized exposures exceeding 10 CFR 20 Limits.

Your Dose to date is 100 millirem.

INITIATING CUE:

The Shift Manager directs that makeup water from the RWT must be aligned to the SFP. Using the Emergency RWP, identify the maximum allowable time you could remain in the SFP valve gallery performing this evolution before you would need to be relieved based on the Emergency RWP dose limits and 10 CFR 20 dose limits.

Assume no dose is received in transit to and from the work location.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 000 DATE: _____

SYSTEM/DUTY AREA: A5 Conduct of Operations

TASK: Review Spent Fuel Pool Makeup Calculation for Errors

JTA#: ANO2-SRO-ADMIN-NORM-197

Alternate Path Yes: _____ No: X Time Critical Yes: _____ No: X

KA VALUE RO: 4.6 SRO: 4.6 KA REFERENCE: 2.1.20

APPROVED FOR ADMINISTRATION TO: RO: _____ SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: _____ CLASSROOM: Perform

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: ____ CLASSROOM: ____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 15 Minutes

REFERENCE(S): OP 2104.006, Fuel Pool Systems Attachment F

EXAMINEE'S NAME: _____ Badge #: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

INITIAL CONDITIONS:

- Plant is at 100% power.
- PMS computer is out of service.
- Initial Spent Fuel Pool Level = 401' 0"
- Tilt Pit Gate is installed and boot is inflated.
- Cask Loading Pit Gate is installed and boot is inflated.
- 'A' BAM tank concentration is 5950 ppm Boron
- SFP boron concentration is 2964 ppm Boron
- Cask loading pit operations has lowered the SFP level
- CBOT has performed actions per OP 2104.006 step 10.3.
- Final Spent Fuel Pool Level = 401' 4"

TASK STANDARD:

SRO candidates should identify the following:

1) Boron Concentration of the feed source should be 5950 NOT 4950. **(C_B)**
2) The Feed volume (F) calculated previously was transposed into the feed volumes calc as 1788 gallons not the 1878 gallons correctly calculated. Therefore both the calculated Boric acid and DI water volumes are wrong.

And calculate the following correct feed volumes:

3) Boric acid volume calculated to be within 930 gallons to 940 gallons. **(V_B)**
4) Determine DI water volume to be within 930 gallons to 950 gallons. **(V_W)**

TASK PERFORMANCE AIDS:

OP 2104.006, Attachment F

ADMINISTRATIVE JOB PERFORMANCE MEASURE

INITIATING CUE:
Chemistry has just notified the Control Room that when SPF level is raised, we need to make a single feed solution using a combination of boric acid from the 'A' BAM tank and DI water maintaining SFP boron concentration 2964 PPM. The SM directs, "Review for accuracy and correct any errors in the completed OP 2104.006, Attachment F."

START TIME: _____

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	1.	Reviewed the completed form OP 2104.006, Attachment F.	Reviewed the completed form OP 2104.006, Attachment F.	N/A SAT UNSAT
	2.	Determined the calculated volume of solution to be correct.	Calculated the feed volume to be added to the SFP, F, to be 1878 gallons.	N/A SAT UNSAT
C	3.	Determined that the boron concentration of the feed source was in error.	Recognized the boron concentration of the feed source was recorded as 4950 ppm instead of the given value of 5950 ppm.	N/A SAT UNSAT
C	4.	Determined the calculated volume of solution used in the calculation of the feed volumes of boric acid	Recognized that the feed volume to be added to the SFP, F, was recorded in error as 1788 gallons NOT the 1878 gallons calculated on the previous page.	N/A SAT UNSAT
Examiner's Note: the candidate may need to be prompted to calculate the volume of Boric acid and DI water.				
C	5.	Determine the Boron volume to be added as calculated was in error and determine the correct volume..	Recognized the Boron volume to be added as calculated was in error and determined the correct volume to be between 930 and 940 gallons (exact number is 935.5 gallons) instead of the 1070.6 gallons.	N/A SAT UNSAT
C	6.	Determine the DI water volume to be added as calculated was in error and determine the correct volume.	Recognized the DI water volume to be added as calculated was in error and determined the correct volume to be between 930 and 950 gallons (exact number is 942.5 gallons) instead of 717.4 gallons.	N/A SAT UNSAT
END				

STOP TIME: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINER'S COPY

INITIAL CONDITIONS:

- Plant is at 100% power.
- PMS computer is out of service.
- Initial Spent Fuel Pool Level = 401' 0"
- Tilt Pit Gate is installed and boot is inflated.
- Cask Loading Pit Gate is installed and boot is inflated.
- 'A' BAM tank concentration is 5950 ppm boron
- SFP boron concentration is 2964 ppm boron
- Cask loading pit operations has lowered the SFP level
- CBOT has performed actions per OP 2104.006 step 10.3.
- Final Spent Fuel Pool Level = 401' 4"

INITIATING CUE:

Chemistry has just notified the Control Room that when SPF level is raised, we need to make a single feed solution using a combination of boric acid from the 'A' BAM tank and DI water maintaining SFP boron concentration 2964 PPM. The SM directs, "Review for accuracy and correct any errors in the completed OP 2104.006, Attachment F."

ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINEE'S COPY

INITIAL CONDITIONS:

- Plant is at 100% power.
- PMS computer is out of service.
- Initial Spent Fuel Pool Level = 401' 0"
- Tilt Pit Gate is installed and boot is inflated.
- Cask Loading Pit Gate is installed and boot is inflated.
- 'A' BAM tank concentration is 5950 ppm boron
- SFP boron concentration is 2964 ppm boron
- Cask loading pit operations has lowered the SFP level
- CBOT has performed actions per OP 2104.006 step 10.3.
- Final Spent Fuel Pool Level = 401' 4"

INITIATING CUE:

Chemistry has just notified the Control Room that when SPF level is raised, we need to make a single feed solution using a combination of boric acid from the 'A' BAM tank and DI water maintaining SFP boron concentration 2964 PPM. The SM directs, "Review for accuracy and correct any errors in the completed OP 2104.006, Attachment F."

ATTACHMENT *F*

BORIC ACID CONCENTRATION ADJUSTMENT

VOLUME DATA REFERENCE

NOTE

If filling **Tilt Pit,** this attachment should only be used to estimate time needed to complete evolution because the Tilt Pit does NOT have installed level indication. Initial level is only estimated and can result in inaccurate calculation.

	Gal/Ft.	Total Volume (Gal)
CASK LOADING PIT (CLP)		
- Elev 358′ to bottom of gate	722.4	13,726
- Bottom of gate to Elev 401′6″	795.6	19,493
FUEL TILT PIT (FTP)		
- Elev 362′ to bottom of gate	1,196.8 (1)	17,952 (1)
- Bottom of gate to Elev 401′6″	1,275.3	31,244
SPENT FUEL POOL (SFP)		
- Elev 362′ to top of racks	5,349.5 (2)	84,255 (2)
- Top of racks to Elev 401′6″	5,634.4	133,817

NOTES

1. Does NOT include volume occupied by tilt machine.
2. Does NOT include fuel. Includes ~ 600 ft^3 allowance for fuel racks.

Fuel Pool Makeup Volume Calculation *(N/A areas NOT hydraulically connected to SFP)*

F = Feed Volume
L_I = Level Change (in inches)

$$F = \left[(L_I)\left(\frac{\text{SFP Level gal}}{1\text{ ft}}\right)\left(\frac{1\text{ ft}}{12\text{ in.}}\right)\right] + \left[(L_I)\left(\frac{\text{CLP Level gal}}{1\text{ ft}}\right)\left(\frac{1\text{ ft}}{12\text{ in.}}\right)\right] + \left[(L_I)\left(\frac{\text{FTP Level gal}}{1\text{ ft}}\right)\left(\frac{1\text{ ft}}{12\text{ in.}}\right)\right]$$

$$F = \left[\left(\frac{\underline{\ 4\ }\text{ in.})(5634.4\text{ gal})}{12\text{ in.}}\right. + \left[\left(\frac{\underline{\ N/A\ }\text{ in.})(795.6\text{ gal})}{12\text{ in.}}\right. + \left[\left(\frac{\underline{\ N/A\ }\text{ in.})(1275.3\text{ gal})}{12\text{ in.}}\right.\right.$$

F = ____***1878***_____gallons

Cask Loading Pit Makeup/Fill Volume Calculation (Gate installed, N/A elevation NOT filled)

F = Feed Volume
L_B = Level change (in feet) below bottom of gate
L_A = Level change (in feet) above bottom of gate

F = [(L_B)(Volume below bottom of gate in gal/ft)] + [(L_A)(Volume above bottom of gate in gal/ft)]

F = [__***N/A***____ ft.)(722.4 gal/ft)] + [(___***N/A***___ ft)(795.6 gal/ft)

F = _____ ***N/A*** ____gallons

ATTACHMENT F

Fuel Tilt Pit Makeup/Fill Volume Calculation (Gate installed, N/A elevation NOT filled)

F = Feed Volume
L_B = Level change (in feet) below bottom of gate
L_A = Level change (in feet) above bottom of gate

F = [(L_B)(Volume below bottom of gate in gal/ft)] + [(L_A)(Volume above bottom of gate in gal/ft)]

F = [_N/A_ ft.)(1196.8 gal/ft)] + [(__N/A ft)(1275.3 gal/ft)

F = __ N/A _gallons

Required Feed Solution Concentration Calculation

C_I = Initial Fuel Pool Boron Concentration = 2964 ppm

C_F = Final Desired Boron Concentration = 2964 ppm

C_W = Feed Solution Concentration = $\frac{(V_F \times C_F) - (V_I \times C_I)}{F}$

C_W = $\frac{(217{,}133 \text{ gal} \times 2964 \text{ ppm}) - (215255 \text{ gal} \times 2964 \text{ ppm})}{(1878 \text{ gal})}$

C_W = 2964 ppm

IF Feed Solution will be a combination of Boric Acid and demineralized water, THEN calculate feed volume as follows:

F = Feed Volume (from volume calculation)

V_B = Volume of Boric Acid to Add

V_W = Volume of DI Water to Add

C_B = Boron Concentration of feed source = 4950 ppm

Calculate Feed Volumes

V_B = $\frac{(F) \times (C_F)}{C_B}$ = $\frac{(1788 \text{ gal}) \times (2964 \text{ ppm})}{(4950 \text{ ppm})}$

V_B = 1070.6 gal Amount of Boric Acid to add

V_W = F - V_B = (1788 gal) - (1070.6 gal)

V_W = 717.4 gal Amount of DI Water *to add*

ATTACHMENT F

IF Feed Solution will be a combination of two Boric Acid solutions,
THEN calculate feed volumes as follows:

F = Feed Volume (from volume calculation)
V_{B1} = Volume of 1st Boric Acid Solution to add
V_{B2} = Volume of 2nd boric Acid Solution to add
C_{B1} = Boron Concentration of 1st Boric Acid Solution = ___N/A___ ppm

C_{B2} = Boron Concentration of 2nd Boric Acid Solution = ___N/A___ ppm

C_F = Boron Concentration of Feed Volume (F) = ___N/A___ ppm

Calculate Feed Volumes

$$V_{B1} = \frac{F \times (C_F - C_{B2})}{(C_{B1} - C_{B2})}$$

$$V_{B1} = \frac{(\text{N/A gal}) \times (\text{N/A ppm} - \text{N/A ppm})}{(\text{N/A ppm} - \text{N/A ppm})}$$

V_{B1} = ___N/A___ gal Volume of Boric Acid of Concentration C_{B1} to add

V_{B2} = F - V_{B1} = (___N/A___ gal) - (___N/A___ gal)

V_{B2} = ___N/A___ gal Volume of Boric Acid of Concentration C_{B2} to add

Definition of terms:

I = Boron Concentration of Feed Solution desired
V_B = Boric Acid Volume
C_B = Boron Concentration of Boric Acid in BAM tank
V_W = Demineralized Water Volume

To determine ratio of volumes of Demineralized Water and Boric Acid for makeup to maintain Specified Boron concentration:

$$\frac{V_W}{V_B} = \frac{C_B - C_F}{C_F} = \text{Ratio of demineralized water to Boric Acid}$$

to obtain desired feed concentration C_F.

This ratio may be used to adjust the flowrate settings on Boric Acid Flow Controller (2FIC-4926) and RMW Flow Controller (2FIC-4927) to provide a Feed Solution of the desired concentration.

ATTACHMENT F

IF Feed solution boron concentration AND Feed volume is known,
THEN calculate Final Spent Fuel Pool boron concentration as follows:

Definition of Terms

CI = Initial Fuel Pool Boron Concentration

CW = Feed Solution Concentration

VF = Final Volume

VI = Initial Volume

F = Feed Volume

Final Concentration Calculation

$$CF = \text{Final Boron Concentration} = \frac{(CW \times F) + (VI \times CI)}{VF}$$

$$CF = \frac{(CW\ \mathbf{2964}\ \text{ppm} \times F\ \mathbf{1788}\ \text{gal}) + (VI\ \mathbf{215,255}\ \text{gal} \times CI\ \mathbf{2964}\ \text{ppm})}{VF\ \mathbf{217,133}\ \text{gal}}$$

CF = **2964** ppm

Performed By **Joe_Ro** Date **Today's Date**

Supervisor _____ Date_____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 002 DATE: _____

SYSTEM/DUTY AREA: Conduct of Operations A6

TASK: Determine the Shutdown Operations protection condition and if requirements are met.

JTA#: A2LP-RO-SDCC

Alternate Path Yes: _____ No: X Time Critical Yes: _____ No: X

KA VALUE RO: 2.8 SRO: 3.9 KA REFERENCE: 2.1.40

APPROVED FOR ADMINISTRATION TO: RO: _____ SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: _____ Classroom: Perform

POSITION EVALUATED: RO: _____ SRO: X

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ Classroom: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 20 Minutes

REFERENCE(S): 1015.048 Shutdown Operations Protection Plan

EXAMINEE'S NAME: _____ Badge #: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

INITIAL CONDITIONS:

Plant is in Mode 6, RCS temperature is 90 degrees F.

The Fuel transfer canal level is 401' 6" and connected to the SFP. RCS boron is 2701 ppm. Both Start up channels and boron dilution monitors are operable.
RCS dilution tagout is in place.

Containment equipment hatch is open and personnel hatch door interlock has been defeated. Both are capable of being closed within 30 min.

OPS-B33 CNTMT closure log and OPS-B40 are being maintained by the CRSA.

Red train is protected IAW 1015.008 shutdown cooling control and 1015.008 att. J is complete for the red train. The ANO switchyard gate and the London Line substation gates are posted with a sign that reads "ATTENTION LOSS OF POWER COULD PLACE UNIT 2 AT RISK".

Core offload is currently in progress.

The following is the plant equipment alignment:

- 2P-60A LPSI pump running and SDC train A operable.
- 2P-60B LPSI pump running.
- 2P-40A SFP cooling pump in service.
- 2P-40B SFP cooling pump available.
- 2E-27 SFP heat exchanger available and in service.
- All the RCS Thot indicators are in service.
- 2P-89C aligned to red train and protected as the RCS make up source.
- 2P-89A is available but in Pull-to-Lock.
- 2P-89B is tagged for maintenance.
- Charging pump heaters are removed for the RCS dilution tagout.
- Both EDGs and the AAC diesel are available.
- SU#3 transformer is in service, SU#2 transformer is tagged for maintenance.
- Loop 1 SW is operable with 2P-4A supplying the loop.
- Loop 2 SW is out of service with 2P-4B and 2P-4C tagged for bay inspection.
- 2P-66 Spent Fuel Pool Purification pump is available with sufficient RWT inventory.
- 2P-109A and 2P-109B are both available for makeup from the RMWT.
- Both 2P-35A and 2P-35B Containment Spray pumps are tagged for maintenance.

TASK STANDARD:

Determine that the current SOPP condition is condition 3 and that SOPP condition 3 is not met due to Decay heat removal.

TASK PERFORMANCE AIDS:

1015.048 Shutdown Operations protection plan.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

INITIATING CUE:

CRS/SM directs: "Determine Shutdown Operations Protection Plan (SOPP) condition for the current plant alignment and determine if requirements are met for the current condition using 1015.048 Shutdown Operations Protection Plan."

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
(C)	1.	Determine the current SOPP condition.	Determined that SOPP condition 3 is applicable for Unit 2	N/A SAT UNSAT
(C)	2.	Determine if the requirements are met for SOPP condition 3 for Decay Heat Removal.	Determined that Decay Heat Removal conditions are NOT met. Examiner note: This is due to having only one service water pump available for Spent Fuel Pool cooling.	N/A SAT UNSAT
	3.	Determine if the requirements are met for SOPP condition 3 for Inventory Control.	Determined that Inventory Control conditions are met.	N/A SAT UNSAT
	4.	Determine if the requirements are met for SOPP condition 3 for Electrical Power.	Determined that Electrical Power conditions are met.	N/A SAT UNSAT
	5.	Determine if the requirements are met for SOPP condition 3 for Reactivity Control.	Determined that Reactivity Control conditions are met.	N/A SAT UNSAT
	6.	Determine if the requirements are met for SOPP condition 3 for Containment.	Determined that Containment conditions are met.	N/A SAT UNSAT
	7.	Determine if the requirements are met for SOPP condition 3 for Miscellaneous items.	Determined that Miscellaneous items conditions are met.	N/A SAT UNSAT
END				

ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINER'S COPY

INITIAL CONDITIONS:

Plant is in Mode 6, RCS temperature is 90 degrees F.

The Fuel transfer canal level is 401' 6" and connected to the SFP. RCS boron is 2701 ppm. Both Start up channels and boron dilution monitors are operable.
RCS dilution tagout is in place.

Containment equipment hatch is open and personnel hatch door interlock has been defeated. Both are capable of being closed within 30 min.
OPS-B33 CNTMT closure log and OPS-B40 are being maintained by the CRSA.

Red train is protected IAW 1015.008 shutdown cooling control and 1015.008 att. J is complete for the red train. The ANO switchyard gate and the London Line substation gates are posted with a sign that reads "ATTENTION LOSS OF POWER COULD PLACE UNIT 2 AT RISK".

Core offload is currently in progress.

The following is the plant equipment is alignment:

- 2P-60A LPSI pump running and SDC train A operable.
- 2P-60B LPSI pump running.
- 2P-40A SFP cooling pump in service.
- 2P-40B SFP cooling pump available.
- 2E-27 SFP heat exchanger available and in service.
- All the RCS Thot indicators are in service.
- 2P-89C aligned to red train and protected as the RCS make up source.
- 2P-89A is available but in Pull-to-Lock.
- 2P-89B is tagged for maintenance.
- Charging pump heaters are removed for the RCS dilution tagout.
- Both EDGs and the AAC diesel are available.
- SU#3 transformer is in service, SU#2 transformer is tagged for maintenance.
- Loop 1 SW is operable with 2P-4A supplying the loop.
- Loop 2 SW is out of service with 2P-4B and 2P-4C tagged for bay inspection.
- 2P-66 Spent Fuel Pool Purification pump is available with sufficient RWT inventory.
- 2P-109A and 2P-109B are both available for makeup from the RMWT.
- Both 2P-35A and 2P-35B Containment Spray pumps are tagged for maintenance.

INITIATING CUE:

CRS/SM directs: "Determine Shutdown Operations Protection Plan (SOPP) condition for the current plant alignment and determine if requirements are met for the current condition using 1015.048 Shutdown Operations Protection Plan."

Current SOPP condition: _____3_____

Are the requirements satisfied for this SOPP condition?

Decay Heat Removal: Yes / No / NA
Inventory Control: Yes / No / NA
Electrical Power: Yes / No / NA
Reactivity Control: Yes / No / NA
Containment: Yes / No / NA
Miscellaneous: Yes / No / NA

ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINEE'S COPY

INITIAL CONDITIONS:

Plant is in Mode 6, RCS temperature is 90 degrees F.

The Fuel transfer canal level is 401' 6" and connected to the SFP. RCS boron is 2701 ppm. Both Start up channels and boron dilution monitors are operable.
RCS dilution tagout is in place.

Containment equipment hatch is open and personnel hatch door interlock has been defeated. Both are capable of being closed within 30 min.
OPS-B33 CNTMT closure log and OPS-B40 are being maintained by the CRSA.

Red train is protected IAW 1015.008 shutdown cooling control and 1015.008 att. J is complete for the red train. The ANO switchyard gate and the London Line substation gates are posted with a sign that reads "ATTENTION LOSS OF POWER COULD PLACE UNIT 2 AT RISK".

Core offload is currently in progress.

The following is the plant equipment is alignment:

- 2P-60A LPSI pump running and SDC train A operable.
- 2P-60B LPSI pump running.
- 2P-40A SFP cooling pump in service.
- 2P-40B SFP cooling pump available.
- 2E-27 SFP heat exchanger available and in service.
- All the RCS Thot indicators are in service.
- 2P-89C aligned to red train and protected as the RCS make up source.
- 2P-89A is available but in Pull-to-Lock.
- 2P-89B is tagged for maintenance.
- Charging pump heaters are removed for the RCS dilution tagout.
- Both EDGs and the AAC diesel are available.
- SU#3 transformer is in service, SU#2 transformer is tagged for maintenance.
- Loop 1 SW is operable with 2P-4A supplying the loop.
- Loop 2 SW is out of service with 2P-4B and 2P-4C tagged for bay inspection.
- 2P-66 Spent Fuel Pool Purification pump is available with sufficient RWT inventory.
- 2P-109A and 2P-109B are both available for makeup from the RMWT.
- Both 2P-35A and 2P-35B Containment Spray pumps are tagged for maintenance.

INITIATING CUE:

CRS/SM directs: "Determine Shutdown Operations Protection Plan (SOPP) condition for the current plant alignment and determine if requirements are met for the current condition using 1015.048 Shutdown Operations Protection Plan."

Current SOPP condition: _____

Are the requirements satisfied for this SOPP condition?

Decay Heat Removal: Yes / No / NA
Inventory Control: Yes / No / NA
Electrical Power: Yes / No / NA
Reactivity Control: Yes / No / NA
Containment: Yes / No / NA
Miscellaneous: Yes / No / NA

ADMINISTRATIVE JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 002 DATE: _____

SYSTEM/DUTY AREA: Equipment Control A7

TASK: Supervisory review of maintenance activities for configuration control

JTA#: ANO-SRO-ADMIN-NORM-48

Alternate Path Yes: ____ No: X Time Critical Yes: ____ No: X

KA VALUE RO: 3.9 SRO: 4.3 KA REFERENCE: 2.2.14

APPROVED FOR ADMINISTRATION TO: RO: ____ SRO: X

TASK LOCATION: INSIDE CR: ____ OUTSIDE CR: ____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: ____ SIMULATOR: ____ Classroom: Perform

POSITION EVALUATED: RO: ____ SRO: X

ACTUAL TESTING ENVIRONMENT: SIMULATOR: ____ PLANT SITE: ____ Classroom: ____

TESTING METHOD: SIMULATE: ____ PERFORM: ____

APPROXIMATE COMPLETION TIME IN MINUTES: 15 Minutes

REFERENCE(S): 1025.003, Conduct of Maintenance, 2104.029 Service Water system operations

EXAMINEE'S NAME: ____ Badge #: ____

EVALUATOR'S NAME: ____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: ____ UNSATISFACTORY: ____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

Start Time ____ Stop Time ____ Total Time ____

SIGNED: ____ DATE: ____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

JPM INITIAL TASK CONDITIONS:

I&C Maintenance personnel have completed troubleshooting the Spent Fuel Cooling radiation monitor 2RE-1525.

The troubleshooting required isolating AND draining the radiation monitor.

There are currently no Equipment Status Log (ESL) entries.

Maintenance Configuration Tracking Log 1025.003C was used for configuration control.

TASK STANDARD:

Identified 4 of the following 6 errors.

1) 2SW-1525A ‘As Found’ position is listed as CLOSED when required to be OPEN.

2) 2SW-1525A ‘Restoration’ position is listed as CLOSED when required to be OPEN.

3) 2SW-1525M ‘Require position for Maintenance’ is listed as CLOSED when required to be OPEN to drain the system.

4) 2SW-1525H ‘Restoration’ position is listed as OPEN when required to be CLOSED.

5) 2SW-1525J Restorer and Verifier initials are the same.

6) The SRO prior approval signature is blank.

TASK PERFORMANCE AIDS:

Marked up copy of form 1025.003C, Maintenance Configuration Tracking Log

Copy of OP 2104.029 or computer.

SIMULATOR SETUP:

NA

EXAMINER'S NOTES:

ADMINISTRATIVE JOB PERFORMANCE MEASURE

INITIATING CUE:

CRS/SM directs: "Perform an Operations verification of the given 1025.003C form, Maintenance Configuration Tracking Log following maintenance on SFP cooling radiation monitor 2RE-1525. List any error(s) with the form completion below"

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
Evaluator's Note: Provide examinee with a copy of 1025.003, Maintenance Configuration Tracking Log Sheet.				
	1.	Review the Maintenance Configuration Tracking Log Sheet	Examinee reviewed the Maintenance Configuration Tracking Log Sheet and compared it to the normal lineup in 2104.029, Attachment E.	N/A SAT UNSAT
(C)	2.	Identified 4 of the 6 errors.	Identified 4 of the following 6 errors. 1) 2SW-1525A 'As Found' and position is listed as CLOSED when required to be OPEN. 2) 2SW-1525A 'Restoration' position is listed as CLOSED when required to be OPEN. 3) 2SW-1525M 'Require position for Maintenance' is listed as CLOSED when required to be OPEN to drain the system. 4) 2SW-1525H 'Restoration' position is listed as OPEN when required to be CLOSED. 5) 2SW-1525J Restorer and Verifier initials are the same. 6) The SRO prior approval signature is blank.	N/A SAT UNSAT
END				

ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINER'S COPY

INITIAL CONDITIONS:

I&C Maintenance personnel have completed troubleshooting the Spent Fuel Cooling radiation monitor 2RE-1525.

The troubleshooting required isolating AND draining the radiation monitor.

There are currently no Equipment Status Log (ESL) entries.

Maintenance Configuration Tracking Log 1025.003C was used for configuration control.

INITIATING CUE:

CRS/SM directs: "Perform an Operations verification of the given 1025.003C form, Maintenance Configuration Tracking Log following maintenance on SFP cooling radiation monitor 2RE-1525. List any error(s) with the form completion below."

_____

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ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINEE'S COPY

INITIAL CONDITIONS:

I&C Maintenance personnel have completed troubleshooting the Spent Fuel Cooling radiation monitor 2RE-1525.

The troubleshooting required isolating AND draining the radiation monitor.

There are currently no Equipment Status Log (ESL) entries.

Maintenance Configuration Tracking Log 1025.003C was used for configuration control.

INITIATING CUE:

CRS/SM directs: "Perform an Operations verification of the given 1025.003C form, Maintenance Configuration Tracking Log following maintenance on SFP cooling radiation monitor 2RE-1525. List any error(s) with the form completion below."

_____

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_____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 000 DATE: _____

SYSTEM/DUTY AREA: A8 Radiation Control

TASK: Review emergency RWP and determine stay time for operators

JTA#: _____

Alternate Path Yes: _____ No: X Time Critical Yes: _____ No: X

KA VALUE RO: 3.5 SRO: 3.6 KA REFERENCE: 2.3.7

APPROVED FOR ADMINISTRATION TO: RO: _____ SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: _____ Classroom: Perform

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ Classroom: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 15 Minutes

REFERENCE(S): 2014-0009; Emergency RWP.

EXAMINEE'S NAME: _____ Badge # _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

INITIAL CONDITIONS

Plant is DEFUELED and all FUEL HANDLING operations are secured.
Power has been lost to both SFP cooling pumps and 2K11-K5 “FUEL POOL TEMP HI” is in alarm and the alternate AC diesel is not available and #1 EDG has tripped and is not available.
An Alert has been declared on Unit 2 due to only one power source available to vital buses.
Makeup water from the RWT must be aligned to the SFP due to boiling and loss of inventory through the tilt pit gate.
Fuel Pool low level alarm is in and SFP level is lowering.
RP coverage will not be available.
The SM has not authorized exposures exceeding 10 CFR 20 Limits but NRC limits are applicable.
Wally WCO has 4500 millirem year to date dose.
Joe NLO has 3550 millirem year to date dose.
The SM has directed to fill the spent fuel pool from the service water system.
The dose rate at the SFP is 415 MR/hr, and dose rate at the service water valves are 125 MR/hr.
Both operators must remain on station during the fill evolution and can not leave unless the fill is secured.

TASK STANDARD:

Using Emergency RWP and yearly dose limit:

- Determine a maximum stay time of 2.1 to 2.2 hours based on EAD alarm set-points.
- Determine that Wally WCO should operate the service water valves and Joe NLO should monitor SFP level.

TASK PERFORMANCE AIDS: Emergency RWP 2014-0009

SIMULATOR SETUP: NA

ADMINISTRATIVE JOB PERFORMANCE MEASURE

Initiating CUE:

Using the Emergency RWP dose limits and 10 CFR 20 limits for dose per year determine the maximum allowable time the operators could fill the SFP before they must stop filling the SFP and exit the radiological areas.

START TIME:_____

PERFORMANCECHECKLIST			STANDARD	CIRCLE ONE
NOTE: Provide Emergency RWP.				
	1.	Review Emergency RWP for limits.	Determined that the alarming dosimeter is set to alarm in a 900mr/hr field and that the Dose alarm is set at 900 mrem.	N/A SAT UNSAT
(C)	2.	Determine the operator locations that would maximize SFP fill time.	Determined that sending Wally WCO to the service water valves and Joe NLO to the SFP	N/A SAT UNSAT
	3.	Determine stay time for Wally WCO at the service water valves.	Calculate the stay time to be 4 hours.	N/A SAT UNSAT
	4.	Determine stay time for Joe NLO at the service water valves.	Calculate the stay time to be 2.1 to 2.2 hours.	N/A SAT UNSAT
(C)	5.	Determine that the maximum allowable time to fill the SFP.	Determined that the maximum allowable time to fill the SFP is 2.1 to 2.2 hours.	N/A SAT UNSAT
END				

STOP TIME:_____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINER's COPY

INITIAL CONDITIONS

Plant is DEFUELED and all FUEL HANDLING operations are secured.

Power has been lost to both SFP cooling pumps and 2K11-K5 "FUEL POOL TEMP HI" is in alarm and the alternate AC diesel is not available and #1 EDG has tripped and is not available.

An Alert has been declared on Unit 2 due to only one power source available to vital buses.

Makeup water from the RWT must be aligned to the SFP due to boiling and loss of inventory through the tilt pit gate.

Fuel Pool low level alarm is in and SFP level is lowering.

RP coverage will NOT be available.

The SM has not authorized exposures exceeding 10 CFR 20 Limits but NRC limits are applicable.

Wally WCO has 4500 millirem year to date dose.

Joe NLO has 3550 millirem year to date dose.

The SM has directed to fill the spent fuel pool from the service water system.

The dose rate at the SFP is 415 MR/hr, and dose rate at the service water valves are 125 MR/hr.

Both operators must remain on station (at specified location their location) during the fill evolution and can not leave unless the fill is secured.

Initiating CUE:

Using the Emergency RWP dose limits and 10 CFR 20 limits for dose per year determine the maximum allowable time the operators could fill the SFP before they must stop filling the SFP and exit the radiological areas.

Assume no dose is received in transit to and from the work location.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

EXAMINEE's COPY

INITIAL CONDITIONS

Plant is DEFUELED and all FUEL HANDLING operations are secured.

Power has been lost to both SFP cooling pumps and 2K11-K5 "FUEL POOL TEMP HI" is in alarm and the alternate AC diesel is not available and #1 EDG has tripped and is not available.

An Alert has been declared on Unit 2 due to only one power source available to vital buses.

Makeup water from the RWT must be aligned to the SFP due to boiling and loss of inventory through the tilt pit gate.

Fuel Pool low level alarm is in and SFP level is lowering.

RP coverage will NOT be available.

The SM has not authorized exposures exceeding 10 CFR 20 Limits but NRC limits are applicable.

Wally WCO has 4500 millirem year to date dose.

Joe NLO has 3550 millirem year to date dose.

The SM has directed to fill the spent fuel pool from the service water system.

The dose rate at the SFP is 415 MR/hr, and dose rate at the service water valves are 125 MR/hr.

Both operators must remain on station during the fill evolution and can not leave unless the fill is secured.

Initiating CUE:

Using the Emergency RWP dose limits and 10 CFR 20 limits for dose per year determine the maximum allowable time the operators could fill the SFP before they must stop filling the SFP and exit the radiological areas.

Assume no dose is received in transit to and from the work location.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 0 DATE: _____

SYSTEM/DUTY AREA: Emergency Plan A9

TASK: Determine if EOF evacuation is required.

JTA#: ANO-SRO-EPLAN-EMERG-150

Alternate Path Yes: _____ No: X Time Critical Yes: _____ No: X

KA VALUE RO: 2.4 SRO: 4.4 KA REFERENCE: 2.4.38

APPROVED FOR ADMINISTRATION TO: RO: _____ SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: _____ CLASSROOM: Perform

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ CLASSROOM: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 20 Minutes

REFERENCE(S): 1903.034, Emergency Operations Facility Evacuation

EXAMINEE'S NAME: _____ Badge #: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

- The plant is tripped from 100% power.
- 900 gpm LOCA in progress.
- Loss of Offsite power is in progress.
- LOCA EOP is being implemented.
- RDACS indicates an off site release in progress.
- Wind direction is from 95 degrees.
- The Site has just upgraded from a Site Area Emergency to General Emergency.
- The EOF radiation alarm is in.
- RP reports that dose rates are 10 mr/hr and iodine concentrations are $3.2E^{-10}$ at the EOF and conditions are degrading (i.e dose rate is rising slowly).
- EOF, OSC and TSC have been staffed.
- The ED in the EOF is having medical issues and cannot perform his assigned duties.

TASK STANDARD:

Determine that the Joint Information Center (JIC) should be relocated to the Alternate Joint Information Center (AJIC)

AND

The EOF essential personnel should shelter in the EOF.

AND

The EOF non-essential personnel should evacuate the EOF.

TASK PERFORMANCE AIDS: OP 1903.034, Emergency Operations Facility Evacuation.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

INITIATING CUE: As the Emergency Director, determine the EOF response to the current radiological conditions, using OP 1903.034 Emergency Operation Facility Evacuation.

START TIME: _____

	PERFORMANCE CHECKLIST	STANDARD	(Circle One)
	1. Review OP 1903.034, Emergency Operation Facility Evacuation to determine criteria for the EOF response.	Examinee reviews 1903.034 and determines attachment 1 has criteria and response for EOF personnel and Attachment 9 has guidance for JIC personnel. .	N/A SAT UNSAT
(C)	2. Using attachment 9 of 1903.034 and information provided in initial conditions, determine JIC response. (Attachment 9 of 1903.034.)	Determined that the JIC should perform an evacuation to the Alternate JIC. **Examiner note: The applicant may note that the JIC personnel should process through the Emergency Workers Center in Atkins but it is not critical.**	N/A SAT UNSAT
(C)	3. Using attachment 1 of 1903.034 and information provided in initial conditions, determine EOF response. (Attachment 1 of 1903.034.)	Determined that all essential EOF personnel should remain sheltered in the protected area of the EOF.	N/A SAT UNSAT
(C)	4. Using attachment 1 of 1903.034 and information provided in initial conditions, determine EOF response. (Attachment 1 of 1903.034.)	Determined that all non-essential personnel should evacuate the EOF.	N/A SAT UNSAT
	5. Using attachment 1 of 1903.034 and information provided in initial conditions, determine EOF response. (Attachment 1 of 1903.034.)	Determined that airborne and radiation dose rate monitoring frequency should be raised.	N/A SAT UNSAT
		END	

STOP TIME: _____

EXAMINER'S COPY

INITIAL CONDITIONS:

- The plant is tripped from 100% power.
- 900 gpm LOCA in progress.
- Loss of Offsite power is in progress.
- LOCA EOP is being implemented.
- RDACS indicates an off site release in progress.
- Wind direction is from 95 degrees.
- The Site has just upgraded from a Site Area Emergency to General Emergency.
- The EOF radiation alarm is in.
- RP reports that dose rates are 10 mr/hr and iodine concentrations are $3.2E^{-10}$ at the EOF and conditions are degrading (i.e dose rate is rising slowly).
- EOF, OSC and TSC have been staffed.
- The ED in the EOF is having medical issues and cannot perform his assigned duties.

INITIATING CUE:

As the Emergency Director, determine the EOF response to the current radiological conditions, using OP 1903.034 Emergency Operation Facility Evacuation.

Joint Information Center response: _____

_____

_____

_____

Emergency Operation Facility response:_____

_____

_____

_____

EXAMINEE'S COPY

INITIAL CONDITIONS:

- The plant is tripped from 100% power.
- 900 gpm LOCA in progress.
- Loss of Offsite power is in progress.
- LOCA EOP is being implemented.
- RDACS indicates an off site release in progress.
- Wind direction is from 95 degrees.
- The Site has just upgraded from a Site Area Emergency to General Emergency.
- The EOF radiation alarm is in.
- RP reports that dose rates are 10 mr/hr and iodine concentrations are $3.2E^{-10}$ at the EOF and conditions are degrading (i.e dose rate is rising slowly).
- EOF, OSC and TSC have been staffed.
- The ED in the EOF is having medical issues and cannot perform his assigned duties.

INITIATING CUE:

As the Emergency Director, determine the EOF response to the current radiological conditions, using OP 1903.034 Emergency Operation Facility Evacuation.

Joint Information Center response: _____

_____

_____

_____

Emergency Operation Facility response:_____

_____

_____

_____

JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 5 DATE: _____

SYSTEM/DUTY AREA: Containment Cooling System S1

TASK: Verify Containment Coolers in Emergency Mode

JTA#: ANO2SROEOPAOPEMER12/ANO2ROEOPAOPEMERG13

Alternate Path Yes: X No: _____ Time Critical Yes: _____ No: X

KA VALUE RO: 3.2 SRO: 3.2 KA REFERENCE: 022 A4.03

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: Perform LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 8 Minutes

REFERENCE(S): 2202.010 Standard Attachments, 2202.003 Loss of Coolant Accident.

EXAMINEE'S NAME: _____ Badge # _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

INITIAL CONDITIONS

Reactor has tripped due to a LOCA.
CCAS has failed to actuate automatically.

TASK STANDARD:

Containment Coolers have been placed in Emergency Mode by manually actuating the Red Train using the actuation pushbuttons and then opening all green train Service Water valves, opening all green train bypass dampers and starting the idle cooler.

OR

Containment Coolers have been placed in Emergency Mode by opening all Service water valves, opening all bypass dampers and starting the idle cooler.

TASK PERFORMANCE AIDS:

OP-2202.010 Exhibit 9.

SIMULATOR SETUP:

Verify 2VSF-1C is the standby fan.
400 gpm LOCA.
CCAS fails to actuate.
Load the following malfunctions:

- ESFCCASA
- ESFCCAS2

EXAMINER NOTES:

This is an alternate success path JPM.

JOB PERFORMANCE MEASURE

The SM/CRS directs, "Verify CCAS is actuated per EOP 2202.003 Loss of Coolant Accident Section 1 Step 5."

START TIME: _____

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
Examiner's Note: The examinee may elect to start desired CCAS components manually rather than actuating the components from the PPS inserts. If step 1 is not completed, then steps 2, 3, and 4 become critical steps and step 1 is not critical.				
(C)	1.	Procedure Step: OP-2202.003 Step 5. Verify CCAS actuated on PPS inserts.	Examinee depressed CCAS push buttons on 2C03 or 2C14. Examinee observed CCAS actuated on PPS inserts on 2C03: Trip paths 1&2 if actuated from 2C03 OR trip paths 3&4 if actuated from 2C14.	N/A SAT UNSAT
	2.	Procedure Step: OP-2202.010 Exhibit 9, Step 3, first block. Verify RED train CNTMT coolers in service.	On panel 2C17, examinee observed red light ON and green light OFF for CNTMT cooling fans: • 2VSF-1A • 2VSF-1B	N/A SAT UNSAT
	3.	Procedure Step: OP-2202.010 Exhibit 9, Step 3, second block. Verify Service Water Aligned to RED train CNTMT coolers:	On panel 2C17, examinee observed red light ON and green light OFF for Service Water to RED train CNTMT coolers: • 2CV-1511-1 (Inlet) • 2CV-1519-1 (Outlet)	N/A SAT UNSAT
	4.	Procedure Step: OP-2202.010 Exhibit 9, Step 3, third block. Verify RED train Bypass Dampers open.	On panels 2C17, examinee observed red lights ON for dampers: • 2UCD-8209-1 • 2UCD-8203-1	N/A SAT UNSAT
Examiner's Note: The following steps have the faulted components.				

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
(C)	5.	Procedure Step: OP-2202.010 Exhibit 9, Step 3, fourth block. Verify GREEN train CNTMT coolers in service.	On panel 2C16, examinee observed red light ON and green light OFF for CNTMT cooling fan: • 2VSF-1D On panel 2C16, examinee observed red light Off and green light On for CNTMT cooling fan: • 2VSF-1C **Critical portion: On panel 2C16, examinee manually started 2VSF-1C.**	N/A SAT UNSAT
(C)	6.	Procedure Step: OP-2202.010 Exhibit 9, Step 3, fifth block. Verify Service Water aligned to GREEN train CNTMT Coolers:	On panel 2C16, examinee observed red light OFF and green light ON for Service Water to GREEN train CNTMT coolers: • 2CV-1510-2 (Inlet) • 2CV-1513-2 (Outlet) **Critical portion: On panel 2C16, examinee opened the following valves:** • 2CV-1510-2 (Inlet) • 2CV-1513-2 (Outlet)	N/A SAT UNSAT
(C)	7.	Procedure Step: OP-2202.010 Exhibit 9, Step 3, sixth block. Verify GREEN train Bypass dampers open.	On panel 2C16, examinee observed red light OFF and green light ON for CNTMT cooling dampers: • 2UCD-8216-2 • 2UCD-8222-2 **Critical portion: On panel 2C16, examinee opened the following dampers:** • 2UCD-8216-2 • 2UCD-8222-2	N/A SAT UNSAT
END				

STOP TIME: _____

JOB PERFORMANCE MEASURE
EXAMINER'S COPY

INITIAL CONDITIONS:

You are responsible for any applicable annunciators during the performance of this task. All annunciators that are not applicable to this task will be performed by another operator.

Reactor has tripped due to a LOCA.

CCAS has failed to actuate automatically.

INITIATING CUE:

The SM/CRS directs, "Verify CCAS is actuated per EOP 2202.003 Loss of Coolant Accident Section 1 Step 5.

JOB PERFORMANCE MEASURE
EXAMINEE'S COPY

INITIAL CONDITIONS:

You are responsible for any applicable annunciators during the performance of this task. All annunciators that are not applicable to this task will be performed by another operator.

Reactor has tripped due to a LOCA.

CCAS has failed to actuate automatically.

INITIATING CUE:

The SM/CRS directs, "Verify CCAS is actuated per EOP 2202.003 Loss of Coolant Accident Section 1 Step 5.

JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 002 DATE: _____

SYSTEM/DUTY AREA: AC Electrical Distribution S2

TASK: Transfer Auxiliaries from SU#2 to SU#3 for 2A-1.

JTA#: ANO2-RO-ELECD-NORM-30

Alternate Path Yes: X No: _____ Time Critical Yes: _____ No: X

KA VALUE RO: 3.1 SRO: 3.1 KA REFERENCE: 062 A4.07

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: Perform CLASSROOM: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ CLASSROOM: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 12 Minutes

REFERENCE(S): OP-2107.001 Electrical System Operations

EXAMINEE'S NAME: _____ Login ID: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

INITIAL CONDITIONS:

Maintenance is complete on 2A-113

SU#2 powering 2A-1 and SU#3 is available to 2A-1.

Steps 10.1 and 10.2 are complete.

TASK STANDARD:

Close the SU#3 feeder breaker to 2A-1 and then reopened the SU#3 feeder breaker to 2A-1 when the SU#2 Feeder breaker fails to open.

TASK PERFORMANCE AIDS:

OP 2107.001 Electrical System Operations.

Examiner Note: Give the Yellow pages to the applicant.

SIMULATOR SETUP:

A111 is locked closed.

JOB PERFORMANCE MEASURE

INITIATING CUE:

The CRS directs, "Transfer Unit Auxiliaries from SU2 to SU3 on 2A-1 using 2107.001 Section 10.0, starting with step 10.3"

START TIME:_____

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
Examiner Note: Give the Yellow pages to the applicant.				
Procedure Note: • The Incoming (Source) and Running (Bus) Voltage Meters have three scales: • BLACK scale is Generator Output Breakers. • RED scale is 6900V buses. BLUE scale is 4160V buses.				
	1. (Step 10.3.1)	Verify Synchroscope operable as follows: Select a closed breaker AND insert Synchronize switch.	On panel 2C10, inserted synchronize switch into a closed breaker. Observed red light ON above handswitch and inserted synchronize switch.	N/A SAT UNSAT
	2. (Step 10.3.2)	Place Synchronize switch to ON for selected closed breaker.	On panel 2C10, placed synchronized switch to on. Observed the incoming and running volt meters come on scale.	N/A SAT UNSAT
	3. (Step 10.3.3)	Check Incoming (Source) and Running (Bus) volt meters within 100 volts of each other with Running. IF voltage difference greater than 100 volts, THEN write CR/WR for meter calibration.	On panel 2C10, checked incoming and running voltages within 100 volts.	N/A SAT UNSAT
	4. (Step 10.3.4)	Place Synchronize switch to OFF AND remove.	On panel 2C10, placed synchronized switch to off and removed from breaker. Observed the incoming and running volt meters go off scale low.	N/A SAT UNSAT
Procedure Note: Synchronize switch for incoming feeder breaker must be turned OFF after breaker closure. This action will remove automatic trip signal from the outgoing feeder breaker and therefore prevent damage to its Trip Coil. It will also bring back outgoing feeder breaker Red indicating light if that breaker does not trip.				

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
Procedure Caution: High circulating currents may trip bus lockout relay if both feeder breakers remain closed. Do not delay steps which open a feeder breaker.				
(C)	5. (Step 10.4 and 10.4.1)	Transfer selected buses from SU2 to SU3 in any order as follows: Place Synchronize switch to ON.	On panel 2C10, placed synchronized switch to on for breaker 2A-113. Observed the incoming and running volt meters come on scale.	N/A SAT UNSAT
	6. (Step 10.4.2)	Verify Synchroscope between 11 and 1 O'clock position.	On panel 2C10, Checked Synchroscope between 11 and 1 O'clock position.	N/A SAT UNSAT
	7. (Step 10.4.3)	Check Incoming/Running voltage readings within 200 volts.	On panel 2C10, Incoming/Running voltage readings within 200 volts.	N/A SAT UNSAT
(C)	8. (Step 10.4.4)	Momentarily place SU3 Feeder Breaker to CLOSE.	On panel 2C10, placed handswitch 152-113CS to the close position and then released the handswitch to the normal after close position. Observed Red light on, Green light off and white light momentarily off for breaker 2A-113	N/A SAT UNSAT
	9. (Step 10.4.5)	Verify SU3 Feeder Breaker closes.	Checked 2A-113 breaker for SU3 to 2A-1 closed. Observed Red light on, Green light off and white light momentarily off for breaker 2A-113	N/A SAT UNSAT
	10. (Step 10.4.6)	Turn Synchronize switch for selected SU3 Feeder bkr to OFF.	On panel 2C10, placed synchronized switch to off for breaker 2A-113.	N/A SAT UNSAT
Examiner Note: The following is the alternate path portion of this JPM.				
	11. (Step 10.4.7)	Check SU2 Feeder Breaker opens.	Recognized that breaker 2A-111 for SU#2 to 2A-1 is still closed. Observed Red light off, Green light on and white light on for breaker 2A-111	N/A SAT UNSAT

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	12. (Step 10.4.8)	IF SU2 Feeder bkr did NOT open, THEN open it using HS on 2C10.	On panel 2C10, Placed the Hand switch for the SU2 feeder breaker 2A-111 to trip. Observed Red light on, Green light off and white light on for breaker 2A-111	N/A SAT UNSAT
(C)	13. (Step 10.4.8.A)	IF SU2 Feeder bkr will NOT open, THEN open SU3 Feeder breaker.	On panel 2C10, placed 2A-113 hand switch to the open position (152-113 CS) and released to normal after trip. Observed Red light off, Green light on and white light on for breaker 2A-113	N/A SAT UNSAT
END				

STOP TIME:_____

EXAMINER's COPY

INITIAL CONDITIONS:

You are responsible for any applicable annunciators during the performance of this task. All annunciators that are not applicable to this task will be performed by another operator.

SU2 is powering 2A-1 bus due to 2A-113 SU3 feeder breaker maintenance.

2A-113 SU3 feeder Breaker Maintenance has been completed.

Steps 10.1 and 10.2 of 2107.001 have been completed.

INITIATING CUE:

The CRS directs, "Transfer Unit Auxiliaries from SU2 to SU3 on 2A-1 using 2107.001 Section 10.0, starting with step 10.3"

EXAMINEE's COPY

INITIAL CONDITIONS:

You are responsible for any applicable annunciators during the performance of this task. All annunciators that are not applicable to this task will be performed by another operator.

SU2 is powering 2A-1 bus due to 2A-113 SU3 feeder breaker maintenance.

2A-113 SU3 feeder Breaker Maintenance has been completed.

Steps 10.1 and 10.2 of 2107.001 have been completed.

INITIATING CUE:

The CRS directs, "Transfer Unit Auxiliaries from SU2 to SU3 on 2A-1 using 2107.001 Section 10.0, starting with step 10.3"

JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 005 DATE: _____

SYSTEM/DUTY AREA: Chemical and Volume Control System S3

TASK: Perform Emergency Boration

JTA#: ANO2-RO-EOPAOP-OFFNORM-193

Alternate Path Yes: X No: _____ Time Critical Yes: _____ No: X

KA VALUE RO: 3.9 SRO: 3.7 KA REFERENCE: 004 A4.07

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: Perform LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 8 Minutes

REFERENCE(S): OP-2203.032 Emergency Boration AOP.

EXAMINEE'S NAME: _____ Badge # _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

INITIAL CONDITIONS

Mode 3
A Shutdown Margin is calculated following a reactor trip.
Shutdown Margin is found to be less than required.

TASK STANDARD:

Greater than or equal to 40 gallons per minute of boric acid solution being injected into the RCS by starting at least one BAM Pump and manually opening the Emergency Borate Valve (2CV-4916-2).

TASK PERFORMANCE AIDS:

OP-2203.032 Steps 2 through 6

SIMULATOR SETUP:

Select desired Mode 3 IC for this JPM.
Set each of the following to occur on a trigger with a 5 second time delay:

- CV48731 = .75 (VCT outlet),
- DO_HS_4873_G (VCT outlet green light) = OFF
- DO_HS_4873_R (VCT outlet red light) = OFF.

Set the trigger event to hg4g8731 (VCT green light coming on).

EXAMINER NOTES:

This is an alternate success path JPM.

JOB PERFORMANCE MEASURE

The SM/CRS directs, "Initiate Emergency Boration using BAMT gravity feed to Charging Pump suction beginning with AOP 2203.032, Step 2."

START TIME:_____

PERFORMANCE CHECKLIST			STANDARD	(Circle One)
	1. (Step 2)	Verify at least one charging Pump (CCP) running with flow greater than 40 GPM.	On panel 2C09, verified CCP(s) running. Observed red light ON; green light OFF above at least one of the following handswitch(es): 2HS-4832-1, "A" CCP 2HS-4852-1, "C" CCP (red) 2HS-4853-2, "C" CCP (green) 2HS-4842-2, "B" CCP Observed flow greater than 40 gpm on Charging Header Flow (2FIS-4863).	N/A SAT UNSAT
	2. (Step 3.a)	Align Charging pump suction to at least ONE of the following sources: A. Gravity Feed: 1) Open at least ONE BAM Tank Gravity Feed valve: • 2CV-4920-1 • 2CV-4921-1	On panel 2C09, opened BAMT gravity feed valves 2CV-4920-1 **and/or** 2CV-4921-1 Observed red light ON and green light OFF above handswitch(es): • 2HS-4920-1 for 2CV-4920-1 • 2HS-4921-1 for 2CV-4921-1	N/A SAT UNSAT
EXAMINER'S NOTE: In the following step the VCT outlet valve will NOT close requiring an alternate success path.				
	3. (Step 4)	Close volume control tank (VCT) outlet valve (2CV-4873-1).	On panel 2C09, observed that 2CV-4873-1 did NOT go closed. Observed green light OFF; red light OFF above VCT Outlet valve handswitch (2HS-4873-1).	N/A SAT UNSAT
(C)	4. (Step 4.a)	Start at least ONE BAM pump.	On panel 2C09, start 2P39A and/or 2P39B. Observed RED light ON above the BAM pump started, 2HS-4919-2 (2P39A) or 2HS-4910-2 (2P39B).	N/A SAT UNSAT

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARD	(Circle One)
(C)	5. (Step 4.b)	Open 2CV-4916-2, Emergency Borate From BAM Pumps Valve.	On panel 2C09, opened 2CV-4916-2. Observed red light ON; green light OFF above Emergency borate valve, 2CV-4916-2.	N/A SAT UNSAT
	6. (Step 4.c)	Verify boric acid makeup flow control valve, 2CV-4926, closed.	On panel 2C09, verified 2CV-4926 closed. Observed green light ON; red light OFF above Boric Acid Makeup Flow Controller (2FIC-4926).	N/A SAT UNSAT
	7. (Step 5)	Check Reactor Makeup Water Flow Control valve (2CV-4927) closed.	On panel 2C09, verified 2CV-4927 closed. Observed green light ON; red light OFF above Reactor Makeup Water Flow Controller (2FIC-4927).	N/A SAT UNSAT
(C)	8. (Step 6)	Check charging header flow indicator (2FIS-4863) greater than 40 gpm.	On panel 2C09 (upright portion), observed flow greater than 40 gpm on Charging Header Flow indicator (2FIS-4863).	N/A SAT UNSAT
END				

STOP TIME:_____

JOB PERFORMANCE MEASURE

EXAMINER'S COPY

INITIAL CONDITIONS:

You are responsible for any applicable annunciators during the performance of this task. All annunciators that are not applicable to this task will be performed by another operator.

Mode 3.

A Shutdown Margin is calculated following a reactor trip.

Shutdown margin is found to be less than required.

INITIATING CUE:

The SM/CRS directs, "Initiate emergency boration using BAMT gravity feed to charging pump suction beginning with AOP 2203.032, Step 2."

JOB PERFORMANCE MEASURE

EXAMINEE'S COPY

INITIAL CONDITIONS:

You are responsible for any applicable annunciators during the performance of this task. All annunciators that are not applicable to this task will be performed by another operator.

Mode 3.

A Shutdown Margin is calculated following a reactor trip.

Shutdown margin is found to be less than required.

INITIATING CUE:

The SM/CRS directs, "Initiate emergency boration using BAMT gravity feed to charging pump suction beginning with AOP 2203.032, Step 2."

JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 013 DATE: _____

SYSTEM/DUTY AREA: Emergency Feedwater System

TASK: Shutdown an EFW Train with an EFAS Signal Present (2P7A secured)

JTA#: ANO2-RO-EFW-NORM-20

Alternate Path Yes: _____ No: X Time Critical Yes: _____ No: X

KA VALUE RO: 3.9 SRO: 4.2 KA REFERENCE: 061 A1.01

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: Perform LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 20 Minutes

REFERENCE(S): OP 2106.006, Emergency Feedwater System Operations

EXAMINEE'S NAME: _____ Badge #: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

INITIAL CONDITIONS: Post reactor trip. EFAS #1 and #2 have actuated. Chemistry notified to sample main steam to accommodate dose calculations.

TASK STANDARD: EFW flow established by overriding 2P-7B EFW pumps discharge valves to establish sufficient flow to raise steam generator levels and reseting the EFAS actuation then securing 2P7A EFW pump.

Also, ensuring 2P-7A EFW pumps discharge valve are aligned for the normal plant configuration.

TASK PERFORMANCE AIDS: OP 2106.006 Section 13.0

SIMULATOR INITIAL CONDITIONS: Mode 3 after RX trip, EFAS 1 & EFAS 2 actuated.

Ensure generator levels are cycling based on SG level setpoints.

JOB PERFORMANCE MEASURE

INITIATING CUE:

The CRS directs, "Secure EFW Pump (2P7A) using OP 2106.006 Section 13.0 beginning with step 13.2."

START TIME: _____

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	1. (Step 13.2)	Verify EFW pump 2P-7B (2HS-0710A-1) running.	On panel 2C17, verified 2P7B running. Observed green light OFF; red light ON above handswitch. Observed 2P7B discharge pressure > 950 psig on EFW-B Disch (2PIS-0710-1).	N/A SAT UNSAT
(C)	2. (Step 13.3)	Reset 2P-7B flow control valve relays by placing handswitches to EFAS OVERRIDE: • 2HS-1025B-1 • 2HS-1075B-1	On panel 2C17, rotated handswitches 2HS-1025B-1 and 2HS-1075B-1 to the "EFAS OVERRIDE" position.	N/A SAT UNSAT
(C)	3. (Step 13.4)	Override 2P-7B Discharge valves by placing handswitches to OPEN: • 2CV-1038-2 (2HS-1038-2) • 2CV-1036-2 (2HS-1036-2)	On panel 2C17, placed handswitches for 2CV-1036-2 and 2CV-1038-2 to OPEN and released. Observed green light OFF; red light ON over handswitches for 2CV-1036-2 and 2CV-1038-2	N/A SAT UNSAT
EXAMINER'S NOTE: Flow rate is discretionary and a function of RCS temperature and pressure.				

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
(C)	4. (Step 13.5)	13.5 Override and throttle open the following valves to restore S/G levels to approximately 60%: • For A S/G, 2CV-1025-1 (2HS-1025A-1) • For B S/G, 2CV-1075-1 (2HS-1075A-1)	On panel 2C17, adjusted handswitches for 2CV-1025-1 and 2CV-1075-1 to restore S/G levels to ~60%. Observed green lights ON; red lights ON and movement on the "Percent Open" meters over handswitches.	N/A SAT UNSAT
	5. (Step 13.6)	Monitor RCS temperature and pressure during SG refill.	Used SPDS, Plant Computer, or control boards indications to monitor RCS temperature and PZR pressure.	N/A SAT UNSAT
	6. (Step 13.7)	Verify feed flow indicated to BOTH S/Gs: • For A S/G, (2FIS-0710-1) • For B S/G, (2FIS-0717-1)	On panel 2C17, verified flow appropriate to restore SG levels. Observed flow on EFW flow indicators 2FIS-0710-1 and 2FIS-0717-1.	N/A SAT UNSAT
EXAMINER'S NOTE: The simulator only has 2C40 hardware. The reset will be accomplished in 2C40 only.				
(C)	7. (Step 13.8)	WHEN S/G levels above EFAS reset setpoint, THEN depress "EFAS Lockout Relays Reset" pushbuttons: • In 2C39 • In 2C40 **Examiner Cue:** **Inform candidate that 2C39 indicates the same as 2C40.**	On panel 2C40 when S/G levels are above EFAS setpoint (~ 23 %) depressed reset pushbuttons for EFAS-1and EFAS-2. Observed Red light ON above the EFAS-1 pushbutton and above the EFAS-2 pushbutton.	N/A SAT UNSAT
(C)	8. (Step 13.9)	Stop 2P-7A by placing Steam Supply (2HS-0340-2) to CLOSE.	Placed handswitch for 2CV-0340-2 to CLOSE. Observed green light ON, red light OFF above handswitch for 2CV-0340-2 and 2P-7A slowing down.	N/A SAT UNSAT

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	9. (Step 13.10)	Record time Steam Supply 2CV-0340-2 closed in Station log. **Examiner Cue:** **Inform candidate another operator has recorded the stop time in the station log.**	Requested that the CRS or another operator record time 2CV-0340-2 closed in Station Log.	N/A SAT UNSAT
	10. (Step 13.11)	13.11 Verify 2P-7A Discharge valves OPEN: • 2CV-1037-1 (2HS-1037-1) • 2CV-1039-1 (2HS-1039-1)	On panel 2C16, placed the handswitches for 2CV-1037-1 and 2CV-1039-1 to OPEN. AND/OR On panel 2C16, observed red light ON and green light OFF above handswitches for 2CV-1037-1 and 2CV-1039-1.	N/A SAT UNSAT
	11. (Step 13.12 and 13.12.1)	Perform the following to ensure positive seating of 2P-7A Discharge Stop Checks to S/Gs 2EFW-7A and 2EFW-8A: Verify 2P-7A Discharge valves OPEN: • 2CV-1026-2 (2HS-1026-2) • 2CV-1076-2 (2HS-1076-2)	On panel 2C16, placed the handswitches for 2CV-1026-2 and 2CV-1076-2 to OPEN. AND/OR On panel 2C16, observed red light ON and green light OFF above handswitches for 2CV-1026-2 and 2CV-1076-2.	N/A SAT UNSAT
(C)	12. (Step 13.12.2)	CLOSE 2CV-1026-2 (2HS-1026-2).	On panel 2C16, placed the handswitches for 2CV-1026-2 to CLOSE. **AND** On panel 2C16, observed red light OFF and green light ON above handswitches for 2CV-1026-2.	N/A SAT UNSAT

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
(C)	13. (Step 13.12.3)	CLOSE 2CV-1076-2 (2HS-1076-2).	On panel 2C16, placed the handswitches for 2CV-1026-2 to CLOSE. **AND** On panel 2C16, observed red light OFF and green light ON above handswitches for 2CV-1026-2.	N/A SAT UNSAT
END				

STOP TIME: _____

JOB PERFORMANCE MEASURE

EXAMINER'S COPY

INITIAL CONDITIONS:

You are responsible for any applicable annunciators during the performance of this task. All annunciators that are not applicable to this task will be performed by another operator.

Mode 3.

Post reactor trip.

EFAS #1 and #2 have actuated.

Chemistry notified to sample main steam to accommodate dose calculations.

INITIATING CUE:

The CRS directs, "Secure EFW Pump (2P7A) using OP 2106.006 Section 13.0 beginning with step 13.2."

JOB PERFORMANCE MEASURE

EXAMINEE'S COPY

INITIAL CONDITIONS:

You are responsible for any applicable annunciators during the performance of this task. All annunciators that are not applicable to this task will be performed by another operator.

Mode 3.

Post reactor trip.

EFAS #1 and #2 have actuated.

Chemistry notified to sample main steam to accommodate dose calculations.

INITIATING CUE:

The CRS directs, "Secure EFW Pump (2P7A) using OP 2106.006 Section 13.0 beginning with step 13.2."

JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 009 DATE: _____

SYSTEM/DUTY AREA: Feedwater Control System S5

TASK: Place the Feedwater Control System in Automatic

JTA#: ANO2ROFWCSNORM5

Alternate Path Yes: _____ No: X Time Critical Yes: _____ No: X

KA VALUE RO: 3.7 SRO: 3.6 KA REFERENCE: 035 A4.01

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: Perform LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 15 Minutes

REFERENCE(S): OP-2106.007, Main Feedwater Pump and FWCS Operations.

EXAMINEE'S NAME: _____ Badge #: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

INITIAL CONDITIONS:

I&C has completed testing on "A" FWCS. The FW Master

Controller is in MANUAL. Both "A" FWCS individual valve controllers are in MANUAL.

TASK STANDARD:

‘A’ FWCS master controller, ‘A’ Main Feedwater Reg. valve controller, and ‘A’ Main Feedwater Reg. Bypass valve

controller in AUTOMATIC.

Neither a Low SG level alarm (50%) is received or the HLO, High Level Override (82%)is actuated.

TASK PERFORMANCE AIDS:

OP 2106.007 Section 13.0

SIMULATOR SETUP:

‘A’ FWCS master controller is in manual, ‘A’ Main Feed regulating valve HIC is in manual

‘A’ Main Feed regulating valve bypass HIC is in manual.

‘A’ MFP HIC is in AUTO.

EXAMINER'S NOTES:

JOB PERFORMANCE MEASURE

INITIATING CUE:

The CRS directs, "Place the 'A' FWCS Master and individual Manual/Auto stations in AUTOMATIC from MANUAL mode using OP 2106.007 Section 13.0."

START Time: _____

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	1. (Step 13.1)	Verify S/G levels are within 2% of level setpoint.	On panel 2C02, observed S/G levels within 2% of level setpoint and/or adjusted Main Feed Regulating Valve position until S/G levels were within 2% of setpoint.	N/A SAT UNSAT
	2. (Step 13.2)	Verify Steam Generator NR level is stable.	On panel 2C02, adjusted Main Feed Regulating Valve position until S/G levels were stable.	N/A SAT UNSAT
Procedure Note: • If signal reset, Signal RESET is WHITE AND Selector Box is NORMAL. • If signal NOT reset, Signal RESET is BLUE AND Point ID is RED. (CR-ANO-2-2004-0008)				
Examiner Note: **EWS is not fully modeled on the simulator and the following step requires a prompt.**				

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	3. (Step 13.3)	On EWS, verify the following: ALL Signal RESETs, on all Signal Validation Screens Reset per applicable Attachment. - IF All Signal RESETs NOT reset, THEN verify reason known prior to continuing. NO unexplained alarms are present KEY in OPERATE and Removed. **<u>Examiner Cue:</u>** **All Signal RESET's, on all Signal Validation Screens, have been Reset.** **NO unexplained alarms are present** **KEY in OPERATE and Removed.**	By examiner cue, verified the following: All Signal RESET's, on all Signal Validation Screens, have been Reset, or reason known and it is desired to continue. NO unexplained alarms are present KEY in OPERATE and Removed.	N/A SAT UNSAT
	4. (Step 13.4 and 13.4.1)	IF using MFWP to feed Steam Generators <u>AND</u> SDBCS is operating with any of the valves in automatic <u>AND</u> Master setpoint is > 1000 psia, <u>THEN</u> perform the following: Place the SDBCS Master setpoint in local. Slowly adjust SDBCS Master setpoint to 1000 psia or less. **Examiner Note: The SDBCS will be operating but the setpoint will be <1000 psia and the steps will be N/A.**	Determine Step 13.4 is not applicable.	N/A SAT UNSAT

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	5. (Step 13.4.2)	Slowly adjust SDBCS Master setpoint to 1000 psia or less. **Examiner Note: The SDBCS will be operating but the setpoint will be <1000 psia and the steps will be N/A.**	Determine Step 13.4 is not applicable.	N/A SAT UNSAT
	6. (Step 13.4.3)	Slowly raise feed pump speed to 3150 rpm and / or verify pump speed > 3150 RPM. **Examiner Note: The SDBCS will be operating but the setpoint will be <1000 psia and the steps will be N/A.**	Determine Step 13.4 is not applicable.	N/A SAT UNSAT
	7. (Step 13.4.3)	Verify Feed Pump discharge pressure is > SG pressure. **Examiner Note: The SDBCS will be operating but the setpoint will be <1000 psia and the steps will be N/A.**	Determine Step 13.4 is not applicable.	N/A SAT UNSAT
Procedure Note: Placing HIC in Auto with Master in Auto causes valve to reposition to reflect what the Master is calling for and can cause a flow transient.				
	7. (Step 13.5 and 13.5.1)	IF desired to place 'A' Train FWCS valves in AUTO, THEN perform the following: Display FW flow demand tracking for 'A' FWCS at either of the following locations: • On page 2 of MFP Speed Fisher Porter Controllers. • On PMS point (FWFDMDT1)	On 2C02, Displayed FW flow demand tracking for 'A' FWCS on page 2 of associated MFP Speed Fisher Porter Controller. OR On PMS, On 2C02, Displayed FW flow demand tracking for 'A' FWCS on PMS using point (FWFDMDT1)	N/A SAT UNSAT
	8. (Step 13.5.2)	Verify Master Controller (2FIC-1029) in MANUAL.	On 2CO2, observed master controller displaying a M.	N/A SAT UNSAT

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	9. (Step 13.5.3)	Verify Master Controller (Local or Remote) Setpoint source and setpoint are as desired.	On 2CO2, verified that the master controller in remote and setpoint is ~70%	N/A SAT UNSAT
(C)	10. (Step 13.5.4)	Match the Flow Demand on the Master controller to within 1% of the flow demand tracking value.	On 2CO2, using the FWCS associated master controller, depressed the raise or lower manual pushbutton(s) to match the output signal to the Flow demand tracking value. **Examiner note: It is critical that neither the SG low level alarm @ 50% narrow range is received nor the High Level Override (HLO) @ 82% Narrow range throughout the performance of this JPM.**	N/A SAT UNSAT
Examiner's Note: Either the main feed regulating valve controller or the main feed regulating valve bypass may be placed in automatic first.				
(C)	11. (Step 13.5.5)	Place Controller for ONE of the following valves in AUTOMATIC: • Feed Reg Valve (2HIC-0748) • Feed Reg Valve Bypass (2HIC-0753)	On panel 2C02, using the FW Reg Valve Controller (2HIC-0748), depressed the M/A pushbutton. Observed that an 'A' is displayed on the HIC. OR On panel 2C02, using the FW Reg Valve Bypass Controller 2HIC-0753, depressed the M/A pushbutton. Observed the "M" changed to an "A" the selected HIC, indicating the controller is in automatic. **Examiner note: It is critical that neither the SG low level alarm @ 50% narrow range is received nor the High Level Override (HLO) @ 82% Narrow range throughout the performance of this JPM.**	N/A SAT UNSAT

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	12. (Step 13.5.6)	Check selected valve position remains approximately constant from manual to automatic.	On panel 2C02 observed that the valve selected to be placed in automatic first, remains in a satisfactory position.	N/A SAT UNSAT
(C)	13. (Step 13.5.7)	Place Master controller (2FIC-1029) in AUTOMATIC.	On panel 2C02, placed Master Controller (2FIC-1029) in AUTO by depressing the M/A pushbutton. Observed the "M" changed to an "A" on 2FIC-1029 indicating the controller is in AUTOMATIC. **Examiner note: It is critical that neither the SG low level alarm @ 50% narrow range is received nor the High Level Override (HLO) @ 82% Narrow range throughout the performance of this JPM.**	N/A SAT UNSAT
	14. (Step 13.5.8)	Verify Flow Demand on the Master controller output is responding to control S/G level.	On 2C02, using the Master Controller, verified Flow Demand on the Master controller output is responding to control S/G level.	N/A SAT UNSAT
	15. (Step 13.5.9 and step 13.5.9. A)	WHEN desired to place second valve in AUTOMATIC, THEN perform the following: A. Refer to "FWCS Valve Demand Vs Flow Demand", Attachment L of this procedure, to verify valve in manual position is close to respective position desired by FWCS.	On 2C02, observed that both valve positions, the valve in automatic and the valve desired to place in automatic are close to the respective positions required by the FWCS by comparing the FWCS demanded position to the actual valve position.	N/A SAT UNSAT

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
(C)	16. (Step 13.5.9. B)	Place controller for remaining valve in AUTOMATIC: • Feed Reg Valve (2HIC-0748) • Feed Reg Valve Bypass (2HIC-0753)	On panel 2C02, using the FW Reg Valve Controller (2HIC-0748), depressed the M/A pushbutton. Observed that an 'A' is displayed on the HIC. OR On panel 2C02, using the FW Reg Valve Bypass Controller 2HIC-0753, depressed the M/A pushbutton. Observed the "M" changed to an "A"the selected HIC, indicating the controller is in automatic. **Examiner note: It is critical that neither the SG low level alarm @ 50% narrow range is received nor the High Level Override (HLO) @ 82% Narrow range throughout the performance of this JPM.**	N/A SAT UNSAT
	17. (Step 13.5.10)	Verify MFWP Speed controller (2HIC-0321) returned to page 1.	On panel 2C02, verified that 2HIC-0321 returned to page 1 by pressed the F3 button as necessary.	N/A SAT UNSAT
END				

STOP Time: _____

JOB PERFORMANCE MEASURE

EXAMINER'S COPY

INITIAL CONDITIONS:

You are responsible for any applicable annunciators during the performance of this task. All annunciators that are not applicable to this task will be performed by another operator.

I&C has completed testing on "A" FWCS. The FW Master Controller is in MANUAL. Both "A" FWCS individual valve controllers are in MANUAL.

INITIATING CUE:

The CRS directs, "Place the 'A' FWCS Master and individual Manual/Auto stations in AUTOMATIC from MANUAL mode using OP 2106.007 Section 13.0."

JOB PERFORMANCE MEASURE

EXAMINEE'S COPY

INITIAL CONDITIONS:

You are responsible for any applicable annunciators during the performance of this task. All annunciators that are not applicable to this task will be performed by another operator.

I&C has completed testing on "A" FWCS. The FW Master Controller is in MANUAL. Both "A" FWCS individual valve controllers are in MANUAL.

INITIATING CUE:

The CRS directs, "Place the 'A' FWCS Master and individual Manual/Auto stations in AUTOMATIC from MANUAL mode using OP 2106.007 Section 13.0."

JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 000 DATE: _____

SYSTEM/DUTY AREA: Chemical and Volume Control system S6

TASK: Verification of Minimum Letdown Flow

JTA#: ANO2-RO-CVCS-NORM-65

Alternate Path Yes: _____ No: X Time Critical Yes: _____ No: X

KA VALUE RO: 3.6 SRO: 3.1 KA REFERENCE: 004 A4.06

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: Perform CLASSROOM: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ CLASSROOM: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 16 Minutes

REFERENCE(S): OP-2104.002 Chemical and Volume Control system operations.

EXAMINEE'S NAME: _____ Badge #: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

INITIAL CONDITIONS:

Letdown Flow control controller in automatic.

Pressurizer is level at setpoint.

Letdown flow control valves have been shifted from 2CV-4817 in service to 2CV-4816 in service.

Section 1 of 2104.002 Att. F verification of minimum letdown flow has been completed.

TASK STANDARD:

Established 2LIC-4627 Pressurizer level controller in manual with demand set to the minimum for minimum letdown.

Adjusted 2HIC-4817 Letdown flow controller bias to have minimum letdown flow from 28 to 32 gpm.

Restored Pressurizer level to the program setpoint.

TASK PERFORMANCE AIDS:

OP 2104.002 Chemical and Volume control system operations.

Examiner Note: Give the Yellow pages to the applicant.

SIMULATOR SETUP:

Letdown in automatic with 2CV-4816 in service.
Bias on 2HIC-4817 set to ~3.5

JOB PERFORMANCE MEASURE

INITIATING CUE:

The CRS directs, "Verify Minimum Letdown flow IAW 2104.002 Chemical and Volume Control system Att. F. starting with step 2.1"

START TIME:_____

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
Examiner Note: Give the Yellow pages to the applicant.				
Procedure Note: This test is performed to verify proper response of Letdown System to minimum input from Pressurizer Level Control System. Minimum Letdown flow is 30 gpm. This test should be performed for any of the following conditions: • Restoration of Letdown after long shutdown period • Maintenance performed on flow control components • Flow Control Valve alignment changed • Minimum setpoint appears to have drifted or setpoint in question • Valve that is being placed in service hasn't had this test performed on it in the last 3 months				
	1. (Step 2.1)	*IF Letdown flow lowers to 25 gpm, THEN input positive bias to LD Flow Controller, 2HIC-4817 until Letdown flow is 28-30 gpm.	Monitored Letdown flow to ensure flow did not lower to less than 25 gpm.	N/A SAT UNSAT
(C)	2. (Step 2.2)	Place Pressurizer Level controller (2LIC-4627) in manual.	On panel 2C04, placed depressed the M/A button on 2LIC-4627. Observed "A" on 2HIC-4627 change to "M".	N/A SAT UNSAT
(C)	3. (Step 2.3)	Manually lower output signal from 2LIC-4627 to 16.62. **Examiner note: 2LIC-4627 may not lower demand to exactly 16.62 in manual.** **Examiner Cue: If 2LIC-4627 does not lower demand to exactly 16.62 then inform candidate to place the demand from 16.58 to 16.67.**	On panel 2C04, adjusted the output of 2LIC-4627 to between 16.58 and 16.67. Observed the output of 2LIC-4627 to be stable between 16.58 and 16.67.	N/A SAT UNSAT
	4. (Step 2.4)	Record Letdown flow: _____ gpm (2FIS-4801 or computer point F4801)	Recorded Letdown flow.	N/A SAT UNSAT

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
(C)	5. (Step 2.5)	IF Letdown flow greater than 32 gpm, THEN input negative bias to 2HIC-4817 until Letdown flow at 30 gpm.	Observed Letdown flow greater than 32 gpm. On panel 2C09, lower the bias on 2HIC-4817 until letdown flow 28 to 32 gpm.	N/A SAT UNSAT
	6. (Step 2.6)	IF Letdown flow less than 28 gpm, THEN input positive bias to 2HIC-4817 until Letdown flow at 30 gpm.	Observed Letdown flow greater than 28 gpm.	N/A SAT UNSAT
(C)	7. (Step 2.7)	Adjust 2LIC-4627 output to raise letdown flow slightly greater than 40 gpm until PZR level at setpoint.	On panel 2C04, adjusted the output of 2LIC-4627 to raise letdown flow >40 gpm. Observed letdown flow >40 gpm and pressurizer level trending to setpoint.	N/A SAT UNSAT
	8. (Step 2.8)	Place 2LIC-4627 to Auto.	On panel 2C04, placed depressed the M/A button on 2LIC-4627. Observed “M” on 2HIC-4627 change to “A”.	N/A SAT UNSAT
Examiner note: When the applicant 2LIC-4627 in auto the JPM is complete.				
END				

STOP TIME:_____

EXAMINER's COPY

INITIAL CONDITIONS:

You are responsible for any applicable annunciators during the performance of this task. All annunciators that are not applicable to this task will be performed by another operator.

Letdown Flow control controller in automatic.

Pressurizer is level at setpoint.

Letdown flow control valves have been shifted from 2CV-4817 in service to 2CV-4816 in service.

Section 1 of 2104.002 Att. F verification of minimum letdown flow has been completed.

INITIATING CUE:

The CRS directs, "Verify Minimum Letdown flow IAW 2104.002 Chemical and Volume Control system Att. F. starting with step 2.1"

EXAMINEE's COPY

INITIAL CONDITIONS:

You are responsible for any applicable annunciators during the performance of this task. All annunciators that are not applicable to this task will be performed by another operator.

Letdown Flow control controller in automatic.

Pressurizer is level at setpoint.

Letdown flow control valves have been shifted from 2CV-4817 in service to 2CV-4816 in service.

Section 1 of 2104.002 Att. F verification of minimum letdown flow has been completed.

INITIATING CUE:

The CRS directs, "Verify Minimum Letdown flow IAW 2104.002 Chemical and Volume Control system Att. F. starting with step 2.1"

JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 2 DATE: _____

SYSTEM/DUTY AREA: Reactor Protection System S7

TASK: Manually Trip the Reactor

JTA#: ANO2-RO-EOPAOP-EMERG-3

Alternate Path Yes: X No: _____ Time Critical Yes: _____ No: X

KA VALUE RO: 4.4 SRO: 4.7 KA REFERENCE: 012 A2.06

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: Perform LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 4 Minutes

REFERENCE(S): OP-2202.001, SPTA EOP

EXAMINEE'S NAME: _____ Badge #: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

INITIAL CONDITIONS

The plant is in Mode 1. The Main Turbine is in service.

TASK STANDARD:

Motor generator sets were de-energized by de-energizing 2B-7 and 2B-8.

TASK PERFORMANCE AIDS:

None.

SIMULATOR SETUP:

Load the following:

RPSRXMAN
RPSDSSMAN
RPSRXAUTO
RPSDSSAUTO

EXAMINER'S NOTE:

This is an Alternate Success Path JPM and contains immediate actions. Examinees are expected to perform these immediate actions from memory per 1015.021 EOP/AOP users guide.

JOB PERFORMANCE MEASURE

INITIATING CUE: The CRS directs: "Trip the reactor and perform immediate actions as required."

START TIME: _____

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
EXAMINERS NOTE: Steps 1 through 3 will not trip the reactor. The actions to trip the reactor in step 3.A.1 are bulleted and may be performed in any order. They are listed in the normal order of performance.				
EXAMINERS NOTE: The expectation is that these actions are performed from memory. If the examinee attempts to use the SPTA EOP, then inform the examinee that the actions need to be performed from memory.				
	1. (Step 3.A.1)	Depress BOTH Reactor Trip pushbuttons on 2C03.	Depressed BOTH Reactor Trip pushbuttons on 2C03.	N/A SAT UNSAT
	2. (Step 3.A.1)	Depress DSS Emergency Reactor Trip pushbutton on 2C03.	Depressed DSS Emergency Reactor Trip pushbutton on 2C03.	N/A SAT UNSAT
	3. (Step 3.A.1)	Depress BOTH Manual Reactor Trip pushbuttons on 2C14.	Depressed BOTH Manual Reactor Trip pushbuttons on 2C14.	N/A SAT UNSAT
EXAMINERS NOTE: Performing the next two steps will trip the reactor. The next two steps may be performed in any order.				
(C)	4. (Step 3.A.2. a)	IF ANY CEDMCS bus remains ENERGIZED THEN perform the following: Open the following breakers on 2C10 to de-energize MG sets: • 2B712 • 2B812	Opened breaker 2B712.	N/A SAT UNSAT
(C)	5. (Step 3.A.2. a)	Open the following breakers on 2C10 to de-energize MG sets: • 2B712 • 2B812	Opened breaker 2B812.	N/A SAT UNSAT
	6. (Step 3.A.2. b)	When breakers have been open 10 seconds, then close 2B712 and 2B812.	Waited 10 seconds then closed 2B712 and 2B812.	N/A SAT UNSAT
	7. (Step 3.A.3)	Check reactor power lowering.	Checked power lowering using one of the following indications: COLSS, CPC point 171, CPC point 177, Log power, or Start up rate.	N/A SAT UNSAT
END				

STOP TIME: _____

JOB PERFORMANCE MEASURE
EXAMINER'S COPY

INITIAL CONDITIONS:

The plant is in Mode 1.

The Main Turbine is in service.

All Pressurizer Level instruments have failed.

INITIATING CUE:

The CRS directs: "Trip the reactor and perform immediate actions as required."

JOB PERFORMANCE MEASURE
EXAMINEE'S COPY

INITIAL CONDITIONS:

The plant is in Mode 1.

The Main Turbine is in service.

All Pressurizer Level instruments have failed.

INITIATING CUE:

The CRS directs: "Trip the reactor and perform immediate actions as required."

JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 002 DATE: _____

SYSTEM/DUTY AREA: Pressurizer Pressure control Operations S8

TASK: Equalize RCS and Pressurizer Boron

JTA#: ANO2-RO-PZR-NORM-3

Alternate Path Yes: _____ **No:** X **Time Critical Yes:** _____ **No:** X

KA VALUE RO: 3.7 **SRO:** 3.5 **KA REFERENCE:** 010 A4.01

APPROVED FOR ADMINISTRATION TO: RO: X **SRO:** X

TASK LOCATION: INSIDE CR: X **OUTSIDE CR:** _____ **BOTH:** _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ **SIMULATOR:** Perform **LAB:** _____

POSITION EVALUATED: RO: _____ **SRO:** _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ **PLANT SITE:** _____ **LAB:** _____

TESTING METHOD: SIMULATE: _____ **PERFORM:** _____

APPROXIMATE COMPLETION TIME IN MINUTES: 10 Minutes

REFERENCE(S): OP 2103.005 Pressurizer Operations

EXAMINEE'S NAME: _____ **Badge #:** _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ **UNSATISFACTORY:** _____

PERFORMANCE CHECKLIST COMMENTS:

_____

Start Time _____ **Stop Time** _____ **Total Time** _____

SIGNED: _____ **DATE:** _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

INITIAL CONDITIONS:

Chemistry reports that RCS Boron is 820 PPM and the PZR Boron is 875 PPM.

TASK STANDARD:

Established boron equalization with backup heaters on and one PZR spray valve in manual with

RCS pressure 2200 ± 10 psia

TASK PERFORMANCE AIDS:

OP 2103.005 section 7.1

SIMULATOR SETUP:

PZR pressure controller in automatic with setpoint at 2200 psia.

JOB PERFORMANCE MEASURE

INITIATING CUE:

The CRS directs, "Commence equalizing RCS and PZR boron concentration using OP 2103.005 step 7.2, 'A' RCP spray valve, 2CV-4651."

Start Time: _____

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
Procedure Note: Spray Valves throttle open and seal in closed. One Backup Heater Bank is normally maintained in ON with the other three banks in AUTO.				
	1. (Step 7.2.1)	Verify open Spray Valve Isolation (2CV-4655 AND 2CV-4656)	On panel 2C04 verified red lights ON, green lights OFF for 2CV-4656. On panel 2C04 verified 2CV-4655 has de-energized placard next to the valve lights.	N/A SAT UNSAT
(C)	2. (Step 7.2.2)	Place 'A' RCP spray valve MAN/AUTO select switch (2HS-4651B) to MANUAL.	On panel 2C04, rotated 2HS-4651B in the CCW direction to MANUAL.	N/A SAT UNSAT
(C)	3. (Step 7.2.3)	Energize all available Backup Heaters: Place 2HS-4643 to ON Place 2HS-4644 to ON Place 2HS-4645 to ON Place 2HS-4646 to ON	On panel 2C04 placed the following handswitches to ON: Place 2HS-4643 to ON Place 2HS-4644 to ON Place 2HS-4645 to ON Place 2HS-4646 to ON **AND** Observed the red light ON and green light OFF above each of the above backup heater handswitches.	N/A SAT UNSAT
EXAMINERS NOTE: The following action may take several attempts (cycling the spray valve open and then closed) until the proper valve position is obtained. When the handswitch is taken to the closed direction, 2CV-4651 will go completely closed. Maintaining RCS pressure 2200 ± 10 psia may also be accomplished by placing one backup heater to Auto. **The Critical portion of step 4 below is to maintain RCS pressure 2200 ± 10 psia and this can be accomplished by either step 4 or 5.** This JPM should be stopped by examiner when determined satisfactory or unsatisfactory.				
(C)	4. (Step 7.2.4)	When PZR pressure begins rising, Throttle open 'A' RCP spray valve (2CV-4651) enough to stabilize pressure **2200 ± 10 psia**	On panel 2C 04, placed handswitch for 2CV-4651 to the open position momentarily and then watched PZR pressure stabilize at 2200 ± 10 psia.	N/A SAT UNSAT

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	5. (Step 7.2.5)	IF necessary to maintain pressure **± 10 psia of setpoint,** THEN place one Backup Heater bank in AUTO.	On panel 2C 04, placed handswitch for one backup heater to auto as necessary to maintain RCS pressure 2200 ± 10 psia.	N/A SAT UNSAT
END				

Stop Time: _____

JOB PERFORMANCE MEASURE

EXAMINER'S COPY

INITIAL CONDITIONS:

Chemistry reports that RCS Boron is 820 PPM and the PZR Boron is 875 PPM.

A R3 level reactivity brief has been completed.

INITIATING CUE:

The CRS directs, "Commence equalizing RCS and PZR boron concentration using OP 2103.005 step 7.2, 'A' RCP spray valve, 2CV-4651."

JOB PERFORMANCE MEASURE

EXAMINEE'S COPY

INITIAL CONDITIONS:

Chemistry reports that RCS Boron is 820 PPM and the PZR Boron is 875 PPM.

A R3 level reactivity brief has been completed.

INITIATING CUE:

The CRS directs, "Commence equalizing RCS and PZR boron concentration using OP 2103.005 step 7.2, 'A' RCP spray valve, 2CV-4651."

JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 8 DATE: _____

SYSTEM/DUTY AREA: Pressure Control P1

TASK: Perform Local operations of the proportional heaters

JTA#: ANO2-RO-EOPAOP-OFFNORM-126

Alternate Path Yes: _____ No: X Time Critical Yes: _____ No: X

KA VALUE RO: 4.1 SRO: 4.2 KA REFERENCE: 068 AA1.07

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: X BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: Simulate SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 20 Minutes

REFERENCE(S): OP 2203.014, Alternate Shutdown AOP, Attachment C

EXAMINEE'S NAME: _____ Badge #: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

INITIAL CONDITIONS:

The following conditions exist:

1. A fire has occurred in the Control Room rendering the Control Room uninhabitable.
2. RCS pressure is 1840 psia.
3. Pressurizer Level is 44%

TASK STANDARD:

Proportional heater control has been established locally at 2C117 and 2C118 by closing the 480V supply breakers and aligning the hand switches to emergency and on.

TASK PERFORMANCE AIDS:

1. OP 2203.014, Attachment C

JOB PERFORMANCE MEASURE

INITIATING CUE: The SM provides the following direction:

1. Energize pressurizer proportional heaters locally and raise pressurizer pressure as directed by TSC using AOP 2203.014, Attachment C

START TIME: _____

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
Procedure Note:				
	1. (Step 1.A)	Verify "PZR PROP HTR CONT SW" (2HS-4640B) position. **Examiner Note:** **Describe that 2HS-4640B indicates OFF.**	On panel 2C117, verified 2HS-4640B in OFF.	N/A SAT UNSAT
(C)	2. (Step 1.A)	Place "PZR PROP HTR SEL SW" (2HS-4640A) in EMERG. **Examiner Note:** **Describe that 2HS-4640A indicates normal until the applicant moves the switch to EMERG.**	On panel 2C117, verified key inserted in keyswitch. Placed 2HS-4640A in EMERG.	N/A SAT UNSAT
	3. (Step 1.B)	Verify "PZR PROP HTR CONT SW" (2HS-4641B) position. **Examiner Note:** **Describe that 2HS-4641B indicates OFF.**	On panel 2C118, verified 2HS-4641B in OFF.	N/A SAT UNSAT
(C)	4. (Step 1.B)	Place "PZR PROP HTR SEL SW" (2HS-4641A) in EMERG. **Examiner Note:** **Describe that 2HS-4641A indicates normal until the applicant moves the switch to EMERG.**	On panel 2C118, verified key inserted in keyswitch. Placed 2HS-4641A in EMERG.	N/A SAT UNSAT

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
(C)	5. (Step 1.C)	Verify breaker 2B523 (PZR PROP HTR 2SCR-1) closed. **Examiner Note:** **Describe that 2B-523 Proportional heater breaker indicates open (green flag) with the springs charged (yellow flag).** **After the applicant closed the breaker describe it indicates closed (red flag) with the springs discharged (white)**	On load center 2B5, depressed breaker 2B523 "CLOSE" push button. OR Lifted the mechanical close lever. Observed breaker red "CLOSED" flag indicated.	N/A SAT UNSAT
(C)	6. (Step 1.D)	Close breaker 2B623 "PRESSURIZER PROPORTIONAL HEATER 2SCR-2" **Examiner Note:** **Describe that 2B-623 Proportional heater breaker indicates open (green flag) with the springs charged (yellow flag).** **After the applicant closed the breaker describe it indicates closed (red flag) with the springs discharged (white)**	On load center 2B6, depressed breaker 2B623 "CLOSE" push button. OR Lifted the mechanical close lever. Observed breaker red "CLOSED" flag indicated.	N/A SAT UNSAT
TRANSITION NOTE: Go to the lower south electrical penetration room.				
EXAMINER'S CUE: **Examinee may contact SM/TSC and state that they are standing by to energize the proportional heaters. If this is communicated to the SM/TSC, provide direction to energize the heaters and stand by.**				

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
(C)	7.	Control PZR Proportional Heaters by placing the following handswitches at panels 2C117 and 2C118 in ON or OFF position as directed by SHIFT MANAGER. 2HS-4640B (PZR PROP HTR CONT SW) 2HS-4641B ("PZR PROP HTR CONT SW) **Examiner Note:** **When applicants indicated that they place the hand switches to on then describe that the hand switches are in on.**	On panel 2C117, placed "PZR PROP HTR CONT SW" (2HS-4640B) in ON. On panel 2C118, placed "PZR PROP HTR CONT SW" (2HS-4641B) in ON. **Examiner note:** **It is critical that the applicant energizes at least bank of proportional heaters.**	N/A SAT UNSAT
END				

STOP TIME: _____

JOB PERFORMANCE MEASURE

Examiner's Copy

INITIAL CONDITIONS

1. A fire has occurred in the Control Room rendering the Control Room uninhabitable.
2. RCS pressure is 1840 psia.
3. Pressurizer Level is 44%

INITIATING CUE: The CRS provides the following direction:

Energize pressurizer proportional heaters locally and raise pressurizer pressure as directed by TSC using AOP 2203.014, Attachment C

JOB PERFORMANCE MEASURE

Examinee's Copy

INITIAL CONDITIONS

1. A fire has occurred in the Control Room rendering the Control Room uninhabitable.
2. RCS pressure is 1840 psia.
3. Pressurizer Level is 44%

INITIATING CUE: The CRS provides the following direction:

Energize pressurizer proportional heaters locally and raise pressurizer pressure as directed by TSC using AOP 2203.014, Attachment C

JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 17 DATE: _____

SYSTEM/DUTY AREA: Emergency Diesel Generator System P2

TASK: Startup a diesel generator without DC control power (2K-4A)

JTA#: ANO2AOEDGOFFNORM5

Alternate Path Yes: _____ No: X Time Critical Yes: _____ No: X

KA VALUE RO: 4.0 SRO: 4.3 KA REFERENCE: 064 A4.01

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: X BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: Simulate SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 20 Minutes

REFERENCE(S): OP 2104.036 Emergency Diesel Operations

EXAMINEE'S NAME: _____ Badge #: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

INITIAL CONDITIONS:

The plant is in Mode 3 following an automatic reactor trip. A Station Blackout exists.

There is no red DC power available.

TASK STANDARD:

2DG1 [2K-4A] has been started with normal voltage and frequency.

TASK PERFORMANCE AIDS:

OP 2104.036 Exhibit 1

JOB PERFORMANCE MEASURE

INITIATING CUE:

The SM/CRS directs, "Perform a loss of DC start of 2DG1 using OP 2104.036, Exhibit 1."

START TIME: _____

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
Procedure Caution: Fault condition that caused loss of DC may still be present and should be removed if known.				
Procedure Note: • This procedure assumes no AC or DC power available. • Electrical Safety equipment will be required for closing of the EDG output breaker and the SW pump supply breaker.				
	1. (Step 1.0 and 1.1)	Perform the following initial conditions and electrical lineups: IF directed to perform this exhibit per Alternate Shutdown (2203.014), THEN Go TO Step 2.0.	Determined that this is not being performed due to an alternate shutdown.	
	2. (Step 1.2)	Obtain arc flash PPE (suit, hood, and voltage rated or leather gloves) for Manual Operation of 4160/6900V AC Breaker with Door Open. **Examiner Note:** **Arc flash PPE can be obtained from the cabinet across from the elevator on the 372' elevation.** **Examiner Cue:** **Arc flash PPE has been obtained.**	Obtains Arc flash PPE and Electrical PPE on at PPE cabinet. **Examiner Note: The examinee should show where to obtain the PPE. Do not require the applicant to bring the PPE for simulation of this JPM.**	N/A SAT UNSAT
	3. (Step 1.3)	Open one of the following sets of breakers: - 2C107 breaker (2D23-2) - 2E11 breaker (2D23-6) - 2C107 breaker (2D23-8) OR - 2E11 breaker (D2E11NA6) (located inside 2E12) - 2C107 breaker (D2C107NA8) - 2C107 breaker (D2C107NA2) **Examiner Cue:** **Show <u>PICTURE #1</u> pictures for 2D-23 breakers or show <u>PICTURES #4, and #5</u> for 2C107, 2E-12.**	For the listed breaker, opened panel door and moved breaker handle to OFF.	N/A SAT UNSAT

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
		Breakers indicate NOT OPEN.		
TRANSITION NOTE: **Go to 2A3 switchgear room**.				
EXAMINERS NOTE: For the 4160v breakers in Steps 2 and 3, do NOT open the breaker cubicle doors. Use the provided pictures. Have the candidate explain the indications he would use to determine the following. 1. Breaker position 2. Closing Spring Status Both of these indicators are located on the breaker. Standard: 1. The student must use mechanical breaker position indication. The student must use mechanical closing spring status indication.				
Procedure Note: Instructions for manual operation of 4160 VAC Breakers are contained in Electrical System Operations (2107.001), Exhibits 1 and 2.				
Examiners Note: The following breakers are listed with their respective conditions for the plant conditions that exist.				
(C)	4. (Step 1.4)	Verify the following breakers OPEN WITH closing springs charged. **Note: Show PICTURE #2 for 2A-302** SW Pump 2P4A (2A-302) • This breaker will be **closed** with closing springs charged **Note: Show PICTURE #3 for the remaining breakers of this step.** SW Pump 2P4B (2A-303) • This breaker will be open with closing springs charged 2DG1 Output breaker (2A-308) • This breaker will be open with closing springs charged **Examiner Cue:** **For 2A302 show PICTURE #3 when the mechanical trip button is pushed.**	At bus 2A3. Observed indications for the following: • Mechanical breaker position • Mechanical closing spring indication Operator opened any closed breaker by pushing the mechanical breaker trip button on the breaker	N/A SAT UNSAT

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
(C)	5. (Step 1.5)	Verify the following breakers OPEN. **Note: Show PICTURE #3 for the following breakers** CS Pump 2P35A (2A-304) ♦ Breaker is open LPSI Pump 2P60A (2A-305) ♦ Breaker is open HPSI Pump 2P89A (2A-306) ♦ Breaker is open HPSI Pump 2P89C (2A-307) ♦ Breaker is open **Note: Show PICTURE #2 for 2A-309** 2A3 Supply breaker (2A-309) ♦ Breaker is **closed** **Note: Show PICTURE #3 for 2A-310 and 2A-311** 2A3-2A4 Tie (2A-310) ♦ Breaker is open 2P-7B EFW pumps breaker (2A-311) ♦ Breaker is open **Examiner Cue:** **For 2A309 show PICTURE #3 when the mechanical trip button is pushed.**	For each listed breaker, verified the breaker is open with the mechanical breaker indication.	N/A SAT UNSAT

EXAMINERS NOTE: - **2CV-1503-1 requires DC power to open automatically.** - **After operator requests 2CV-1503-1 opened or if he states he is going to open 2CV-1503-1, provide Cue of step 5.**				
(C)	6. (Step 2.0)	Verify 2DG1 service water outlet (2CV-1503-1) open using local ratchet. **Examiner Cue:** **WCO reports Service Water Valve (2CV-1503-1) is OPEN.**	Using radio or telephone communications, instructed WCO to OPEN 2CV-1503-1 locally using manual operator. OR Using radio or telephone communications, contacted Control Room personnel to have WCO to OPEN 2DG1 Service Water valve (2CV-1503-1) using the manual operator locally.	N/A SAT UNSAT
TRANSITION NOTE: **Go to 2DG1 room.**				
	7. (Step 3.0)	Place Exciter Regulator Local/Remote HS in LOCAL. **Examiner Cue:** **The exciter regulator handswitch indicates LOCAL.**	On panel 2E12, rotated Exciter Regulator handswitch to LOCAL.	N/A SAT UNSAT
	8. (Step 4.0)	Unlock local Engine Control switch (2HS-2815-1). **Examiner Cue:** **Engine Control switch is unlocked.**	On panel 2E11, inserted key in Engine Control Switch. Rotated key clockwise to unlock.	N/A SAT UNSAT
	9. (Step 5.0)	Place 2HS-2815-1 in START. **Examiner Cue:** **The Engine Control handswitch indicates START.**	Rotated Engine Control handswitch through LOCKOUT to START.	N/A SAT UNSAT
Procedure Caution: Protective circuits are NOT functional with control power off.				
TRANSITION NOTE: **Go to Alternate Shutdown Locker located in U2 CR Extension**				
	10. (Step 6.1)	Obtain FNM 10 amp fuses from CRS bag in Alternate Shutdown file cabinet. **Examiner Cue:** **Fuses in hand.**	At the Alternate Shutdown file cabinet, obtained at least two FNM 10 amp fuses from the CRS bag.	N/A SAT UNSAT
TRANSITION NOTE: **Go to 2DG1 room.**				
Examiner Note: **Step 6.2 for donning arc flash PPE is not required to be performed for this JPM. Inform the examinee that the PPE does not need to be donned.**				

(C)	11. (Step 6.3)	Manually operate EITHER Air Start Solenoid by slowly rotating manual operator stem clockwise: 2SV-2809-1 2SV-2810-1 **Examiner Cue:** **Engine noise indicates start.**	Rotated manual operator stem on either Air Start Solenoid clockwise.	N/A SAT UNSAT
	12. (Step 6.4)	WHEN engine starts, THEN disengage manual operator by rotating stem counter-clockwise.	Upon 2DG1 start, disengaged manual solenoid operator by rotating counter-clockwise.	N/A SAT UNSAT
Procedure Note: Manual voltage adjust is NOT available in this mode of operation. Voltage Regulator maintains 4160 volts as set prior to last shutdown.				
	13. (Step 6.5)	Check generator voltage 3800 to 4400 volts. **Examiner Cue:** **2DG1 voltage is ~ 4160 volts.**	On panel 2E11, checked 2DG1 voltage between 3800 and 4400 volts on V-2DG1-3, 2DG1 local AC voltmeter.	N/A SAT UNSAT
	14. (Step 6.6)	IF generator has NO Output Voltage, THEN manually reset Exciter Relay as follows by operating red slide switch on Exciter Field Shutdown Contactor (K1) in 2E12.	Determined that Generator output voltage is normal ~ 4160 volts.	N/A SAT UNSAT
	15. (Step 6.7)	IF generator output voltage < 3800 volts, THEN perform the following:	Determined that Generator output voltage is >3800 volts	N/A SAT UNSAT
	16. (Step 6.8)	Verify generator frequency 59.5 to 60.5 Hz AND maintain as loads are added. **Examiner Cue:** **2DG1 frequency is ~ 60 Hz.**	On panel 2E11, verified 2DG1 frequency between 59.5 and 60.5 Hz and maintained as loads are added.	N/A SAT UNSAT
Examiner Note: The JPM should be ended after step 6.8 is completed.				
END				

STOP TIME: _____

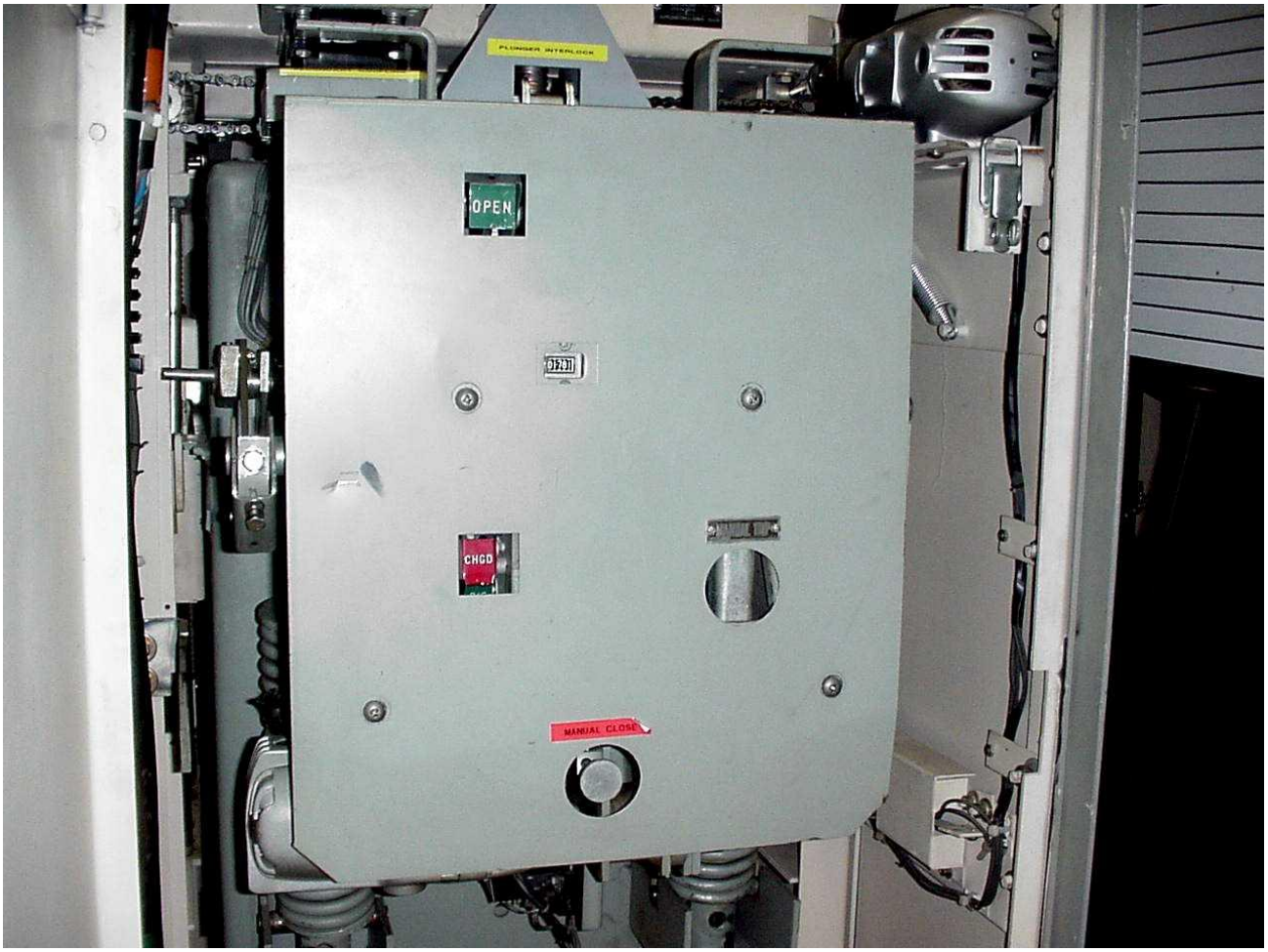
Picture #1

2D-23 continued on the next page.

PHILADELPHIA, PENNSYLVANIA, U.S.A.
TYPE
S.O. NO
SERIES 4
PHASE
WIRE
VOLTS
AMPS
TURNED OVER FOR CALIB. TEST AND OPER. TO A P & L
2
4
6
8
10
12

Picture #2

Picture #3



Picture #4

Picture #5

Examiner's Copy

INITIAL CONDITIONS:

The plant is in Mode 3, post reactor trip, no AC or red DC power is available.
2DG2 [2K-4B] is tagged out for maintenance with its oil pump removed.

INITIATING CUE:

The SM/CRS directs, "Perform a loss of DC start of 2DG1 using OP 2104.036, Exhibit 1."

Examinee's Copy

INITIAL CONDITIONS:

The plant is in Mode 3, post reactor trip, no AC or red DC power is available.
2DG2 [2K-4B] is tagged out for maintenance with its oil pump removed.

INITIATING CUE:

The SM/CRS directs, "Perform a loss of DC start of 2DG1 using OP 2104.036, Exhibit 1."

JOB PERFORMANCE MEASURE

UNIT: 2 REV #: 0 DATE: _____

SYSTEM/DUTY AREA: Gaseous Radwaste System P3

TASK: Perform a release of Waste Gas Decay Tank

JTA#: ANO2-WCO-GRW-NORM-9

Alternate Path Yes: X No: _____ Time Critical Yes: _____ No: X

KA VALUE RO: 3.3 SRO: 3.1 KA REFERENCE: 071 A2.02

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: X BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: Simulate SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 20 Minutes

REFERENCE(S): OP-2104.022 Gaseous Radwaste System Operations Sup. 1

EXAMINEE'S NAME: _____ Badge#: _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

Start Time _____ Stop Time _____ Total Time _____

SIGNED: _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall ensure that the examinee has been briefed on NUREG 1021 Appendix E.

INITIAL CONDITIONS:

2T-18A Waste Gas Decay Tank pressure is 205 psig.

2T-18A has been held for 200 days

2104.022 Sup. 1 UNIT 2 GASEOUS RELEASE PERMIT submitted and returned for tank release.

2RITS-2429 Gas Decay Tank radiation monitor is OPERABLE.

CAMS 2RITS-8231-1 is in service

TASK STANDARD:

TASK PERFORMANCE AIDS:

OP 2104.022 Gaseous Rad Waste System.

Examiner Note: Give the Yellow pages to the applicant.

SIMULATOR SETUP:

JOB PERFORMANCE MEASURE

INITIATING CUE:

The SM/CRS directs, "Commence a 2T-18A Waste Gas Decay Tank release using OP-2104.022 Sup. 1 starting with step 4.3."

START TIME:_____

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
Examiner Note: Give the Yellow pages to the applicant.				
Procedure Note: CAMS 2RITS-8231-1 and 2T-18 tanks discharge to a common header. During a 2T-18 release, cross contamination can occur if CAMS unit is secured.				
(C)	1. (Step 4.3)	Verify following valves CLOSED: • 2RITS-2429 Outlet Loop Seal Drain (2GZ-37) • 2FIT-2430 Outlet Loop Seal Drain (2GZ-2473) • WG Decay Tank Disch 2FIT-2430 Isol (2GZ-15) **Examiner Cue:** **Indicate that the valves are closed after appropriate simulation.**	Verify the following valves closed by rotating HW clockwise until resistance is felt: • 2RITS-2429 Outlet Loop Seal Drain (2GZ-37) (normally open) • 2FIT-2430 Outlet Loop Seal Drain (2GZ-2473) (normally open) • WG Decay Tank Disch 2FIT-2430 Isol (2GZ-15) (normally closed)	N/A SAT UNSAT
(C)	2. (Step 4.4)	Verify following valves OPEN: • 2CV-2428 Inlet Isol (2GZ-2428A) • 2CV-2428 Outlet Isol (2GZ-2428B) **Examiner Cue:** **Indicate that the valves are open after appropriate simulation.**	Verify the following valves open by aligning the handle inline with the piping: • 2CV-2428 Inlet Isol (2GZ-2428A) (normally closed) • 2CV-2428 Outlet Isol (2GZ-2428B) (normally closed)	N/A SAT UNSAT
	3. (Step 4.5 and 4.5.1)	IF releasing WG Decay tank (2T-18A), THEN proceed as follows: Remove Placard from 2T-18A Isol (2GZ-12A). **Examiner Cue:** **Indicate that a placard was installed but is removed after appropriate simulation.**	Removed placard from 2GZ-12A	N/A SAT UNSAT
	4. (Step 4.5.2)	Open 2T-18A Isol (2GZ-12A). **Examiner Cue:** **Indicate that 2GZ-12A is open after appropriate simulation.**	Opened 2GZ-12A by rotating HW counter clockwise.	N/A SAT UNSAT

JOB PERFORMANCE MEASURE

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	5. (Step 4.5.3)	Remove Placard from 2T-18A Isol (2GZ-74A). **Examiner Cue:** **Indicate that a placard was installed but is removed after appropriate simulation.**	Removed placard from 2GZ-74A	N/A SAT UNSAT
	6. (Step 4.5.4)	Open 2T-18A Isol (2GZ-74A). **Examiner Cue:** **Indicate that 2GZ-12A is open after appropriate simulation.**	Opened 2GZ-74A by rotating handle in line with the piping to open the valve.	N/A SAT UNSAT
	7. (Step 4.6)	IF releasing WG Decay tank (2T-18B), THEN proceed as follows:	Determined step is N/A.	N/A SAT UNSAT
	8. (Step 4.7)	IF releasing WG Decay tank (2T-18C), THEN proceed as follows:	Determined step is N/A	N/A SAT UNSAT
	9. (Step 4.8)	IF GRW Gas Decay Tank Vent Line Rad Monitor 2RITS-2429 NOT operable, THEN independently verify the following:	Determined step is N/A	N/A SAT UNSAT
	10 (Step 4.9)	Verify GRW Release Header Pressure Isolation (2GZ-2430) OPEN.	Verified 2GZ-2430 open by verify handle in line with piping to open the valve.	N/A SAT UNSAT
	11 (Step 4.10)	Verify GRW Release Hdr Pressure Control valve (2PCV-2417) set to 0 psig by rotating pressure adjustment handwheel counter clockwise until very little resistance felt. **Examiner Cue:** **State that 2PCV-2417 is spinning freely.**	Rotated 2PCV-2417 handwheel counter clockwise until little resistance felt.	N/A SAT UNSAT
(C)	12 (Step 4.11)	IF releasing WG Decay tank 2T-18A, THEN open 2T-18A Release valve (2GZ-46A).	Rotated 2GZ-46A handle to align with piping to open the valve.	N/A SAT UNSAT
	13 (Step 4.12)	IF releasing WG Decay tank 2T-18B, THEN open 2T-18B Release valve (2GZ-46B).	Determined step is N/A	N/A SAT UNSAT
	14 (Step 4.13)	IF releasing WG Decay tank 2T-18C, THEN open 2T-18C Release valve (2GZ-46C).	Determined step is N/A	N/A SAT UNSAT

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
	15 (Step 4.14)	Notify Control Room of intent to begin release. **Examiner Cue:** **When contacted as Control Room then inform them to continue.**	Contacted control room and informed them of intent to start the release.	N/A SAT UNSAT
	16 (Step 4.15)	Record the following on GRW Gas Radiation recorder (2FR/2RR-2431) on 2C14 AND Process Gas Radiation Recorder (2RR-0645) on 2C25. Release Permit Number _____ Release Start Time _____ Release Start Date _____ Tank being released _____ **Examiner Cue:** **When contacted as Control Room then inform them that all data has been record IAW step 4.15.**	Informed CR to record the required information on 2FR/2RR-2431.	N/A SAT UNSAT
	17 (Step 4.16)	Open WG Decay Tank Discharge to Vent Plenum 2CV-2428 (2HS-2428). **Examiner Cue:** **When contacted as Control Room then inform them that all data has been record IAW step 4.15.**	Contacted CR to open 2CV-2428.	N/A SAT UNSAT
	18 (Step 4.17 and 4.17.1)	IF GRW Gas Decay Tanks Vent (2PCV-2417) functional, THEN perform the following: Slowly open 2PCV-2417 Inlet (2GZ-2417A)	Opened 2PCV-2417A inlet by aligning the handle with the piping.	N/A SAT UNSAT
The following step is the alternate path portion of this JPM.				

PERFORMANCE CHECKLIST			STANDARDS	(Circle One)
(C)	19 (Step 4.17.2)	Initiate release by concurrently performing the following: • Slowly adjust GRW Release Hdr Pressure Control valve (2PCV-2417) clockwise to obtain a maximum of 30 psig on 2PI-2430. • Slowly throttle open WG Decay Tank Disch 2FIT-2430 Isol (2GZ-15) while monitoring flow on 2FIT-2430. **Examiner Cue:** **When 2PCV-2417 is rotated clockwise report that resistance is felt, 2PI-2430 reads zero, and 2FIT-2430 reads zero. If the applicant continues to rotate 2PCV-2417 clockwise report that resistance is felt, 2PI-2420 is reading zero, and 2FIT-2430 reads zero.** **Examiner Cue:** **If the applicant tell the control room that 2PCV-2417 is not working inform them to continue with the release.**	Rotated 2PCV-2417 clockwise to raise pressure. Rotated 2GZ-15 counter clockwise to commence flow. Recognized that 2PI-2430 and 2FIT-2430 are reading zero indicating no flow. Determine that 2PCV-2417 is not function properly and that step 4.17 is N/A. Close 2PCV-2417 Inlet (2GZ-2417A) **Not Critical**	N/A SAT UNSAT
(C)	19 (Step 4.18 and 4.18.1)	IF GRW Gas Decay Tanks Vent (2PCV-2417) NOT functional, THEN perform the following: Open 2PCV-2417 Bypass (2GZ-2417C). **Examiner Cue:** **Indicate that 2GZ-2417C is open.**	Open 2PCV-2417C by aligning the handle with the piping to open the valve.	N/A SAT UNSAT
(C)	20 (Step 4.18.2)	Slowly throttle 2FIT-2430 Isol (2GZ-15) open to obtain release rate less than or equal to _____ CFM (Listed on Pre-release Report). **Examiner Cue:** **Report flow is 10 SCFM.**	Rotated 2GZ-15 counter-clockwise to start flow. Observed flow on 2FIT-2430.	N/A SAT UNSAT
Examiner note: When the applicant has commenced flow the JPM is complete.				
END				

STOP TIME:_____

EXAMINER'S COPY

INITIAL CONDITIONS:

2T-18A Waste Gas Decay Tank pressure is 205 psig.
2T-18A has been held for 200 days.
2104.022 Sup. 1 UNIT 2 GASEOUS RELEASE PERMIT submitted and returned for tank release.
2RITS-2429 Gas Decay Tank radiation monitor is OPERABLE.
CAMS 2RITS-8231-1 is in service.

INITIATING CUE:

The SM/CRS directs, "Commence a 2T-18A Waste Gas Decay Tank release using OP-2104.022 Sup. 1 starting with step 4.3."

EXAMINEE'S COPY

INITIAL CONDITIONS:

2T-18A Waste Gas Decay Tank pressure is 205 psig.
2T-18A has been held for 200 days
2104.022 Sup. 1 UNIT 2 GASEOUS RELEASE PERMIT submitted and returned for tank release.
2RITS-2429 Gas Decay Tank radiation monitor is OPERABLE.
CAMS 2RITS-8231-1 is in service.

INITIATING CUE:

The SM/CRS directs, "Commence a 2T-18A Waste Gas Decay Tank release using OP-2104.022 Sup. 1 starting with step 4.3."

Facility: ANO-2	Scenario No.: 1 (New)	Op-Test No.: 2014-1
Examiners:	Operators:	

Initial Conditions:
100% MOL. RED Train Maintenance Week.

Turnover:
100%. 260 EFPD. EOOS indicates 'Minimal Risk'. RED Train Maintenance Week.
Evolution scheduled: Shift Control Element Drive Mechanism (CEDM) fans from 2VSF-35D to 2VSF-35C IAW 2104.033 starting with 10.6.

Event No.	Malf. No.	Event Type*	Event Description
1		N (BOP) N (SRO)	Shift Control Elements Drive Mechanism (CEDM) fans from 2VSF-35D to 2VSF-35C. **OP-2014.033, Containment Atmosphere control.**
2	XCVLDNHXOU K12D01	I (ATC) I (SRO)	The temperature input to the letdown HX temperature controller (2TIC-4815) fails Hi causing excessive cooling flow. **OP-2203.012L, 2K-12 Annuciator Corrective Action (ACA)**
3	CT2VSF1D	C (BOP) C (SRO)	2VSF-1D Containment cooler trips. TS for SRO. **OP-2203.012D/E, 2K-04 and 2K05 ACAs**
4	CEA43DROP	R (ATC) C (BOP) C (SRO)	CEA 43 fully inserts due to faulty timing card. TS for SRO. **OP-2203.003, CEA Malfunction AOP**
5	RCP2P32ALOS	C (ATC) C (SRO)	'A' RCP oil leak. **OP-2203.025, RCP Emergencies AOP**
6	MSSGBLK	M (ALL)	Excess steam demand inside containment on 'B' Steam generator. **OP-2202.001, Standard Post Trip Actions (SPTAs) EOP and OP-2202.009, Functional Recovery EOP.**
7	CV4652	C (ATC) C (SRO)	'B' RCP normal spray valve will fail open. **OP-2202.010, Standard Attachments EOP or OP-2203.0028, Pressurizer System Malfunction AOP**
8	EFW2P7BFLT EFW2P7ACOU	M (ALL)	2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. **OP-2202.009, Functional Recovery EOP.**
9	CV0760 DO_CV_0760_1 DO_CV_0760_2 CV0761 DO_CV_0760_1 DO_CV_0760_2	C (BOP) C (SRO)	The selected AFW flow path discharge valve (2CV-0760 or 2CV-0761) will trip its breaker requiring the other path to be used. **OP-2202.010, Standard Attachments EOP.**

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Target Quantitative Attributes (Section D.5.d)	Actual Attributes
Total Malfunctions (5-8)	8
Malfunctions after EOP entry (1-2)	2
Abnormal Events (2-4)	2
Major Transients (1-2)	2
EOPs entered requiring substantive actions (1-2)	1
EOP contingencies requiring substantive actions (0-1)	1
Critical Tasks (2-3)	3

Critical Task	Justification
'A' RCP must be secured within 10 min of the reactor trip.	'A' RCP must be secured due to the potential to overheat or cause a fire that could damage the RCP seal i.e degrade the RCS boundary.
Restore RCS pressure within the Pressure-Temperature limits of 200°F and 30°F Margin to Saturation.	RCS pressure must be maintained in these limits to allow natural circulation of the RCS and prevent pressurized thermal shock.
Restore Feedwater prior to both SG levels reaching 70" wide range.	Feedwater must be restored to maintain RCS heat removal. With RCS heat removal core damage will likely occur. 70" is the level at which once through cooling is directed to initiated.

Scenario #1 Objectives

1) Evaluate individual ability to transfer CEDM fans.
2) Evaluate individual response to a failure of a temperature input to the letdown heat exchanger and ability to manually control temperature.
3) Evaluate individual response to a trip of a Containment Cooling fan.
4) Evaluate individual response to a CEA Malfunction.
5) Evaluate individual response to a Reactor Coolant pump oil leak (RCP emergencies).
6) Evaluate crew ability to mitigate an Excess Steam Demand.
7) Evaluate crew ability to mitigate a Loss of Feedwater.
8) Evaluate individual ability to combat events using the Functional Recovery procedure.
9) Evaluate individual ability to respond to a failure of an AFW pump discharge valve.
10) Evaluate individual ability to respond to RCP spray valve failing open.

SCENARIO #1 NARRATIVE

Simulator session begins with the plant at 100% power steady.

When the crew has completed their control room walk down and brief, the BOP will shift Control Elements Drive Mechanism (CEDM) fans from 2VSF-35D to 2VSF-35C.

When the CEDM fans have been shifted or cued by lead examiner, the temperature input (2TE-4815) to the letdown heat exchanger temperature controller will fail high. The ATC will report that the letdown heat exchanger temperature is reading high on the hand indicating controller but the computer point and control board indication are reading lower than normal. The SRO will direct the ATC to take manual control of the Letdown heat exchanger temperature control valve and manually control temperature for the duration of the scenario.

SCENARIO #1 NARRATIVE (continued)

After the letdown temperature controller has been placed in manual and cued by the lead examiner, 2VSF-1D containment cooler will trip. The BOP will determine that 2VSF-1D containment cooler has tripped and refer to OP-2203.012D/E, 2K-04 and 2K05 Annunciator corrective actions. The BOP will start the idle containment cooler to maintain containment temperature and pressure in the acceptable region of operation. The SRO will enter Tech Spec 3.6.2.3 action a. Site OE: CR-ANO-2-2006-2444, 2VSF-1A motor failure and breaker trip.

After the BOP has started the idle containment cooling fan and cued by lead examiner, CEA 43 will drop into the core. The SRO will enter OP-2203.003, CEA malfunction AOP. The SRO should check that less than 2 CEAs are inserted and then commence a down power within 15 minutes. The BOP should complete attachment C DNBR/LPD log. The SRO will enter Tech Specs for CEA position (3.1.3.1 action d) and Aztilt (3.2.3). Site and industry OE: CR-ANO-2-2007-0127 dropped CEA, and NRC event # 49601 Palo Verde dropped CEA.

After the crew has completed the required reactivity manipulation, entered the appropriate tech specs, and cued by the lead examiner, 'A' RCP oil leak will start which cause oil level to lower and bearing temperatures to raise. The CRS will enter OP-2203.025, RCP emergencies AOP. The crew will monitor the 'A' RCP oil level trend and bearing temperatures. After bearing temperatures begin to rise the ATC should trip the reactor and secure the 'A' RCP. The crew may elect to secure a RCP in the 'B' S/G loop to balance flows. Site OE: RCP oil leaks CR-ANO-2-2013-1602, CR-ANO-2-2013-587, CR-ANO-2-2013-58. Securing a RCP not satisfying operating limits is a time critical operator action per OP-1015.050 Time Critical Operator Action Program.

The Crew will implement OP-2202.001, Standard Post Trip Actions (SPTA) EOP. After the reactor trips a Main Steam line break inside containment will cause an Excess Steam Demand. Main Steam Isolation (MSIS) and Containment Spray (CSAS) will actuate tripping Main Feedwater pumps, Condensate pumps, AFW pump, closing the MSIVs and feedwater block valves. The 2P-7B EFW pump motor will fail and 2P-7A EFW pump coupling will break causing a loss of feedwater event. The ATC will secure all the Reactor Coolant pumps due to the Containment Spray actuation. When the 'B' RCP spray valve (2CV-4652) handswitch is placed in manual, the valve will fail open. The ATC must recognize this and isolate the spray valve using the associated block valve. If the spray valve is not isolated this will limit the ATC's ability to control RCS pressure. Industry OE for Excess Steam Demand, SOER 82-7, Reator Vessel Pressurized Thermal Shock.

The SRO will diagnose an Excess Steam Demand and Loss of Feedwater event and enter OP-2202.009, Functional Recovery EOP. The crew will maintain post blowdown temperature and pressure of the RCS to prevent pressurized thermal shock. The BOP will steam 'A' S/G using the upstream Atmospheric Dump valve when 'B' S/G blows dry. The ATC should use Auxiliary Spray to maintain RCS pressure. The Crew will restore Feedwater from the AFW pump (2P-75) after removing the MSIS and CSAS trip. The selected feed path valve from AFW will trip its breaker when the valve is opened requiring use of the alternate flow path. Loss of feedwater events industry OE: SOER 86-01 Reliability of PWR Auxiliary feedwater systems, and PRA operator action # 3 Establish flow to SGs from AFW to the SGs given a los of both EFW and MFW flow to the SGs.

Simulator Instructions for Scenario 1

Reset simulator to MOL 100% power IC stead state.

Ensure that AACG is secured and annunciators clear.

Place MINIMAL RISK, Green Train Protected and RED Train Maintenance Week signs on 2C11.

T1, T2, T3, T4, T5, T6, T7, T8, T9, & T10 set to false.

T5 = Reactor Trip, T6 = 2P-7B red light (OE4R10A1), T7 = 2CV-0340 red light (NE4R3402), T8 = E14G0760. T10 = GH3A652B <= 0.

Event No.	Malf. No.	Value/ Ramp Time	Event Description
1			Shift Control Elements Drive Mechanism (CEDM) fans from 2VSF-35D to 2VSF-35C.
2	XCVLDNHXOU K12D01 Trigger T1	200 On / delay 2 sec.	The temperature input to the letdown HX temperature controller fails Hi causing excessive cooling flow.
3	CT2VSF1D Trigger = T2	active	2VSF-1D Containment cooler trips. TS for SRO.
4	CEA43DROP Trigger = T3	0	CEA 43 fully inserts due to faulty timing card. TS for SRO.
5	RCP2P32ALOS Trigger = T4	active	‘A’ RCP oil leak.
6	MSSGBLK Trigger = T5	1.25/ Ramp = 5 min.	Excess steam demand inside containment on ‘B’ Steam generator.
7	CV4652 Trigger = T10	1 / Ramp = 6sec.	‘B’ RCP normal spray valve will fail open.
8	EFW2P7BFLT Trigger = T6 EFW2P7ACOU Trigger = T7	Active/ delay = 1 min. Active/ delay = 20 sec.	2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure.
9	CV0760 DO_CV_0760_1 DO_CV_0760_2 Trigger = T8 CV0761 DO_CV_0760_1 DO_CV_0760_2 Trigger = T9	0 Off Off 0 Off Off	The selected AFW flow path discharge valve will trip its breaker requiring the other path to be used.

Simulator Operator CUEs		
At T=0		Shift Control Elements Drive Mechanism (CEDM) fans from 2VSF-35D to 2VSF-35C.
Cued by lead examiner	Trigger T1	The temperature input to the letdown HX temperature controller fails Hi causing excessive cooling flow.
Cue: When contacted as the WCO to check flow then report the following, If crew has taken manual control of 2TIC-4815 then WCO reports that CCW flow on 2FIS-5261 is indicating normal which is less than 200 gpm but not on the low peg. If the crew has not taken manual control of 2TIC-4815 then report there is flow indicates 1300 gpm on 2FIS-5261. **Cue: If contacted as work management, state that you will contact with I&C to investigate the failure.**		
Cued by lead examiner	Trigger T2	2VSF-1D Containment cooler trips. TS for SRO.
Cue: If requested the AO needs to report that 2B-63 L2 is trip free, there are no abnormal smells or smoke in the area. **Cue: If requested as work management, then Report that electrical planner will begin planning work on failed containment cooler.**		
Cued by lead examiner	Trigger T3	CEA 43 fully inserts due to faulty timing card. TS for SRO.
Cue: When contacted as the work management or I&C to troubleshoot, wait 5 minutes and then call and report that you are going to commence troubleshooting. **Cue: If requested as Reactor Engineering, after 5 minutes report that SDM is met.** **Cue: If contacted as Chemistry, then state you will comply with the request.** **Cue: If contacted as Plant Management or Reactor Engineering, then state you will comply with the request.**		
Cued by lead examiner	Trigger T4	‘A’ RCP oil leak.
Reactor Trip		Excess steam demand inside containment on ‘B’ Steam generator.
Cue: If contacted as the STA to report to the control room, acknowledge the request. **Cue: If contacted as a NLO to perform Attachment 47 Field Operator Post Trip Actions, acknowledge request.**		
HS taken to manual		‘B’ RCP normal spray valve will fail open.
Pump starts.		2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure.

Cue: If contacted as NLO to assess 2P-7B breaker, then report dropped overcurrent flags for 2A-311. **Cue: If contacted as NLO to assess 2P-7B pump/motor, report black flash marks on the motor vents and an acrid odor but no fire or smoke present.** **Cue: If contacted as NLO to assess 2P-7A, report that the coupling is broken between the motor and the pump.** **Cue: If contacted as NLO to check the breaker for 2CV-0761 report that 2B-12 B4 breaker is tripped open.** **Cue: When contacted as Chemistry, then report you will sample 'A' S/G for activity and Monitor RDACS for off site dose releases.** **Cue: When contacted as AO to open the DC control power breakers, after 2 min. use remote functions to open the DC control power breakers.** **Cue: If contacted as NLO to check the breaker for 2CV-0761 report that 2B-12 B4 breaker is tripped open.** **Cue: If contacted as NLO to check the breaker for 2CV-0760 report that 2B-12 B3 breaker is tripped open.**		

Op-Test No.: 2014 Scenario No.: 1 Event No.: 1

Event Description: Shift Control Elements Drive Mechanism (CEDM) fans from 2VSF-35D to 2VSF-35C.

Time	Position	Applicant's Actions or Behavior
	BOP	10.6 IF returning 2VSF-35C to service, THEN perform the following: 10.6.1 Open Chilled Water to 2VCC-16C 2CV-3860 (2HS-3860).
	BOP	10.6.2 Start CEDM Fan 2VSF-35C (2HS-8249).
	BOP	10.6.3 Check 2VSF-35C Discharge damper (2HCD-8252) opening.
	BOP	10.6.4 Stop CEDM Fan 2VSF-35D (2HS-8250).
	BOP	10.6.5 Close 2VSF-35D Discharge Isolation damper (2HCD-8312).
	BOP	10.6.6 Check 2HCD-8252 indicates full open.
	BOP	10.6.7 Close 2VSF-35D Chilled Water Inlet 2CV-3875 (2HS-3875).
	BOP	10.6.8 Check CEDM Cooling Coil Water Flow Low alarm for 2VCC-16C (2FIS-3859, amber light above 2HS-8249) clear.
	BOP	10.6.9 Check CEDM SUPPLY FAN C LOW FLOW (2K13-C8) alarm clear.

Termination criteria: When CEDMs fans have been shifted or at the discretion of the lead examiner.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 2

Event Description: The temperature input to the letdown HX temperature controller fails Hi causing excessive cooling flow.

Time	Position	Applicant's Actions or Behavior
Cued by Lead Examiner	ATC	Announce alarm LETDOWN HX 2E29 CLG WTR FLOW HI and report temperature.
	SRO	Implement Annunciator Corrective Action 2203.012L.
	ANY	2.1 Locally check flow on 2FIS-5261. **Examiners note: Temperature is reading accurately on sigma display on 2C-09 and the computer point but the temperature instrument input to 2TIC-4815 is failed..**
Cue: When contacted as the WCO to check flow then report the following: If crew has taken manual control of 2TIC-4815, then WCO reports that CCW flow on 2FIS-5261 is indicating normal which is less than 200 gpm but not on the low peg. If the crew has not taken manual control of 2TIC-4815, then report flow indicates 1300 gpm on 2FIS-5261.		
	ATC	2.2 IF Letdown HX Outlet Temperature less than 120°F (2TIC-4815), THEN perform the following: **Examiners note: Letdown temperature on 2TIC-4815 will not be low because it is failed hi, but actual temperature will be low on the sigma and computer point.**
	ATC	2.2.1 Place Letdown HX Temperature controller (2TIC-4815) in MANUAL. 2.2.2 Reduce CCW flow through Letdown HX.
	SRO	Establish a control band for letdown heat exchanger outlet.
Cue: If contacted as work management, state that you will contact I&C to investigate the failure.		
Termination Criteria: When the letdown temperature controller has been placed in manual and temperature is in the directed band or at discretion of lead examiner.		

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 3
Event Description: 2VSF-1D trips. Tech Spec for SRO.		

Time	Position	Applicant's Actions or Behavior
Cued by lead examiner	ANY	Announce annunciator 2K04-B2 CCAS inop.
	ANY	Announce annunciator 2K05-J7 CTMT BLDG CLG FANS C/D TROUBLE.
2K04-B2 ACA	BOP/SRO	1.0 CAUSES 1.1 Any of the following breakers open: • 2B63-L1 (CNTMT Cooling Fan, 2VSF-1C) • 2B63-J1 (2B63-L1 series breaker) • 2B63-L2 (CNTMT Cooling Fan, 2VSF-1D) • 2B63-J2 (2B63-L2 series breaker) • 2B64-D4 (2VSF-1C Bypass Damper, 2UCD-8216-2) • 2B64-B3 (2B64-D4 series breaker) • 2B64-E4 (2VSF-1D Bypass Damper, 2UCD-8222-2) • 2B64-C2 (2B64-E4 series breaker)
	BOP/SRO	2.1 IF NOT out of service for maintenance, THEN verify all breakers in section 1.0 closed. 2.2 IF any equipment out of service, THEN refer to Tech Spec 3.6.2.3.
	SRO	Enter Tech Spec 3.6.2.3 action a for one inoperable containment cooling group. **Examiner note: SRO must enter Tech Spec 3.6.2.3 action a.**
Cue: If requested the AO needs to report that 2B-63 L2 is trip free, there are no abnormal smells or smoke in the area. **Cue: If requested as work management, then report that an electrical planner will begin planning work on failed containment cooler.**		
2K05-J7 ACA	BOP/SRO	2.1 Determine affected CNTMT Cooling fan: • 2VSF-1C (2HS-8214-2) • 2VSF-1D (2HS-8220-2)

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 3
Event Description: 2VSF-1D trips. Tech Spec for SRO.		

Time	Position	Applicant's Actions or Behavior
2K05-J7 ACA	BOP/SRO	2.2 IF CCAS NOT actuated, THEN perform the following: 2.2.1 Stop affected CNTMT Cooling fan: • 2VSF-1C (2HS-8214-2) • 2VSF-1D (2HS-8220-2) 2.2.2 Check affected Cooler for dirty filters or blocked intake. **Examiner Note: 2VSF-1D will be secured due to the breaker being tripped but the crew may elect to place the handswitch in PTL.**
	BOP/SRO	2.4 Monitor Containment temperature and pressure using Containment Atmosphere Control (2104.033). **Examiner Note: OP-2104.033 Containment Atmosphere Control has a limit and precaution stating it is normal to run 3 containment coolers and temperature and pressure will be trending up.**
OP-2104.033	BOP	Verify three containment coolers in service IAW the following L&P. 5.7 Both cooling units in Containment Cooling Group must be operable (service water flow > 1250 gpm with two operable fans) for that group to be operable. During normal operations it is expected that three of four units will be required to maintain building pressure and temperature within region of acceptable operations as specified by Technical Specifications. (TS 4.6.2.3) 8.3 Open at least three CNTMT Cooler Chilled Water Inlet valves: • 2VCC-1A (2CV-3846) using 2HS-3846 • 2VCC-1B (2CV-3858) using 2HS-3858 • 2VCC-1C (2CV-3862) using 2HS-3862 • 2VCC-1D (2CV-3863) using 2HS-3863 8.4 Start at least three Containment Cooling fans, which have associated chilled water valves open: • 2VSF-1A using 2HS-8201-1 • 2VSF-1B using 2HS-8207-1 • 2VSF-1C using 2HS-8214-2 • 2VSF-1D using 2HS-8220-2 8.5 Verify CNTMT BUILDING COOLING FAN TROUBLE alarms clear: • 2K05-J7 • 2K06-J7

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 3
Event Description: 2VSF-1D trips. Tech Spec for SRO.		

Time	Position	Applicant's Actions or Behavior
	SRO	Contact maintenance/Work Week Manager to troubleshoot failed containment cooler

Termination criteria: When SRO has entered the appropriate TS, three containment coolers are running or at lead examiner's discretion.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 4

Event Description: CEA 43 fully inserts due to faulty timing card. TS for SRO.

Time	Position	Applicant's Actions or Behavior
Cued by lead examiner	ANY	Recognize CEA 43 has dropped into the core.
	SRO	Enter and commence taking actions of OP-2203.003, CEA malfunction AOP.

Procedure Note:

- **Attachment D provides trip and shutdown criteria.**
- **Attachment E provides a list of possible Tech Spec actions to be taken within two hours of procedure entry.**
- **Steps marked with (*) are continuous action steps.**
- **Steps marked with (■) are floating steps.**

	SRO	1. Open Placekeeping page.
	SRO	2. Stop ALL CEA movement.
	SRO	3. Notify Control Board Operators to monitor floating steps.

Procedure Note:

CEA misalignment is defined as a CEA misaligned from its associated Group by outward deviation more than 5 inches or inward deviation more than 7 inches.

	SRO	*4. IF ANY CEAs immovable AND aligned, THEN GO TO Step 36. **Examiner note: This step is N/A.**
	SRO	*5. IF TWO or MORE CEAs misaligned by greater than 19 inches, THEN perform the following: A. Trip Reactor. B. GO TO 2202.001, Standard Post Trip Actions.

Op-Test No.: 2014-1 Scenario No.: 1 Event No.: 4

Event Description: CEA 43 fully inserts due to faulty timing card. TS for SRO.

Time	Position	Applicant's Actions or Behavior
	SRO	*6. IF TWO or MORE CEAs misaligned by greater than 7 inches, THEN perform the following: A. Commence Plant shutdown at greater than 14 %/hr using 2102.004, Power Operation. B. Refer to TS 3.1.3.1.e., CEA Position. **Examiner note: This step is N/A.**
Procedure Note: **TAVE computer point numbers that may be used include T-AVG and T4617-B.**		
	ANY	7. Record the following: • Start time • Pre-misalignment Rx power _____ • TAVE change
	SRO	8. Check Reactor startup in progress. **(Not Met, perform contingency)**
	SRO	8. IF Reactor startup NOT in progress, THEN GO TO Step 16.
	ANY	16. Check inward CEA misalignment exists.
	BOP	■17. Adjust Turbine load to match TAVE within 2°F of TREF.
	ANY	*18. Check RCS TC 542 to 554.7°F using CPC PID 5, 6, 160, or 161.
	ANY	*19. Check RCS pressure 2025 to 2275 psia.
Procedure Note: **The 100% to 60% reactivity plan reduces power at a rate that will maintain plant power within the acceptable region of Attachment A and is the preferred plan for CEA misalignment from 100% power.**		
	ATC	■20. Commence power reduction within 15 minutes to maintain within ACCEPTABLE region of Attachment A, Required Power Reduction After CEA Deviation.

Op-Test No.: 2014-1 Scenario No.: 1 Event No.: 4

Event Description: CEA 43 fully inserts due to faulty timing card. TS for SRO.

Time	Position	Applicant's Actions or Behavior
Steps for boration.	ATC	1.0 IF a Reactivity Management Brief has NOT been conducted, THEN perform a Reactivity Management Brief per COPD-030 with an SRO. 2.0 IF this is the first Boration of the shift, THEN verify BAM Flow totalizer (2FQI-4926) reset. 3.0 IF desired, THEN record initial controller data: 2FIC-4926 Setpoint: _____ Demand: _____ 4.0 Verify Boric Acid Makeup Flow controller (2FIC-4926) set as follows: • In MANUAL OR AUTO. • Setpoint set to desired flowrate. 5.0 Verify desired BAM pump (2P-39A OR 2P-39B) selected for automatic operation using BAM pump Select switch (2HS-4911-2).
	ATC	6.0 Place Mode Select switch (2HS-4928)to BORATE. 7.0 Verify Charging Pump Suction From Boric Acid (2CV-4930) opens (2HS-4930). 8.0 Verify selected BAM pump running: • 2P-39A (2HS-4919-2) • 2P-39B (2HS-4910-2)
	ATC	*9.0 Verify BAM Tank Recirc open for running pumps: • 2T-6A recirc (2HS-4903-2) • 2T-6B recirc (2HS-4915-2) *10.0 IF additional boric acid flow required, THEN manually start additional BAM pump: • 2P-39A (2HS-4919-2) • 2P-39B (2HS-4910-2)

Op-Test No.: 2014-1 Scenario No.: 1 Event No.: 4

Event Description: CEA 43 fully inserts due to faulty timing card. TS for SRO.

Time	Position	Applicant's Actions or Behavior
Steps for boration.	ATC	11.0 Operate Boric Acid Makeup Flow Batch controller (2FQIS-4926) as follows: 11.1 Depress AND hold red pushbutton. 11.2 Verify Boric Acid Makeup Flow Batch controller (2FQIS-4926) set for desired quantity. 11.3 Release Red pushbutton. 12.0 Verify Boric Acid Makeup Flow controller (2FIC-4926) indicates desired flow rate.
	SRO	*21. Commence CEA troubleshooting as follows: A. Notify I&C to commence CEA troubleshooting. Refer to TS 3.1.3.1.c, CEA Position. B. IF CEA withdrawal required during CEA troubleshooting, THEN CEA may be withdrawn up to 5 inches using 2105.009, CEDM Control System Operation.
Cue: When contacted as the work management or I&C to troubleshoot, wait 5 minutes and then call and report that you are going to commence troubleshooting.		
	SRO	22. Perform SDM checks as follows: A. Notify Reactor Engineering of CEA misalignment or inoperability and request assistance in determining SDM. B. Verify SDM satisfied within 1 hour using 2103.015, Reactivity Balance Calculation. Refer to TS 3.1.1.1, Shutdown Margin, Tavg > 200ºF and TS 3.1.3.1.d, CEA Position **Examiner note: SRO must enter TS 3.1.3.1 d.**
Cue: If requested as Reactor Engineering, after 5 minutes report that SDM is met.		
	ANY	*23. Maintain ASI within limits as specified in Core Operating Limits Report (COLR).
	SRO.	*24. Check "CPC AZ TILT EXCEEDED" annunciator (2K10-C2) clear. **(Not met, perform contingency)**

Op-Test No.: 2014-1 Scenario No.: 1 Event No.: 4

Event Description: CEA 43 fully inserts due to faulty timing card. TS for SRO.

Time	Position	Applicant's Actions or Behavior
	SRO	*24. Perform the following: A. Refer to TS 3.2.3, Azimuthal Tilt - TQ. B. IF 2K10-B2, Tech Spec AZ Tilt Exceeded in alarm, THEN verify CEA pulse counter position on PMS reset within 30 minutes of alarming condition (TS 3.2.3.b.1, Azimuthal Tilt - TQ). C. IF Tech Spec AZ Tilt limits exceeded for two hours, THEN perform the following: 1) Reduce THERMAL POWER to less than 50% power in the next 2 hours. 2) Reduce Linear Power Level High Trip setpoints to less than 55% power within the following 4 hours. (T.S. 3.2.3.b.2) **Examiner note: SRO must enter TS 3.2.3**
Procedure Note: **Resetting Pulse Counter position will cause COLSS Power Operating Limits to lower.**		
	ANY	■25. Check CEA pulse counter and CEAC position indication agree within 5 inches for ALL CEAs.
	SRO	26. IF CEA fully inserted, THEN declare COLSS Power Operating Limits for LPD and DNBR inoperable, refer to TS 3.2.1.b, Linear Heat Rate and 3.2.4.c, DNBR Margin. **Examiner note: SRO may enter TS 3.2.1.b and 3.2.4.c**
	BOP	A. Perform ATTACHMENT C, DNBR/LPD TECH SPEC LOG every 15 minutes until COLSS Power Operating Limits for LPD and DNBR are operable.
Procedure Note: **Consider tripped or failed CPCs inoperable for determining DNBR or LPD Limits.**		
	SRO	*27. Check CPC LPD less than TS 3.2.1 (Linear Heat Rate) limits using an average of ALL operable CPC channels.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 4

Event Description: CEA 43 fully inserts due to faulty timing card. TS for SRO.

Time	Position	Applicant's Actions or Behavior	
Procedure Caution:			
DNBR operating limits will shift during ASI swings with COLSS out of service.			
	ANY	*28.	Check CPC DNBR greater than TS 3.2.4 (DNBR Margin) limits using an average of ALL operable CPC channels.
	ANY	29.	Notify Chemistry to sample RCS for Iodine within 2 to 6 hours following Reactor power change greater than 15% in 1 hour, refer to TS 3.4.8, Specific Activity.
Cue: If contacted as Chemistry, then state you will comply with the request.			
	ANY	30.	Notify appropriate Plant Management and Reactor Engineering to evaluate core power distribution.
Cue: If contacted as Plant Management or Reactor Engineering, then state you will comply with the request.			
Termination criteria: When the required reactivity manipulation is complete or at lead examiner's discretion.			

Op-Test No.: 2014-1 Scenario No.: 1 Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
Cued by lead examiner	ANY	Report 2K-11 F1 UPPER/LOWER OIL RSVR LEVEL LO alarm, for 'A' RCP.
	ATC	2.1 Check RCP 2P-32A Oil level on Computer Point (L6002 and L6003).
	ATC	2.2 IF RCP 2P-32A Oil level actually low, THEN GO TO Reactor Coolant Pump Emergencies (2203.025).
	SRO	Enter and implement OP-2203.025 RCP Emergencies AOP.
	SRO	*1. Check the following criteria for EACH RCP satisfied:
	SRO	H. Upper and Lower Oil Reservoir annunciators clear. (Not met, perform contingencies.
	SRO	H. GO TO Step 9.
	SRO	9. Check ALL RCP upper and Lower Oil Reservoir level annunciators clear: • "UPPER/LOWER OIL RSVR LO" (2K11-F1/F3/F5/F7)
	ANY	9. Perform the following: A. Monitor affected RCP Radial Bearing temperatures on plant computer: RCP: A — UPPER RADIAL: T 6007 — LOWER RADIAL: T 6003
	ANY	B. IF upper oil reservoir low in alarm, THEN monitor affected RCP Upper and Lower Thrust Bearing temperatures. RCP: A — UPPER THRUST: T 6080 — LOWER THRUST: T 6043
	ANY	C. Continue Plant operations as directed by Operations Management.
	ANY	D. Notify System Engineer.
	ANY	E. Notify Predictive Maintenance Supervisor to collect data from Dynamic Data Manager System.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	ATC	F. IF affected RCP Bearing temperatures are rising greater than 18°F/min OR ANY bearing temperature exceeds 195°F, THEN perform the following: 1) IF in Mode 1 OR 2, THEN trip Reactor.
CRITICAL TASK	ATC	2) Stop any affected RCP. 3) IF only one RCP affected, AND desired to balance reactor coolant loop temperatures, THEN verify one RCP secured in each loop. **Examiner note: It is critical to secure 'A' RCP within 10 min of the reactor trip.**
	ATC	4) IF RCP 2P32A OR 2P32B stopped, THEN verify associated PZR Spray valve in MANUAL AND closed: • 2CV-4651 • 2CV-4652
	SRO	Enter and implement OP-2202.001, Standard Post Trip Actions EOP.
	SRO	1. Notify Control Board Operators to perform the following: A. Monitor safety functions using Exhibit 7, CBO Reactor Trip Checklist. B. Perform post trip contingencies as required. 2. Open Safety Function Tracking page.
Reactivity control safety function	ATC	3. Check Reactivity Control established as follows: A. Reactor power lowering. B. Check startup rate is negative. C. ALL CEAs fully inserted by observing ANY of the following: 1) CEA Rod bottom lights illuminated. 2) CEAC 1 indicates ALL CEAs fully inserted. 3) CEAC 2 indicates ALL CEAs fully inserted.

Op-Test No.: 2014-1 Scenario No.: 1 Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
Vital Auxiliaries safety function	BOP	4. Check Maintenance of Vital Auxiliaries satisfied: A. Check Main Turbine tripped by BOTH of the following: • ALL Main Stop Valves closed. • Generator megawatts indicate zero. B. Generator Output breakers open. C. Perform EITHER of the following as required: 1) Check the following valves closed: • MSR 2E-12A Steam Supply From SG A (2CV-0400) • MSR 2E-12B Steam Supply From SG B (2CV-0460) 2) No flow indicated on the following MSR second stage flow instruments: • 2FI-0402 • 2FI-0462 D. At least ONE 6900v AC bus energized E. At least ONE 4160v Non-vital AC bus energized. F. BOTH 4160v Vital AC buses energized. G. BOTH DGs secured. **(Not met, contingency is satisfied.)** H. At least ONE 125v Vital DC bus energized: • 2D01 - SPDS point E2D01 • 2D02 - SPDS point E2D02

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	ANY	Step G. contingency: G. IF ANY DG running AND SW NOT aligned, THEN locally stop DG by unlocking and placing "ENGINE CONTROL" handswitch in LOCKOUT: • 2E11 • 2E21 **Examiner Note: Service water will be aligned to EDGs**
RCS Inventory Control Safety function	ATC	5. Check RCS Inventory Control established as follows: A. PZR level: • 10 to 80%. • Trending to setpoint. **(Will not be met due to ESD Event, perform contingency)** B. RCS MTS 30°F or greater.
RCS Inventory Control Safety function	SRO	Direct the following as necessary: A. Perform as necessary: 1) <u>IF</u> SIAS actuated on PPS inserts, <u>THEN</u> **GO TO** Step 6. 2) Verify PZR Level Control system restoring level to setpoint.
RCS Pressure Control Safety function	BOP	6. Check RCS Pressure Control: ___ • 1800 to 2250 psia. ___ • Trending to setpoint. **(Not met due to ESD Event, perform contingency)** • Normal PZR Spray and heaters controlling pressure. • Valid CNTMT Spray NOT in progress. **(Not met due to ESD Event, perform contingency)**

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
RCS Pressure Control Safety function	SRO	Direct the following actions as necessary: 6. Perform as necessary: C. IF valid CNTMT Spray in progress, THEN verify ALL RCPs tripped. D. IF RCP 2P32A or 2P32B stopped, THEN verify associated PZR Spray valve in MANUAL and closed: • RCP A Spray Valve (2CV-4651) • RCP B Spray Valve (2CV-4652) **Examiner note: 'B' RCP normal spray valve will fail open when its handswitch is placed in manual. The candidate may elect to try to close it but it will not close. There is guidance in Att. 48 or PZR system malfunction AOP to isolate the valve.** E. IF ALL RCPs stopped AND RCS pressure control required, THEN initiate Aux spray using Attachment 48, RCS Pressure Control. F. IF RCS pressure lowers to 1650 psia or less, THEN perform the following: 1) Verify SIAS actuated on PPS inserts. 2) **GO TO** Step 7. G. Verify PZR Pressure Control system restoring pressure to setpoint.

Att. 48 Procedure Note:

Once method of pressure control is established, this attachment is not required in hand or continuous use.

A change to the method of pressure control will require in hand or continuous use until the new pressure control method is established.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
Steps from Attachment 48.	ATC	*1. Maintain RCS pressure with heaters and spray using one or more of the following: A. IF desired to use AUXILIARY Spray, THEN perform the following: *1) Verify RCS MTS greater than 30 degrees. 2) Verify at least ONE Charging pump running. 3) Close Regen HX to RCP B/C valves: • 2CV-4827-2 • 2CV-4831-2

Att. 48 Procedure Note:
PZR Spray Block valves 2CV-4653 and 2CV-4655 are de-energized due to degraded power supply cables.

Op-Test No.: 2014-1 Scenario No.: 1 Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
Steps from Attachment 48.		4) Verify PZR Spray (2CV-4651/2CV-4652) or PZR Spray Isolation valves (2HS-4655/2HS-4653) closed. **Examiner note: 2CV-4652 isolation valve must be close due to the 2CV-4652 failure.** 5) Throttle Aux Spray valve (2CV-4824-2) as necessary. 6) IF Regen HX to RCS temperature (2TI-4825) can NOT be reduced to less than 275°F, THEN perform ONE of the following: a) Isolate Letdown to reduce temperature. b) Complete Table 1 of this attachment. 7) IF Regen HX to RCS (2TI-4825) AND PZR water phase (2TI-4627) differential temperature greater than 200°F AND PMS is unavailable, THEN complete Table 1 of this attachment.

TIME		TEMPERATURE		
SPRAY VALVE OPENED	SPRAY VALVE CLOSED	(PZR WATER PHASE) 2TI-4627	2TIS-4607 2TIS-4608 2TI-4825	DIFFERENCE

Core Heat Removal safety function.	ATC	7. Check Core Heat Removal by forced circulation: B. At least ONE RCP running. **(Not met, perform contingency)**
Core Heat Removal safety function.	SRO	A. IF ALL RCPs stopped, THEN perform the following: 1) Verify BOTH PZR Spray valves in MANUAL and closed. • 2CV-4651 • 2CV-4652 2) GO TO Step 8.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
RCS Heat Removal Safety Function	BOP/ATC	8. Check RCS Heat Removal: A. Check SG available by BOTH of the following: • At least ONE SG level 10 to 90%. • FW maintaining SG level **(Not Met, Perform contingency)** B. Check MFW in RTO **(Not Met, Perform contingency)** C. Check Feedwater line intact by the following: • SG level stable or rising. • NO unexplained step changes or erratic FW flow. • NO unexplained step changes or erratic Condensate flow. D. Check RCS TC 540°F to 555°F. **(Not Met, perform Contingency)** E. Check SG pressure 950 to 1050 psia. **(Not Met, perform Contingency)**
	ANY	Perform step 8 contingency actions that are applicable: A. Perform the following: 1) <u>IF</u> SG level lowering, <u>THEN</u> verify EFAS actuated. **(To the 'A' S/G only)** 5) IF FW NOT available, THEN perform the following: a) Verify maximum of ONE RCP running in each loop. b) Close SG Blowdown Isolation valves: • 2CV-1016-1 • 2CV-1066-1 c) GO TO Step 8.C.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	ANY	C. Check Feedwater line intact by the following: • SG level stable or rising. • NO unexplained step changes or erratic FW flow. • NO unexplained step changes or erratic Condensate flow. **Examiner Note: The crew will not have any indication for the feedline due to MSIS tripping all the pumps.**
	ANY	2) IF TC less than 540°F, THEN perform the following: a) Verify Feedwater flow rate (MFW OR EFW) NOT causing TC to lower. b) Verify SDBCS restoring TC 540°F to 555°F using 2105.008 Exhibit 3, SDBCS Emergency Operation. c) IF MSIS actuated AND the cooldown terminates, THEN stabilize TC and maintain post-cooldown conditions as follows: • Maintain RCS pressure within P-T limits with PZR heaters and spray using Attachment 48, RCS Pressure Control. • Maintain RCS temperature by steaming intact SG using Upstream ADV or Upstream ADV Isolation MOV
	ANY	E. Perform as necessary: 1) <u>IF</u> SG pressure 751 psia or less, <u>THEN</u> perform the following: a) Verify MSIS actuated on PPS inserts.
	BOP	b) Verify feed secured to the affected SG.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	ALL	c) Maintain RCS post-cooldown conditions as follows: • Maintain RCS pressure within P-T limits with PZR heaters and spray using 2202.010 Attachment 48, RCS Pressure Control. • Maintain RCS temperature by steaming intact SG using Upstream ADV or Upstream ADV Isolation MOV. d) **GO TO** Step 9.
Steam Dump Exhibit 3	BOP	1.0 IF BOTH MSIV's closed, THEN GO TO step 5.0. **Examiner note: MSIVs are closed.** 5.0 Perform the following to determine availability of SDBCS valves: 5.1 IF the following conditions satisfied, THEN Upstream ADV are available: • Instrument air available • Emergency OFF (2K02-A14) clear • Power available to selected controllers/valves **Examiner note: Upstream ADVs are available.**

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
Steam Dump Exhibit 3	BOP	6.0 IF operation of Upstream Atmospheric Dump valve from the Control Room desired, THEN perform the following: 6.1 Verify selected HIC in MANUAL with ZERO output demand: • 2HIC-1001 Upstream Atmospheric Dump valve • 2HIC-1051 Upstream Atmospheric Dump valve 6.2 Place selected valve(s) permissive handswitch in MANUAL: • 2CV-1001 Upstream Atmospheric Dump valve (2HS-1001) • 2CV-1051 Upstream Atmospheric Dump valve (2HS-1051) 6.3 IF MSIS actuated, THEN override actuation for selected MOV isolation: • 2CV-1002 ADV Upstream Isolation valve • 2CV-1052 ADV Upstream Isolation valve * 6.4 Throttle open selected MOV as desired: • 2CV-1002 ADV Upstream Isolation valve • 2CV-1052 ADV Upstream Isolation valve * 6.5 Place selected HIC to desired demand: • 2HIC-1001 Upstream Atmospheric Dump valve • 2HIC-1051 Upstream Atmospheric Dump valve

Op-Test No.: 2014-1 Scenario No.: 1 Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
Containment Safety Function	ANY	9. Check CNTMT parameters: A. Temperature and Pressure: **(Not met due to ESD Event. Perform contingency)** • Temperature less than 140°F. • Pressure less than 16 psia. B. Check CNTMT Spray pumps secured. **(Not, Met)** C. NO CNTMT radiation alarms or unexplained rise in activity: 1) CAMS alarms: • "CNTMT PART/GAS RAD HI/LO" annunciator (2K10-B6) clear. 2) RCS leakage alarms: • "AREA RADIATION HI/LO" annunciator (2K11-B10) clear. • "PROC LIQUID RADIATION HI/LO" annunciator (2K11-C10) clear. 3) Check the following radiation monitors trend stable: • CNTMT Area • CAMS • Process Liquid D. NO secondary system radiation alarms or unexplained rise in activity: 1) "SEC SYS RADIATION HI" annunciator (2K11-A10) clear. 2) Secondary Systems Radiation monitors trend stable: • Main Steam lines • SG Sample • Condenser Off Gas

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	ANY	Contingency for Containment parameters not being met. A. Perform the following: 2) IF CNTMT pressure 18.3 psia or greater, THEN verify the following: • CIAS, CCAS, and SIAS actuated on PPS inserts. • At least ONE Emergency Penetration Room Vent Fan running. • CNTMT Cooling fans running in Emergency Mode.
	ANY	3) IF CNTMT pressure 23.3 psia or greater, THEN verify the following: • CSAS actuated on PPS inserts. • Spray flow greater than 1875 gpm per header. • ALL RCPs stopped AND BOTH PZR Spray valves in MANUAL and closed.
	SRO	10. Notify STA to report to control room. 11. Direct NLOs to perform 2202.010 Attachment 47, Field Operator Post Trip Actions. 12. Verify Reactor trip announced on Plant page. 13. Notify SM to refer to Technical Specifications and 1903.010, Emergency Action Level Classification.
Cue: If contacted as the STA to report to the control room, acknowledge the request. **Cue: If contacted as a NLO to perform Attachment 47 Field Operator Post Trip Actions, acknowledge request.** **Cue: If contacted as NLO to assess 2P-7B breaker, then report dropped overcurrent flags for 2A-311.** **Cue: If contacted as NLO to assess 2P-7B pump/motor, report black flash marks on the motor vents and an acrid odor but no fire or smoke present.** **Cue: If contacted as NLO to assess 2P-7A, report that the coupling is broken between the motor and the pump.**		
	SRO	14. Direct control board operators to acknowledge ALL annunciators and announce ALL critical alarms.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	SRO	15. Check ALL safety function acceptance criteria satisfied. **(All safety functions are not satisfied, perform contingency)** 15. IF ANY safety function acceptance criteria NOT satisfied, THEN perform the following: A. Notify control room staff of safety functions NOT satisfied. B. GO TO Exhibit 8, Diagnostic Actions.
	SRO	Diagnose OP-2202.009, Functional Recovery EOP.
	SRO	Enter and implement OP-2202.009, Functional Recovery EOP.
	SRO	*1. Notify Shift Technical Advisor to perform Safety Function Status Checks for appropriate success paths at the following times: • Initially after appropriate success paths identified • Every 15 minutes thereafter.
	SRO	2. Record present time: • Time _____.
	SRO	*3. Notify SM to refer to Technical Specifications and 1903.010, Emergency Action Level Classification.
	ANY	*4. Check RCS pressure greater than 1400 psia. **Examiner Note: RCS pressure may be less than 1400 psia due to the ESD but it also could have recovered greater than 1400 psia.**
	ANY	These actions have already been performed. *4. Perform the following: A. IF RCS pressure less than 1400 psia, THEN perform the following: 1) Verify maximum of ONE RCP running in EACH loop. 2) IF RCP 2P32A or 2P32B stopped, THEN verify associated PZR Spray valve in MANUAL and closed.
	SRO	Should elect to pull up the floating step for Maintain Post cooldown conditions (Step 33 of HR-2) if this was not directed in SPTAs.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
Maintain post-cooldown conditions **CRITICAL TASK**	ATC/BOP	■33. Maintain RCS post-cooldown conditions as follows: A. Maintain RCS temperature by steaming intact SG using EITHER of the following: • Upstream ADV. • Upstream ADV Isolation MOV. B. Maintain RCS pressure within P-T limits using 2202.010 Attachment 48, RCS Pressure Control. **Critical task: Use attachment 48 to maintain RCS pressure within the Pressure-Temperature limits of 200°F and 30°F Margin to Saturation.**
	ANY	* 6. <u>IF</u> SIAS or MSIS actuated, <u>THEN</u> perform the following: A. Verify at least ONE SW pump running on EACH loop.
	ANY	B. Check EITHER DG running.
	ANY	C. Verify running DG SW Outlet valve open: • 2CV-1503-1 • 2CV-1504-2
	ANY	D. Verify SW pump suction aligned to Lake.
	ANY	E. Check 4160v Non-vital bus 2A1 OR 2A2 energized from offsite power.
	ANY	F. Check 4160v Vital buses 2A3 AND 2A4 energized from offsite power.
	ANY	G. Start SW pumps as needed to maintain SW header pressure.
	ANY	H. Check SW to CCW restored. **(Not met, perform contingency)**
	BOP	H. IF CCW available, THEN restore SW to CCW, CCW/ACW/SW Alignment.
	ANY	I. Check ACW restored. **(Not met, perform contingency)**
	BOP	I. Restore SW to ACW, refer to 2202.010 Exhibit 5, CCW/ACW/SW Alignment.
	ANY	J. Maintain SW header pressure greater than 85 psig.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	SRO	7. IF CCW in service to provide SG Sample Cooler cooling, THEN perform the following: A. IF SG "A" has indicated water level, THEN verify the following SG 'A' Sample Valves open: • 2CV-5850 • 2CV-5852-2 C. Notify Chemistry to sample available SGs for activity.
Cue: When contacted as Chemistry, then report you will sample 'A' S/G for activity and Monitor RDACS for off site dose releases.		
	SRO	8. Check ALL available Hydrogen Analyzers in service using 2104.044, Containment Hydrogen Control Operations. (Not met, perform contingency)
	SRO	8. Verify all available Hydrogen Analyzers in service within 70 minutes from start of event. • Record time from Entry Section step 2: Time_____
	SRO	9. Open Functional Recovery Success Path Tracking page.
	ANY	10. Notify Control Board Operators to perform the following: A. Monitor floating steps. B. Verify actuated ESFAS componentsusing 2202.010 Exhibit 9, ESFAS Actuation.

Op-Test No.: 2014-1 Scenario No.: 1 Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
Exhibit 9 ESFAS actuation.	BOP	*1.0 IF any abnormalities noted for affected ESFAS actuation, THEN notify CRS. 2.0 IF SIAS, THEN verify the following: ☐ Red Train RWT Outlet (2CV-5630-1) open. ☐ Red Train HPSI Pump in service with proper discharge pressure and flow. ☐ Red Train HPSI Injection MOVs open. ☐ Red Train Service Water Pump in service with proper discharge pressure. ☐ Red Train LPSI Pump (2P60A) in service with proper discharge pressure and flow. ☐ Red Train LPSI Injection MOVs open. ☐ Green Train RWT Outlet (2CV-5631-2) open. ☐ Green Train HPSI Pump in service with proper discharge pressure and flow. ☐ Green Train HPSI Injection MOVs open. ☐ Green Train Service Water Pump in service with proper discharge pressure. ☐ Green Train LPSI Pump (2P60B) in service with proper discharge pressure and flow. ☐ Green Train LPSI Injection MOVs open. ☐ Available Charging Pumps in service with proper discharge pressure and flow. ☐ Service Water Outlet Valves open for #1 and #2 EDGs. 3.0 IF CCAS, THEN verify the following: ☐ Red Train CNTMT Coolers in service. ☐ Service Water aligned to Red Train CNTMT Coolers. ☐ Red Train Bypass Dampers open. ☐ Green Train CNTMT Coolers in service. ☐ Service Water aligned to Green Train CNTMT Coolers. ☐ Green Train Bypass Dampers open.

Op-Test No.: 2014-1 Scenario No.: 1 Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
Exhibit 9 ESFAS actuation.	BOP	4.0 IF CSAS, THEN verify the following: ☐ Red Train CSS Pump (2P35A) in service with proper discharge pressure and flow. ☐ Red Train CSS Header Isolation (2CV-5612-1) open. ☐ Green Train CSS Pump (2P35B) in service with proper discharge pressure and flow. ☐ Green Train CSS Header Isolation (2CV-5613-2) open. ☐ Main Feedwater Block valves closed. ☐ MSIVs closed. ☐ Main Feed pumps tripped. ☐ Condensate pumps secured. ☐ Heater Drain pumps secured. 5.0 IF MSIS, THEN verify the following: ☐ MSIVs closed. ☐ Main Feedwater Block valves closed. ☐ Red Train Service Water Pump in service with proper discharge pressure. ☐ Green Train Service Water Pump in service with proper discharge pressure. ☐ Main Feed pumps tripped. ☐ Condensate pumps secured. ☐ Heater Drain pumps secured.
	ANY	11. Determine safety function status as follows: A. Check Reactivity Control satisfied by EITHER of the following: • Maximum of ONE CEA NOT fully inserted and Reactor power lowering. • Reactor power less than 10-1% and stable or lowering. **Examiners note: Reactivity will be satisfied.**

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	ANY	B. Check Vital DC Auxiliaries satisfied: 1) At least ONE 125v Vital DC bus energized: • 2D01-SPDS point E2D01 • 2D02-SPDS point E2D02 2) At least ONE 120v Vital AC bus energized: • 2RS1 - SPDS point E2RS1 or E2RS1RS3 • 2RS2 - SPDS point E2RS2 or E2RS2RS4 • 2RS3 - SPDS point E2RS3 or E2RS1RS3 • 2RS4 - SPDS point E2RS4 or E2RS2RS4 **Examiners note: Vital DC will be satisfied.**
	ANY	C. Check Vital AC Auxiliaries satisfied: 1) At least ONE 4160v Vital AC bus (2A3/2A4) energized. **Examiners note: Vital AC will be satisfied.**
	ANY	D. Check RCS Inventory Control satisfied: 1) CVCS maintaining PZR level 10 to 80% [40 to 70%] and level stable or trending to setpoint. 2) RCS MTS 30°F or greater. 3) RVLMS LVL 03 or higher elevation indicates WET. **Examiners note: Inventory Control may not be satisfied due to PZR level and the ESD event.**
	ANY	E. Check RCS Pressure Control satisfied: 1) RCS pressure maintained within P-T limits, refer to Attachment 1, P-T Limits. **Examiners note: P-T limits should be satisfied.**

Op-Test No.: 2014-1 Scenario No.: 1 Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	ANY	F. Check RCS and Core Heat Removal satisfied: 1) At least ONE intact SG available for Heat Removal by EITHER of the following: • Level 10 to 90% [20 to 90%] with FW available. • Level being restored with total FW flow of 485 gpm or greater. 2) IF ANY RCP operating, THEN RCS ΔT less than 10°F and NOT rising. 3) IF ALL RCPs secured, THEN RCS ΔT less than 50°F and NOT rising. 4) RCS T_C less than 555°F and NOT rising. 5) RCS MTS 30°F or greater. 6) RVLMS LVL 01 indicates WET. **Examiners note: RCS and Core Heat Removal will not be satisfied due to feedwater availability and the ESD.**
	ANY	G. Check CNTMT Isolation satisfied: 1) CNTMT parameters normal: a) "CNTMT RADIATION HI" annunciator (2K10-A6) clear. b) NO unexplained rise in CNTMT radiation. c) CNTMT pressure less than 18.3 psia. **(Not met, perform contingencies)** 2) "SEC SYS RADIATION HI" annunciator (2K11-A10) clear. 3) NO unexplained rise in Secondary Systems Radiation monitor trends: • Main Steam lines • SG Sample • Condenser Off Gas **Examiners note: CNTMT Isolation will not be satisfied due to ESD event.**

Op-Test No.: 2014-1 Scenario No.: 1 Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	ANY	1) Verify CNTMT isolation as follows: • CIAS actuated components are properly aligned, using 2202.010 Attachment 5, CIAS Verification. • ONE Emergency Penetration Room Vent fan running. • EACH penetration NOT required to be open has at least ONE isolation valve closed. **Examiner note: The SRO may prioritize the attachment 5 for later in the event due to no RCS leakage in containment.**
Standard Attachment 5	ANY	

COMPONENT DESCRIPTION	1.0 NUMBER	2.0 LOCATION	3.0 POSITION	√
REGEN HX INLET	2CV-4821-1	2C09	CLOSED	
REGEN HX OUTLET	2CV-4823-2	2C09	CLOSED	
CNTMT PURGE SUPPLY V1 INSIDE	2CV-8289-1	2C17	CLOSED	
CNTMT PURGE SUPPLY V1 OUTSIDE OUTSIDE	2CV-8283-1	2C17	CLOSED	
CNTMT PURGE EXHAUST V2 INSIDE	2CV-8291-1	2C17	CLOSED	
CNTMT PURGE EXHAUST V2 OUTSIDE OUTSIDE	2CV-8285-1	2C17	CLOSED	
SAMPLE ISOLATION VALVE QUENCH TANK LIQ	2SV-5878-1	2C17	CLOSED	
SAMPLE ISOLATION VALVE RCS	2SV-5833-1*	2C17	CLOSED	
RCP CCW SUPPLY	2CV-5236-1*	2C17	CLOSED	
RCP CCW RETURN	2CV-5255-1*	2C17	CLOSED	
CNTMT CHILL WATER SUPPLY	2CV-3852-1	2C17	CLOSED	
CNTMT CHILL WATER RETURN	2CV-3851-1	2C17	CLOSED	
RX DRAIN TANK DISCH ISOL	2CV-2202-1	2C17	CLOSED	
CNTMT VENT HEADER ISOL	2CV-2401-1	2C17	CLOSED (1)	
CNTMT SUMP DRAIN	2CV-2060-1	2C17	CLOSED	
RCP BLEEDOFF TO VCT	2CV-4846-1	2C17	CLOSED	
CNTMT AIR SAMPLE NORTH INSIDE SUPPLY	2SV-8265-1*	2C17	CLOSED	
CNTMT AIR SAMPLE NORTH INSIDE RETURN	2SV-8259-1*	2C17	CLOSED	
CNTMT AIR SAMPLE SOUTH INSIDE SUPPLY	2SV-8273-1*	2C17	CLOSED	
CNTMT AIR SAMPLE SOUTH INSIDE RETURN	2CV-8233-1*	2C17	CLOSED	
PASS SUMP SAMPLE SUPPLY ISOL	2SV-5634-1*	2C17	CLOSED	
PASS SUMP SAMPLE RETURN ISOL	2SV-5633-1*	2C17	CLOSED	

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	ANY	H. Check CNTMT Temperature and Pressure Control satisfied: 1) CNTMT pressure less than 16 psia. 2) CNTMT temperature less than 140°F. **Examiners note: CNTMT Temperature and Pressure Control will not be satisfied due to excess steam demand.**
	ANY	12. Locally remove danger tags and close the following breakers. • 2B51-E4 "LTOP RELIEF ISOL 2CV-4730-1" • 2B51-K2 "LTOP RELIEF ISOL 2CV-4741-1"
Cue: If contacted to remove the danger tags and close the LTOP breakers, then wait 2 minutes and use the remote function for 2B51-E4 and 2B51-K2 to close the breakers and inform the control room that 2B51-E4 and 2B51-K2 are closed.		
		*13. Check ALL Safety Function acceptance criteria satisfied.
	SRO	*13. Perform the following: A. Determine appropriate success paths using Success Path Decision Trees. B. Initiate success paths for ALL Safety Functions in the following order: 1) Jeopardized. 2) Challenged. 3) Satisfied. C. IF higher priority Safety Function jeopardized AND lower priority safety function success path in progress, THEN **GO TO** appropriate success path for highest priority safety function in jeopardy. D. WHEN success path implemented for EACH Safety Function, THEN RETURN TO Step 14 of Entry procedure.
Examiner Note: The SRO should complete the safety functions in order of hierarchy that are challenged first, and then the satisfied safety functions.		

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	SRO	If inventory control is not satisfied then Diagnose IC-2 as the first Jeopardized Success path and HR-2 as the second success path. **Examiner note: The SRO may determine that the reason inventory control was not satisfied was due to the ESD and elect to complete the actions from HR-2 to control the ESD and restore feedwater over IC-2**
Steps from IC-2	ANY	1. Verify SIAS and CCAS actuated on PPS inserts. *2. Verify Safety Injection flow to RCS as follows: A. Verify at least ONE HPSI pump running. B. Verify running HPSI Injection MOVs open. C. Verify ALL available Charging pumps running. D. Check RCS pressure less than 1390 psia. E. Check total HPSI flow acceptable using 2202.010 Exhibit 2, HPSI Flow Curve. F. Check total LPSI flow acceptable using 2202.010 Exhibit 3, LPSI Flow Curve.
	ANY	*3. IF CNTMT Spray pumps are running AND ALL of the following are TRUE: • CNTMT pressure less than 73.7 psia (59 psig). • At least two CNTMT Cooling Fans running. • SIAS actuated and flow acceptable per the following: - 2202.010 Exhibit 2, HPSI Flow Curve - 2202.010 Exhibit 3, LPSI Flow Curve THEN perform the following: A. Place EITHER CNTMT Spray pump (2P35A/B) in PTL. B. Verify CNTMT pressure maintained less than 73.7 psia (59 psig).
	ANY	■4. Check CCW flow aligned to RCPs.
	ANY	5. Check at least ONE 4160v Vital bus energized.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
Steps from IC-2.	ANY	■6. Terminate/throttle HPSI flow as follows: A. Check HPSI flow NOT required for Success Path RC-3, Boration Using HPSI. B. Check the following criteria satisfied: 1) RCS MTS 30°F or greater. 2) PZR level greater than 29% [50%] and controlled. 3) RVLMS LVL 03 or higher elevation indicates WET. 4) At least ONE intact SG available for Heat Removal by EITHER of the following: • Level 10% to 90% [20% to 90%] AND FW available. • Level being restored AND total FW flow of 485 gpm or greater. **Examiner Note: HPSI Throttle criteria is not met due to feedwater not being available and the SRO should go to the next step.**
	ANY	*7. Monitor HPSI termination/throttle criteria satisfied for duration of event.
	ANY	8. Override LPSI as follows: A. Check LPSI termination criteria satisfied as follows: • RCS pressure greater than 200 psia. • RCS pressure controlled. **Examiner Note: RCS pressure is probably not controlled at this point and LPSI may not be terminated, also the priority is to control the ESD and restore feedwater.**
	ANY	*9. Monitor LPSI termination criteria satisfied for duration of event.
	ANY	*10. IF possible, THEN initiate action to refill the RWT by ANY of the following: • Normal makeup per 2104.003, Chemical Addition • Makeup from Holdup tanks per 2104.006, Fuel Pool Systems • Makeup from SFP per 2104.006, Fuel Pool Systems • Instruct TSC to consider RWT Refill strategy per SAMG. **Examiner Note: The SRO may prioritize completing this step later in the event.**
	ANY	*11. Check LOCA in progress. *11. GO TO Step 12.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
Steps from IC-2.	ANY	■12. WHEN "RWT LEVEL LO LO RAS PRETRIP" annunciator (2K06-A9) in alarm, THEN perform the following: **Examiner Note: The alarm will be clear.**
	ANY	■13. WHEN RWT level less than 6%, THEN perform the following: **Examiner Note: RWT level will be > 6%.**
	ANY	*14. Verify Early HPSI Termination as follows: A. Check indication(s) of CNTMT Sump Blockage as per 2202.010 Attachment 43, ECCS/CSS Pump Monitoring. **(Not met due to no RAS)** A. GO TO Step 15.
	ANY	*15. Instruct TSC to consider Alternate RCS Injection strategy. **Examiner Note: Not required due to no mass loss.**
	ANY	*16. Monitor Loss of ECCS/CSS pump suction as follows: A. Check ECCS/CSS pump suction acceptable using 2202.010 Attachment 43, ECCS/CSS Pump Monitoring. **(Not applicable due to no RAS)** B. Check total HPSI flow acceptable using 2202.010 Exhibit 2, HPSI Flow Curve.

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
Steps from IC-2.		17. Check acceptance criteria for Inventory Control satisfied: A. CVCS requirements: • ALL available Charging pumps running. OR • HPSI termination/throttle criteria satisfied. OR • RAS actuated. B. HPSI requirements: • HPSI injection flow acceptable, refer to Exhibit 2, HPSI Flow Curve. OR • HPSI termination/throttle criteria satisfied. C. LPSI requirements: • LPSI injection flow acceptable, refer to Exhibit 3, LPSI Flow Curve. OR • LPSI termination criteria satisfied. OR • RAS actuated. D. RVLMS LVL 06 or higher elevation indicates WET.
Examiner Note: The following steps are from HR-2 for restoring feedwater.		
	SRO	Should elect to pull up the floating step for loss of feedwater. Step 35.
	SRO	■35. Check at least ONE intact SG available for Heat Removal by EITHER of the following: • Level 10% to 90% [20% to 90%] AND FW available. • Level being restored AND total FW flow of 485 gpm or greater. **Examiner note: Not met perform contingency.**

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	ANY	■35. IF NEITHER SG available, THEN perform the following: A. Stop ALL RCPs. B. Verify BOTH PZR Spray valves in MANUAL and closed. C. Close BOTH SG Blowdown Isolation valves: • 2CV-1016-1 • 2CV-1066-1 D. GO TO Step 37. **Examiner note: These actions are already complete.**
	ANY	■37. Check IA pressure greater than 65 psig.
	SRO	■38. Establish a feed source to unisolated SG from at least one of the following (listed in preferred order): A. EFW Pump 2P7B using 2202.010 Attachment 53, Recovery From Loss of Feed With 2P7B. B. EFW Pump 2P7A using 2202.010 Attachment 54, Recovery From Loss of Feed With 2P7A. C. AFW Pump 2P75 using 2202.010 Attachment 55, Recovery From Loss of Feed With 2P75. **Examiner note: The crew should use attachment 55 to restore feedwater from 2P-75.**
	BOP	1. IF 2P7A or 2P7B EFW pumps running, THEN verify 2P75 suction aligned to an alternate source using 2106.006, Emergency Feedwater System Operations. **Examiner note: 2P-7A and 2P-7B are not running.**
	BOP	2. IF 4160VAC Bus 2A1 is energized from SU XFMR #2, THEN perform the following: **Examiner note: 2A-1 is not energized from SU XFMR #2.**
	BOP	3. IF 4160VAC Bus 2A1 de-energized with NO bus lockout, THEN perform ANY ONE of the following: **Examiner note: 2A-1 is not de-energized**

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	BOP	4. IF MSIS or CSAS actuated, THEN locally open "DC CONTROL POWER" breaker in the following breaker cubicles: • "COND PUMP 2P2C" (2A106) • "COND PUMP 2P2B" (2A205)
Cue: When contacted as AO to open the DC control power breakers, after 2 min. use remote functions to open the DC control power breakers.		
	BOP	5. Perform the following to start AFW Lube Oil pump (2P225): A. Place 2HS-0766 in ON. B. Check 2P225 amber light OFF. C. IF 2P225 NOT available, THEN RETURN TO procedure in effect.
	BOP	6. Verify following valves closed: • AFW to 2P7A DISCH (2CV-0761) • AFW to 2P7B DISCH (2CV-0760)
	BOP	7. Start 2P75.
	BOP	8. Perform the following to secure 2P225: A. Place 2HS-0766 in OFF. B. Place 2HS-0766 in AUTO.
Examiner note: The selected feed path MOV from 2P-75 breaker will trip when the valve is opened.		
	BOP	9. IF desired to feed SG(s) through 2P7A EFW header, THEN perform the following: **Examiner note: The crew could elect to feed through 2P7A header but 2P-7B is most preferred.**

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	BOP	A. IF desired to feed SG A, THEN perform the following: 1) IF NOT previously overridden, THEN override the following valves by placing handswitches to Close (MSIS) and then to Open (EFAS): • 2P7A Discharge to SG A (2CV-1037-1) • 2P7A Discharge to SG A (2CV-1026-2) 2) Verify the following valves Open: • 2P7A Discharge to SG A (2CV-1037-1) • 2P7A Discharge to SG A (2CV-1026-2)
Procedure Caution: **CAUTION** • **Due to overpressurization concerns with EFW suction piping, 2CV-0760 should immediately be closed if suction pressure alarm received on EFW train.** • **Feed to an impacted SG (less than 49% level) should be maintained less than 150 gpm until SG level rises or flow has been maintained for greater than 5 minutes.**		
	BOP	C. IF SG level(s) less than 49%, THEN perform the following: 1) Throttle open AFW to 2P7A DISCH (2CV-0761) to establish flow of less than 150 gpm to impacted SG(s). 2) Maintain feed flow to impacted SG(s) less than 150 gpm until SG level rise is noted or feed flow maintained for greater than five minutes. **Examiner Note: If 'A' EFW header was selected first then 2CV-0761 will trip its breaker when opened. The BOP should use the alternate flow path.**
Cue: If contacted as NLO to check the breaker for 2CV-0761 report that 2B-12 B4 breaker is tripped open.		

Op-Test No.: 2014-1 Scenario No.: 1 Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
CRITICAL TASK Restore Feedwater prior to SG levels reaching 70" wide range.	BOP	D. Throttle AFW to 2P7A DISCH (2CV-0761-1) as necessary to restore SG level(s) to 60%. E. Operate the following valves as desired to control SG level(s): AFW to 2P7A DISCH (2CV-0761) 2P7A Discharge to SG A (2CV-1037-1) 2P7A Discharge to SG A (2CV-1026-2) 2P7A Discharge to SG B (2CV-1039-1) 2P7A Discharge to SG B (2CV-1076-2)
	BOP	10. IF desired to feed SG(s) through 2P7B EFW header, THEN perform the following: A. IF desired to feed SG A, THEN perform the following: 1) IF NOT previously overridden, THEN override 2P7B Discharge to SG A (2CV-1038-2) by placing handswitch to Closed (MSIS) and then to Open (EFAS). 2) Verify 2P7B Discharge to SG A (2CV-1038-2) Open. 3) IF NOT previously overridden, THEN override 2P7B Feed to SG A (2CV-1025-1) by placing 2HS-1025B-1 to MSIS override AND then to EFAS override.

Procedure Caution:

CAUTION

- **Due to overpressurization concerns with EFW suction piping, 2CV-0760 should immediately be closed if suction pressure alarm received on EFW train.**
- **Feed to an impacted SG (less than 49% level) should be maintained less than 150 gpm until SG level rises or flow has been maintained for greater than 5 minutes.**

Op-Test No.: 2014-1	Scenario No.: 1	Event No.: 5, 6, 7, 8, & 9

Event Description: 'A' RCP oil leak. Excess steam demand inside containment on 'B' Steam generator. 2P-7B EFW pump motor fault on start, 2P-7A EFW pump coupling failure. The selected AFW flow path discharge valve will trip its breaker. And 'B' RCP normal spray valve will fail open.

Time	Position	Applicant's Actions or Behavior
	BOP	C. IF SG level(s) less than 49%, THEN perform the following: 1) Throttle the following valves as desired to establish flow of less than 150 gpm to impacted SG(s): • AFW to 2P7B DISCH (2CV-0760) • 2P7B Flow Control Valve to SG A (2CV-1025-1) • 2P7B Flow Control Valve to SG B (2CV-1075-1) 2) Maintain feed flow to impacted SG(s) less than 150 gpm until SG level rise is noted or feed flow maintained for greater than five minutes. **Examiner Note: If 'B' EFW header was selected first then 2CV-0760 will trip its breaker when opened. The BOP should use the alternate flow path.**
Cue: If contacted as NLO to check the breaker for 2CV-0760 report that 2B-12 B3 breaker is tripped open.		
CRITICAL TASK Restore Feedwater using the AFW pump prior to SG levels reaching 70"		D. Throttle the following valves as necessary to restore SG level(s) to 60%: • AFW to 2P7B DISCH (2CV-0760) • 2P7B Flow Control Valve to SG A (2CV-1025-1) • 2P7B Flow Control Valve to SG B (2CV-1075-1)
Termination criteria: Post Cooldown conditions maintained and feedwater restored or at the discretion of the lead examiner.		

Facility: ANO-2	Scenario No.: 2 (New)	Op-Test No.: 2014-1

Examiners:	Operators:

Initial Conditions:
~40 %. MOL. 'C' channel Excore has failed and PPS points 1 through 4 are in bypass. RED Train Maintenance Week. 'B' Component Cooling Water CCW pump in service.

Turnover:
RED Train Maintenance Week. 260 EFPD. EOOS indicates 'Minimal Risk'. Hold power 39- 41 % until S/G Chloride less than 10 ppb. SG blowdown ~120 gpm per SG for cleanup. Reactor Engineering is developing reactivity plan for power escalation. 'C' channel Excore has failed and PPS points 1 through 4 are in bypass and all required actions are complete (TS 3.3.1.1 action 2 entered).
Evolution scheduled: Perform Red Train Proportional Heater test starting with step 2.1.

Event No.	Malf. No.	Event Type*	Event Description
1		N (ATC) N (SRO)	Perform Red Train Proportional Heater test. **OP-2103.005 Pressurizer Operations.**
2	NIBUPPER	C (BOP) C (SRO)	'B' channel Excore upper chamber fails high. TS for SRO. **OP-2203.026, NI malfunction AOP.**
3	XRCCHBPCNT	I (ATC) I (BOP) I (SRO)	'B' Pressurizer control channel pressure fails high. **OP-2203.028, Pressurizer System Malfunction AOP**
4	CCW2P33BPWR CCW2P33CPWR	C (BOP) C (SRO)	2P-33B CCW pump trips and 2P-33C CCW pump fails to start. **OP-2203.025, RCP Emergencies AOP**
5	RCP2P32CSLK	R (ATC) N (BOP) N (SRO)	'C' Reactor coolant Pump (RCP) develops an intersystem LOCA from the RCS to CCW of 15 gpm. TS for SRO. **OP-2203.016, Excess RCS leakage AOP**
6	RCP2P32CSLK ESFK202AAF ESFK202BAF	M (All)	'C' RCP intersystem LOCA degrades to 250 gpm. If crew does not isolate CCW to RCPs, then when CIAS actuates, CCW to RCP valves fail to close. **OP-2202.001, Standard Post Trip Actions (SPTA), and OP-2202.003, Loss of Coolant Accident EOP**
7	RCSHTRON	C (ATC) C (SRO)	Pressurizer Backup Heaters fail to de-energize on low pressurizer level.
8	CV0231	C (BOP) C (SRO)	Gland seal regulator 2PCV-0231 fails closed. **2203.012B, 2K-02 Annuciator Corrective Action (ACA)**
End point			CCW to RCP has been isolated, a RCS cooldown has been started and condenser vacuum maintain by operation of 2PCV-0231 gland seal regulator.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Target Quantitative Attributes (Section D.5.d)	Actual Attributes
Total Malfunctions (5-8)	7
Malfunctions after EOP entry (1-2)	2
Abnormal Events (2-4)	4
Major Transients (1-2)	1
EOPs entered requiring substantive actions (1-2)	1
EOP contingencies requiring substantive actions (0-1)	0
Critical Tasks (2-3)	3

Critical Task	Justification
Isolate RCS from leaving Containment by closing CCW to containment valves within 10 min. of the reactor trip.	This is critical to stop releasing RCS to the CCW system (bypassing containment) and minimize any potential release to the public, as well as maintaining RCS inside containment for sump recirculation.
The crew must commence a cooldown within 30 minutes of entry the LOCA EOP.	Cooling down the RCS removes decay heat and lowers the pressure differential at the break location. This will also allow SDC to be placed in service.
The crew must maintain the limits of the PT curve. Margin to Saturation >30^0F and <200^0 F	The maintaining these limits ensure that the RCS is sufficiently subcooled which will prevent fuel cladding damage.

Scenario #2 Objectives

1) Evaluate individual ability to perform Proportional heater surveillance.
2) Evaluate individual response to a failure of a Nuclear Instrument.
3) Evaluate individual response to a Pressurizer System Malfunction (Pressure channel failure).
4) Evaluate individual response to a failure of a Component Cooling water pump.
5) Evaluate individual response to an intersystem Loss of Coolant Accident. (LOCA)
6) Evaluate crew ability to mitigate an intersystem LOCA.
7) Evaluate individual response to failure of a gland seal regulator.
8) Evaluate individual response to a failure of the pressurizer backup heaters to de-energize on low level.

SCENARIO #2 NARRATIVE

Simulator session begins with the plant at 40% power steady.

When the crew has completed their control room walk down and brief, they will perform the Red Train Proportional Heater surveillance.

When the Red Train Proportional Heater has been placed to auto or when cued by the lead examiner, the ‘B’ pressurizer pressure control channel will fail high causing the spray valves to open and RCS pressure to lower. The CRS should enter the OP-2203.028, Pressurizer System Malfunction AOP. The crew will place the other pressurizer pressure controller in service, verify that both spray valves close, and the pressurizer heaters restore RCS pressure. The BOP will place a maximum of one Steam Dump and Bypass Control System (SDBCS) valve permissive in manual and all other permissives to off. Site OE: CR-ANO-2-2011-1605, Pressurizer pressure failing high.

SCENARIO #2 NARRATIVE (continued)

When the SDBCS permissives have been aligned and cued by the lead examiner, Channel B Excore upper chamber will fail high. The SRO will enter the OP-2203.026, NI Malfunction AOP and the crew should determine that B channel linear power is failed but log power is still function by monitoring output for the three chambers. The SRO will also enter Tech Spec 3.3.1.1 action 3 for Reactor Protection System. The BOP will trip points 1, 3, and 4 on channel 'B' by using the linear calibrate switch. Site OE: CR-ANO-2-2002-693, D Excore failure.

After the BOP has tripped points 1, 3, and 4, and cued by lead examiner, 2P-33B CCW pump will trip and 2P-33C CCW pump will fail to start automatically or manually. The SRO will enter OP-2203.025, RCP Emergencies AOP. The BOP should call NLOs to investigate the CCW pump trip. The SRO should direct the BOP to start 2P-33C CCW pump but it will fail to start. The SRO will then direct opening all CCW cross-tie valves and start 2P-33A CCW pump. Site OE: CR-ANO-2-2007-313, Trip of 2P-33B CCW pump with 2P-33C out of service for maintenance.

After the crew has restored CCW flow to the RCPs, and cued by the lead examiner, a 15 gpm RCS to CCW leak will start. The crew should notice that CCW Surge Tank level is rising. The crew's recognition of the leak may be delayed because the 'B' Surge Tank level would normally rise from the different pump configuration. Also the CCW letdown radiation monitor will alarm indicating RCS to CCW leakage. The SRO will enter OP-2203.016, Excess RCS leakage AOP, and direct the board operator actions. The crew should perform leak rates, isolate letdown to verify the leak is not in letdown and determine the need for a plant shutdown using normal boration. The SRO should enter Attachment A of excess RCS leakage, align the CCW surge tanks to the gas collection header and direct the NLO to control surge tank level. The crew will perform a power reduction such that the plant will be taken off line. The SRO should enter Tech Spec 3.4.6.2 for RCS leakage. The ATC will borate the RCS and reduce turbine load to maintain Tave-Tref within 2°F. The BOP will make preparations to remove secondary plant equipment from service as power is reduced. Industry OE: NRC information notice 92-36 Intersystem LOCA outside containment. Industry OE: SEN-220, SEN-216, & SEN-182, RCS leakage events.

After the required reactivity manipulations are complete and cued by the lead examiner, the RCS to CCW will degrade to 250 gpm. The SRO will direct the reactor to be tripped, actuate SIAS & CCAS, secure RCPs, and isolate CCW to the RCPs. The SRO should enter and direct the actions of SPTAs.

The crew will implement OP-2202.001, Standard Post Trip Actions (SPTA) EOP. The ATC should recognize that the pressurizer backup heaters failed to de-energize on low pressurizer level. Also, the crew should place the SDBCS master controller in Auto Local and lower the set point to maintain margin to saturation.

The SRO will diagnose and enter OP-2202.003, Loss of Coolant Accident EOP. After the crew has entered the LOCA EOP, 2PCV-0231 gland seal pressure control valve will fail closed. The BOP will manually control 2CV-0233 gland seal bypass valve to maintain gland seal header pressure and condenser vacuum. The crew will commence a cooldown to allow depressurization and refilling the pressurizer. The BOP will restore Service Water to Component Cooling Water and Auxiliary Cooling water. Site OE: for 2PCV-0231 gland seal pressure control valve CR-ANO-2-2009-719, CR-ANO-2-2009-311, and CR-ANO-2-2006-1406.

Simulator Instructions for Scenario 2

Condensate Recircs are in manual with pressure between 650 and 750 psi.
Ensure the SDBCS is in auto remote.
Ensure that AACG is secured and annunciators clear.
Place MINIMAL RISK, Green Train Protected signs on 2C11.
Ensure 2P-33C is in service and 'B' channel pressurizer pressure controller is in service.
T1, T2, T3, T4, T5, & T6 set to false.
T5 = Reactor trip

Event No.	Malf. No.	Value/ Ramp Time	Event Description
1			Perform Red Train Proportional Heater test.
2	NIBUPPER Trigger = T1	200	'B' channel Excore upper chamber fails high. TS for SRO.
3	XRCCHBPCNT Trigger = T2	2500	'B' Pressurizer control channel pressure fails high.
4	CCW2P33BPWR CCW2P33CPWR Trigger = T3	active active	2P-33B CCW pump trips and 2P-33C CCW pump fails to start.
5	RCP2P32CSLK Trigger = T4	15	'C' RCP develops an intersystem LOCA from the RCS to CCW of 15 gpm. TS for SRO.
6	RCP2P32CSLK ESFK202AAF ESFK202BAF	250 gpm Ramp = 5 min.	'C' RCP intersystem LOCA degrades to 250 gpm. If crew does not isolate CCW to RCPs, then when CIAS actuates, CCW to RCP valves fail to close.
7	RCSHTRON Trigger = T5	active	Pressurizer Backup Heaters fail to de-energize on low pressurizer level.
8	CV0231 Trigger = T6	0	Gland seal regulator 2PCV-0231 fails closed.

Simulator Operator CUEs		
At T=0		Perform Red Train Proportional Heater test.
Cued by lead examiner	Trigger T1	'B' channel Excore upper chamber fails high. TS for SRO.
Cue: If requested as the WWM, then report that I&C will start planning a package to troubleshoot the failed instrument.		
Cued by lead examiner	Trigger T2	'B' Pressurizer control channel pressure fails high.
Cued by lead examiner	Trigger T3	2P-33B CCW pump trips and 2P-33C CCW pump fails to re-start.
Cue: If contacted as the AO, then report that 'B' CCW pump is very hot to the touch but there is no evidence of fire or smoke present. **Cue: If requested as a NLO to check 2P-33B breaker (2B-223), report the over current trip indicator is extended.** **Cue: If requested as a NLO to check 2P-33C breaker (2B-721), report that the closing springs are discharged and the spring charging switch is in the up or charging position.** **Cue: ~30 sec. after 2P-33A has been started report that post-start checks are sat.** **Cue: When contacted as the NLO, wait 2 min and then clear K01-H01 by using the remote function switchyard K01H9RST and report that the Isophase alarm was due to low CCW flow but is clear.** **Cue: When contacted as the WWM, then report that Electrical will begin troubleshooting 2P-33B and 2P-33C**		
Cued by lead examiner	Trigger T4	'C' RCP develops an intersystem LOCA from the RCS to CCW of 15 gpm. TS for SRO.
Cue: When contacted as a NLO, report that you will drain the CCW surge tanks. After 3 min. use remote function for surge tank control to drain the surge tanks. **Cue: If contacted as NLO or chemistry report that no feed and bleed or side stream filter operations are in progress.** **Cue: If requested act as a NLO or Chemistry and report that 2SV-5125 is closed.** **Cue: Acknowledge request as Chemistry to sample CCW for activity.** **Cue: Acknowledge request as RP to survey the CCW system and post as needed.** **Cue: After the leakrate is changed and surge tank level begins rising call as the NLO and report that surge tank level is rising with the drain valve fully open.**		
Cue: If contacted as the STA to report to the control room, acknowledge the request. **Cue: If contacted as a NLO to perform Attachment 47 Field Operator Post Trip Actions, acknowledge request.**		
Cued by lead examiner		'C' RCP intersystem LOCA degrades to 250 gpm. If crew does not isolate CCW to RCPs then when CIAS actuates CCW to RCP valves fail to close.
Reactor Trip	Trigger T5	Pressurizer Backup Heaters fail to de-energize on low pressurizer level.

Cued by lead examiner	Trigger T5	Gland seal regulator 2PCV-0231 fails closed.
Cue: If requested as a NLO to check 2PCV-0231 seal steam feed valve, then report that the valve is closed locally and nothing appears abnormal. **Cue: If requested as a NLO to check 2CV-0233 seal steam bypass, then report that the valve is closed locally and nothing appears abnormal.**		

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 1

Event Description: Perform Red Train Proportional Heater test.

Time	Position	Applicant's Actions or Behavior
		RED TRAIN PROPORTIONAL HEATER TEST This attachment tests operability of the Red Train Pressurizer Proportional Heaters. Proportional heaters remain OPERABLE during this test as long as an Operator is stationed to restore heater control as necessary. Proportional Heater output is adjusted for 2B5 bus voltage per CR-ANO-2-2004-1793, CA5, ER-ANO-2002-0836-004, and CALC-86-E-0036-0201.
		Procedure Caution: The following section has been determined to have a Reactivity Addition Potential (RAP) and this activity is classified as a Risk Level R3.
	ATC	*2.1 IF Pressurizer pressure deviating/responding unexpectedly, THEN restore BOTH banks of Proportional Heaters to AUTO.
	ATC	*2.2 IF plant in Mode 1, 2 or 3, THEN maintain Operator to restore heater control as necessary.
	ATC	2.3 Place PZR Prop Heater 2SCR-2 switch (2HS-4641) in OFF. (Spring return to AUTO)
	ANY	2.4 Verify Proportional Heater Bank #2 ~ 0 KW on SPDS (J2C118).
	ATC	2.5 Take manual control of on-line PZR Pressure Controller (2PIC-4626A or 2PIC-4626B) as follows: 2.5.1 Use the F2 button to select Page 3 for Pressurizer Proportional Heaters.
	ATC	2.5.2 Place controller in MANUAL.
	ATC	2.6 Adjust on-line PZR Pressure Controller output to zero.
	ANY	2.7 Record Proportional Heater Bank #1 power (J2C117): _____ KW
	ATC	2.8 Place on-line PZR Pressure Controller in AUTO.
	ATC	2.9 Place PZR Prop Heater 2SCR-2 switch (2HS-4641) in ON. (Spring return to AUTO)
	ATC	2.10 Verify pressurizer heaters controlling pressure at setpoint.
	ATC	2.11 Record 2B5 Bus Voltage from SPDS SFD Screen: _____ volts

	ANY	2.12 Calculate Proportional Heater Bank #1 Adjusted Power: Htr Power * (480 / 2B5 voltage)^2 * .964 = Adjusted Power _____ * (480 / _____)^2 * .964 = _____ KW (step 2.7) (step 2.11)
Termination criteria: When the pressurizer heater control has been restored to automatic with both proportional banks energized or at lead examiner's discretion.		

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 2
Event Description: Pressurizer control channel pressure fails high.		

Time	Position	Applicant's Actions or Behavior
Cued by lead examiner	ANY	Announce annunciator 2K10-E6 Pressurizer Pressure Control Channel 2 Pressure HI / LO alarm is due to High pressure.
	ANY	Determine that 'B' control channel pressure has failed high and RCS pressure is actually lowering.
	SRO	Enter and implement OP-2203.028PZR Systems Malfunctions AOP.
	SRO	6. Check "CNTRL CH 1/2 PRESSURE HI/LO" annunciators (2K10-E6/E7) clear. **(Annunciator is not clear, implement contingency)**
	ANY	6. Perform the following: A. Compare PZR pressure instruments to determine affected channel.
	ATC	C. <u>IF</u> only the selected control channel affected, <u>THEN</u> perform the following: 1) Place PZR Pressure Channel Select switch (2HS-4626) to the unaffected channel. **<u>NOTE</u>** **Proportional Heater controller is located on Page 3.** 2) Restore PZR Spray valves and Heater control to automatic.
	ANY	E. IF Pressure Control Channel 2 failed, THEN place the SDBCS in required contingency alignment using Attachment A, SDBCS Operations.

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 2

Event Description: Pressurizer control channel pressure fails high.

Time	Position	Applicant's Actions or Behavior
	BOP	**NOTE** **Failure of PZR Pressure Control Channel 2 will result in SDBCS Permissive calculator producing an incorrect setpoint.** 2. IF PZR Pressure Control Channel 2 failed, THEN perform the following: A. Verify a maximum of ONE SDBCS 11½% Bypass OR Downstream ADV Permissive switch in MANUAL: • 2CV-0302 (2HS-0302) • 2CV-0306 (2HS-0306) • 2CV-0301 (2HS-0301) • 2CV-0305 (2HS-0305) B. Verify ALL other SDBCS Bypass and ADV Permissive switches in OFF.
	SRO	Exit OP-2203.028, PZR Systems Malfunctions AOP.

Termination Criteria: PZR pressure control selected to channel 'A' or at lead examiner's discretion.

Op-Test No.: 2012-1	Scenario No.: 2	Event No.: 3

Event Description: 'B' channel Excore upper chamber fails high. TS for SRO.

Time	Position	Applicant's Actions or Behavior
Cued by lead examiner	ANY	Announce annunciators: 2K04-A5 CH B RPS/ESF/PRETRIP/TRIP 2K04-B3 PPS Channel TRIP 2K04 H4 CPC channel sensor failure 2K09 J5 Protect Cabinet Trouble.
	ANY	Crew will recognize that 'B' excore upper chamber has failed High.
	SRO	Enter and Implement OP-2203.026, NI Malfunction AOP.
	ANY	1. Check at least TWO Linear Safety channels operable.
	ANY	2. Check ALL Linear Safety channels operable. **(Channel 'B' and Channel 'C' will not be operable)**
	SRO	2. IF ALL Linear Safety channels NOT operable, THEN perform the following: A. Refer to TS 3.3.1.1, Reactor Protective Instrumentation. **Examiner note: SRO must enter Tech Spec 3.3.1.1 action 3**
Procedure Caution: **With one Linear Safety channel in trip, anything that initiates Power Trip Test Interlock (PTTI) in second channel will cause Reactor trip.**		
	SRO	B. IF ONE Linear Safety channel previously bypassed, THEN GO TO Step 3 AND disable affected channel.
	BOP	3. Disable affected Linear Safety channel as follows: A. Place associated "LINEAR CALIBRATE" switch to 200%.
	BOP	B. Check the following on affected channel: • All THREE High Linear Power {1} PPS Bistable Relay Indicating lamps at 2C23 are ON. • All THREE High Local Power {3} PPS Bistable Relay Indicating lamps at 2C23 are ON. • All THREE Low DNBR {4} PPS Bistable Relay Indicating lamps at 2C23 are ON.

	BOP	C. Verify the following associated trip function bypasses removed: • Hi Linear Power {1} • High LPD {3} • Low DNBR {4}
	SRO	8. Notify I&C of Nuclear Instrument malfunctions.
Cue: When contacted as the WWM, then report that I&C will start planning a work package to repair the failed nuclear instrument.		
Termination criteria: Affected channel points placed in trip or at lead examiner's discretion.		

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 4

Event Description: The ‘B’ Component Cooling water (CCW) pump trips and ‘C’ CCW pump will not start.

Time	Position	Applicant's Actions or Behavior
Cued by Lead Examiner	ANY	Announce annunciators: 2K11-A1\A3\A5\A7 CCW flow low. 2K12-A7 CCW Loop 2 Flow low.
	ANY	Report ‘B’ CCW pump tripped and No CCW pumps running.
	SRO	Enter and Implement OP-2202.025, RCP emergencies AOP.
	SRO	*2. IF CCW flow NOT aligned to RCPs, THEN perform the following: A. Record time CCW flow to RCPs lost: • Time: _____
	ANY	B. Station operator in CCW Pump Room.
Cue: If contacted as the AO, then report that ‘B’ CCW pump is very hot to the touch but there is no evidence of fire or smoke present. **Cue: If requested as a NLO to check 2P-33B breaker (2B-223), report the over current trip indicator is extended.** **Cue: If requested as a NLO to check 2P-33C breaker (2B-721), report that the closing springs are discharged and the spring charging switch is in the up or charging position.**		
Procedure Note: **If a CIAS relay has actuated, it will be necessary to override CCW Containment Isolation valves. In this case, TS 3.0.3 will be applicable until a dedicated operator can be established.**		
	ANY	D. Check the following valves open: • CCW CNTMT Supply valve (2CV-5236-1). • RCP CCW Return valve (2CV-5254-2). • RCP CCW Return valve (2CV-5255-1).
	ANY	E. Verify in-service CCW Surge Tank (2T-37A/B) level greater than 13% on 2LIS-5210/5214.
	ATC	F. Place L/D Temp Controller (2TIC-4815) in Manual AND adjust output to 10%.

Op-Test No.: 2014-1 Scenario No.: 2 Event No.: 4

Event Description: The 'B' Component Cooling water (CCW) pump trips and 'C' CCW pump will not start.

Time	Position	Applicant's Actions or Behavior
	BOP	G. Place ALL handswitches for non-running CCW pumps in PULL TO LOCK: • 2P33A • 2P33B • 2P33C
Procedure Note: **Swapping CCW pumps with Loops 1 and 2 CCW crosstied will result in surge tank level changes.**		
	SRO	H. IF available, THEN start 2P33C. **(2P-33C will not start)**
	ANY	I. Check 2P33C running. **(Not running, perform contingency)**
	BOP	I. Perform the following to start 2P33A on Loop 2: 1) Verify 2P33C in PULL TO LOCK.
Procedure Note: **CCW Cross-Over valve handswitches must be held in position for ~ 5 seconds after receiving full open or closed indication to ensure complete valve travel.**		
	BOP	2) Verify the following Cross-Over valves open: • 2P-33B & C Cross-Over valves: - 2CV-5221 - 2CV-5232 • 2P-33A & B Cross-Over valves: - 2CV-5220 - 2CV-5230
	BOP	3) Start 2P33A.
Cue: ~30 sec. after 2P-33A has been started report that post-start checks are sat. **Cue: When contacted as the NLO, wait 2 min and then clear K01-H01 by using the remote function switchyard K01H9RST and report that the Isophase alarm was due to low CCW flow but is clear.**		
	ANY	J. Check 2P33C OR 2P33A running aligned to Loop 2.
Examiner note: The following steps may not be completed when the next malfunction is started.		
	ATC	K. WHEN desired, THEN place L/D Temp Controller (2TIC-4815) in AUTO.
	ATC	L. WHEN Letdown HX Outlet temperature less than 140°F, THEN restore Letdown Radiation Monitor flow by opening 2CV-4804.
	SRO	Contact maintenance/PS liaison.

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 4
Event Description: The ‘B’ Component Cooling water (CCW) pump trips and ‘C’ CCW pump will not start.		

Time	Position	Applicant's Actions or Behavior
Cue: When contacted as the WWM, then report that Electrical will begin troubleshooting 2P-33B and 2P-33C		
Termination Criteria: When 2P-33A is in service or at lead examiner's discretion.		

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
Cued by Lead Examiner	ANY	Report CBO temperature high alarm in for 'C' RCP
	SRO	Go back to the beginning of RCP emergencies AOP. E. Controlled Bleedoff temperature less than 180°F. **(Not met, Perform contingency).** E. GO TO Step 6.
	ANY	*6. Check ALL RCP Controlled Bleedoff temperatures less than 180°F: **(Not met, Perform contingency)** • RCP A, 2TI-6008 • RCP B, 2TI-6018 • RCP C, 2TI-6028 • RCP D, 2TI-6038
	ANY	*6. Perform the following: A. Restore CCW to RCPs using 2202.010 Attachment 21, Restoration of CCW to RCPs. (CCW is aligned to RCPs)
		B. IF ANY RCP Controlled Bleedoff temperature greater than 180°F AND CCW flow NOT being restored, THEN perform the following as necessary: 2) IF in Mode 1 OR 2, THEN perform the following: a) Refer to applicable reactivity plan. b) Commence plant shutdown using 2102.004, Power Operations. **Examiner Note: The crew should also recognize the RCS to CCW leakage and perform steps from Excess RCS leakage. The crew may elect to not commence a shutdown until letdown has been isolated and restored in Excess RCS leakage.**
	ANY	Recognize CCW surge tank levels trending up.
	ANY	Report Process liquid Radiation alarm and determine that it is due Loop 2 CCW.

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	SRO	Enter and direct the actions of OP-2203.016, Excess RCS Leakage AOP: 1. Open Placekeeping page.
	SRO	2. Notify Control Board Operators to monitor floating steps.
	ANY	*3. Determine RCS leakrate by ANY of the following: • Computer LKRT programs. • Check PZR level stable and use Charging and Letdown mismatch minus Controlled Bleed Off. • Check Letdown isolated and estimate RCS leak rate by total Charging flow minus Controlled Bleed Off. • CNTMT Sump level rate of rise.
	ATC	*4. Maintain PZR level within 5% of setpoint by performing the following as necessary: A. Cycle Charging pumps. B. Isolate Letdown as follows: 1) Verify at least ONE Letdown Isolation valve closed: • 2CV-4820-2 • 2CV-4821-1 • 2CV-4823-2 (least preferred) 2) Record Charging Header Data in 2202.010 Attachment 44, Charging Header Data.
	ANY	*5. IF in Modes 1 OR 2, THEN check PZR level maintained within 10% of setpoint.
Procedure Caution:		
Aligning Charging pump suction to RWT during RWT purification with ALL Charging pumps running may cause Charging pumps to trip due to low suction pressure.		
	ATC	*7. Maintain VCT level 60 to 75%, refer to 2104.003, Chemical Addition.

Op-Test No.: 2014-1 Scenario No.: 2 Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	BOP	■ 8. IF RCS leakage greater than 44 gpm AND in Mode 1 OR 2, THEN perform the following: A. Trip Reactor. B. Actuate SIAS. C. Actuate CCAS. D. GO TO 2202.001, Standard Post Trip Actions.
	SRO	Direct the SM to refer to EALs *10. Refer to 1903.010, Emergency Action Level Classification.
	SRO	*11. IF location of leak known, THEN perform the applicable following steps (12.A through 12.J): • CCW System step 12.F
	ANY	F. Check CCW System intact: 1) CCW Expansion tank levels stable. 2) CCW Radiation monitors stable. **Examiner note: CCW System not intact.**
	ANY	F. IF indications of RCS leakage into CCW system exist, THEN commence Attachment A, RCS to CCW Leak Isolation.
Att. A	ATC	1. Verify Letdown isolated.
	ATC	2. Cycle Charging pumps as needed to maintain PZR level within 5% of setpoint.
	ANY	3. Record charging header data on 2202.010 Attachment 44, Charging Header Data.
	BOP	4. Align CCW Surge Tank vents to GCH: • Loop 1 CCW Surge Tank Vent (2CV-5217) • Loop 2 CCW Surge Tank Vent (2CV-5218)

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
Att. A	SRO	Direct NLO to perform the following: 6. Locally maintain CCW Surge Tank levels 40 to 50% as follows: A. Open EITHER of the following: • A SURGE TANK DRN (2CCW-1022) • B SURGE TANK DRN (2CCW-1023) B. Throttle "2T-37A/B DRN TO LRW" valve (2CCW-5030).
	Cue: When contacted as a NLO, report that you will drain the CCW surge tanks. After 3 min. use remote function for surge tank control to drain the surge tanks.	
	ANY	7. Verify ANY CCW feed and bleed/side-stream filter operation for chemistry control secured.
	Cue: If contacted as NLO or Chemistry report that no feed and bleed or side stream filter operations are in progress.	
	ANY	8. <u>IF</u> RCS leak to CCW still exists, <u>THEN</u> perform the following: A. Verify RCS Sample Isolation valves closed: • 2SV-5833-1 • 2SV-5843-2 B. Verify SDC heat exchanger sample valves closed: • "2E35A SAMPLE" (2SV-5698-1) • "2E35B SAMPLE" (2SV-5699-2) • "SDC SUCTION FROM RCS SAMPLE ISOLATION" (2SV-5125) on 2C116
Cue: If requested act as a NLO or Chemistry and report that 2SV-5125 is closed.		
	SRO	9. <u>IF</u> RCS leak to CCW still exists, <u>THEN</u> perform the following (leak is from RCPs):

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	SRO	**Examiners note: the following steps from Attachment A will be applicable after the reactor is tripped:** B. IF leakage is from RCPs AND EITHER of the following conditions exist: • A controlled plant shutdown NOT feasible. • Plant is shutdown. THEN perform the following: 1) IF in Mode 1 or 2, THEN manually trip Reactor.
CRITICAL TASK **Isolate RCS from leaving Containment by closing CCW to containment valves within 10 min. of the reactor trip.**	ATC	2) Verify ALL RCPs stopped. 3) Verify BOTH PZR Spray valve handswitches in MANUAL and closed: • 2CV-4651 • 2CV-4652
	BOP	4) Close RCP CCW Supply valve (2CV-5236-1). 5) Close RCP CCW Return valves: • 2CV-5254-2 • 2CV-5255-1 6) Verify RCP Bleedoff valves to VCT closed: • 2CV-4846-1 • 2CV-4847-2
	ATC	7) Close RCP Bleedoff Relief Isolation to Quench Tank (2CV-4856).
	SRO	8) IF Reactor was tripped, THEN **GO TO** 2202.001, Standard Post Trip Actions.

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	SRO	10. Notify Chemistry to sample CCW system for activity. 11. Notify Radiation Protection to survey CCW system and post as needed. 12. IF RCS leak into CCW NOT located in Letdown, THEN Letdown may be restored as desired using 2104.002, Chemical and Volume Control. 13. RETURN TO procedure.
Cue: Acknowledge request as chemistry to sample CCW for activity. **Cue: Acknowledge request as RP to survey the CCW system and post as needed.**		
	SRO	*13. Check leakage within allowable limits, refer to TS 3.4.6.2, Reactor Coolant System Leakage. **Examiner note: SRO must enter Tech Spec 3.4.6.2.**
	ALL	*13. Perform the following: A. Continue efforts to locate and isolate leak. B. IF plant shutdown required, THEN perform the following: 1) Refer to applicable reactivity plan. 3) IF leakage greater than or equal to 10 gpm, THEN perform RCS boration using 2104.003, Chemical Addition, Attachment R, RCS Boration from the RWT or BAMT using 2102.004, Power Operations. **Examiners Note: The ATC should start a shutdown using 2104.003, Chemical Addition, Attachment R, RCS Boration from the RWT or BAMT.**
Att. R boration steps.	ANY	1.0 IF a Reactivity Management Brief has NOT been conducted, THEN perform a Reactivity Management Brief per COPD-030 with an SRO.
	ATC	2.0 Determine desired boration rate, dilution flow, and number of required charging pumps from Reactivity Plans located in Plant Data Book or by manual calculation. **Examiner Note: During the first 15 minutes of the power reduction the crew will run 2 charging pumps with suction from the RWT. They will dilute at ~45 gpm and insert group 6 CEA's 6" for ASI control**

Op-Test No.: 2014-1 Scenario No.: 2 Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	ATC	3.0 Verify RCS Makeup aligned to CCP Suction.
	ATC	4.0 IF VCT level greater than 62 percent, THEN place 2HS-4826 (VCT Inlet/Divert valve 2CV-4826) to BMS position.
	ATC	5.0 IF desired, THEN record initial controller data: 2FIC-4926 Setpoint: _____ Demand: _____ 2FIC-4927 Setpoint: _____ Demand:_____
	ATC	6.0 Perform the following to align for dilution: 6.1 Verify the following on Boric Acid MU Flow controller (2FIC-4926): • In MANUAL • Demand set to MINIMUM 6.2 Verify EITHER Reactor Makeup pump running: • 2P-109A (2HS-4965) • 2P-109B (2HS-4966) 6.3 Verify Reactor Makeup Water Flow controller (2FIC-4927) set as follows: 6.3.1 Setpoint set to desired flow rate. 6.3.2 IF in MANUAL,THEN demand set to desired value. 6.4 Open VCT Makeup Isolation (2CV-4941-2) (2HS-4941-2).
	ATC	7.0 Open one of the following valves from a boric acid source: • Charging Pump Suction from RWT (2CV-4950-2) (2HS-4950-2) • BAMT (2T-6A) Gravity Feed (2CV-4920-1) (2HS-4920-1) • BAMT (2T-6B) Gravity Feed (2CV-4921-1) (2HS-4921-1)
	ATC	8.0 Close VCT Outlet (2CV-4873-1) (2HS-4873-1). 9.0 Verify VCT Inlet/ Divert valve 2CV-4826 (2HS-4826) in BMS

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
		position.
	ATC	*10.0 Perform the following to Start/Stop additional Charging pumps: 10.1 IF desired to raise flow, THEN perform the following: A. Start additional charging pumps as necessary. B. Adjust Reactor Makeup Water flow as necessary to maintain desired shutdown rate (2FIC-4927). 10.2 IF desired to lower flow, THEN perform the following: A. Adjust Reactor Makeup Water flow as necessary to maintain desired shutdown rate (2FIC-4927). B. Secure additional Charging Pumps as necessary.
	ATC	11.0 Perform the following to initiate dilution flow: 11.1 Place Mode Select switch (2HS-4928) in MANUAL. 11.2 Verify Boric Acid MU Flow controller (2FIC-4926) indicates zero. *11.3 Verify Reactor Makeup Water Flow controller (2FIC-4927) indicates desired flow rate. 11.4 Verify BAM Tank Recirc valve open for running pump: • 2T-6A recirc (2HS-4903-2) • 2T-6B recirc (2HS-4915-2)
Examiner note: When the reactivity manipulations are complete ramp the leak rate to 250 gpm over 5 minutes. They should implement Step 8 to trip the reactor, Actuate SIAS, CCAS, then perform the actions of Att. A to secure RCPs then isolate CCW to RCPs.		
Cue: After the leakrate is changed and surge tank level begins rising call as the NLO and report that surge tank level is rising with the drain valve fully open.		
Cued by Lead Examiner	SRO	Enter and implement OP-2202.001, Standard Post Trip Actions EOP.

Op-Test No.: 2014-1 Scenario No.: 2 Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	SRO	1. Notify Control Board Operators to monitor safety functions using Exhibit 7, CBO Reactor Trip Checklist and perform post trip contingencies as required. 2. Open Safety Function Tracking page.
Reactivity control safety function	ATC	3. Check Reactivity Control established as follows: A. Reactor power lowering. B. Check startup rate is negative. C. ALL CEAs fully inserted by observing ANY of the following: 1) CEA Rod bottom lights illuminated. 2) CEAC 1 indicates ALL CEAs fully inserted. 3) CEAC 2 indicates ALL CEAs fully inserted.

Op-Test No.: 2014-1 Scenario No.: 2 Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
Vital Auxiliaries safety function	BOP	4. Check Maintenance of Vital Auxiliaries satisfied: A. Check Main Turbine tripped by BOTH of the following: • ALL Main Stop Valves closed. • Generator megawatts indicate zero. B. Generator Output breakers open. C. Perform EITHER of the following as required: 1) Check the following valves closed: • MSR 2E-12A Steam Supply From SG A (2CV-0400) • MSR 2E-12B Steam Supply From SG B (2CV-0460) 2) No flow indicated on the following MSR second stage flow instruments: • 2FI-0402 • 2FI-0462 D. At least ONE 6900v AC bus energized E. At least ONE 4160v Non-vital AC bus energized. F. BOTH 4160v Vital AC buses energized. G. BOTH DGs secured. **(Both EDGs will be running but the contingency will be satisfied.)** H. At least ONE 125v Vital DC bus energized: 2D01 - SPDS point E2D01 2D02 - SPDS point E2D02

Op-Test No.: 2014-1 Scenario No.: 2 Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	ANY	Step G. contingency: G. IF ANY DG running AND SW NOT aligned, THEN locally stop DG by unlocking and placing "ENGINE CONTROL" handswitch in LOCKOUT: • 2E11 • 2E21 **Examiner Note: Service water will be aligned to EDGs**
RCS Inventory Control Safety function	ATC	5. Check RCS Inventory Control established as follows: A. PZR level: • 10 to 80%. • Trending to setpoint. **(Will not be met due to LOCA event, perform contingency)** B. RCS MTS 30°F or greater.
RCS Inventory Control Safety function	SRO	Direct the following as necessary: A. Perform as necessary: 1) <u>IF</u> SIAS actuated on PPS inserts, <u>THEN</u> **GO TO** Step 6.
RCS Pressure Control Safety function	ATC	6. Check RCS Pressure Control: ___ • 1800 to 2250 psia. ___ • Trending to setpoint. **(May not be met due to LOCA event, perform contingency)** • Normal PZR Spray and heater controlling pressure **(Will not be met due to LOCA event, perform contingency)** • Valid CNTMT Spray NOT in progress.

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
RCS Pressure Control Safety function	SRO	Direct the following actions as necessary: 6. Perform as necessary: D. IF RCP 2P32A or 2P32B stopped, THEN verify associated PZR Spray valve in MANUAL and closed. • RCP A Spray Valve (2CV-4651) • RCP B Spray Valve (2CV-4652) E. IF ALL RCPs stopped AND RCS pressure control required, THEN initiate Aux spray using Attachment 48, RCS Pressure Control. F. IF RCS pressure lowers to 1650 psia or less, THEN perform the following: 1) Verify SIAS actuated on PPS inserts. 2) **GO TO** Step 7.
	ANY	Recognize the Backup Heater are energize below 29% pzr level.
	ATC	Secure pressurizer back up heaters by placing their hand switches to off.
Core Heat Removal safety function.	ATC	7. Check Core Heat Removal by forced circulation: A. At least ONE RCP running. **(RCPs will be secured due RCS to CCW leak and CRS should verify the contingency, performed by 6.D above.)**

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
RCS Heat Removal Safety Function	ANY	8. Check RCS Heat Removal: A. Check SG available by BOTH of the following: • At least ONE SG level 10 to 90%. • FW maintaining SG level. B. Check MFW in RTO C. Check Feedwater line intact by the following: • SG level stable or rising. • NO unexplained step changes or erratic FW flow. • NO unexplained step changes or erratic Condensate flow. D. Check RCS TC 540 to 555°F. E. Check SG pressure 950 to 1050 psia. F. IF desired, THEN perform the following for SDBCS Master Controller using 2105.008 Exhibit 3, SDBCS Emergency Operation: 1) Place controller in Auto/Local. 2) Set setpoint at 960 psia.

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
SDBCS Exhibit 3	BOP	1.0 IF BOTH MSIV's closed, THEN GO TO step 5.0. 2.0 Perform the following to determine availability of SDBCS valves: 2.1 IF the following conditions satisfied, THEN SDBCS Master controller (2PIC-0300) available: • SDBCS controlling S/G pressure at setpoint in automatic • EMERGENCY OFF (2K02-A14) annunciator clear • Instrument air available • IF using Turbine Bypass valves, THEN CONDENSER INTERLOCK (2K02-B14) clear 3.0 IF SDBCS Master controller (2PIC-0300) available per step 2.0 AND use desired,THEN perform the following: 3.1 Place permissive handswitch for desired SDBCS Downstream ADV/Turbine Bypass valves in MANUAL: • 2CV-0301 Permissive (2HS-0301) • 2CV-0302 Permissive (2HS-0302) • 2CV-0303 Permissive (2HS-0303) • 2CV-0306 Permissive (2HS-0306) • 2CV-0305 Permissive (2HS-0305) 3.2 Verify SDBCS Master controller (2PIC-0300) in LOCAL using R/L button. *3.3 Adjust SDBCS Master controller (2PIC-0300) to desired setpoint

Op-Test No.: 2014-1 Scenario No.: 2 Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
Containment Safety Function	ANY	9. Check CNTMT parameters: A. Temperature and Pressure: • Temperature less than 140°F. • Pressure less than 16 psia. B. Check CNTMT Spray pumps secured. C. NO CNTMT radiation alarms or unexplained rise in activity: 1) CAMS alarms: • "CNTMT PART/GAS RAD HI/LO" annunciator (2K10-B6) clear. 2) RCS leakage alarms: • "AREA RADIATION HI/LO" annunciator (2K11-B10) clear. **(Not be met due to RCS leak now being in containment)** • "PROC LIQUID RADIATION HI/LO" annunciator (2K11-C10) clear. **(Not met due to RCS leak)** 3) Check the following radiation monitors trend stable: **(Not met due to RCS leak)** • CNTMT Area • CAMS • Process Liquid D. NO secondary system radiation alarms or unexplained rise in activity: 1) "SEC SYS RADIATION HI" annunciator (2K11-A10) clear. 2) Secondary Systems Radiation monitors trend stable: • Main Steam lines • SG Sample • Condenser Off Gas

Op-Test No.: 2014-1 Scenario No.: 2 Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	ANY	A. Perform the following: 1) IF CNTMT pressure less than 18.3 psia, THEN verify ALL available CNTMT Cooling fans running with cooling water aligned. 2) IF CNTMT pressure 18.3 psia or greater, THEN verify the following: • CIAS, CCAS, and SIAS actuated on PPS inserts. • At least ONE Emergency Penetration Room Vent Fan running. • CNTMT Cooling fans running in Emergency Mode. 3) IF CNTMT pressure 23.3 psia or greater, THEN verify the following: • CSAS actuated on PPS inserts. • Spray flow greater than 1875 gpm per header. • ALL RCPs stopped AND BOTH PZR Spray valves in MANUAL and closed.
	SRO	10. Notify STA to report to control room. 11. Direct NLOs to perform 2202.010 Attachment 47, Field Operator Post trip actions. 12. Verify Reactor trip announced on Plant page. 13. Notify SM to refer to Technical Specifications and 1903.010, Emergency Action Level Classification.
	SRO	14. Direct control board operators to acknowledge ALL annunciators and announce ALL critical alarms.

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	SRO	15. Check ALL safety function acceptance criteria satisfied. **(All safety functions are not satisfied, perform contingency)** 15. IF ANY safety function acceptance criteria NOT satisfied, THEN perform the following: A. Notify control room staff of safety functions NOT satisfied. B. **GO TO** Exhibit 8, Diagnostic Actions.
	SRO	Diagnose LOCA EOP, 2202.003
	SRO	Enter and Implement LOCA EOP, 2202.003
	ANY	*1. Confirm diagnosis of LOCA as follows: A. Check SFSC acceptance criteria satisfied every 15 minutes. B. IF CCW in service to provide SG Sample Cooler cooling, THEN perform the following: 1) Verify SG Sample valves open. • 2CV-5852-2 • 2CV-5859-2 • 2CV-5850 • 2CV-5858 2) Notify Chemistry to sample SGs for activity. C. IF SGs indicate primary to secondary leakage within TS limits, THEN continue with this procedure using SG with lowest leak rate for cooldown.
	SRO	*2. Notify SM to refer to Technical Specifications and 1903.010, Emergency Action Level Classification.
	SRO	3. Open Placekeeping page.
	SRO	4. Record present time: Time _____
	ANY	5. Verify SIAS and CCAS actuated on PPS inserts.

Op-Test No.: 2014-1 Scenario No.: 2 Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	ANY	6. Notify Control Board Operators to perform the following: A. Monitor floating steps. B. Verify actuated ESFAS components using 2202.010, Exhibit 9, ESFAS Actuation.
	ANY	*7. Verify the following for any operating RCP: A. CSAS NOT actuated. B. Proper seal staging. **Examiner note: ALL RCP's are secured.**
	ANY	■8. Check CCW flow aligned to RCPs. **(Not met, perform contingency)**
	ANY	■8. Perform the following: A. IF CCW system available, THEN restore CCW to RCPs using 2202.010 Attachment 21, Restoration of CCW to RCPs. B. IF CCW system NOT available, THEN secure CCW system using 2202.010 Attachment 6, Securing CCW and ACW. **Examiners Note: This step is N/A because CCW should not be re-aligned to the RCPs. But CCW is still available to other systems does not need to be secured.**
	ANY	■9. Check RCS pressure greater than 1400 psia. **(Not met, but contingencies are already done)**
	ANY	■10. Restore ESF/Non-ESF systems post-SIAS using 2202.010 Attachment 51, Post ESFAS Actuation System Restoration.
Examiner Note: The following steps are from Attachment 51 and exhibit 5.		
	BOP	1. Verify at least ONE SW pump running on EACH loop.

Procedure Caution:

Operation of loaded DG without Service Water for greater than three minutes may cause engine damage.

Op-Test No.: 2014-1 Scenario No.: 2 Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	BOP	2. IF ANY EDG in operation, THEN perform the following: A. Check running EDG SW Outlet valve open: • 2DG-1 SW Outlet (2CV-1503-1) • 2DG-2 SW Outlet (2CV-1504-2) B. IF running EDG Service Water valve did NOT open automatically, THEN open valve with Control Room handswitch. C. IF SW Outlet valve can NOT be opened from Control Room, THEN locally perform the following for the affected DG: **Examiner note: Both EDGs will be running and the SW outlet valves will be open.**
	BOP	3. Verify SW pump suction aligned to Lake.
	BOP	4. IF SW pump suction can NOT be aligned to Lake, THEN perform the following: **Examiner Note: This step is N/A**
	BOP	5. IF NEITHER 2A1 OR 2A2 energized from offsite power, SGTR STEP 10, THEN perform the following: **Examiner Note: This step is N/A**
	BOP	6. IF BOTH 4160v Vital buses 2A3 AND 2A4 energized from offsite power, THEN start SW pumps as needed to maintain SW header pressure.
	BOP	7. IF NO 4160V busses energized, THEN return to procedure in effect. **Examiner Note: This step is N/A**
	BOP	*8. IF only ONE 4160v Vital bus energized from offsite power AND additional SW pump start desired to maintain SW header pressure, THEN perform the following: **Examiner Note: This step is N/A**
	BOP	9. IF EITHER 4160v Vital Bus supplied by EDG, THEN verify only one SW pump running on train supplied by EDG. **Examiner Note: This step is N/A**

Op-Test No.: 2014-1 Scenario No.: 2 Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	BOP	*10. Maintain Service Water header pressure greater than 85 psig while performing the following using 2202.010 Exhibit 5, CCW/ACW/SW Alignment: A. IF Loop 2 CCW available, THEN restore Service Water to Component Cooling Water. B. Restore Service Water to Auxiliary Cooling Water.
	BOP	11. IF SW header pressure can NOT be maintained greater than 85 psig, THEN perform the following: **Examiner Note: This step is N/A**
Examiner Note: The following steps are from Exhibit 5.		
	BOP	1. IF SW suction NOT aligned to lake, THEN RETURN TO procedure in effect.
	BOP	2. IF SW NOT aligned to CCW AND CCW available, THEN perform the following:
	BOP	A. IF RCP seal temperatures less than 180°F, THEN restore SW to CCW by performing the following: 1). Override and open at least ONE SW to CCW/ACW Return valve: • 2CV-1543-1 • 2CV-1542-2
Procedure Caution: **Supplying ACW flow and CCW cooling from a single SW pump may result in low SW header pressure.**		
	BOP	2). Override and throttle open at least ONE SW to CCW /Main Chillers Supply valve: • 2CV-1530-1 • 2CV-1531-2 3). Maintain SW header pressure greater than 85 psig.
	BOP	3. IF CCW flow NOT aligned to RCPs AND offsite power available, THEN perform the following: **Examiner note: CCW flow should not be re-aligned to RCPs due to the RCS to CCW leak.**

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	BOP	4. IF SW NOT aligned to ACW, THEN perform the following: A. Verify at least ONE SW to CCW/ACW Return valve open: • 2CV-1543-1 • 2CV-1542-2 B. Override and throttle open ACW Supply valves: • 2CV-1425-1 • 2CV-1427-2 C. Maintain SW header pressure greater than 85 psig.
Examiner Note: The following steps are from LOCA.		
	ANY	■11. IF Circ Water flow lost to the Main Condenser, THEN perform the following:
	ANY	*12. Verify Safety Injection flow to RCS as follows: A. Check total HPSI flow acceptable using 2202.010 Exhibit 2, HPSI Flow Curve. B. Check total LPSI flow acceptable using 2202.010 Exhibit 3, LPSI Flow Curve.
	ANY	■13. Check SG levels greater than 22.2%.
	BOP	14. Align feedwater as follows: A. Verify EFW pump 2P7B capable of feeding intact SG using 2202.010 Attachment 46, Establishing EFW Flow.
	BOP	B. IF running, THEN stop EFW pump 2P7A by overriding and closing (2CV-0340-2). C. Verify running MFW pump secured. D. Verify ALL MFW Block valves closed.

Op-Test No.: 2014-1 Scenario No.: 2 Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
	ANY	15. Isolate LOCA as follows: A. Verify letdown isolated. B. Verify RCS Sample Isolation valves closed: • 2SV-5833-1 • 2SV-5843-2 C. Check for intact CCW system: • "PROC LIQUID RADIATION HI/LO" annunciator (2K11-C10) clear. • CCW Surge Tanks level stable. **Examiner note: The process liquid alarm will be in but the contingency to isolate CCW to the RCPs should be complete.**
	ANY	D. Verify non-actuated valve positions using 2202.010 Attachment 17, LOCA Isolation. **Examiner note: The SRO may elect to prioritize this attachment to be performed later in the event.**
	ANY	16. Check LOCA limited to CNTMT: • CNTMT Sump level rising. • CNTMT temperature, dewpoint, and pressure greater than pre-LOCA values. • Aux Building area radiation levels stable. • Aux Building Sump level less than 53%. • Waste Tanks 2T20A and 2T20B levels stable.
	ANY	■17. Check CNTMT isolation parameters: A. CNTMT pressure trend has NOT exceeded 18.3 psia. B. "CNTMT RADIATION HI" annunciator (2K10-A6) clear.
	ANY	■18. Check CNTMT pressure trend has NOT exceeded 23.3 psia.
	ANY	*19. IF CNTMT Spray operating, THEN terminate CNTMT Spray as follows: **Examiner note: CNTMT Spray should not be operating.**
	BOP	20. Verify ALL available miscellaneous CNTMT Building ventilation operating using 2202.010 Exhibit 13, Miscellaneous Containment Building Ventilation.

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
Exhibit 13.	BOP	1.0 Verify ALL available CNTMT Building Recirculation Fans in operation: • 2VSF-31A • 2VSF-31B • 2VSF-31C • 2VSF-31D 2.0 Verify ALL available Reactor Cavity Cooling Fans in operation: • 2VSF-34A • 2VSF-34B 3.0 Verify a maximum of three CEDM Shroud Cooling Units in operation: • 2VSF-35A • 2VSF-35B • 2VSF-35C • 2VSF-35D
	ANY	■21. Check ALL AC and Vital DC buses energized.
	ANY	■22. Check IA pressure greater than 65 psig.
	ANY	23. Check for isolated LOCA: • RCS pressure controlled. • RCS leakage less than available Charging pump capacity. **Examiner note: LOCA is not considered isolated.**
	SRO	■1. Perform controlled cooldown to 275°F TC as follows:
	ANY	A. Check RCS TC greater than 275°F.

Op-Test No.: 2014-1 Scenario No.: 2 Event No.: 5, 6, & 7

Event Description: 15 gpm RCS to CCW leak. Plant Shutdown required and Tech Spec for SRO. Then RCS to CCW leak degrades to 250 gpm. If crew does not isolate CCW to RCPs then if CIAS actuates CCW to RCP valves fail to close. Also the PZR backup heaters fail to de-energize on low PZR level.

Time	Position	Applicant's Actions or Behavior
CRITICAL TASK **The crew must commence a cooldown within 30 min of entry the LOCA procedure.**	ATC	B. Reset Low PZR Pressure and Low SG Pressure setpoints during cooldown and depressurization. C. Verify maximum of ONE RCP running in EACH loop. D. IF RCP 2P32A or 2P32B stopped, THEN verify associated PZR Spray valve in MANUAL and closed.
CRITICAL TASK **The crew must maintain the limits of the PT curve. MTS >30 and <200^0 F**	ATC	E. Monitor cooldown rate as follows: • Record RCS TC and PZR temperature using 2202.010 Attachment 8, RCS Cooldown Table. • Plot RCS pressure versus RCS TC using 2202.010 Attachment 1, P-T Limits every 15 minutes. F. Initiate RCS cooldown using SDBCS bypass valves or ADVs.
	BOP	G. Control S/G levels with EITHER of the following: • EFW using 2202.010 Attachment 46, Establishing EFW Flow • AFW using 2202.010 Attachment 52, Establishing AFW Flow H. Secure running MFW pump. I. Close ALL MFW Block valves. J. Verify maximum of one condensate pump in service. K. Maintain condensate header pressure less than 700 psig using condensate pump recircs and MFW pump recircs.

Termination criteria: When a cooldown has commenced or at the discretion of the lead examiner.

Op-Test No.: 2014-1	Scenario No.: 2	Event No.: 8

Event Description: Gland seal regulator 2PCV-0231 fails closed.

Time	Position	Applicant's Actions or Behavior
	ANY	Recognize 2K02-A13 Seal header pressure HI/LO alarm is in.
	BOP	2.1 Check Seal Steam Header pressure (2PI-0220). 2.2 Refer to Gland Seal Steam System (2106.013).
	BOP	2.3 Check HPT STM Seal Feed valve (2PCV-0231) for proper operation.
Cue: If requested as a NLO to check 2PCV-0231 seal steam feed valve, then report that the valve is closed locally and nothing appears abnormal.		
	BOP	2.5 IF low pressure, THEN perform the following: 2.5.1 Verify Steam Seal Unload valve (2CV-0223) closed.
Cue: If requested as a NLO to check 2CV-0233 seal steam bypass, then report that the valve is closed locally and nothing appears abnormal.		
	BOP	2.5.2 Open Seal Steam Bypass (2CV-0233) as necessary to control seal steam pressure.
Termination criteria: When gland seal pressure is being control to maintain 2K02-A13 alarm clear or at examiner's discretion.		

Facility: ANO-2	Scenario No.: 3 (New)	Op-Test No.: 2014-1
Examiners:	Operators:	

Initial Conditions:
98% MOL; RED Train Maintenance Week. Mabelvale transmission line out of service.

Turnover:
260 EFPD. 98%. Mabelvale transmission line out of service and Unit 2 output is limited to 1035 MW gross, 995 MW net. EOOS indicates 'Minimal Risk'. RED Train Maintenance Week.
Evolution scheduled: Shift running vacuum pumps.

Event No.	Malf. No.	Event Type*	Event Description
1		N (BOP) N (SRO)	Shift running vacuum pumps. **OP-2106.010 Condenser Vacuum System.**
2	XRRPZRLSP	I (ATC) I (SRO)	Reactor Reg. output to PZR level control program fails to 41%. **OP-2203.028, Pressurizer System Malfunction AOP**
3	DO_HS_8259_G CV82591 XRI2RITS8231A DO_RITS8231_10	C (BOP) C (SRO)	2RITS-8271-2 Containment Atmosphere monitor (CAMS) coupling fails and 2RITS-8231-1 CAMS particulate detector fails high when started. TS for SRO. **OP-2203.012J, 2K-10 Annunciator Corrective Action (ACA), and OP-2203.012K, 2K-11 ACA**
4	MFWPMPBTRP	R (ATC) C (BOP) C (SRO)	'B' Main Feed Water pump trips due to thrust bearing wear. TS (Tcold out of range high) for SRO. **OP-2203.027, Loss of Main Feedwater pump AOP**
5	SGBTUBE	M (ALL)	'B' Steam Generator Tube Rupture ramps up to 300 gpm over 20 min. Manual reactor trip criteria when exceeds 44 gpm. TS for SRO **OP-2203.038, Primary to Secondary leakage AOP, OP-2201.001 Standard Post Trip Actions EOP, and 2202.004 Steam Generator Tube Rupture EOP**
6	ESFSIAS2 CV48211	C (ATC) C (BOP) C (SRO)	Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open. **OP-2202.010 Standard Attachments EOP**
7	CV0302 CV0303 CV0306	C (ATC) C (SRO)	Steam dump turbine bypass valve being used for the cooldown will fail closed during the RCS cooldown. **OP-2105.008, SDBCS operations**
End Point			'B' Steam Generator is isolated.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Target Quantitative Attributes (Section D.5.d)	Actual Attributes
Total Malfunctions (5-8)	6
Malfunctions after EOP entry (1-2)	2
Abnormal Events (2-4)	3
Major Transients (1-2)	1
EOPs entered requiring substantive actions (1-2)	1
EOP contingencies requiring substantive actions (0-1)	0
Critical Tasks (2-3)	3

Critical Task	Justification
Start a green train HPSI pump and open all HPSI injection valves prior to Margin to Saturation (MTS) lowering below 30 degrees F.	If green train HPSI is not started with injection valves open MTS will lower below the NPSH limits for RCP requiring RCP to be secured. This will cause natural circulation and complicate long term event mitigatation.
The crew must cool down to <535 ^{0}F Thot within 27 min. of entering the Steam Generator Tube Rupture (SGTR) EOP.	The RCS must be cooldown to allow SG isolation and prevent MSSV from opening. 27 minutes allows an additional 3 minutes for SG isolation.
2202.010 Attachment 10 local and control room actions must be completed within 30 minutes of entering the SGTR EOP.	It is critical to isolate a ruptured SG to minimize release to the public. The SAR has a one hour time limit and it is assumed that 30 will be used for SPTAs. This leaves 30 minutes from the entry of the SGTR EOP.

Scenario #3 Objectives

1) Evaluate individual ability to perform a vacuum pump swap.
2) Evaluate individual response to a failure of a Containment Air monitor sample pump.
3) Evaluate individual response to a failure of a Containment Air monitor radiation monitor.
4) Evaluate individual response to a Pressurizer system malfunction involving pressurizer level failing high.
5) Evaluate individual response to a failure of loss of main feedwater pump.
6) Evaluate crew's ability to mitigate a Steam Generator Tube Rupture.
7) Evaluate individual response to Green Train SIAS failure to actuate.
8) Evaluate individual response to a failure of letdown to automatically isolate.
9) Evaluate individual response to a steam dump turbine bypass valve failing closed.

SCENARIO #3 NARRATIVE

Simulator session begins with the plant at ~98% power.

When the crew has completed their control room walk down and brief, they will shift running vacuum pumps.

When the vacuum pumps have been shifted or when cued by the lead examiner, the reactor reg pressurizer level program output will fail to minimum (41%). The SRO will enter the OP-2203.028, PZR system malfunctions AOP. The ATC will take manual control of letdown to control pressurizer level. The ATC must take control of PZR heaters to control RCS pressure (All heaters will be energized) The ATC should place the PZR level controller to Auto and Local then adjust the setpoint to programmed setpoint. Then Letdown should be placed back in automatic. This failure will also prevent manual start of back up charging pumps if needed to control PZR level.

When letdown has been restored to automatic or cued by lead examiner, the in-service Containment Air Monitor System (CAMS) unit 2RITS-8271-2 coupling will fail. The ATC should report the 2K-11 H10 CNTMT Air Monitor trouble alarm and refer to the ACA. The BOP should investigate and determine that 2RITS-8271-2 has low flow. When contacted, the NLO will report the coupling has failed. The BOP should use OP-2104.033 Ventilation System Operations to place the standby CAMS unit in service. When the standby CAMS unit is placed in service, the particulate detector will fail requiring entry into Tech Spec 3.4.6.1. Site OE: CR-ANO-2-2013-1880, CAMS particulate detector failure, CR-ANO-2-2011-2691, for CAMS unit low air flow and CR-ANO-2-2006-1191, for sample motor failure.

When all actions due to the CAMS failure have been completed, or cued by the lead examiner, ‘B’ MFWP will trip. The SRO will enter and implement OP-2203.027, Loss of Main Feedwater Pump AOP. This will result in steam flow exceeding feed flow and SG levels lowering. The crew will manually and rapidly reduce turbine load, insert group 6 and group P CEAs, borate using emergency boration to the RCS until feed flow is greater than steam flow. The SRO will be required to enter Tech Spec 3.2.6 for Tc out of range high. Then start a normal boration power reduction to less than 80%. Industry OE: INPO event # OE31445 Loss of a Main feedwater pump. Site OE: CR-ANO-2-2009-3744, ‘B’ Main Feedwater pump trip.

After the crew has restored feedwater flow greater than steam flow or cued by lead examiner, a Steam Generator Tube Rupture (SGTR) will occur on ‘B’ Steam Generator. The SRO will enter OP 2203.038, Primary to Secondary Leakage AOP. The crew should determine that the leak rate is greater than 44 gpm. They will trip the reactor, actuate SIAS, and CCAS. The SRO should enter TS 3.4.6.2 RCS leakage and TS 3.7.1.2 for EFW when steam is isolated to 2P-7A EFW pump. Industry OE: SOER 83-2, Steam Generator Tube Ruptures. Steam Generator Tube Rupture response is a time critical operator action per OP-1015.050 Time Critical Operator action program.

SCENARIO #3 NARRATIVE (continued)

The Crew will implement OP-2202.001, Standard Post Trip Actions (SPTA) EOP. When SIAS is actuated the green train components will fail to reposition. The crew should recognize the failure of Green train SIAS to actuate. The BOP should have a NLO to check the breaker and pump motors for the Green train High Pressure Safety Injection (HPSI) and Low Pressure Safety Injection pumps (LPSI) pumps. After the NLO report, the BOP should manually start 2P-89B HPSI pump and open all injection valves. Also, 2CV-4821-1 Red train letdown isolation valve will fail to close leaving letdown aligned. The ATC should recognize that letdown is aligned and close a Green train isolation to help maintain RCS inventory. The crew will align service water to CCW to maintain forced circulation. The crew may lower Steam Dump master controller setpoint during SPTAs to aid in maintaining margin to saturation. Industry OE: SOER 83-9, Valve inoperability cause by motor operator failures for 2CV-4821-1.

The SRO will diagnose and enter OP-2202.004, Steam Generator Tube Rupture (SGTR) EOP. The ATC should commence cool down of the RCS to allow isolation of 'B' steam generator. The BOP will override Service Water to Auxiliary Cooling Water to maintain condenser vacuum. During the cooldown, 2CV-0303, 2CV-0302, or 2CV-0306 Steam dump valve (depending on which is being used) will fail closed impacting the cooldown rate. The ATC will notice that the cooldown has stopped and adjust the cooldown rate to ensure the steam generator is isolated within the 30 minute required time. Once T_{hot} is less than 535 degrees F, the BOP should isolate 'B' steam generator. Site OE: CR-ANO -2-2010-558, CR-ANO -2-2009-3780, CR-ANO -2-2008-1190, Steam dump valve failure to open.

Simulator Instructions for Scenario 3

Reset simulator to MOL ~98 % power IC steady state.
Ensure that AACG is secured and annunciators clear.
Place MINIMAL RISK, Green Train Protected and RED Train Maintenance Week signs on 2C11.
T1, T2, T3, T4, T5, T6, T7, T8 set to false.
T2 = TO3S311C

Event No.	Malf. No.	Value/ Ramp Time	Event Description
1			Shift running vacuum pumps.
2	XRRPZRLSP Trigger T1	41%	Reactor Reg. output to PZR level control program fails to 41%.
3	DO_HS_8259_G CV82591 Trigger = T2 XRI2RITS8231A DO_RITS82313_10 Trigger = T3	Off .85 / delay = 1sec $1e^{+006}$ Off	2RITS-8271-2 Containment Atmosphere monitor (CAMS) coupling fails and 2RITS-8231-1 CAMS particulate detector fails high when started. Tech Spec for SRO.
4	MFWPMPBTRP Trigger = T4	active	'B' main feed water pump trips due to thrust bearing wear. TS for SRO.
5	SGBTUBE Trigger = T5	300 gpm / Ramp = 20 min.	'B' Steam Generator Tube Rupture ramps up to 300 gpm over 20 min. Manual reactor trip criteria when exceeds 44 gpm.
6	ESFSIAS2 CV48211	active 1	Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.
7	CV0302 Trigger = T6 CV0303 Trigger = T7 CV0306 Trigger = T8	0 0 0	Steam dump turbine bypass valve being used for the cooldown will fail closed during the RCS cooldown.

Simulator Operator CUEs		
Cued by lead examiner		Shift running vacuum pumps.
Cue: If requested as the NLO, report that prestart checks are sat and step 13.2 is complete. **Cue: ~30 sec after 2C-5B start, report that post start checks are sat IAW Exhibit 2.** **Cue: As the NLO, report that 2PB-0689 is depressed and both 2C-5A suction valves are closed.** **Cue: After request as the NLO, report that 2PB-0689 has been released.**		
Cued by lead examiner	Trigger T1	Reactor Reg. output to PZR level control program fails to 41%.
Cue: If requested as the WCO, report that the coupling between the motor and pump on 2RITS-8271-2 has failed. **Cue: If requested as the WCO, report that pre-start checks are sat for CAMS unit 8231.** **Cue: If requested as the WCO, report that CAMS unit 2RITS-8231-1 is running with a flow of 10 SCFM.** **Cue: When contacted as the WWM, then report that a planner will begin planning work on both CAMS units.**		
CUED by Lead Examiner	Trigger T2	2RITS-8271-2 coupling fails and 2RITS-8231-1 particulate detector fails high when started. Tech Spec for SRO.
Cue: When contacted as the WWM, then report that a planner will begin planning work on the Reactor Reg input.		
Cued by lead examiner	Trigger T4	'B' main feed water pump trips due to thrust bearing wear. TS for SRO.
Cue: As NLO if requested, then report that 'B' MFP is tripped and no obvious problems noted locally. **Cue: As NLO if requested, then report that 'A' MFP is running sat.**		
Cued by lead examiner	Trigger T5	'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm.
Cue: When contacted as Chemistry, respond that you will implement 2602.001 Primary to Secondary leakage. **Cue: When contacted as NLO to perform Att. 19, respond as requested.** **Cue: If contacted as Chemistry then report that you will sample the SGs for activity and monitor RDACS for off site dose release.** **Cue: If contacted as the AO then report after 5 min that the local portions of Attachment 10 for 'B' S/G are complete.** **Cue: If contacted as the AO then report you are commencing Attachment 19 Control of Secondary Contamination.** **Cue: If contacted as NLO to check MSSVs for leak by then, after 3 min. report that there are no indications of MSSV leak-by.**		
		Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.
	Trigger T6, T7, or T8	Steam dump turbine bypass valve being used for the cooldown will fail closed during the RCS cooldown.
Cue: If contacted as the AO, then report that the feedback arm for the affected SDBCS valve has come loose and the valve is closed.		

Op-Test No.: 2014-1	Scenario No.: 3	Event No.: 1

Event Description: Shift running vacuum pumps.

Time	Position	Applicant's Actions or Behavior
Examiner note: The local pre-start check will already be complete for shifting vacuum pumps.		
		Procedure Note: • To prevent Auto starts, it is preferred Vacuum Pump (2C-5B) be maintained in service for Summertime Reliability.(May 15 to Sept. 15) • During (May 5 to Sept. 15), 2C-5A may be placed in service if 2E-11A Condenser pressure is less than approximately 4.25 "HgA.
	BOP	8.2 IF desired to start Vacuum pump (2C-5B) and secure (2C-5A), THEN perform the following: 8.2.1 Start Vacuum pump 2C-5B IAW applicable steps of "Starting Vacuum Pump" section of this procedure.
	BOP	13.2 IF desired to start Vacuum pump (2C-5B), THEN verify the following performed: 13.2.1 IF time permits, THEN verify the following: • Gear Box oil level above Low Mark on dip stick. • Pump Inboard Bearing oil level between Red Line and + 1/4 inch. • Pump Outboard Bearing oil level between Red Line and + 1/4 inch. • ACW Strainer (2F-338B) ΔP less than 30 psid. • Separator Tank (2T-156) level 1/2 to 3/4 of sight glass. • Seal Water adjusted IAW "Throttling Seal Water To Vacuum Pumps" section of this procedure. • (2C-5B) Auto-Hog (2HS-0688) in AUTO. (Local panel 2C127) **Examiner note: The local pre-start check will already be complete for shifting vacuum pumps.**
Cue: If requested as the NLO, report that prestart are sat and step 13.2 is complete.		
	BOP	13.2.2 Start 2C-5B (2HS-0696).
	BOP	13.2.3 Perform post start checks IAW applicable section of "Vacuum Pump Post Start Checks" Exhibit 2 of this procedure.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 1

Event Description: Shift running vacuum pumps.

Time	Position	Applicant's Actions or Behavior
Cue: 30 sec after 2C-5B start, report that post start are sat IAW exhibit 2.		
Procedure Caution: Failure to verify Vacuum pump Suction valves closed prior to securing pump can result in plant trip due to rapidly degraded Condenser vacuum from air flow to Condenser via open valves and idle pump. Procedure Note: • 2PB-0689/2PB-0690 position must be maintained until Suction valves are closed and Vacuum pump secured or DP switch will cause them to reopen. • Exhibit 3 is available as aide in identifying location of referenced valves. • Failure of Suction valves to close in less than 5 seconds is indication of degraded valve operations.		
	ANY	14.1 IF desired to secure Vacuum Pump (2C-5A), THEN perform the following: 14.1.1 Monitor Condenser vacuum: • 2E-11B (P605) • 2E-11A (P644)
	BOP	14.1.2 Verify Condenser pressure will not cause Auto restart of 2C-5A (~5.00” HgA).
	BOP	14.1.3 On local panel 2C126, press and hold Suction Valve Manual Close (2PB-0689) until Vacuum Pump (2C-5A) secured: A. Visually verify 2C-5A Suction valves closed: • 2CV-0679 • 2CV-0683 B. WHEN 2C-5A Suction valves visually verified CLOSED, THEN notify Control room to secure 2C-5A (2HS-0686).
Cue: As the NLO, report that 2PB-0689 is depressed and both 2C-5A suction valves are closed.		
	ANY	14.1.4 WHEN Vacuum Pump (2C-5A) secured, THEN release Suction Valve Manual Close (2PB-0689).
Cue: After request as the NLO, report that 2PB-0689 has been released.		
	ANY	14.1.5 IF vacuum begins degrading, THEN immediately restart 2C-5A (2HS-0686).
Termination criteria: When 2C-5B is running and 2C-5A is secured or at lead examiner's discretion.		

Op-Test No.: 2014-1	Scenario No.: 3	Event No.: 2
Event Description: Reactor Reg output to PZR level control program fails to 41%.		

Time	Position	Applicant's Actions or Behavior
Cued by Lead Examiner	ANY	Report the following alarms: 2K-10 H2 RRS TROUBLE 2K-10 H6 CNTRL CH 1 LEVEL HI HI 2K-10 H7 CNTRL CH 2 LEVEL HI HI
	SRO	Enter and direct the actions of OP-2203.028, PZR system malfunctions AOP
	SRO	1. Check the following criteria satisfied: A. Any PZR spray valve NOT failed open. B. Any PZR spray valve NOT failed closed. C. Check "RRS TROUBLE" annunciator (2K10-H2) clear. **(Not met perform contingency)**
	SRO	C. GO TO Step 5.
	SRO	5. Check "RRS TROUBLE" annunciator (2K10-H2) clear.
	SRO	5. IF malfunction caused PZR level setpoint to change, THEN perform the following:
	ATC	A. Perform the following for Letdown Flow controller (2HIC-4817): 1) Place controller in MANUAL. 2) Adjust output to control PZR level within 5% of setpoint.
	ATC	B. Manually control Charging pumps. **Examiner note: Charging pumps can not be started due to the interlocks with PZR level HI HI alarms.**
	ATC	C. Manually operate PZR heaters. **Examiner note: All PZR heaters will be energized and some should be secured as needed to control pressure.**

Op-Test No.: 2014-1	Scenario No.: 3	Event No.: 2

Event Description: Reactor Reg output to PZR level control program fails to 41%.

Time	Position	Applicant's Actions or Behavior
	ATC	D. IF Remote Auto PZR Level setpoint incorrect, THEN place PZR Level controller in LOCAL AUTO and adjust setpoint based on TAVE refer to 2102.004 Attachment E, Pressurizer Level Program.
	ATC	E. WHEN Letdown Flow controller (2HIC-4817) automatic and manual signals matched, THEN restore controller to AUTO using 2104.002, Chemical and Volume Control.
	SRO	F. IF failure prevents backup Charging pump operation, AND backup Charging pump required, THEN defeat stop interlock using 2103.005, Pressurizer Operations. **Examiner note: This failure does prevent starting backup charging pumps but no backup charging pumps are required.**
	SRO	Contact maintenance/PS liaison.

Cue: When contacted as the WWM, then report that a planner will begin planning work on the Reactor Reg input.

Termination Criteria: When letdown has been restored to automatic or at the discretion of the lead examiner.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 3

Event Description: 2RITS-8271-2 coupling fails and 2RITS-8231-1 particulate detector fails high when started. Tech Spec for SRO.

Time	Position	Applicant's Actions or Behavior
Cued by Lead Examiner	ANY	Announce annunciator: 2K11-H10 CNTMT AIR MONITOR TROUBLE.
	BOP	2.1 Check CAMS for cause of alarm.
	BOP	2.3 IF low or high flow, THEN perform the following: 2.3.1 Verify desired sample point selected on Hydrogen Purge Manifold Position switch (2HS-8337). 2.3.3 IF CAMS Unit 2RE-8271-2 in service, THEN adjust position of 2RE-8271-2A/2B Bypass (2HPA-10) to clear alarm.
Cue: If requested as the WCO, report that the coupling between the motor and pump on 2RITS-8271-2 has failed.		
	BOP	2.5 IF unable to clear alarms AND standby CAMS available, THEN perform the following: 2.5.1 Place standby CAMS on line using Containment Atmosphere Control (2104.033). 2.5.2 Secure affected CAMS using Containment Atmosphere Control (2104.033).
	BOP	13.1 Placing CAMS Unit 2RITS-8231-1 in Service 13.1.1 Verify the following CNTMT Air Sample Isolation valves open for 2RITS-8231-1: • 2SV-8273-1 (2HS-8273-1) on 2C17 • 2CV-8233-1 (2HS-8233-1) on 2C17 • 2SV-8271-2 (2HS-8271-2) on 2C16 • 2SV-8231-2 (2HS-8231-2) on 2C16 • 2SV-8278-1/8280-1 (2HS-8278-1) on 2C17
Cue: If requested as the WCO, report that pre-start checks are sat for CAMS unit 8231.		
	BOP	13.1.2 IF 2RITS-8231-1 aligned for Containment oxygen control, THEN verify EITHER Radwaste Exhaust fan (2VEF-8A/B) running per Ventilations System Operations (2104.035).

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 3

Event Description: 2RITS-8271-2 coupling fails and 2RITS-8231-1 particulate detector fails high when started. Tech Spec for SRO.

Time	Position	Applicant's Actions or Behavior
	BOP	13.1.3 Verify 2RITS-8231-1 aligned per System Alignment Verification section of Conduct of Operations (1015.001). [Valve lineup in Attachment B of Containment Hydrogen Control Operations (2104.044)].
	BOP	13.1.4 Start 2RITS-8231-1 Sample pump by performing the following: A. Place 2RITS-8231-1 Pump Power switch (2HS-8338-1) to START. B. Return 2RITS-8231-1 Pump Power switch (2HS-8338-1) to LOCAL.
	BOP	13.1.5 Start 2RITS-8231-1 Paper drive by performing the following: A. IF placard stating 'NEW CAMS PAPER INSTALLED' is displayed on paper drive handswitch, THEN remove placard. B. Place 2RITS-8231-1 Paper Drive switch in FAST. C. Verify "Filter Not in Motion" alarm clear. D. Place 2RITS-8231-1 Paper Drive switch in OPERATE.
	BOP	13.1.6 Verify the following for 2RITS-8231-1: • Pump on (Pump On light illuminated) • Main Sample Inlet light illuminated • All alarms clear (Particulate rad monitor alarm is not clear.
Cue: If requested as the WCO, report that CAMS unit 2RITS-8231-1 is running with a flow of 10 SCFM.		
Examiner note: The Particulate Detector for CAMS unit 2RITS-8231-1 failed hi.		
	SRO	The SRO must refer to and enter Tech Spec 3.4.6.1 action a.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 3

Event Description: 2RITS-8271-2 coupling fails and 2RITS-8231-1 particulate detector fails high when started. Tech Spec for SRO.

Time	Position	Applicant's Actions or Behavior
	BOP	Secure CAMS unit 2RITS-8271-2: 13.4 Securing CAMS Unit 2RITS-8271-2 13.4.1 IF in Modes 1-4, THEN perform EITHER of the following: A. Verify the following: • 2RITS-8231-1 operable • 2RITS-8231-1 running B. Verify TS 3.4.6.1 action “a” entered. 13.4.2 Place 2RITS-8271-2 Sample Pump Power switch to STOP. 13.4.3 Place 2RITS-8271-2 Paper Drive switch to OFF. 13.4.4 IF CAMS unit being secured following PMT run after paper change out, THEN install ‘NEW CAMS PAPER INSTALLED’ placard on paper drive handswitch.
	SRO	Contact maintenance/PS liaison.
Cue: When contacted as the WWM, then report that a planner will begin planning work on both CAMS units.		
Termination Criteria: CAMS unit 2RITS-8231-1 placed in service and Tech Spec 3.4.6.1 entered or at lead examiner's discretion.		

Op-Test No.: 2011 Scenario No.: 3 Event No.: 4

Event Description: 'B' main feed water pump trips due to thrust bearing wear. TS for SRO.

Time	Position	Applicant's Actions or Behavior
	ANY	Announce 'B' MFP trip alarms: 2K03 A11, 'B' MFP trip 2K03 J11, Thrust Bearing Wear Trouble
	SRO	Enter and implement OP-2203.027, Loss of Main Feedwater pump.
	SRO	1. Open Placekeeping page.
	SRO	2. Notify Control Board operators to monitor Floating Steps.
	ANY	3. Check at least ONE MFW pump operating.
Cue: As NLO if requested, then report that 'B' MFP is tripped and no obvious problems noted locally. **Cue: As NLO if requested, then report that 'A' MFP is running sat.**		
	ANY	■4. Check BOTH of the following conditions exist for each SG: • Indicated Feed flow greater than or equal to indicated Steam flow. • S/G level restoring to setpoint.
Procedure Note: **When steam dumps open in response to reducing turbine load, there is no effect on Main Steam flow.**		
	BOP	■4. Reduce Main Turbine Generator load as follows: A. Commence Rapidly reducing Turbine load until BOTH of the following are met: • Steam flow less than 6000 KLBM/hr. • Feed flow greater than steam flow.
Procedure Note: **At 100% power, large CEA insertions (Group 6 and Group P near but not below their respective Transient Insertion Limit) will be required to sufficiently lower power for single MFP operation.** Procedure Caution: **Maintain CEAs in acceptable region of COLR.**		

Op-Test No.: 2011 Scenario No.: 3 Event No.: 4

Event Description: 'B' main feed water pump trips due to thrust bearing wear. TS for SRO.

Time	Position	Applicant's Actions or Behavior
	ATC	*B. Commence inserting group 6 (preferred) and/or group P CEAs using 2105.009, Exhibit 3 maintaining CEAs in acceptable region of COLR as necessary to reduce power.
	ANY	C. Commence Emergency boration using 2202.010, Exhibit 1 as necessary to reduce power.
	ANY	*D. IF desired, THEN isolate SG blowdown using 2HIC-1017 and 2HIC-1067.
	ALL	E. WHEN Feed flow greater than Steam flow, THEN perform the following: • STOP Turbine load reduction as needed. • STOP Boration as needed.
	SRO	F. Check RCS TC 542 to 554.7°F using CPC PID 5, 6, 160, or 161. • IF RCS TC NOT 542 to 554.7°F THEN refer to TS 3.2.6, Reactor Coolant Cold Leg Temperature. **Examiner Note: The SRO must enter TS 3.2.6**
	ANY	5. Check tripped MFWP Recirc valve closed.
	ANY	6. Check affected Condensate Loop Recirc valve closed.
	ANY	■7. Check Main Feed Reg Valve Bypass valves start opening.
	ANY	*8. Maintain Condensate pressure 650 to 750 psi by performing the following as necessary: • Throttle Condensate Loop Recirc valves. • IF 2P-75 AFW pump is secured AND desired to start standby condensate pump, THEN start standby condensate pump.
	SRO	9. Check Reactor power less than 80%. **(Not met perform contingency)**
	ANY	9. Commence Reactor power reduction to less than 80% using 2102.004, Power Operation.

Termination Criteria: When S/G level are restoring to set point or at discretion of lead examiner.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
Cued by lead examiner	ANY	Announce alarm SEC SYS RADIATION HI.
	SRO	Enter and Implement OP-2203.038, Primary to Secondary leakage AOP.
	SRO	1. Open placekeeping page.
	SRO	2. Notify Control Board Operators to monitor floating steps.
Procedure Note: **N-16 monitors only calculate SG leak rates with plant power (CV-9000) greater than 20%.**		
		*3. Determine Primary to Secondary leakrate by ANY of the following: • Computer RCS LKRT programs. • Check PZR level stable and use Charging and Letdown mismatch minus Controlled Bleed Off. • Check Letdown isolated and estimate RCS leak rate by total Charging flow minus Controlled Bleed Off. • Chemistry leakrate calculation using 1604.013, Measurement of Primary to Secondary Leakage. • SG Tube Leak N-16 monitors. • Manual leakrate calculation.
	ANY	*4. Cycle Charging pumps to maintain PZR level within 5% of setpoint.
	ANY	*5. Check PZR level maintained within 10% of setpoint.
	ANY	6. Notify Chemistry to implement 2602.001, Primary to Secondary Leakage.
Cue: When contacted as Chemistry, respond that you will implement 2602.001 Primary to Secondary leakage.		
	ANY	Direct NLO to perform the following: 7. Initiate secondary contamination control using 2202.010 Attachment 19, Control of Secondary Contamination.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
Cue: When contacted as NLO to perform Att. 19, respond as requested.		
Procedure Note: **Aligning Charging pump suction to RWT during RWT purification with ALL Charging pumps running may cause Charging pumps to trip due to low suction pressure.**		
	ATC	*8. Maintain VCT level 60 to 75%, refer to 2104.003, Chemical Addition.
	SRO	*9. Notify SM to refer to the following: • TS 3.4.6.2, Reactor Coolant System Leakage • 1903.010, Emergency Action Level Classification **Examiner note: SRO must enter Tech Spec 3.4.6.2 action a due to primary to secondary leakage**
	ANY	10. Determine leaking SG by ANY of the following: A. Secondary Systems Radiation Trend recorder: • 2RR-1057 B. SG Sample Radiation monitors: • 2RITS-5854 • 2RITS-5864 C. Main Steam Line Radiation monitors: • 2RI-1007 • 2RI-1057 D. SG water sample results. E. SG Tube Leak N-16 monitors.
	SRO	May elect to implement floating step 15 for isolating steam to 2P-7A from the leaking Steam Generator.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
	BOP	■15. Isolate EFW pump 2P7A Steam supply as follows: A. Close Main Steam Supply valve to 2P7A from leaking SG: • 2CV-1000-1 • 2CV-1050-2
	SRO	B. Refer to TS 3.7.1.2, Emergency Feedwater System. **Examiner Note: The SRO must enter TS 3.7.1.2 when the Main steam supply valve to 2P-7A is closed.**
	SRO	When the Leakrate is determined to be greater than 44 gpm the SRO will direct the Reactor trip. ■11. IF RCS leakage greater than 44 gpm, THEN perform the following: A. IF in Modes 1 or 2, THEN perform the following: 1) Trip Reactor. 2) Actuate SIAS. 3) Actuate CCAS. 4) GO TO 2202.001, Standard Post Trip Actions.
	ANY	Recognize that Green train SIAS failed to actuate.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
CRITICAL TASK Start a Green train HPSI pump and open all HPSI valve prior to MTS lowering below 30 degrees F.	BOP	**Examiner Note: The crew may elect to take a moment of silence prior to taking action to restore Green train SIAS components. They also may elect to align HPSI and wait until entering SGTR procedure to complete Exhibit 9 for Green train SIAS.** Align Green train SIAS using applicable steps from Exhibit 9. 2.0 IF SIAS, THEN verify the following: ☐ Green Train RWT Outlet (2CV-5631-2) open. ☐ Green Train HPSI Pump in service with proper discharge pressure and flow. ☐ Green Train HPSI Injection MOVs open. ☐ Green Train Service Water Pump in service with proper discharge pressure. ☐ Green Train LPSI Pump (2P60B) in service with proper discharge pressure and flow. ☐ Green Train LPSI Injection MOVs open. ☐ Available Charging Pumps in service with proper discharge pressure and flow.
	SRO	Enter and implement OP-2202.001, Standard Post Trip Actions EOP.
	SRO	1. Notify Control Board Operators to perform the following: A. Monitor safety functions using Exhibit 7, CBO Reactor Trip Checklist. B. Perform post trip contingencies as required. 2. Open Safety Function Tracking page.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
Reactivity control safety function	ATC	3. Check Reactivity Control established as follows: A. Reactor power lowering. B. Check startup rate is negative. C. ALL CEAs fully inserted by observing ANY of the following: 1) CEA Rod bottom lights illuminated. 2) CEAC 1 indicates ALL CEAs fully inserted. 3) CEAC 2 indicates ALL CEAs fully inserted.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
Vital Auxiliaries safety function	BOP	4. Check Maintenance of Vital Auxiliaries satisfied: A. Check Main Turbine tripped by BOTH of the following: • ALL Main Stop Valves closed. • Generator megawatts indicate zero. B. Generator Output breakers open. C. Perform EITHER of the following as required: 1) Check the following valves closed: • MSR 2E-12A Steam Supply From SG A (2CV-0400) • MSR 2E-12B Steam Supply From SG B (2CV-0460) 2) No flow indicated on the following MSR second stage flow instruments: • 2FI-0402 • 2FI-0462 D. At least ONE 6900v AC bus energized E. At least ONE 4160v Non-vital AC bus energized. F. BOTH 4160v Vital AC buses energized. G. BOTH DGs secured. **(Not met, contingency is satisfied.)** H. At least ONE 125v Vital DC bus energized: 2D01 - SPDS point E2D01 2D02 - SPDS point E2D02

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
RCS Inventory Control Safety function	ATC	5. Check RCS Inventory Control established as follows: A. PZR level: • 10 to 80%. • Trending to setpoint. **(Not met due to SGTR Event, perform contingency)** B. RCS MTS 30°F or greater.
RCS Inventory Control Safety function	SRO	Direct the following as necessary: A. Perform as necessary: 1) <u>IF</u> SIAS actuated on PPS inserts, <u>THEN</u> **GO TO** Step 6. 2) Verify PZR Level Control system restoring level to setpoint.
	ATC	The ATC should recognize that Letdown has failed to isolate.
	ATC	Isolate letdown using 2CV-4820-2 or 2CV-4823-2 isolation valves.
RCS Pressure Control Safety function	ATC	6. Check RCS Pressure Control: ___ • 1800 to 2250 psia. ___ • Trending to setpoint. **(Not met due to SGTR Event, perform contingency)** • Normal PZR Spray and heaters controlling pressure. **(Will not be met due to SGTR event, perform contingency)** • Valid CNTMT Spray NOT in progress.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
	SRO	**Examiners Note: This may or may not be performed depending on the PZR pressure trend at the time this safety function is assessed.** Direct the following actions as necessary: 6. Perform as necessary: A. IF RCS pressure lowers to less than 1400 psia, THEN trip ONE RCP in EACH loop. B. IF NPSH requirements violated OR RCS MTS less than 30°F, THEN verify ALL RCPs tripped. D. IF RCP 2P32A or 2P32B stopped, THEN verify associated PZR Spray valve in MANUAL and closed. • RCP A Spray Valve (2CV-4651) • RCP B Spray Valve (2CV-4652) F. IF RCS pressure lowers to 1650 psia or less, THEN perform the following: 1) Verify SIAS actuated on PPS inserts. 2) **GO TO** Step 7. G. Verify PZR Pressure Control system restoring pressure to setpoint.
Core Heat Removal safety function.	ATC	7. Check Core Heat Removal by forced circulation: A. At least ONE RCP running. B. CCW flow aligned to RCPs. C. Loop delta T less than 10°F. D. RCS MTS 30°F or greater. E. Check SW aligned to CCW. **(SW should be aligned due to the failure of green train SIAS)** F. IF SIAS or MSIS actuated, THEN maintain SW header pressure greater than 85 psig.
	SRO	If required Direct the contingency for step 7. E

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
	BOP	E. IF CCW available, THEN restore SW to CCW, refer to 2202.010 Exhibit 5, CCW/ACW/SW Alignment. **Examiner note: CCW should be aligned due to the failure of green train SIAS.**
RCS Heat Removal Safety Function	ANY	8. Check RCS Heat Removal: A. Check SG available by BOTH of the following: • At least ONE SG level 10 to 90%. • FW maintaining SG level. B. Check MFW in RTO **(The FWCS may be out of RTO and controlling at setpoint)** C. Check Feedwater line intact by the following: • SG level stable or rising. • NO unexplained step changes or erratic FW flow. • NO unexplained step changes or erratic Condensate flow. D. Check RCS TC 540 to 555°F E. Check SG pressure 950 to 1050 psia. F. IF desired, THEN perform the following for SDBCS Master Controller using 2105.008 Exhibit 3, SDBCS Emergency Operation: 1) Place controller in Auto/Local. 2) Set setpoint at 960 psia.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
Containment Safety Function	ANY	9. Check CNTMT parameters: A. Temperature and Pressure: • Temperature less than 140°F. • Pressure less than 16 psia. B. Check CNTMT Spray pumps secured. C. NO CNTMT radiation alarms or unexplained rise in activity: 1) CAMS alarms: • "CNTMT PART/GAS RAD HI/LO" annunciator (2K10-B6) clear. 2) RCS leakage alarms: • "AREA RADIATION HI/LO" annunciator (2K11-B10) clear. • "PROC LIQUID RADIATION HI/LO" annunciator (2K11-C10) clear. 3) Check the following radiation monitors trend stable: • CNTMT Area • CAMS • Process Liquid D. NO secondary system radiation alarms or unexplained rise in activity: **(Not met due to SGTR Event)** 1) "SEC SYS RADIATION HI" annunciator (2K11-A10) clear. 2) Secondary Systems Radiation monitors trend stable: • Main Steam lines • SG Sample • Condenser Off Gas

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
	SRO	10. Notify STA to report to control room. 11. Direct NLOs to perform 2202.010 Attachment 47, Field Operator Post trip actions. 12. Verify Reactor trip announced on Plant page. 13. Notify SM to refer to Technical Specifications and 1903.010, Emergency Action Level Classification.
	SRO	14. Direct control board operators to acknowledge ALL annunciators and announce ALL critical alarms.
	SRO	15. Check ALL safety function acceptance criteria satisfied. **(All safety functions are not satisfied, perform contingency)** 15. <u>IF</u> ANY safety function acceptance criteria <u>NOT</u> satisfied, <u>THEN</u> perform the following: A. Notify control room staff of safety functions <u>NOT</u> satisfied. B. GO TO Exhibit 8, Diagnostic Actions.
	SRO	Diagnose OP-2202.004, Steam Generator Tube Rupture EOP
	SRO	Enter and implement OP-2202.004, Steam Generator Tube Rupture EOP
	SRO	* 1. Confirm diagnosis of SGTR: A. Check SFSC acceptance criteria satisfied every 15 minutes. B. IF CCW in service to provide SG Sample Cooler cooling, THEN perform the following: 1) Verify SG Sample valves open: • 2CV-5852-2 • 2CV-5859-2 • 2CV-5850 • 2CV-5858 2) Notify Chemistry to sample SGs for activity. C. Notify Chemistry to monitor RDACS for off site dose releases.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
Cue: If contacted as Chemistry then report that you will sample the SGs for activity and monitor RDACS for off site dose release.		
	SRO	* 2. Notify SM to refer to Technical Specifications and 1903.010, Emergency Action Level Classification.
	SRO	3. Open Placekeeping Page.
	SRO	4. Record present time: Time
	ANY	5. Verify SIAS and CCAS actuated on PPS inserts.
	SRO	6. Notify Control Board Operators to perform the following: A. Monitor floating steps. B. Verify actuated ESFAS components using 2202.010, Exhibit 9, ESFAS Actuation.
	BOP	Green train SIAS will fail to actuate and the crew should all verify components using Exhibit 9 if not previously completed.
	ANY	*7. Verify Safety Injection flow to RCS as follows: A. Check total HPSI flow acceptable using 2202.010 Exhibit 2, HPSI Flow Curve. B. Check total LPSI flow acceptable using 2202.010 Exhibit 3, LPSI Flow Curve.
	SRO	May elect to pull up the floating step for commencing a cooldown. Step 13. It is possible that the SRO will implement step 13 at the same time he implements step 8, 9, & 10.

Procedure Note:

- **Goal is to isolate leaking SG within 30 minutes of procedure entry to limit off-site release.**
- **535°F T_H corresponds approximately to SG pressure of 925 psia (forced circ) or 700 psia (natural circ).**

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
CRITICAL TASK The crew must cooldown to <535 ^{0}F TH within 27 min. of entering SGTR EOP.	ATC	■13. Commence RCS cooldown to less than 535°F TH as follows: A. Reset Low SG Pressure setpoints during cooldown and depressurization. B. Monitor cooldown rate as follows: • Record RCS T_C and PZR temperature using Attachment 8, RCS Cooldown Table. • Plot RCS pressure versus RCS T_C using 2202.010 Attachment 1, P-T Limits every 15 minutes. C. IF ANY RCPs running, THEN perform the following: 1) Verify maximum of one RCP running in EACH loop. 2) IF 2P32A OR 2P32B stopped, THEN verify associated PZR Spray Valve in MANUAL AND closed. 3) Initiate RCS cooldown using EITHER of the following: a) SDBCS Bypass valves (condenser available) - most preferred. b) SDBCS ADV from intact SG to atmosphere – least preferred IF necessary, THEN supplement with SDBCS ADV from ruptured SG to atmosphere as needed. **Examiner Note: The SDBCS Bypass valves should be used to minimize off site release.**
	ANY	E. IF SDBCS Bypass valves available for RCS cooldown, THEN place ALL ADV Permissive switches in OFF.

Procedure Note:
If offsite power available, use of AFW to control SG levels is preferred to minimize waste water production.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
	BOP	F. Control S/G levels with AFW or EFW using the following as necessary: • EFW Pump 2P7B using 2202.010 Attachment 46, Establishing EFW Flow. • AFW Pump 2P75 using 2202.010 Attachment 52, Establishing AFW Flow.
	BOP	G. IF 4160V Non-vital busses 2A1/2A2 energized from offsite power, THEN perform the following: 1) Secure running MFW pump. 2) Verify only one Condensate pump in operation.
	BOP	H. Close ALL MFW Block valves.
	ANY	■8. Check RCS pressure greater than 1400 psia. **(May not be met, perform contingency as required.)**
	ANY	■8. Perform the following: A. IF RCS pressure less than 1400 psia, THEN perform the following: 1) Verify maximum of ONE RCP running in EACH loop. 2) <u>IF</u> RCP 2P32A or 2P32B stopped, <u>THEN</u> verify associated PZR Spray valve in MANUAL and closed. B. IF NPSH requirements violated OR RCS MTS less than 30°F, THEN perform the following: 1) Stop ALL RCPs. 2) Verify BOTH PZR Spray valves in MANUAL and closed.
	ANY	*9. Verify the following for RCPs: A. Proper seal staging. B. CCW aligned.
	ANY	■10. Restore ESF/Non-ESF systems post-SIAS using 2202.010 Attachment 51, Post ESFAS Actuation System Restoration.
Examiner Note: The following steps are from Attachment 51 and exhibit 5.		

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
	BOP	1. Verify at least ONE SW pump running on EACH loop.
		Procedure Caution:
		Operation of loaded DG without Service Water for greater than three minutes may cause engine damage.
	BOP	2. IF ANY EDG in operation, THEN perform the following: A. Check running EDG SW Outlet valve open: • 2DG-1 SW Outlet (2CV-1503-1) • 2DG-2 SW Outlet (2CV-1504-2) B. IF running EDG Service Water valve did NOT open automatically, THEN open valve with Control Room handswitch. C. IF SW Outlet valve can NOT be opened from Control Room, THEN locally perform the following for the affected DG: **Examiner note: Both EDGs will be running and the SW outlet valves will be open.**
	BOP	3. Verify SW pump suction aligned to Lake.
	BOP	4. IF SW pump suction can NOT be aligned to Lake, THEN perform the following: **Examiner Note: This step is N/A**
	BOP	6. IF BOTH 4160v Vital buses 2A3 AND 2A4 energized from offsite power, THEN start SW pumps as needed to maintain SW header pressure.
	BOP	7. IF NO 4160V busses energized, THEN return to procedure in effect. **Examiner Note: This step is N/A**
	BOP	*8. IF only ONE 4160v Vital bus energized from offsite power AND additional SW pump start desired to maintain SW header pressure, THEN perform the following: **Examiner Note: This step is N/A**

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
	BOP	9. IF EITHER 4160v Vital Bus supplied by EDG, THEN verify only one SW pump running on train supplied by EDG. **Examiner Note: This step is N/A**
	BOP	*10. Maintain Service Water header pressure greater than 85 psig while performing the following using 2202.010 Exhibit 5, CCW/ACW/SW Alignment: A. IF Loop 2 CCW available, THEN restore Service Water to Component Cooling Water. B. Restore Service Water to Auxiliary Cooling Water.
	BOP	11. IF SW header pressure can NOT be maintained greater than 85 psig, THEN perform the following: **Examiner Note: This step is N/A**
Examiner Note: The following steps are from Exhibit 5.		
	BOP	1. IF SW suction NOT aligned to lake, THEN RETURN TO procedure in effect.
	BOP	2. IF SW NOT aligned to CCW AND CCW available, THEN perform the following: **Examiner note: CCW flow should be aligned to CCW due to the green train SIAS failure.**
	BOP	3. IF CCW flow NOT aligned to RCPs AND offsite power available, THEN perform the following: **Examiner note: CCW flow should not be re-aligned to RCPs due to the RCS to CCW leak.**

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
From Exhibit 5	BOP	4. IF SW NOT aligned to ACW, THEN perform the following: A. Verify at least ONE SW to CCW/ACW Return valve open: • 2CV-1543-1 • 2CV-1542-2 B. Override and throttle open ACW Supply valves: • 2CV-1425-1 • 2CV-1427-2 C. Maintain SW header pressure greater than 85 psig.
	SRO	■11. IF Circ Water flow lost to the Main Condenser, THEN perform the following: A. Close MSIVs: • 2CV-1010-1 • 2CV-1060-2 B. Close SG Blowdown Isolation valves: • 2CV-1016-1 • 2CV-1066-1 **Examiner Note: This step is N/A.**
	ANY	■12. Check IA pressure greater than 65 psig.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
	ANY	*14. Minimize primary to secondary break flow as follows: A. Check ANY RCP running. B. Maintain RCS pressure within the following criteria using 2202.010 Attachment 48, RCS Pressure Control: • Less than 1000 psia as conditions allow. • Within 50 psi of ruptured SG pressure as conditions allow. • 2202.010 Attachment 1, P-T Limits. • Within RCP NPSH requirements. **Examiners note: The criteria to minimize break flow can not be established until HPSI is overridden. Then the crew should establish these limits.**
	ANY	C. Use EITHER of the following to depressurize RCS: 1) 2202.010 Attachment 27, PZR Spray Operation. 2) IF HPSI termination criteria met, THEN cycle Charging pumps or throttle HPSI flow to lower PZR pressure.
	ANY	D. IF RCS pressure less than ruptured SG pressure, THEN sample RCS Boron concentration every 30 minutes.

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
	ANY	15. Determine ruptured SG by comparing ANY of the following: A. Secondary Systems Radiation Trend recorder (2RR-1057). B. Main Steam Line Radiation Monitors: • 2RI-1007 • 2RI-1057 C. SG Sample Radiation Monitors: • 2RITS-5854 • 2RITS-5864 D. SG Tube Leak N-16 monitor history trends. E. SG levels. 1) Level rising faster in ONE SG with similar FW flow rates and steaming rates in BOTH SGs. 2) Rising SG level with ALL FW isolated. F. Steam flow and FW flow prior to Reactor trip. G. SG water sample results.
	ANY	Direct the NLO's to perform the following: ■16. Minimize secondary contamination by performing BOTH of the following: A. Commence isolation of ruptured SG by performing local actions ONLY of 2202.010 Attachment 10, SG Isolation. B. 2202.010 Attachment 19, Control of Secondary Contamination.
Cue:	**If contacted as the AO then report after 5 min that the local portions of Attachment 10 for 'B' S/G are complete.** **Cue: If contacted as the AO then report you are commencing Attachment 19 control of secondary contamination.**	
	ANY	17. Isolate ruptured SG Steam Supply to EFW pump 2P7A as follows:

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
		Procedure Note: **A rise in SG level when feeding with AFW Pump 2P75 or EFW Pump 2P7B is confirmation of feed capability.** **If offsite power available, use of AFW to control SG levels is preferred to minimize waste water production.**
	ANY	A. Verify EITHER of the following running and capable of feeding SGs: • EFW Pump 2P7B using 2202.010 Attachment 46, Establishing EFW Flow. • AFW Pump 2P75 using 2202.010 Attachment 52, Establishing AFW Flow.
	ANY	C. Stop EFW pump 2P7A: 1) Override and close Steam Supply to 2P7A valve (2CV-0340-2). 2) Close Main Steam Supply valve from ruptured SG to EFW pump 2P7A: • "SG A TO EMER FW PMP TURB" 2CV-1000-1 • "SG B TO EMER FW PMP TURB" 2CV-1050-2 **Examiner Note: The SRO may enter TS 3.7.1.2 when the Main steam supply valve to 2P-7A is closed.**
	ANY	18. IF SG Blowdown aligned to flume, THEN perform the following: A. Verify SG Blowdown Isolation valves closed: • 2CV-1016-1 • 2CV-1066-1 B. Secure SG Blowdown lineup to flume and realign SG Blowdown to SU BD DI using 2106.008, Steam Generator Operations. **Examiner Note: This step is N/A.**
	ANY	■19. Check SG levels greater than 22.2%.
		Procedure Note: **535°F TH corresponds approximately to SG pressure of 925 psia (forced circ) or 700 psia (natural circ)**

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
	ALL	■20. Isolate ruptured SG as follows: A. Monitor RCS TH during cooldown with ANY of the following: • PMS point T4614 • PMS point T4714 • SPDS display B. WHEN RCS TH less than 535°F, THEN isolate ruptured SG using 2202.010 Attachment 10, SG Isolation. • Check MSSVs for ruptured SG closed by locally checking individual valve tail pipes for leakage. C. Maintain ruptured SG less than 1050 psia with ONE of the following: • MSIV Bypass valve • Upstream ADV
Cue: If contacted as NLO to check MSSVs for leak by then, after 3 min. report that there are no indications of MSSV leak-by.		

Op-Test No.: 2014-1 Scenario No.: 3 Event No.: 5, & 6

Event Description: 'B' Steam Generator Tube Rupture ramps up to 300 gpm over 10 min. Manual reactor trip criteria when exceeds 44 gpm. Tech Spec for SRO. Also Green Train SIAS fails to actuate and letdown isolation 2CV-4821-1 fails open.

Time	Position	Applicant's Actions or Behavior
CRITICAL TASK Control Room actions for 2202.010 Standard Attachment 10	BOP	4. Verify each component in the following table in the indicated position:

COMPONENT DESCRIPTION	NUMBER	LOCATION	POSITION	√
2P7B DISCHARGE TO SG-B	2CV-1036-2*	2C17	CLOSED (1)	
FLOW CONTROL VALVE TO SG-B	2CV-1075-1*	2C17	CLOSED (1)	
FEEDWATER BLOCK VALVE TO SG-B	2CV-1074-1	2C17	CLOSED	
MSIV HEADER #2	2SV-1060-1A	2C17	CLOSED	
SAMPLE ISOLATION VALVE SG-B	2CV-5858	2C17	CLOSED (1)	
SG BLOWDOWN ISOLATION	2CV-1066-1	2C17	CLOSED (1)	
MAIN STEAM TO EFWP TURB 2K03	2CV-1050-2	2C16	CLOSED	
2P7A DISCHARGE TO SG-B	2CV-1076-2*	2C16	CLOSED (1)	
2P7A DISCHARGE TO SG-B	2CV-1039-1*	2C16	CLOSED (1)	
FEEDWATER BLOCK VALVES TO SG-B	2CV-1073-2	2C16	CLOSED	
MSIV HEADER #2	2SV-1060-2A	2C16	CLOSED	
MSIV HEADER #2 BYP	2CV-1090-2	2C16	CLOSED (1)	
SAMPLE ISOLATION VALVE STEAM GEN B	2CV-5859-2*	2C16	CLOSED (1)	
2CV-1051 PERMISSIVE	2CV-1051	2C02	OFF (1)	
ADV UPSTRM ISOL	2CV-1052*	2C02	CLOSED (1)	

* Denotes override capability.

NOTE #1: Valves may be open at SM/CRS discretion.

Examiner note: 2202.010 Attachment 10 local and control room actions must be complete within 30 minutes of entering the Steam Generator Tube Rupture EOP.

Examiners note: SRO may enter Tech Spec 3.4.5 for Steam generator integrity.

Termination criteria: RCS Cool down to less than 535°F Th and 'A' SG isolated or at the discretion of the lead examiner.

Op-Test No.: 2014-1	Scenario No.: 3	Event No.: 7
Event Description: Steam dump turbine bypass valve being used for the cooldown will fail closed during the RCS cooldown.		

Time	Position	Applicant's Actions or Behavior
Cued by at Thot 540 degrees or by Lead Examiner	ANY	Recognize that the cooldown rate/SG pressure trend has changed or that valve position has changed for affect SDBCS valve.
	ATC	Determine that the valve being used for cooldown is closed.
Cue: If contacted as the AO, then report that the feedback arm for the affected SDBCS valve has come loose and the valve is closed.		
	SRO	Direct the ATC to continue the cooldown using a different turbine bypass valve.
	ATC	Continue cooldown to <535 degrees Thot for 'B' SG.
Termination criteria: When the cooldown has been completed to <535 degrees Thot for 'B' SG or at examiner's discretion.		