

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO A.1.a

INITIAL PLANT CONDITIONS

Unit 2 has experienced a Loss of Forced Circulation/Loss of Offsite Power.

Recovery actions have commenced and SO23-12-7, Loss of Forced Circulation/Loss of Offsite Power, is in progress. Cooldown and Depressurization, Attachment 3 of SO23-12-11, has been started.

The Reactor tripped 16 hours ago.

T-120 level indication is 21.3%. T-121 level indication is 63.1%.

There are no other feedwater sources available.

TASK TO BE PERFORMED

The Control Room Supervisor directs you to perform Attachment 16 of SO23-12-11, EOI Supporting Attachments, Determine the Time Until Shutdown Cooling is Required.

JOB PERFORMANCE MEASURE

SO 10-05 JPM NRC RO A.1.a

SUGGESTED TESTING ENVIRONMENT:	PLANT	X	SIMULATOR	X
ACTUAL TESTING ENVIRONMENT:	PLANT	_____	SIMULATOR	_____
ACTUAL TESTING METHOD:	PERFORMED	_____	SIMULATED	_____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____
UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO A.1.a

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 15 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: ACO

TASK SYS ID: 2637

TASK DESCRIPTION

Determine the time until Shutdown Cooling is required.

KA NUMBER: 025-AK1.01

KA VALUES: **RO** 3.9 **SRO** 4.3

10CFR55.45 APPLICABILITY: 7

REFERENCES:

SO23-12-11, EOI Supporting Attachments, Attachment 16, Determine the Time Until Shutdown Cooling is Required, Rev. 3

AUTHOR: L. Zilli

DATE: _____

OPERATIONS REVIEW: M. Jones

DATE: _____

APPROVED BY: A. Hagemeyer

DATE: _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
3	Compared against SO23-12-7, Rev. 16 added a missing step and made procedural modifications.	LRZ	6/14/00	WLL
3-1	Changed reference to SO23-12-11, Rev. 1. Modified Initial Plant Conditions. Minor wording modifications to follow procedures changes. Added 2 non-critical steps to follow procedures changes.	RCW	11/06/03	AHH
3-2	Fixed typo in NOTE prior to JPM Step 1.	RCW	01/06/04	N/A
3-3	Converted to an ADMIN JPM.	RCW	09/29/04	MRN
4	Compared against SO23-12-11, Rev. 3 and modified initial conditions and DWST Tank levels to yield new critical steps for available feedwater and time until SDC is required.	LRZ	07/27/05	REV

SET-UP

Provide the Examinee with a copy of SO23-12-11, EOI Supporting Attachments, Attachment 16, Determine Time Until Shutdown Cooling is Required.

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Provide the examinee with a copy of S023-12-11, EOI Supporting Attachments, Attachment 16.				
1	Verify T-120/T-121 the only current feedwater source to SGs.	VERIFY T-120 and T-121 are the only current feedwater source to SGs.		Start Time: _____
2*	Determine T-120 inventory from Table 1, Condensate Storage Tank Inventory.	Using Table 1, DETERMINE T-120 inventory to be 95,262 gallons .		
3*	Determine T-121 inventory from Table 1, Condensate Storage Tank Inventory.	Using Table 1, DETERMINE T-121 inventory to be 93,755 gallons .		
4*	Determine combined inventory from both Condensate Storage Tanks.	DETERMINE total condensate inventory to be 189,017 gallons .		
5	Determine additional feedwater source inventory.	DETERMINE additional feedwater source inventory to be zero (0) gallons .		
6	Determine Total feedwater source inventory.	DETERMINE total feedwater source inventory to be 189,017 gallons .		
7*	Determine Net Available Feedwater for decay heat removal.	DETERMINE Net Available Feedwater available for decay heat removal to be 134,017 gallons .		
8	Determine the number of hours the reactor has been shutdown.	DETERMINE Reactor was shutdown sixteen (16) hours ago.		

JPM: SO 10-05 JPM NRC RO A.1.a

TITLE: Determine the Time Until Shutdown Cooling is Required

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
9*	Using Figure 3: Remaining Time SGs Available as Heat Sink determine time remaining until shutdown Cooling required for decay heat removal.	DETERMINE time Steam Generators remain available for a heat sink and Shutdown Cooling will be required to be 13.5 (± 0.5) hours.		
TERMINATING CUE: This JPM is complete. Stop Time: _____				

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.

 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.

 - f. X Statements describing important actions or observations that should be made by the Examinee.

 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: L. Zilli **DATE:** 08/05/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC SRO A.1.a

INITIAL PLANT CONDITIONS

Unit 2 has been operating for several days at a steady state power level greater than 20%.

A reactor power calculation (Manual Method) has been performed due to COLSS Primary calculation being unavailable.

There is NO Auxiliary Feedwater Flow indicated.

Steam Generator E-088 and E-089 Steam and Feedwater Flow indications are within 500k lbm/hr of each other.

The Control Operator that completed this surveillance used the 1000 psia curve for specific enthalpy of subcooled water (temperature interpolated).

TASK TO BE PERFORMED

As the Control Room Supervisor, review the Reactor Power Calculation (Manual Method) in accordance with SO23-3-3.38.

Identify, **circle**, and **correct** any errors found on this surveillance.

JOB PERFORMANCE MEASURE

SO 10-05 JPM NRC SRO A.1.a

SUGGESTED TESTING ENVIRONMENT:	PLANT	X	SIMULATOR	X
ACTUAL TESTING ENVIRONMENT:	PLANT	_____	SIMULATOR	_____
ACTUAL TESTING METHOD:	PERFORMED	_____	SIMULATED	_____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____
UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC SRO A.1.a

JPM LEVEL: SRO

ESTIMATED TIME TO COMPLETE: 30 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: CRS

TASK SYS ID: 187652

TASK DESCRIPTION

Authorize, supervise, and review all surveillance tests performed on shift.

KA NUMBER: G2.1.20

KA VALUES: **RO** 4.3 **SRO** 4.2

10CFR55.45 APPLICABILITY: 12

REFERENCES:

SO23-3-3.38, Reactor Power Calculation (Manual Method), Revision 7

AUTHOR: L. Zilli

DATE: _____

OPERATIONS REVIEW: M. Jones

DATE: _____

APPROVED BY: A. Hagemeyer

DATE: _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
0	New	-	-	-
1	Compared against SO23-3.3.38, Rev. 7 and modified errors contained within the Reactor Power Calculation. Additionally, new final power level calculation required by SRO.	LRZ	07/27/05	REV

SET-UP

Provide the examinee with a copy of SO23-3-3.38, Reactor Power Calculation (Manual Method), with a filled out calculation.

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Provide the examinee with a copy of SO23-3-3.38, Reactor Power Calculation (Manual Method), with a filled out calculation.				
1	Complete prerequisites.	VERIFY prerequisites are complete by checking: <ul style="list-style-type: none"> • Power > 20% • No AFW Flow • Reactor Power Stable 		Start Time: _____
2	Verify data in Attachment 1 Steps 2.2.1 thru 2.2.4.	VERIFY the PMS Computer was used to record data in Steps 2.2.1 thru 2.2.4 and VERIFY the appropriate boxes to indicate whether Preferred or Alternate points were used.		
3	Determine Average Feedwater Inlet Temperature.	VERIFY the Average Feedwater Inlet Temperature was calculated and recorded (447°F) in the lower right hand column of Step 2.2.1.		
4*	Determine Average Feedwater Pressure.	VERIFY the Average SG Inlet Pressure was calculated and recorded and DETERMINE the <u>incorrect number</u> was placed in the lower right hand column of Step 2.2.2 and <u>corrects error</u> . Value should be 1025 psia, corrects error of 1024 psia.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
5	Determine Average SG Pressure.	VERIFY the Average SG Pressure was calculated and recorded and the correct number (809 psia) placed in the lower right hand column of Step 2.2.3.		
6	Determine Total Feedwater Flow.	VERIFY Total Feedwater flow and DETERMINE the correct number (1.484 E7 lbm/hr) was placed in the lower right hand column of Step 2.2.4.		
7	Verify SG E-088 Stm/FW Flow recorder NR & WR Pen indications agree within 500K lbm/hr.	DETERMINE SG E-088 Stm/FW Flow Recorder NR (Blue) Pen 2FT-1122 & WR (Green) Pen 2FT-1121 indications agree within 500K lbm/hr.		
8	Verify SG E-089 Stm/FW Flow Recorder NR & WR Pen indications agree within 500K lbm/hr.	DETERMINE SG E-089 Stm/FW Flow Recorder NR (Blue) Pen 2FT-1112 & WR (Green) Pen 2FT-1111 indications agree within 500K lbm/hr.		
9*	Determine the Change in Average Enthalpy.	VERIFY the Change in Average Enthalpy 1199.1 ± 1 Btu/lbm - 427.2 ± 1 Btu/lbm = 771.9 ± 1 Btu/lbm and DETERMINE correct number was placed in the lower right hand column of Step 2.3.1.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
10*	Determine Average Secondary Power.	DETERMINE the Average Secondary Power $771.9 \text{ Btu/lbm} \times 1.484 \text{ E7 lbm/hr} = 1.145\text{E10 Btu/hr}$ and DETERMINE the <u>incorrect number</u> was placed in the lower right hand column of Step 2.3.2 and <u>corrects error</u> . Value should be 1.145E10 Btu/hr , corrects error of 1.135E10 Btu/hr .		
11*	Determine % Full Reactor Power.	DETERMINE the % Full Reactor Power $(1.145\text{E10 Btu/hr} \div 1.173\text{E8 Btu/hr} = 97.6 \pm 0.5\%)$ and DETERMINE the <u>incorrect power level</u> was calculated and recorded in the lower right hand column of Step 2.3.3 and <u>corrects error</u> . Value should be $97.6 \pm 0.5\%$, corrects error of 96.7% .		
12	Verify acceptance criteria have been met.	VERIFY the acceptance criteria has been met by ensuring the following conditions were maintained during the calculations: <ul style="list-style-type: none"> • Power > 20% • No AFW Flow • Reactor Power Stable 		
TERMINATING CUE: This JPM is complete.				Stop Time: _____

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.

 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.

 - f. X Statements describing important actions or observations that should be made by the Examinee.

 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: L. Zilli **DATE:** 08/05/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO/SRO A.1.b

INITIAL PLANT CONDITIONS

Unit 2 is in Mode 1 when you are directed to perform a blended makeup to the Unit 2 RWSTs at a total flow of 40 gpm to raise level 3%. The RWSTs are currently at 97%.

The Plant Monitoring System is UNAVAILABLE. VCT level is stable at 70%.

Current RWST Boron concentration is 2650 ppm.

BAMU Tank T-071 is at 97% and BAMU Tank T-072 is at 93%. Both BAMU Tanks have a concentration of 5420 ppm.

The Operations SRO has verified that an OPERABLE boration flowpath exists.

TASKS TO BE PERFORMED

The Shift Manager directs you to:

1. **Determine** the required volume to raise RWST level from 97% to 100%.
2. **Determine** the required Boric Acid Flow Rate and Primary Makeup Water Flow Rate for a makeup concentration of 2650 ppm at a total flowrate of 40 gpm.
3. **Complete** the Prerequisites for SO23-3-2.2, Makeup Operations, Attachment 14, BAMU Tank Makeup to the RWSTs and return to the Shift Manager.
4. **Record** the following information:
 - a. Boric Acid Flowrate _____ gpm
 - b. Primary Water Flowrate _____ gpm
 - c. RWST Volume Required _____ gallons
 - d. Total Gallons of Boric Acid Used _____ gallons
 - e. Volume in BAMU Tanks after addition to RWST _____ gallons

SUGGESTED TESTING ENVIRONMENT:	PLANT	<u> X </u>	SIMULATOR	<u> X </u>
ACTUAL TESTING ENVIRONMENT:	PLANT	<u> </u>	SIMULATOR	<u> </u>
ACTUAL TESTING METHOD:	PERFORMED	<u> </u>	SIMULATED	<u> </u>

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____
UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO/SRO A.1.b

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 20 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: CO

TASK SYS ID: 141358

TASK DESCRIPTION

Calculate a blend for automatic or manual makeup operations.

KA NUMBER: G2.1.23

KA VALUES: **RO** 3.9 **SRO** 4.0

10CFR55.45 APPLICABILITY: 2, 6

REFERENCES:

SO23-3-2.2, Makeup Operations, Rev. 18.

Licensee Controlled Specifications Figure 3.1.104-1, Minimum Stored Acid Volume, Rev. 2.

AUTHOR: L. Zilli

DATE: _____

OPERATIONS REVIEW: M. Jones

DATE: _____

APPROVED BY: A. Hagemeyer

DATE: _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
0	New. This JPM was derived from JPM 215A.	-	-	-

SET-UP

Provide candidate with a complete copy of SO23-3-2.2, Makeup Operations and a copy of the Licensee Controlled Specifications, and a copy of LCS figure 3.1.104-1.

JPM: SO 10-05 JPM NRC RO/SRO A.1.b TITLE: Perform an RWST Blended Makeup Calculation

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Provide examinee with a complete copy of SO23-3-2.2, Makeup Operations and a copy of the Unit 2 Licensee Controlled Specifications.				
1	Identifies Attachment 10, Section 2.2 applies.	LOCATE Attachment 10 and IDENTIFY Section 2.2 as required "Formula to Calculate a Blended Makeup to the RWSTs."		Start Time: _____
2*	Determines Boric Acid flow rate.	DETERMINE Boric Acid flow rate. RWST ppm (2650) / BAMU ppm (5420) X Desired Flow Rate (40 gpm) = 19.5 ± 0.1 gpm Boric Acid for blend.		
3*	Determines PMW flow rate.	DETERMINE PMW flow rate. Desired Total Flow (40 gpm) – gpm Acid for Blend (19.5) = 20.5 ± 0.1 gpm PMW for blend.		
4	Identifies Attachment 10, Section 2.4 applies.	LOCATE Attachment 10 and IDENTIFY Section 2.5 as required "Formula to Determine RWST Volume from a Change in Level."		
5*	Determines volume required to raise RWST volume from 97% to 100%.	DETERMINE required RWST volume. RWST volume in gallons = 4924 gallons / % x 3% = 14772 gallons.		
6*	Complete Attachment 14, Section 1.0, Prerequisites.	VERIFY current copy of procedure and CALCULATE that 14772 gallons of makeup is required to raise the RWST from 97% to 100% per Attachment 10 Step 2.4.		

JPM: SO 10-05 JPM NRC RO/SRO A.1.b TITLE: Perform an RWST Blended Makeup Calculation

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
8	Complete Attachment 14, Step 1.5, Determine RWST final Boron Concentration.	DETERMINE that the initial and final boron concentration will be 2650 ppm .		
9	Complete Attachment 14, Step 1.6; Is final RWST Boron Concentration between 2650 and 2800 ppm?	DETERMINE that the final boron concentration is 2650 ppm and CHECK the YES box.		
10	Complete Attachment 14, Step 1.6.2 by determining the volume of boric acid available in the BAMU Tanks.	CALCULATE the volume of boric acid available using Attachment 10, Section 2.6, "Formula to Determine BAMU Tank Volume from a Change in Level." 97 % x 106 gal. / % = 10282 gallons in T-071. 93 % x 106 gal. / % = 9858 gallons in T-072. Total gallons available = 20140 gallons		
11*	Complete Attachment 14, Step 1.6.2 by determining the volume of boric acid used.	CALCULATE the volume of boric acid used: 19.5 BA flow / 40 MU flow x 14772 gallons = 7220 ± 20 gallons of boric acid added.		
12*	Complete Attachment 14, Step 1.6.2 by determining the volume of boric acid available in the BAMU Tanks following addition to the RWSTs.	CALCULATE the volume of boric acid available in the BAMU Tanks following the addition to the RWST: 20140 – 7220 = 12920 ± 20 gallons available in the BAMU tanks.		

JPM: SO 10-05 JPM NRC RO/SRO A.1.b TITLE: Perform an RWST Blended Makeup Calculation

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
13*	Complete Attachment 14, Step 1.6.2 by determining the minimum volume of boric acid required.	REFER to LCS Figure 3.1.104-1, “Minimum Stored Acid Volume (Gallons)” and DETERMINE 7600 ± 200 gallons is the required minimum volume with the RWST at 2650 ppm and the BAMU Tanks at 3.1 weight % .		
14	Complete Attachment 14, Step 1.6.2; Based on delta volume added to the RWST, will the BAMU Tanks continue to meet the requirements of LCS Figure 3.1.104-1?	DETERMINE that sufficient boron is available in the BAMU Tanks and CHECK the YES box.		
TERMINATING CUE: This JPM is complete.				Stop Time: _____

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.

 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.

 - f. X Statements describing important actions or observations that should be made by the Examinee.

 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: L. Zilli **DATE:** 08/05/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC SRO A.2

INITIAL PLANT CONDITIONS

Unit 3 is in the Startup MODE at ~1% power with all equipment operating normally except the LCOAR/EDMR Tracking System (LETS) Computer is not available. The Shift Manager received a call from the Shift Chemist and Engineering this morning October 24, 2005 at 8 AM (10/24/05 @ 0800) stating that the biennial calculation for Unit 3 Trisodium Phosphate Dodecahydrate crystals was determined to be 285 ft³. It is believed that the cause is due to settling of contents over time. A Safety Function Determination (SFD) has been completed. A Non-Conformance Report (NCR), Work Authorization Request (WAR), and Action Request (AR) to correct the problem are in progress. A calculation for Unit 2 is also in progress.

TASK TO BE PERFORMED

The Shift Manager directs you to complete a manual LCOAR for Unit 3 Trisodium Phosphate Dodecahydrate. Inform the Shift Manager when complete.

JOB PERFORMANCE MEASURE

SO 10-05 JPM NRC SRO A.2

SUGGESTED TESTING ENVIRONMENT:	PLANT	X	SIMULATOR	X
ACTUAL TESTING ENVIRONMENT:	PLANT	_____	SIMULATOR	_____
ACTUAL TESTING METHOD:	PERFORMED	_____	SIMULATED	_____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____
UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC SRO A.2

JPM LEVEL: SRO

ESTIMATED TIME TO COMPLETE: 20 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: CRS

TASK SYS ID: 192880

TASK DESCRIPTION

Initiate, review, and closeout an LCOAR.

KA NUMBER: 2.2.24

KA VALUES: **RO** 2.6 **SRO** 3.8

10CFR55.45 APPLICABILITY: 13

REFERENCES:

SO123-0-A5, Technical Specification LCOAR/EDMR, Revision 2-2

Technical Specification 3.5.5, Trisodium Phosphate Dodecahydrate

SO123-III-1.14.23, Trisodium Phosphate Rack Inspection, Sample Collection, and Testing, Rev. 6.

AUTHOR: L. Zilli

DATE: _____

OPERATIONS REVIEW: M. Jones

DATE: _____

APPROVED BY: A. Hagemeyer

DATE: _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
1	Compared against new version of procedure using SO123-0-A5, Rev. 2-2 and implemented changes as required. Modified JPM to reflect new Technical Specification used.	LRZ	08/02/05	REV

SET-UP

Provide the examinee with a copy of SO123-0-A5, Technical Specification LCOAR/EDMR with extra copies of Attachments 1, 2 and 3 and Technical Specifications.

Complete Attachment 1 for use as an answer guide.

Definitions:

LCOAR – Limiting Condition for Operation ACTION Requirement

EDMR – Equipment Deficiency MODE Restraint

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: When located, provide the examinee with a copy of SO123-0-A5, Technical Specification LCOAR/EDMR with extra copies of Attachments 1, 2 and 3 and Technical Specifications.				
1*	Refer to Tech Specs to identify the LCO and Action requirements.	REFER to Tech Specs and IDENTIFY Limiting Condition Operation 3.5.5 Action A.		Start Time: _____
2*	Refer to the procedure and select the proper forms.	REFER to SO123-0-A5 and SELECT Attachment 1.		
NOTE: Keypoints in Step 3 are not critical to task completion. Keypoints in Step 4 <u>are</u> critical to task completion. Any Keypoints not listed may or may not be filled in by the examinee.				
3	Complete LCOAR, Attachment 1.	COMPLETE Attachment 1, Keypoints 1, 2, 3, 6, 7, 10, 11 and 12 (as a minimum). REFER to Attachment 3 as necessary to complete the LCOAR.		
NOTE: Examinee may choose to complete Keypoint 18 as opposed to the LCO shown in Keypoint 8.				
4*	Complete LCOAR, Attachment 1.	COMPLETE Attachment 1, Keypoints 4, 5, 8, and 9 (as a minimum). REFER to Attachment 3 as necessary to complete the LCOAR.		
NOTE: Refer to the completed Attachment 1 for representative entries for each Keypoint. It is not expected that the wording used by the candidate will match the reference Attachment 1 exactly.				

JPM: SO 10-05 JPM NRC SRO A.2

TITLE: Complete a Manual LCOAR for Trisodium Phosphate Dodecahydrate

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
5	Inform the Shift Manager when complete.	INFORM the Shift Manager that the LCOAR is complete.		
TERMINATING CUE: This JPM is complete.				Stop Time: _____

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.

 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.

 - f. X Statements describing important actions or observations that should be made by the Examinee.

 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: L. Zilli **DATE:** 08/05/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 NRC RO/SRO A.3

INITIAL PLANT CONDITIONS

You have been directed to perform a valve alignment in for the Shutdown Cooling Heat Exchanger 3E004 Room. The task involves uncapping and opening several drain valves and attaching drain hoses directed to the floor drain.

TASK TO BE PERFORMED

The Work Control Supervisor directs you to select the appropriate REP for the work to be performed, select the appropriate Survey Map **and** determine stay time in the general work area.

- REP Number _____
- Survey Map Number _____
- Stay Time _____

JOB PERFORMANCE MEASURE

SO 10-05 NRC RO/SRO A.3

SUGGESTED TESTING ENVIRONMENT:	PLANT	X	SIMULATOR	X
		<hr/>		<hr/>
ACTUAL TESTING ENVIRONMENT:	PLANT	<hr/>	SIMULATOR	<hr/>
ACTUAL TESTING METHOD:	PERFORMED	<hr/>	SIMULATED	<hr/>

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____

UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 NRC RO/SRO A.3

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 10 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: ACO

TASK SYS ID: N/A

TASK DESCRIPTION

Determine Stay Time.

KA NUMBER: G2.3.2

KA VALUES: **RO** 2.5 **SRO** 2.9

10CFR55.45 APPLICABILITY: 8, 9

REFERENCES:

SO123-VII-20.9, Radiological Surveys, Rev. 6-3

AUTHOR: L. Zilli

DATE: _____

OPERATIONS REVIEW: M. Jones

DATE: _____

APPROVED BY: A. Hagemeyer

DATE: _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
0	New	-	-	-
1	Compared against SO123-VII-20.9, Rev 6-3 with minor changes required. Modified JPM with new Survey Maps and REPs. Selected different location for JPM to be performed.	LRZ	07/25/05	AHH

SET-UP

Provide examinee with a copy of SO123-VII-20.9, Radiological Surveys, four (4) survey maps and three (3) REPs to choose from. Also supply Unit 3 Safety Equipment Building Floor Plan. (Mosaic will NOT be available.)

Note to Examiner: Information regarding methods of posting Radiological conditions on Survey Maps can be found in Section 6.2 of SO123-VII-20.9. Definitions for Survey Map abbreviations and acronyms can be found in Attachment 2 of SO123-VII-20.9.

JPM: SO 10-05 NRC RO/SRO A.3

TITLE: Determine Stay Time for Work to be Performed

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Provide applicant with Survey Map #050705-006, Elevation 8' (2 maps) and -15' (2 maps), and 3 REPs to choose from. Also supply Unit 3 Safety Equipment Building Floor Plan. (Mosaic will NOT be available)				
CUE: Direct examinee to assume all radiation exposure received is in the general area.				
1*	Determine applicable survey map.	LOCATE survey map #050705-006, Page 4 of 4 for the task to be performed. (Safety Equipment Building: Train "A" Shutdown Cooling Heat Exchanger Room 3E-004 Room.)		Start Time: _____
2*	Determine REP that provides coverage of the task performed.	LOCATE and REVIEW REP #200198 , which allows vent and drain activities.		
3*	Determine Stay Time in work area.	Based upon general area radiation levels in area and required setpoint of alarming dosimeter, DETERMINE that stay time will be 200 minutes based on 30 mR/hr general area radiation and 100 mR dose alarm.		
TERMINATING CUE: This JPM is complete.				Stop Time: _____

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.
 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.
 - f. Statements describing important actions or observations that should be made by the Examinee.
 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: L. Zilli **DATE:** 08/05/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO A.4

INITIAL PLANT CONDITIONS

You are the Auxiliary Control Operator. A Site Area Emergency has just been declared at Unit 2. This is **NOT** a Security Event. The Shift Manager (Emergency Coordinator) has assigned you to the position of Operations Leader.

The Shift Manager has informed you that:

- Emergency response personnel are to report to their emergency duty stations.
- Non-emergency response personnel are to report to designated assembly areas.
- There is to be no eating, drinking or smoking until further notice.

TASK TO BE PERFORMED

The Shift Manager directs you to perform the Siren and PA coordination using SO23-VIII-30, Units 2/3 Operations Leader Duties, Attachment 1.

JOB PERFORMANCE MEASURE

SO 10-05 JPM NRC RO A.4

SUGGESTED TESTING ENVIRONMENT:	PLANT	X	SIMULATOR	X
ACTUAL TESTING ENVIRONMENT:	PLANT	_____	SIMULATOR	_____
ACTUAL TESTING METHOD:	PERFORMED	_____	SIMULATED	_____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____
UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO A.4

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 10 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: ACO

TASK SYS ID: 895

TASK DESCRIPTION

Activate the Emergency Sirens during an Emergency Event.

KA NUMBER: 2.4.38

KA VALUES: **RO** 2.2 **SRO** 4.0

10CFR55.45 APPLICABILITY: 11

REFERENCES:

SO23-VIII-30, Units 2/3 Operations Leader Duties, Revision 11

AUTHOR: L. Zilli

DATE: 06/13/00

OPERATIONS REVIEW: M. Jones

DATE: 06/27/00

APPROVED BY: W. Lyke

DATE: 06/29/00

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
1	Reviewed SO23-VIII-30, Rev. 3, TCN 3-1 and modified as required.	LRZ	06/13/00	WLL
1-1	Compared against SO23-VIII-30, Rev. 5, with minor wording changes to comply with procedure. Changed K/A number.	LRZ	08/15/01	KR
1-2	Deleted perimeter PA. The simulator doesn't have a perimeter PA phone.	KM	10/18/01	KR
1-3	Compared against SO23-VIII-30, Rev. 5, with minor wording changes required.	LRZ	07/27/01	AHH
1-4	Compared against SO23-VIII-30, Rev. 11, with minor wording changes required.	LRZ	08/05/05	AHH

SET-UP

Any IC can be used. The Phone Turret and Emergency Evacuation Siren pushbuttons will function in any Simulator setup.

INSTRUCTOR/MACHINE OPERATOR

The Phone Turret pushbuttons in the simulator do not back-light. There are cues in the JPM to compensate for this.

Provide the Examinee with a copy of SO23-VIII-30, Units 2/3 Operations Leader Duties.

JPM: SO 10-05 JPM NRC RO A.4 **TITLE:** Perform Siren and PA Coordination Duties as Operations Leader

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
<p>NOTE: Provide the Examinee with a copy of SO23-VIII-30, Units 2/3 Operations Leader Duties.</p> <p>NOTE: The lights on the phone turret pushbuttons do not work.</p> <p>CUE: The Siren/PA process is <u>not</u> being coordinated from outside the Control Room.</p>				
1*	Prepare the Site PA message using Attachment 1.	PREPARE the Site PA message using Attachment 1 and MARK the boxes on Attachment 1 per the Initial Conditions:		Time Start: _____
NOTE: Refer to Attachment 1 answer key for appropriate markups.				
2*	Announce the prepared Site PA message <u>once</u> over the Site PA system.	MAKE the Site PA announcement by DEPRESSING the PA SITE pushbutton (bottom two rows, left-hand button) on the phone turret. USE the black phone handset indicated by the directional arrow on the Site PA pushbutton. Can also dial 429 on a Control Room phone to make a Site PA. MAKE the announcement <u>once</u> .		
3*	Sound Unit 2/3 sirens. Hold down the PA Tone Generator “Siren All” button on the phone turret until the “Kill” button illuminates.	SOUND Unit 2/3 sirens. HOLD DOWN the PA Tone Generator “Siren All” button on the phone turret until the “Kill” button illuminates.		
<p>CUE: The Siren Kill light illuminates in 1 to 4 seconds, and extinguishes after 60 seconds.</p> <p>NOTE: The lights on the phone turret pushbuttons do not work.</p>				
4*	Press the Emergency Evacuation Siren start pushbutton (HS-7890-1) on CR 57.	DEPRESS 2HS-7890-1, Emergency Evacuation Siren START pushbutton on CR-57.		

JPM: SO 10-05 JPM NRC RO A.4

TITLE: Perform Siren and PA Coordination Duties as Operations Leader

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
CUE: 60 seconds has elapsed.				
5*	After a 60 second run, press the Emergency Evacuation Siren stop pushbutton on CR 57.	After a 60 second run, DEPRESS 2HS-7890-1, Emergency Evacuation Siren STOP pushbutton on CR 57.		
6	Ensure all sirens are secured.	ENSURE all sirens are secured by checking with Plant personnel, or VERIFY 2HS-7890-1, Emergency Evacuation Siren, green light is illuminated.		
CUE: All sirens are secured.				
7*	Repeat the PA announcement from Attachment 1 <u>two</u> (2) times.	MAKE the Site PA announcement by DEPRESSING the PA SITE pushbutton (bottom two rows, left-hand button) on the phone turret. USE the black phone handset indicated by the directional arrow on the Site PA pushbutton. Can also dial 429 on a Control Room phone to make a Site PA. MAKE the announcement <u>twice</u> .		
TERMINATING CUE: This JPM is complete. Time Stop: _____				

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.

 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.

 - f. X Statements describing important actions or observations that should be made by the Examinee.

 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: L. Zilli **DATE:** 07/27/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC SRO A.4

**NOTE: THIS JPM IS WITHHELD FROM PUBLIC DISCLOSURE
BECAUSE IT CONTAINS SENSITIVE UNCLASSIFIED INFORMATION**

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO/SRO S-1

INITIAL PLANT CONDITIONS

Unit 2 was operating at 100% power when a Steam Generator Tube Rupture (SGTR) occurred.

Both Steam Generators appear to have tube leakage.

A Main Steam Isolation Signal (MSIS) has occurred due to a rapid cooldown during the Steam Generator isolation phase.

SO23-12-4, Steam Generator Tube Rupture, has been completed through Step 16a.

E088 is isolated.

TASK TO BE PERFORMED

The Control Room Supervisor directs you to verify isolation of the most affected Steam Generator using SO23-12-4, Steam Generator Tube Rupture.

SO23-12-4, Steam Generator Tube Rupture, has been completed through Step 16a.

SUGGESTED TESTING ENVIRONMENT:	PLANT _____	SIMULATOR <u> X </u>
ACTUAL TESTING ENVIRONMENT:	PLANT _____	SIMULATOR _____
ACTUAL TESTING METHOD:	PERFORMED _____	SIMULATED _____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____

UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO/SRO S-1

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 15 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: ACO

TASK SYS ID: 186690

TASK DESCRIPTION

Respond to a Steam Generator tube rupture.

KA NUMBER: 038 EA1.32

KA VALUES: **RO** 4.6 **SRO** 4.7

10CFR55.45 APPLICABILITY: 4, 6, 9

REFERENCES:

SO23-12-4, Steam Generator Tube Rupture, Revision 20

AUTHOR: L. Zilli

DATE: _____

OPERATIONS REVIEW: M. Jones

DATE: _____

APPROVED BY: A. Hagemeyer

DATE: _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
New	Verified against SO23-12-4, Rev. 20. This JPM was modified to require the operator to control SG pressure using the ADVs due to an MSIS. See J094FS for the original version.	-	-	-

SET-UP

SIMULATOR

Use IC-171 for the October 2005 NRC Exam. This is an unsupported IC, and may be deleted after the exams are complete.

Otherwise, use any at power IC, and perform the following:

- Insert SG06A = 0.01 (SGTR on E088).
- Insert SG06B = 0.6 (SGTR on E089).
- Initiate an MSIS
- Take actions to lower Th to less than 530°F.
- Initial conditions should be about 518°F and 1430 psia.
- Leave 1 MFP and 3 Condensate Pumps running.
- Perform the following to isolate the incorrect Steam Generator (E-088):
 - Press CLOSE on 2HS-8205, MSIV.
 - Press CLOSE on 2HS-4048, MFIV.
 - Press OVERRIDE and then CLOSE on 2HS-8201, Steam to P140.
 - Press CLOSE on 2HS-4058, S/G Sample Isol.
 - Press OVERRIDE and then STOP on 2HS-4733, P504 handswitch.
 - Ensure E088 level >40%.

EXAMINER

Provide the Examinee with a copy of SO23-12-4, Steam Generator Tube Rupture, when located.

JPM: SO 10-05 JPM NRC RO/SRO S-1 TITLE: Verify Isolation of Most Affected Steam Generator per SO23-12-4

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Provide the Examinee with a copy of SO23-12-3, Steam Generator Tube Rupture, when located.				
1	IDENTIFY appropriate procedure and step.	IDENTIFY SO23-12-4, Steam Generator Tube Rupture, Step 16 to be performed.		Time Start: _____
2	VERIFY Steam Line radiation level not rising.	Using DAS or 2L-405, Wide Range Monitoring Panel, OBSERVE Main Steam Line Radiation Monitors 2RI-7874/75A1 (SG E088 low/high range) and 2RI-7874/75B1 (SG E089 low/high range).		
CUE: 2RI-7874B1, Steam Generator E089 Low Range Main Steam Line Radiation Monitor, indicates a rising trend.				
3	VERIFY Blowdown radiation level not rising.	OBSERVE Blowdown Radiation Monitors 2RIT-6753 and 2RIT-6759.		
CUE: 2RIT-6753, SG E089 Blowdown Radiation Monitor, indicates a rising trend.				
4	VERIFY Air Ejector radiation level not rising.	OBSERVE Air Ejector Radiation Monitors 2RT-7818 and 2RY-78701.		
CUE: 2RY-78701, Air Ejector Radiation Monitors, indicates a rising trend.				
5	EVALUATE SG samples and VERIFY isolated SG has highest activity levels.	IDENTIFY Chemistry results that show E089 is the most affected SG instead of E088. ENTERS RNO to restore isolated SG to service and isolate opposite SG.		
CUE: Chemistry reports Steam Generator E089 activity is 1.9E-2 µci/ml and Steam Generator E088 activity is 7.7E-3µci/ml.				

JPM: SO 10-05 JPM NRC RO/SRO S-1 TITLE: Verify Isolation of Most Affected Steam Generator per SO23-12-4

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
6	Verify isolated SG trend consistent with plant conditions.	OBSERVE E088 level indications 2LI-1123-1, 2, 3, and A4, SG E088 Downcomer Level.		
CUE: E088 level trend is rising.				
NOTE: The following steps represent the alternate path of this JPM.				
7	VERIFY SBCS available – Condenser back pressure less than the SBCS interlock setpoint.	DETERMINE that SBCS is not available for operation.		
8*	ESTABLISH RCS temperature control with ADV on isolated SG.	ESTABLISH RCS temperature control by SETTING 2HV-8419-1 to the pressure setpoint on 2HV-8421-2 and DEPRESS OVERRIDE then OPEN on the Open/Modulate pushbutton on 2HV-8419 and select AUTO on 2HV-8419-1, SG E088 (N) Atmospheric Dump Valve controller.		
CUE: CRS directs starting P504 to feed E088.				
9	START AFW Pump P504.	DEPRESS the START pushbutton 2HS-4733-2 for P504.		
10	OVERRIDE and OPEN AFW Pump Discharge Valve HV-4762 for P-504 to 35% open.	DEPRESS OVERRIDE then OPEN for 2HV-4762, AFWP 2P504 to SG E088 (N) Disch Valve Bypass and OPEN to 35%.		
CUE: CRS directs you to OVERRIDE and OPEN 2HV-4714 to feed E088.				
11	OVERRIDE and OPEN AFW Valve HV-4714.	DEPRESS OVERRIDE and then OPEN for 2HV-4714, AFWP to SG E088 (N) Disch Valve.		

JPM: SO 10-05 JPM NRC RO/SRO S-1 TITLE: Verify Isolation of Most Affected Steam Generator per SO23-12-4

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
12	MAINTAIN reduced flow for 5 minutes.	OBSERVE E-088 level indicators on CR-52 > 40% by observing 2LI-1123-1, -2, -3 and A4, SG E088 Downcomer Level.		
CUE: 5 minutes have elapsed.				
CUE: Present Steam Generator E088 level is greater than 40% narrow range level.				
13	VERIFY recovered SG level > 40% NR and feedwater available, OR, level trending to between 40% NR and 80% NR.	VERIFY SG E-088 level > 40% NR by: Observing 2LI-1123-1, -2, -3 and A4, SG E088 Downcomer Level, and VERIFY feedwater available.		
14	ENSURE all valves to initially unisolated SG closed per Step 9.	TRANSITION to Step 9 of SO23-12-4.		
15	CLOSE SG E-089 MSIV, 2HV-8204.	VERIFY green CLOSE indicating light 2HV-8204, SG E089 (S) Main Steam Iso Valve closed at CR52 or CR57.		
16	VERIFY SG E-089 MSIV Bypass, 2HV-8202 is closed.	VERIFY green CLOSE indicating light on 2HV-8202, SG 2E089 Main Steam Iso Valve Bypass.		
17*	VERIFY SG E-089 ADV, 2HV-8421 is closed.	DEPRESS the CLOSE pushbutton on 2HV-8421, SG E089 (S) Atmospheric Dump Valve and OBSERVE the green CLOSE indicating light.		
18	CLOSE SG E-089 Main Feed Isolation, 2HV-4052.	VERIFY 2HV-4052 FW to SG 2E089 (S) Iso Valve CLOSED at CR52 or CR57.		

JPM: SO 10-05 JPM NRC RO/SRO S-1 TITLE: Verify Isolation of Most Affected Steam Generator per SO23-12-4

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
19*	CLOSE Aux Feed to SG E-089, 2HV-4731.	DEPRESS the CLOSE pushbutton on 2HV-4731, AFW to SG 2E089 (S) Iso Valve, and OBSERVE the green CLOSE indicating light.		
20	CLOSE Aux Feed to SG E-089, 2HV-4715.	VERIFY 2HV-4715, AFW to SG 2E089 (S) Iso Valve, is CLOSED.		
21*	CLOSE Main Steam to Aux Feed Pump Turbine, 2HV-8200.	DEPRESS OVERRIDE and then CLOSE pushbuttons for 2HV-8200, Main STM to AFWPT 2K007 SG 2E089 (S) Iso Valve and OBSERVE the green CLOSE indicating light.		
22	CLOSE SG E-089 Blowdown Isolation, 2HV-4053.	VERIFY 2HV-4053-2, SG 2E089 (S) Blowdown Iso Valve, is CLOSED.		
23	CLOSE SG E-089 Steam Generator Water Sample Isolation, 2HV-4057.	VERIFY 2HV-4057, SG 2E089 (S) Water Sample Iso Valve, is CLOSED.		
24	STOP Aux Feed Pump P-141.	DEPRESS OVERRIDE and then STOP pushbuttons for 2HS-4701-1, AFWP 2P141.		
TERMINATING CUE: This JPM is complete.				Time Stop: _____

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.

 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.

 - f. X Statements describing important actions or observations that should be made by the Examinee.

 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: L. Zilli **DATE:** 07/25/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO/SRO S-2

INITIAL PLANT CONDITIONS

Unit 2 is cooling down. Both Shutdown Cooling (SDC) pumps and both SDC heat exchangers are in operation.

TASK TO BE PERFORMED

The Control Room Supervisor directs you to perform the actions required to place the Shutdown Cooling System in a single pump/single heat exchanger lineup.

Remove P-016 and E-003 from service per SO23-3-2.6 and establish Shutdown Cooling System flow at ~4500 gpm.

JOB PERFORMANCE MEASURE

SO 10-05 JPM NRC RO/SRO S-2

SUGGESTED TESTING ENVIRONMENT:	PLANT _____	SIMULATOR <u> X </u>
ACTUAL TESTING ENVIRONMENT:	PLANT _____	SIMULATOR _____
ACTUAL TESTING METHOD:	PERFORMED _____	SIMULATED _____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____
UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO/SRO S-2

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 15 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: ACO _____

TASK SYS ID: 007814

TASK DESCRIPTION

Transfer from parallel to single shutdown cooling heat exchangers.

KA NUMBER: S04S-005-000-A1-01 _____

KA VALUES: **RO** 3.5 **SRO** 3.6 _____

10CFR55.45 APPLICABILITY: 2, 4, 6, 7, 10, 12

REFERENCES:

SO23-3-2.6, Shutdown Cooling System Operation, Rev. 22.

AUTHOR: L. Zilli _____

DATE: _____

OPERATIONS REVIEW: A. Hagemeyer _____

DATE: _____

APPROVED BY: M. Jones _____

DATE: _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
1	Changed task number to properly reflect task performed by JPM. NR-0122 Group III system approved for use as JPM due to KA value >3.0.	HJW	10/05/93	MJK
1-1	Changed setup page; minor editorial corrections to standards for clarity.	HJW	03/22/94	N/A
1-2	Compared against SO23-3-2.6, TCN 7-18 with no changes required.	HJW	05/27/94	N/A
1-3	Compared against SO23-3-2.6, TCN 7-18 with no changes required.	HJW	09/24/94	N/A
1-4	Changed setup page to position valves HV-8150 & 8151 to 32% open instead of 80% open.	HJW	10/26/94	N/A
1-5	Compared against SO23-3-2.6, TCN 8-2 with minor changes required for step reference and flow limit updates.	HJW	05/03/95	N/A
1-6	Compared against SO23-3-2.6, TCN 8-4 with minor changes to step reference numbers and parameters. Corrected some standards to comply with actual plant components. Deleted step 3.	HJW	10/17/95	N/A
1-7	Compared against SO23-3-2.6, Rev. 9 with no changes required.	HJW	09/18/96	N/A
2	Compared against SO23-3-2.6, Rev. 22 and revised as required. Deleted critical steps to reflect the MOVAT improvements that no longer require holding the switches for valve closure. Added a critical step to close 2HV-6500.	LRZ	07/11/05	REV

SET-UP

Use IC-5.

The following keys are required: 13, 14, 15, 16, 19, 21, 22, 28, 29, 30, 31, 34, 35, 36, 38, 42, 46, and 50.

Fully open 2HV-9325 & 2HV-9328.

Fully open 2HV-9322 & 2HV-9331

Start LPSI 2P015.

Position 2HV-8150 & 2HV-8151 to 32% open.

Allow conditions to stabilize.

Check 2FI-0306 between 8000 and 8400 gpm.

Provide examinee with a copy of SO23-3-2.6, Shutdown Cooling System Operation.

JPM: SO 10-05 JPM NRC RO/SRO S-2 TITLE: Perform the Actions Required to Place the SDC in a Single Pump / Single Heat Exchanger Lineup (Remove P-016 and E-003 from Service)

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Provide examinee with a copy of SO23-3-2.6, Shutdown Cooling System Operation.				
1	NOTIFY Health Physics that radiation levels in the SDC heat exchanger and LPSI pump areas may change.	NOTIFY Health Physics that radiation levels in the SDC heat exchanger and LPSI pump areas may change.		Start Time: _____
CUE: Health Physics has been notified.				
2	TRANSITION to Step 6.6.6.	TRANSITION to Step 6.6.6 for securing LPSI Pump P016.		
CUE: If asked, inform the examinee that the RCS is filled with a bubble in the pressurizer.				
3*	Slowly CLOSE LPSI Header Isolation valve HV-9322.	DEPRESS and hold the JOG CLOSE pushbutton for 2HV-9322, HDR to Loop 1A, until the GREEN light is illuminated.		
4*	Slowly CLOSE LPSI Header Isolation valve HV-9331.	DEPRESS and hold the JOG CLOSE pushbutton for 2HV-9331, HDR to Loop 2B, until the GREEN light is illuminated.		
5*	STOP LPSI Pump P-016.	DEPRESS STOP pushbutton 2HS-9391-2, LPSI Pump 2P016 (N).		
NOTE: Values listed below are the limits through one heat exchanger.				
6	THROTTLE the in-service SDC heat exchanger bypass flow valve, HV-8160; to control SDCS flow as required by present Mode and RCS level conditions.	DEPRESS the JOG OPEN or JOG CLOSED pushbutton to THROTTLE 2HV-8160, SDC HX Bypass Normal Flow Valve, to achieve >2500 to <5320 gpm with a desired value of ~4500 gpm.		

JPM: SO 10-05 JPM NRC RO/SRO S-2 TITLE: Perform the Actions Required to Place the SDC in a Single Pump / Single Heat Exchanger Lineup (Remove P-016 and E-003 from Service)

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: The examinee may not perform the next step since immediately following this step the second heat exchanger is removed from service. This is acceptable as long as temperature is monitored.				
7	THROTTLE the SDC heat exchanger outlet to LPSI header valves, HV-8150 and HV-8151, to achieve the desired RCS cooling conditions.	TURN the JOG OPEN or JOG CLOSED keylock switches as required THROTTLING 2HV-8150, SDC HX 2E004 to LPSI Header Control Valve and 2HV-8151, SDC HX 2E003 to LPSI Header Control Valve, to maintain temperature relatively constant.		
CUE: Cooling requirement at this time is only to maintain present RCS conditions until evolution completed. NOTE: The following two steps should be performed alternately to remove the second heat exchanger from service.				
8*	THROTTLE CLOSE on HV-8151, SDC Heat Exchanger E-003 outlet to LPSI header valve.	TURN and HOLD the JOG CLOSED keylock switch for 2HV-8151, SDC HX 2E003 to LPSI Header Control Valve, until the GREEN light is illuminated.		
9*	THROTTLE OPEN HV-8150, SDC Heat Exchanger E-004 outlet to LPSI header valve.	TURN and HOLD the JOG OPEN keylock switch for 2HV-8150, SDC HX 2E004 to LPSI Header Control Valve, to achieve the desired valve position.		

JPM: SO 10-05 JPM NRC RO/SRO S-2 TITLE: Perform the Actions Required to Place the SDC in a Single Pump / Single Heat Exchanger Lineup (Remove P-016 and E-003 from Service)

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
10	THROTTLE the in-service SDC heat exchanger outlet to LPSI header valve, HV-8150, to achieve the desired RCS cooling conditions.	TURN the JOG OPEN or JOG CLOSED keylock switch as required THROTTLING 2HV-8150, SDC HX 2E004 to LPSI Header Control Valve, to achieve the desired RCS cooling conditions.		
11	After the off-going SDC heat exchanger outlet valve is fully closed, READJUST SDCS flow to same value as before by throttling HV-8160.	After the off-going SDC heat exchanger outlet valve is fully closed, READJUST SDCS flow by DEPRESSING the JOG OPEN or JOG CLOSED pushbutton to 2HV-8160, SDC HX Bypass Normal Flow Valve to ~4500 gpm.		
12	CLOSE the CCW Outlet Valve for the off-going heat exchanger.	CLOSE 2HV-6500, CCW from SDC HX 2E003 Block Valve.		
<p>TERMINATING CUE: Stop Time: _____</p> <p>This JPM is complete.</p>				

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.

 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.

 - f. X Statements describing important actions or observations that should be made by the Examinee.

 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: L. Zilli **DATE:** 07/25/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO/SRO S-3

INITIAL PLANT CONDITIONS

A LOCA has occurred and a Recirculation Actuation Signal has actuated.

TASK TO BE PERFORMED

The Control Room Supervisor directs you to perform SO23-12-11, EOI Supporting Attachments, Attachment 14, RAS Operation.

SUGGESTED TESTING ENVIRONMENT:	PLANT _____	SIMULATOR <u> X </u>
ACTUAL TESTING ENVIRONMENT:	PLANT _____	SIMULATOR _____
ACTUAL TESTING METHOD:	PERFORMED _____	SIMULATED _____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____

UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO/SRO S-3

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 15 min

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: CO

TASK SYS ID: 192219

TASK DESCRIPTION

Initiate RAS and verify actuation.

KA NUMBER: E11-EK3.3

KA VALUES: **RO** 3.8 **SRO** 3.8

10CFR55.45 APPLICABILITY: 2, 3, 4, 6, 7

REFERENCES:

SO23-12-11, EOI Supporting Attachments, Attachment 14, RAS Operation, Rev. 3

AUTHOR: L. Zilli

DATE: _____

OPERATIONS REVIEW: M. Jones

DATE: _____

APPROVED BY: A. Hagemeyer

DATE: _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
0	New	-	-	-

SET-UP

Use IC # 175 for the October 2005 NRC Exam. Enter malfunctions CH07A and CH07B, Containment Sump Basket Filter Clog per the “Blocked Sumps” Event File.

Provide the Examinee with a copy of SO23-12-11, Attachment 14, RAS Operation.

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Provide the Examinee with a copy of SO23-12-11, Attachment 14, RAS Operation.				
1	VERIFY RWST level – less than 19%.	OBSERVE RWT 2T006 LEVEL 2LI-0305-1, -2, -3, -4 and/or RWT 2T005 LEVEL 2LI-0301 less than 19%.		Start Time: _____
2	VERIFY Containment Emergency Sump Level – greater than 18 feet 4 inches.	OBSERVE CNTMT EMER SUMP LEVEL 2LI-9386-1 OR 2LI-9389-2 greater than 18 feet 4 inches.		
3	ENSURE Containment Emergency Sump Outlet Valves – open. <u>Train A</u> <u>Train B</u> HV-9303 HV-9302 HV-9305 HV-9304	OBSERVE Containment Emergency Sump Outlet Valve red OPEN lights illuminated for: <u>Train A</u> <u>Train B</u> 2HV-9303 2HV-9302 2HV-9305 2HV-9304		
4	ENSURE LPSI Pumps stopped.	OBSERVE LPSI PUMP P015 (2HS-9390-1) and P016 (2HS-9391-2) green STOP lights illuminated.		
5	ENSURE SI Pumps and Containment Spray Pump Miniflow Isolation Valves - closed. <u>Train A</u> <u>Train B</u> HV-9306 HV-9347 HV-9307 HV-9348	OBSERVE SI Pumps and Containment Spray Pump Miniflow Isolation Valves green CLOSE lights illuminated for: <u>Train A</u> <u>Train B</u> 2HV-9306 2HV-9347 2HV-9307 2HV-9348		
6	ENSURE CCAS – actuated.	OBSERVE CCAS actuated by observing Annunciators 57A07 and 57B07 CCAS TRAIN A (B) ACTUATION.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
7	ENSURE available Containment Emergency Cooling Units – operating. <u>Train A</u> <u>Train B</u> E-399 E-400 E-401 E-402	OBSERVE available Containment Emergency Cooling Unit red START lights illuminated on Panel 60: <u>Train A</u> <u>Train B</u> 2E-399 2E-400 2E-401 2E-402		
8	ENSURE CCW Valves to operating Emergency Cooling Units - open. <u>Train A</u> <u>Train B</u> HV-6370 HV-6368 HV-6371 HV-6369 HV-6366 HV-6372 HV-6367 HV-6373	OBSERVE CCW Valves to operating Emergency Cooling Units red OPEN lights illuminated on Panel 60: <u>Train A</u> <u>Train B</u> 2HV-6370 2HV-6368 2HV-6371 2HV-6369 2HV-6366 2HV-6372 2HV-6367 2HV-6373		
9	ENSURE available Containment Dome Air Circulating Fans – operating. <u>Train A</u> <u>Train B</u> A-071 A-072 A-074 A-073	OBSERVE available Containment Dome Air Circulating Fan red START lights illuminated on Panel 60: <u>Train A</u> <u>Train B</u> 2A-071 2A-072 2A-074 2A-073		
10	VERIFY Containment Emergency Sump Level – greater than 22 feet.	OBSERVE CNTMT EMER SUMP AREA LVL 2LI-9387-1 or 2LI-9388-2 greater than 22 feet.		
11*	CLOSE RWST Outlet Isolation Valves: HV-9300 HV-9301	OBTAIN key from Key Locker and INSERT and CLOSE RWT 2T005 Outlet Iso Valve 2HV-9300 and RWT 2T006 Outlet Iso Valve 2HV-9301.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
12	CLOSE CCW to/from Letdown Heat Exchanger Valves: <u>Train A</u> <u>Train B</u> HV-6293B/A HV-6522B/A	DEPRESS the CLOSE pushbutton for CCW CLA LTDN HX 2E062 Supply/Return Valve 2HV-6293B/A and VERIFY CLOSED CCW CLA LTDN HX 2E062 Supply/Return Valve 2HV-6522B/A.		
NOTE: The following steps represent the alternate path of this JPM.				
13	VERIFY ECCS Pump(s) suction performance: Operating ECCS Pump(s) flow – stable. Operating ECCS Pump(s) discharge pressure – stable. Operating ECCS Pump(s) motor amps – stable.	OBSERVE HPSI Pump fluctuating flow on Train A Flow Indications 2FI-0321-1 and 2FI-0331-1 and Train B Flow Indications 2FI-0311-2 and 2FI-0341-2. OBSERVE LPSI Pump fluctuating flow on Train A and B Flow Indication 2FI-0306. OBSERVE HPSI Pump fluctuating discharge pressure on 2PI-0308 for 2P-017 and 2PI-0309 for 2P-019. OBSERVE LPSI Pump fluctuating discharge pressure on 2PI-0307. OBSERVE HPSI and LPSI Pump fluctuating motor amps.		
14*	OVERRIDE and STOP both Containment Spray Pumps.	OVERRIDE and STOP both Containment Spray Pumps by DEPRESSING STOP pushbuttons on 2HS-9395-1 for Containment Spray Pump 2P012 (SE) and 2HS-9396-2 for Containment Spray Pump 2P013 (NW) and OBSERVE green STOP lights illuminated.		

JPM: SO 10-05 JPM NRC RO/SRO S-3

TITLE: Perform Recirculation Actuation Signal Actions

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
15*	OVERRIDE and CLOSE both Containment Spray Pump Discharge Valves.	OVERRIDE and CLOSE both Containment Spray Pump Discharge Valves by DEPRESSING STOP pushbuttons on 2HV-9368 for CNTMT Spray HDR NO2 Control Valve and 2HV- 9367 for CNTMT Spray HDR NO1 Control Valve and OBSERVE green CLOSED lights illuminated.		
16	If HPSI Pump performance – unstable then throttle flow.	DETERMINE that HPSI Pump performance is stable and RETURN to the Action / Expected Response column.		
17	MAINTAIN HPSI pump(s) flow: - greater than 160 GPM in any one loop per operating pump. Cold Leg Injection: <div><div><u>Train A</u></div><div><u>Train B</u></div></div> FI-0321FI-0311FI-0331FI-0341Hot Leg Injection: <div><div><u>Train A</u></div><div><u>Train B</u></div></div> FI-9421FI-9435	OBSERVE Train A Flow Indications 2FI-0321-1 and 2FI-0331-1 and Train B Flow Indications 2FI-0311-2 and 2FI-0341-2 greater than 160 GPM in any one loop. <div><div><u>Train A</u></div><div><u>Train B</u></div></div> 2FI-0321-12FI-0311-22FI-0331-12FI-0341-2		
TERMINATING CUE: This JPM is complete.				Stop Time: _____

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.
 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.
 - f. Statements describing important actions or observations that should be made by the Examinee.
 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: L. Zilli **DATE:** 07/25/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO/SRO S-4

INITIAL PLANT CONDITIONS

Unit 2 is operating at 70% power. Both CCW Loops are in service. Preparations are in progress to place the Train A CCW/SWC Loop in Standby IAW SO23-2-17, Component Cooling Water System Operation. The procedure is complete up to and including Step 6.4.4.

TASK TO BE PERFORMED

The Control Room Supervisor directs you to place the Train A CCW/SWC Loop in standby.

SUGGESTED TESTING ENVIRONMENT:	PLANT _____	SIMULATOR <u> X </u>
ACTUAL TESTING ENVIRONMENT:	PLANT _____	SIMULATOR _____
ACTUAL TESTING METHOD:	PERFORMED _____	SIMULATED _____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____
UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO/SRO S-4

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 18 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: ACRO

TASK SYS ID: 577

TASK DESCRIPTION

Transfer the component cooling water non-critical loop.

KA NUMBER: 008 A4.01

KA VALUES: **RO** 3.3 **SRO** 3.1

10CFR55.45 APPLICABILITY: 5, 7

REFERENCES:

SO23-2-17, Component Cooling Water System Operation, Revision 18-4

AUTHOR: L. Zilli

DATE: _____

OPERATIONS REVIEW: M. Jones

DATE: _____

APPROVED BY: A. Hagemeyer

DATE: _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
1	Compared to SO23-2-17, Rev. 15 and made changes as required. Deleted steps that isolated CCW to the SDC heat exchanger.	LRZ	08/01/00	WLL
1-1	Compared to SO23-2-17, TCN 15-3 and made changes to reflect the new format of the procedure and added steps that ensure two ECU Return valves are open on each train and that SDCHX outlet valves are to be repositioned during the performance of the JPM. Changed the setup page to reflect the changes to the procedure.	JJM	10/26/00	WLL
2	Compared to SO23-2-17, TCN 15-4 and made changes to reflect added steps to the procedure. Added Critical step to close the discharge valve on the SWC Pump that was secured.	LRZ	05/14/01	WLL
2-1	Compared to SO23-2-17, Rev. 18. Updated Set-up page. Added cue. Minor editorial changes.	RCW	11/20/03	FM
3	Compared to SO23-2-17, Rev. 18-4. Added two Critical Steps (Step 7 and 23). Added Cue before Step 22 to direct operator to align ECU and SDC Valves. Made minor editorial changes.	LRZ	07/26/05	REV

SET-UP

Use IC-174 (Event File Delete J-70) for October 2005 NRC JPM Exams.

Otherwise, place both CCW Critical Loops in service and start CCW Pump P-026.

OPEN the following ECU valves:

- 2HV-6369
- 2HV-6373
- 2HV-6367
- 2HV-6371

Restore operability to and OPEN SDCHX Valve 2HV-6500

Restore operability to and CLOSE SDCHX Valve 2HV-6501

Ensure the Non-critical Loop and the Letdown Heat Exchanger are aligned to the Train A CCW Critical Loop.

Provide the examinee with a copy of SO23-2-17, CCW System Operation, completed through Step 6.4.4.

NOTE: Examiner should be aware that some steps may be performed out of sequence. Preview JPM and monitor examinee actions to ensure all critical steps are performed.

JPM: SO 10-05 JPM NRC RO/SRO S-4 TITLE: Place the “A” CCW Critical Loop in Standby

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Provide examinee with a copy of SO23-2-17, CCW System Operation, completed through Step 6.4.4.				
1	ENSURE the Non-Critical Loop is aligned to the train that is to remain in service.	TRANSITION to Section 6.6 of SO23-2-17 to Transfer the CCW Non-Critical Loop from Critical Loop A to Critical Loop B.		Start Time: _____
NOTE: The examinee may choose to align the Non-Critical Loop using accepted operating practices and transition directly to JPM Step 8. Critical Step 7 should then be completed at Step 23 of the JPM.				
NOTE: JPM Steps 2 through 12 are done in accordance with Section 6.6 of SO23-2-17.				
2	ENSURE CCW Train B is running.	OBSERVE CCW Pump P-026 is running on Train B with red START light illuminated.		
3	ENSURE OPEN HV-6371, Containment Emergency Cooler ME-399 CCW Return Containment Isolation Valve.	OBSERVE 2HV-6371, CCW from CNTMT ECU 2E399 Iso Valve red OPEN light illuminated.		
4	ENSURE OPEN HV-6367, Containment Emergency Cooler ME-401 CCW Return Containment Isolation Valve.	OBSERVE 2HV-6367, CCW from CNTMT ECU 2E401 Iso Valve red OPEN light illuminated.		
5	ENSURE OPEN HV-6369, containment Emergency Cooler ME-400 CCW Return Containment Isolation Valve.	OBSERVE 2HV-6369, CCW from CNTMT ECU 2E400 Iso Valve red OPEN light illuminated.		
6	ENSURE OPEN HV-6373, Containment Emergency Cooler ME-402 CCW Return Containment Isolation Valve.	OBSERVE 2HV-6373, CCW from CNTMT ECU 2E402 Iso Valve red OPEN light illuminated.		

JPM: SO 10-05 JPM NRC RO/SRO S-4 TITLE: Place the “A” CCW Critical Loop in Standby

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
7*	ENSURE CLOSED HV-6500, CCW from SDCHX, ME-003 Block Valve.	DEPRESS the CLOSE pushbutton for 2HV-6500, CCW from SDC HX 2E003(N) Block Valve and OBSERVE green CLOSE light illuminated.		
8*	DEPRESS and MAINTAIN DEPRESSED the Open pushbutton for HV-6213 and HV-6219, Critical Loop B Supply and Return to NCL.	DEPRESS and HOLD the OPEN pushbuttons for 2HV-6213 and 2HV-6219, CCW to NCL to/from Loop B Isolation Valves.		
9*	When 2HV-6212 and 2HV-6218, Critical Loop A Supply and Return to NCL indicate CLOSED, <u>then</u> RELEASE the Open pushbutton for 2HV-6213 and 2HV-6219.	OBSERVE the green lights illuminate for 2HV-6212 and 2HV-6218, CCW to NCL to/from Loop A Isolation Valves and then RELEASE the OPEN pushbuttons for 2HV-6213 and 2HV-6219, CCW to NCL to/from Loop B Isolation Valves.		
10	Verify 2HV-6213 and 2HV-6219 remain OPEN.	VERIFY 2HV-6213 and 2HV-6219 remain OPEN and OBSERVE that only the red lights remain illuminated.		
11	Verify 2HV-6212 and 2HV-6218 are fully CLOSED.	VERIFY 2HV-6212 and 2HV-6218 are fully CLOSED and OBSERVE that only the green lights remain illuminated.		
NOTE: With Train A being placed in standby the examinee may not elect to do Step 12.				
12	ENSURE OPEN 2HV-6501, CCW from SDCHX ME-004 Block Valve.	DEPRESS the OPEN pushbutton for 2HV-6501, CCW from SDC HX 2E004(S) Block Valve and OBSERVE red light illuminated.		

JPM: SO 10-05 JPM NRC RO/SRO S-4 TITLE: Place the “A” CCW Critical Loop in Standby

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
13	ENSURE the Letdown Heat Exchanger is aligned to the train that is to remain in service.	VERIFY that the Letdown Heat Exchanger is not aligned to Train B and proceeds to align it to Train B.		
14	ENSURE the CCW Train that the Letdown Heat Exchanger is being transferred to is running.	OBSERVE that CCW Pump 2P-026 and SWC Pump 2P-114 are running on Train B.		
15*	CLOSE HV-6293B/A, CCW Critical Loop A Letdown HX ME-062 Return/Supply Valves.	DEPRESS the CLOSE pushbutton for 2HV-6293B/A, CCW CLA LTDN HX 2E062 Supply/Return Valves and OBSERVE that the green light illuminates.		
16*	OPEN 2HV-6522B/A, CCW Critical Loop B Letdown HX ME-062 Return/Supply Valves.	DEPRESS the OPEN pushbutton for 2HV-6522B/A, CCW CLB LTDN HX 2E062 Supply/Return Valves and OBSERVE that the red light illuminates.		
17*	STOP the CCW Pump on the train being placed in standby.	DEPRESS the STOP pushbutton for 2HS-6320-1, CCW Pump 2P025 and OBSERVE that the green light illuminates.		
CUE: It is required to stop the SWC Pump on the train being placed in standby.				
18*	STOP the SWC Pump on the train being placed in standby.	DEPRESS the STOP pushbutton for 2HS-6380-1, Saltwater Pump 2P112 and OBSERVE that the green light illuminates.		
19*	CLOSE the Discharge Valve on the Salt Water Cooling Pump that was secured.	DEPRESS the CLOSE pushbutton for 2HS-6200, Saltwater Pump 2P112(W) Discharge Valve and OBSERVE that the green light illuminates.		

JPM: SO 10-05 JPM NRC RO/SRO S-4 TITLE: Place the “A” CCW Critical Loop in Standby

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
CUE: The SWC Pump P-112 will not be restarted within one (1) hour.				
20*	CLOSE SWC Bearing Seal Water Supply Valve.	DEPRESS the CLOSE pushbutton for 2HV-6376, Saltwater Pump 2P112(W) Bearing Water Supply Valve and OBSERVE that the green light illuminates.		
21*	CLOSE the SWC Heat Exchanger Outlet Valve.	DEPRESS the CLOSE pushbutton for 2HV-6497, Saltwater from CCW HX 2E001 Circ Water Block Valve and OBSERVE that the green light illuminates.		
22	ENSURE ECU Return Valves are positioned per Table in Section 6.1.	OBSERVE that two ECU Return Valves are OPEN on both Trains: 2HV-6367, CCW from CNTMT ECU to 2E401 Iso Valve for Train A. 2HV-6371, CCW from CNTMT ECU to 2E399 Iso Valve for Train A. 2HV-6369, CCW from CNTMT ECU to 2E400 Iso Valve for Train B. 2HV-6373, CCW from CNTMT ECU to 2E402 Iso Valve for Train B.		

JPM: SO 10-05 JPM NRC RO/SRO S-4 TITLE: Place the “A” CCW Critical Loop in Standby

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: If JPM Step 7 is performed here then give the examinee credit.				
23*	CLOSE Shutdown Cooling Heat Exchanger CCW Outlet Valve that is not required per Table in Section 6.1.	DEPRESS the CLOSE pushbutton for 2HV-6501, SDC HX 2E004(S) Block Valve and OBSERVE that the green light illuminates and VERIFY that 2HV-6500, SDC HX 2E003(N) Block Valve is closed.		
TERMINATING CUE: CCW Out of Service tags will be placed on the Control Boards by another operator. This JPM is complete.				Stop Time: _____

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.
 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.
 - f. Statements describing important actions or observations that should be made by the Examinee.
 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: L. Zilli **DATE:** 07/26/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO/SRO C-5

INITIAL PLANT CONDITIONS

A Station Blackout has occurred on Units 2 & 3. The Control Room has lost ventilation.

The Control Room Emergency AC Units were aligned as follows prior to the Station Blackout:

Train A (E-418) was aligned to Unit 2.

Train B (E-419) was aligned to Unit 3.

TASK TO BE PERFORMED

The Control Room Supervisor directs you to perform Attachment 9, Control Building Ventilation Emergency Actions per SO23-12-11, EOI Supporting Attachments.

JOB PERFORMANCE MEASURE

SO 10-05 JPM NRC RO/SRO C-5

SUGGESTED TESTING ENVIRONMENT:	PLANT	X	SIMULATOR
ACTUAL TESTING ENVIRONMENT:	PLANT		SIMULATOR
ACTUAL TESTING METHOD:	PERFORMED		SIMULATED

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____
UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO/SRO C-5

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 15 minutes

TIME CRITICAL JPM: NO

CRITICAL TIME: N/A

POSITION: CO/ACO

VISION ID: 188352

TASK DESCRIPTION

Response to a Station Blackout.

KA NUMBER: 055-EK3.02

KA VALUES: **RO** 4.3 **SRO** 4.6

10CFR55.45 APPLICABILITY: 6, 12

REFERENCES:

SO23-12-11, EOI Supporting Attachments, Attachment 9, Control Building Ventilation
Emergency Actions, Rev. 3

AUTHOR: L.Zilli

DATE: 03/12/05

OPERATIONS REVIEW: M. Jones

DATE: 03/22/05

APPROVED BY: A. Hagemeyer

DATE: 03/22/05

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
0	New	-	-	-
0-1	Compared against SO23-12-11, Rev 3 with minor changes required.	LRZ	07/26/05	AHH

SET-UP

Provide the Examinee with a copy of SO23-12-11, Attachment 9, Control Building Ventilation Emergency Actions.

JPM: SO 10-05 JPM NRC RO/SRO C-5 TITLE: Control Building Ventilation Emergency Actions

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Provide the Examinee with a copy of SO23-12-11, Attachment 9, Control Building Ventilation Emergency Actions. CUE: No Unit 2 or Unit 3 4160 volt or 480 volt Buses are energized. Remind examinee to simulate all actions.				
1	VERIFY a CR Emergency AC Unit aligned to other units energized 1E 480V bus: <u>Train A</u> <u>Train B</u> E-418 E-419	VERIFY that both CR Emergency AC Units are de-energized per the Initial Conditions and TRANSITIONS to the RNO.		Start Time: _____
2	OBTAIN keys to open the Control Room Cabinets.	OBTAIN keys to open the Control Room Cabinets from the Nuclear Operations Assistant or the Control Room Key Cabinets.		
CUE: You have the keys to unlock the Control Room Cabinet Doors. Open Priority 1 doors ONLY.				
NOTE: The following two steps represent the alternate path of this JPM.				
3*	INITIATE opening CR Cabinet Doors listed in Table 1.	INITIATE opening CR Cabinet Doors listed in Table 1.		

JPM: SO 10-05 JPM NRC RO/SRO C-5 TITLE: Control Building Ventilation Emergency Actions

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
<u>PANEL</u>	<u>DESCRIPTION</u>	<u>PANEL DOORS TO BE OPENED</u>		<u>KEY NO.</u>
2L154	HVAC Systems Control Panel	Rear (4 doors)		Unlocked
2L034	ESFAS Auxiliary Cabinet A	Bays 1,2,3,4,5 and 8 – outer doors; Bay 5 – inner door		24
2L035	ESFAS Auxiliary Cabinet B	Bays 1,2,3,4,5 and 8 – outer doors; Bay 5 – inner door		25
2L122	SPEC 200 Instrument Cabinet Process Protection, Channel 1	Front		27 or 28
2L123	SPEC 200 Instrument Cabinet Process Protection, Channel 1	Front		27 or 28
2L126	SPEC 200 Instrument Cabinet Process Protection, Channel 2	Front		27 or 28
2L127	SPEC 200 Instrument Cabinet Process Protection, Channel 2	Front		27 or 28
2L130	SPEC 200 Instrument Cabinet Process Protection, Channel 3	Front		27 or 28
2L422	SPEC 200 NSSS Interface Cabinet	Front		27 or 28
2L134	SPEC 200 Instrument Cabinet Process Protection, Channel 4	Front		27 or 28
2L188A	SPEC 200 NSSS Cabinet "A" Train	Front		27 or 28
2L188B	SPEC 200 NSSS Cabinet "B" Train	Front		27 or 28
CUE: Attachment 9, Table 1 is now completed.				
NOTE: If the Control Room is not accessible for continuing, then terminate this JPM.				
CUE: Unit 3 EDG 3G003 has been started and Buses 3A06 and 3B06 are energized. CCW Pump 3P026 is running.				
4	IF 1E 480 V bus energized at opposite Unit, THEN Transfer CR Emergency AC Unit E-416 or E-419 power supply per SO23-3.2.27, Control Room Isolation and Emergency Ventilation System.	DETERMINE that a 1E 480 V bus is energized at opposite Unit and prepares to TRANSFER the Control Room Emergency AC Units E-416 or E-419 power supply per SO23-3.2.27, Control Room Isolation and Emergency Ventilation System.		
CUE: Another operator will perform SO23-3.2.27, Control Room Isolation and Emergency Ventilation System. The Control Room Supervisor directs you to continue with Attachment 9.				

JPM: SO 10-05 JPM NRC RO/SRO C-5 TITLE: Control Building Ventilation Emergency Actions

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
5	VERIFY an Emergency Chiller aligned to other units energized 1E 4kV bus: <u>Train A</u> <u>Train B</u> E-336 E-335	VERIFY Emergency Chiller E-335 is aligned to the Unit 3 Bus 3A06.		
CUE: Emergency Chiller E-335 is aligned to the Unit 3 Bus 3A06.				
6*	ACTUATE CRIS for available train of CR Emergency HVAC.	ACTUATE Train B of CRIS by DEPRESSING 2/3HS-7825A2.		
CUE: Train B of CRIS is actuated.				
7*	START ESF Switchgear Room Emergency Cooling Unit E-255 or E-257 for available train.	START ESF Switchgear Room Emergency Cooling E-257 on Unit 3 by DEPRESSING 3HS-9829-2.		
CUE: ESF Switchgear Room Emergency Cooling E-257 on Unit 3 is running.				
8	VERIFY Control Room Emergency AC Unit E-418 or E-419 – operating.	VERIFY Control Room Emergency AC Unit 3 E-419 is operating.		
CUE: Control Room Emergency AC Unit 3 E-419 is running.				
9	START ESF Switchgear Room Emergency Cooling Unit E-255 or E-257 – operating.	START ESF Switchgear Room Emergency Cooling E-257 on Unit 3 is running.		
CUE: ESF Switchgear Room Emergency Cooling E-257 on Unit 3 is running. There are no Control Room Cabinet Emergency Cooling Units operating.				

JPM: SO 10-05 JPM NRC RO/SRO C-5 TITLE: Control Building Ventilation Emergency Actions

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
10*	VERIFY Control Room Cabinet Emergency Cooling Units – operating. <u>Train A</u> <u>Train B</u> E-424 E-423 E-427 E-426	START Control Room Cabinet Emergency Cooling Unit E-426 on Unit 3 by DEPRESSING 3HS-9739-2.		
		TERMINATING CUE: Emergency Cooling Unit E-426 on Unit 3 is running. This JPM is complete.		Stop Time: _____

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.
 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.
 - f. X Statements describing important actions or observations that should be made by the Examinee.
 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: R. Hampton **DATE:** 07/23/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO/SRO S-6

INITIAL PLANT CONDITIONS

You are operating at a power level of 70% and ESI is determined to be - 0.07.

The CRS directs you to restore ASI using PLCEAs.

TASK TO BE PERFORMED

The Control Room Supervisor directs you to restore ASI to the 70% power level ESI using SO23-5-1.7, Power Operations, Attachment 6.

SUGGESTED TESTING ENVIRONMENT:	PLANT _____	SIMULATOR <u> X </u>
ACTUAL TESTING ENVIRONMENT:	PLANT _____	SIMULATOR _____
ACTUAL TESTING METHOD:	PERFORMED _____	SIMULATED _____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____
UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO/SRO S-6

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 10 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: ACO

TASK SYS ID: 188098

TASK DESCRIPTION

Monitor and control ASI during steady state operations.

KA NUMBER: 001 A2.19

KA VALUES: **RO** 3.6 **SRO** 4.0

10CFR55.45 APPLICABILITY: 2, 4, 5, 6

REFERENCES:

SO23-5-1.7, Power Operations, Rev. 24

SO23-3-2.19, CEDMCS, Rev. 18-1

SO23-13-13, Misaligned Control Element Assembly, Rev.10-2

AUTHOR: L. Zilli

DATE: 03/10/05

OPERATIONS REVIEW: M. Jones

DATE: 03/18/05

APPROVED BY: A. Hagemeyer

DATE: 03/18/05

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
0	New	-	-	-
0-1	Compared against SO23-5-1.7, Rev. 24 with minor changes required.	LRZ	03/10/05	AHH

SET-UP

Reset to IC #187 for the October 2005 NRC Exam.

Malfunction numbers:

RD3003 for CEA # 30

RD3103 for CEA # 31

Ensure the ASI PMS indication is aligned at the ACO desk (upper scale @ -0.15 and lower scale @ -0.0).

Provide the examinee with a copy of SO23-5-1.7, Power Operations.

CAUTION: Leave the simulator in freeze until the examinee is ready to move the PLCEAs.

JPM: SO 10-05 JPM NRC RO/SRO S-6 TITLE: Restore ASI to ESI

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: The applicant may also refer to SO23-3-2.19, CEDMCS Operation.				
1	SELECT the PLCEAs with the Group Selector Switch.	PLACE the Group Selector Switch to P.		Start Time: _____
2*	SELECT MANUAL GROUP on the Mode Select Switch.	PLACE the Mode Select Switch in MANUAL GROUP.		
3*	INSERT the PLCEAs.	INSERT the PLCEAs in small, smooth, frequent movements of less than 3 inches per minute. PLACE Mode Select Switch in OFF when rod insertion is complete. Insertion should not exceed 112.5" (TS 3.1.8 and LCS 3.1.103).		
4	MONITOR ASI and ESI.	OBSERVE PMS screen and/or chart for ASI trend. DETERMINE that a second CEA insertion is required.		
NOTE: The examiner may cue the simulator to insert malfunction at any time once the second CEA insertion is initiated by the examinee.				
CUE: When Examiner directs, initiate malfunction to drop CEAs #30 and #31.				
5*	INSERT the PLCEAs.	INSERT the PLCEAs in small, smooth, frequent movements of less than 3 inches per minute. PLACE Mode Select Switch in OFF when rod insertion is complete. Insertion should not exceed 112.5" (TS 3.1.8 and LCS 3.1.103).		
NOTE: The following steps represent the alternate path of this JPM.				

JPM: SO 10-05 JPM NRC RO/SRO S-6 TITLE: Restore ASI to ESI

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
6	DETERMINE that two PLCEAs have dropped.	VERIFY Rod Bottom indication for CEAs #30 and #31.		
NOTE: Applicant may refer to SO23-13-13, Misaligned Control Element Assembly, to determine appropriate action.				
7*	TRIP the reactor.	INITIATE a Reactor Trip by DEPRESSING at least two manual Reactor trip pushbuttons: 2HS-9132-2 and 2HS-9132-3 <u>or</u> 2HS-9132-1 and 2HS-9132-4		
TERMINATING CUE: When the examinee has tripped the Reactor, the evaluation for this JPM is complete.				Stop Time: _____

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO/SRO S-7

INITIAL PLANT CONDITIONS

The plant is at 70% power with all systems operable.

The Control Operator notices that Safety Injection Tank (SIT T-007) pressure is near the low pressure alarm setpoint.

TASK TO BE PERFORMED

The Control Room Supervisor directs you to increase pressure in SIT T-007 to 630 psia.

SUGGESTED TESTING ENVIRONMENT:	PLANT _____	SIMULATOR <u> X </u>
ACTUAL TESTING ENVIRONMENT:	PLANT _____	SIMULATOR _____
ACTUAL TESTING METHOD:	PERFORMED _____	SIMULATED _____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____
UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO/SRO S-7

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 10 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: ACO

TASK SYS ID: 141245

TASK DESCRIPTION

Pressurize the Safety Injection Tank.

KA NUMBER: 006 A1.13

KA VALUES: **RO** 3.5 **SRO** 3.7

10CFR55.45 APPLICABILITY: 2, 6, and 8

REFERENCES:

SO23-3-2.7.1 Safety Injection Tank Operations, Revision 12

AUTHOR: L. Zilli

DATE: _____

OPERATIONS REVIEW: M. Jones

DATE: _____

APPROVED BY: A. Hagemeyer

DATE: _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
2	Compared against SO23-3-2.7.1, Rev 12 and removed NOTE that was no longer applicable. Modified setup for performance consistency. Removed Step for SIT Nitrogen Header Pressure verification as that indication is no longer available on the Control Board.	LRZ	07/26/05	REV

SET-UP

Machine Operator:

Use IC-174 (Event File Delete J-70) for October 2005 NRC JPM Exams. Otherwise use any 100% IC.

Reduce SIT T-007 pressure to about 620 psig.

Provide copy of SO23-3-2.7.1, Safety Injection Tank Operation, AFTER examinee identifies procedure to be used.

JPM: SO 10-05 JPM NRC RO/SRO S-7 TITLE: Increase Pressure in SIT T-007 by 10 PSIG

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Provide copy of SO23-3-2.7.1, Safety Injection Tank Operation, AFTER examinee identifies procedure to be used.				
1	Identify the procedure and step to be used.	LOCATE a current copy of SO23-3-2.7.1 and go to Step 6.1.		Start Time: _____
2	Ensure SIT pressure is ≥ 300 psia.	OBSERVE SIT T-007 Narrow Range Pressure, 2PI-0322 and/or 2PI-0323 and DETERMINE that it is ≥ 300 psia.		
3	Verify SIT level is between 79.2% and 82.9% NR for T-007.	OBSERVE 2LI-0322 and/or 2LI-0323 SIT Narrow Range Level T007 (LOOP 1B) and DETERMINE that it is between 79.2% and 82.9%.		
4*	Open SIT Nitrogen Supply Containment Isolation Valve 2HV-5434 and verify SIT Nitrogen header pressure is at least 610 psig (PI-5410).	DEPRESS the OPEN pushbutton for 2HV-5434, SIT N2 Supply Iso Valve and VERIFY SIT Nitrogen header pressure is at least 610 psig on 2PI-5410.		
5*	Open Nitrogen Supply Valve to SIT T-007, 2HV-9354.	DEPRESS the OPEN pushbutton for 2HV-9354, SIT 2T007 (LOOP 1B) N2 Supply Valve.		
6*	After achieving 630 psia, CLOSE the Nitrogen Supply Valve to SIT T-007, 2HV-9354.	DEPRESS the CLOSE pushbutton for 2HV-9354, SIT N2 Supply Iso Valve when the pressure has increased to 630 psia \pm 2 psia.		

JPM: SO 10-05 JPM NRC RO/SRO S-7 TITLE: Increase Pressure in SIT T-007 by 10 PSIG

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
7	Verify SIT T-007 level is between 79.2% and 82.9%.	OBSERVE 2LI-0322 and/or 2LI-0323 SIT Narrow Range Level T007 (LOOP 1B) and DETERMINE that level remains between 79.2% and 82.9%		
8	Close SIT Nitrogen Supply Containment Isolation Valve 2HV-5434.	DEPRESS the CLOSE pushbutton for 2HV-5434, SIT Nitrogen Supply Containment Isolation Valve.		
TERMINATING CUE: The CO will make all required log entries. This JPM is complete.				Stop Time: _____

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.

 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.

 - f. X Statements describing important actions or observations that should be made by the Examinee.

 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: L. Zilli **DATE:** 07/26/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO S-8

INITIAL PLANT CONDITIONS

Unit 2 is operating at 70% power. Both Component Cooling Water loops are in service. Both Containment Normal Chillers 2E-201 and 2E-202 have tripped. Containment temperature is >105°F and rising.

TASK TO BE PERFORMED

The Control Room Supervisor directs you to perform SO23-1-4.1, Containment Emergency Cooling, Section 6.1, Placing the Containment Emergency Cooling System in Service.

SUGGESTED TESTING ENVIRONMENT:	PLANT _____	SIMULATOR <u> X </u>
ACTUAL TESTING ENVIRONMENT:	PLANT _____	SIMULATOR _____
ACTUAL TESTING METHOD:	PERFORMED _____	SIMULATED _____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____

UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO S-8

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 10 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: CRO

TASK SYS ID: 186171

TASK DESCRIPTION

Verify actuation, reset, and restoration of Containment Cooling after automatic actuation.

KA NUMBER: 022 A4.01

KA VALUES: **RO** 3.6 **SRO** 3.6

10CFR55.45 APPLICABILITY: 3, 8

REFERENCES:

SO23-1-4.1, Containment Emergency Cooling, Rev. 12-1

AUTHOR: L. Zilli

DATE: _____

OPERATIONS REVIEW: M. Jones

DATE: _____

APPROVED BY: A. Hagemeyer

DATE: _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
0	New	-	-	-

SET-UP

Use IC-187 for October 2005 NRC JPM Exams.

Otherwise, place both CCW Critical Loops in service and start CCW Pump P-026.

OPEN the following ECU valves:

- 2HV-6369
- 2HV-6373
- 2HV-6367
- 2HV-6371

Provide the examinee with a copy of SO23-1-4.1, Containment Emergency Cooling.

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Provide examinee with a copy of SO23-1-4.1, Containment Emergency Cooling.				
1	Determine if Containment Emergency Cooling is automatically actuated.	DETERMINE that Containment Emergency Cooling is not automatically actuated by OBSERVING Annunciators 57A07 - CCAS TRAIN A ACTUATION and 57B07 - CCAS TRAIN B ACTUATION are not illuminated.		Start Time: _____
2	Observe average Containment temperature > 105°F.	OBSERVE average Containment temperature > 105°F using TE9902F through TE9902J digital readout on recorder TJR-9899 on CR-60 or using TE9902A through TE9902E on the Plant Monitoring System.		
CUE: The Control Room Supervisor directs you to place the Containment Emergency Cooling system in service on a system level.				
3	ENSURE associated CCW Train is in service.	DETERMINE that both CCW Trains are in service by OBSERVING Train A and Train B CCW Pumps START lamps illuminated on CR-64.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
4	<p>At CR-60, ENSURE by indication that the following Motor Operated Valves are OPEN: CCW to Containment Emergency Cooling Units</p> <ul style="list-style-type: none"> • HV-6366, CCW to CNTMT ECU ME-401 Isolation Valve. • HV-6370, CCW to CNTMT ECU ME-399 Isolation Valve. • HV-6368, CCW to CNTMT ECU ME-400 Isolation Valve. • HV-6372, CCW to CNTMT ECU ME-402 Isolation Valve. 	<p>At CR-60, VERIFY OPEN CCW to Containment Emergency Cooling Units:</p> <ul style="list-style-type: none"> • 2HV-6366, CCW to CNTMT ECU 2E401 Iso Valve OPEN lamp illuminated. • 2HV-6370, CCW to CNTMT ECU 2E399 Iso Valve OPEN lamp illuminated. • 2HV-6368, CCW to CNTMT ECU 2E400 Iso Valve OPEN lamp illuminated. • 2HV-6372, CCW to CNTMT ECU 2E402 Iso Valve OPEN lamp illuminated. 		
5	<p>At CR-60, ENSURE by indication that the following Motor Operated Valves are OPEN: CCW from Containment Emergency Cooling Units</p> <ul style="list-style-type: none"> • HV-6367, CCW from CNTMT ECU ME-401 Isolation Valve. • HV-6371, CCW from CNTMT ECU ME-399 Isolation Valve. • HV-6369, CCW from CNTMT ECU ME-400 Isolation Valve. • HV-6373, CCW from CNTMT ECU ME-402 Isolation Valve. 	<p>At CR-60, VERIFY OPEN CCW from Containment Emergency Cooling Units:</p> <ul style="list-style-type: none"> • 2HV-6367, CCW from CNTMT ECU 2E401 Iso Valve OPEN lamp illuminated. • 2HV-6371, CCW from CNTMT ECU 2E399 Iso Valve OPEN lamp illuminated. • 2HV-6369, CCW from CNTMT ECU 2E400 Iso Valve OPEN lamp illuminated. • 2HV-6373, CCW from CNTMT ECU 2E402 Iso Valve OPEN lamp illuminated. 		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
6*	PLACE the Containment Emergency Cooling System in service by manually initiating a Containment Cooling Actuation Signal using HS-9138-1 and HS-9138-2 at CR-56 or HS-9138-3 and HS-9138-4 at CR-53.	PLACE the Containment Emergency Cooling System in service by DEPRESSING 2HS-9138-1 and 2HS-9138-2 at CR-56 or 2HS-9138-3 and 2HS-9138-4 at CR-53.		
7	VERIFY the following Annunciators actuate: <ul style="list-style-type: none"> 57A07 - CCAS TRAIN A ACTUATION 57B07 - CCAS TRAIN B ACTUATION 	DETERMINE that Containment Emergency Cooling is actuated by OBSERVING Annunciators illuminated: <ul style="list-style-type: none"> 57A07 - CCAS TRAIN A ACTUATION 57B07 - CCAS TRAIN B ACTUATION 		
8	At CR-60, VERIFY by indication that the following fans have started: Containment Emergency Cooling Fans: <u>Train A</u> <u>Train B</u> ME-399 ME-400 ME-401 ME-402	At CR-60, DETERMINE that the Train B Containment Emergency Cooling Fans 2E-400 and 2E-402 have started by OBSERVING the red START lamps illuminated.		
CUE: If asked, the CRS directs you to align components as required per SO23-1-4.1.				
NOTE: The following steps represent the alternate path of this JPM.				
9*	At CR-60, START Train A Containment Emergency Cooling Fans ME-399 and ME-401.	At CR-60, DEPRESS the START pushbuttons for 2HS-9953-1 and 2HS-9947-1, Train A Containment Emergency Cooling Fans 2E-399 and 2E-401 and OBSERVE the red START lights illuminated.		

JPM: SO 10-05 JPM NRC RO S-8

TITLE: Place Containment Emergency Cooling System in Service

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
10	At CR-60, VERIFY by indication that the following fans have started: Containment Dome Air Circulator Fans: <u>Train A</u> <u>Train B</u> MA-071 MA-072 MA-074 MA-073	At CR-60, DETERMINE that <u>one</u> Train A (2A-074) and <u>two</u> Train B (2A-072 and 2A-073) Containment Dome Air Circulator Fans have started by OBSERVING the red START lamps illuminated.		
11*	At CR-60, START Train A Containment Dome Air Circulator Fan MA-071.	At CR-60, DEPRESS the START pushbutton for 2HS-9965-1, Train A Containment Dome Air Circulator Fans 2A-071 and OBSERVE the red START lamp illuminated.		
<p>TERMINATING CUE: The Radwaste Operator will verify Component Cooling Water flow. This JPM is complete.</p> <p>Stop Time: _____</p>				

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.
 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.
 - f. Statements describing important actions or observations that should be made by the Examinee.
 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: L. Zilli **DATE:** 10/04/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO/SRO P-1

INITIAL PLANT CONDITIONS

A station blackout has occurred seven (7) hours ago. Class 1E Battery Bus voltages are currently 105 VDC and lowering. Power is not expected to be restored for at least 20 hours.

TASK TO BE PERFORMED

The Shift Manager directs you to align 2G005 (Unit 2) **or** 3G005 (Unit 3) per SO23-12-11, Attachment 2, Floating Step 26.

SUGGESTED TESTING ENVIRONMENT:	PLANT	X	SIMULATOR	_____
ACTUAL TESTING ENVIRONMENT:	PLANT	_____	SIMULATOR	_____
ACTUAL TESTING METHOD:	PERFORMED	_____	SIMULATED	_____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____

UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO/SRO P-1

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 15 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: CO/ACO

VISION ID: 192231

TASK DESCRIPTION

Transfer L411 EPPM Panel power to G005 portable generator.

KA NUMBER: 055-EA1.04

KA VALUES: **RO** 3.5 **SRO** 3.9

10CFR55.45 APPLICABILITY: 6, 12

REFERENCES:

SO23-12-11, EOI Supporting Attachments, Attachment 2, Floating Step 26, Connect G005 Portable Generator to L411 EPPM Panel / Startup Channel, Rev. 3

AUTHOR: L. Zilli

DATE: 03/12/05

OPERATIONS REVIEW: M. Jones

DATE: 03/22/05

APPROVED BY: A. Hagemeyer

DATE: 03/22/05

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
0	New	-	-	-
0-1	Compared against SO23-12-11, Rev 3 with minor changes required. Deleted Cue for mislabeled door that was corrected in Revision 3.	LRZ	07/26/05	AHH

SET-UP

Provide the Examinee with a copy of SO23-12-11, Floating Step 26, Connect G005 Portable Generator to L411 EPPM Panel/Start-up Channel.

NOTE: Obtain permission from the Shift Manager to open cabinet doors associated with this JPM.

NOTE: Circle the Unit on which this JPM will be performed and inform the Examinee.

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Obtain permission from the Shift Manager to open cabinet doors associated with this JPM. Circle the Unit on which this JPM will be performed and inform the Examinee.				
NOTE: Provide the Examinee with a copy of SO23-12-11, Floating Step 26, Connect G005 Portable Generator to L411 EPPM Panel/Start-up Channel.				
1	VERIFY elapsed time from Station Blackout greater than 6 hours AND restoration of power NOT expected to occur within 8 hours following a Station Blackout, OR ALL Class 1E Battery Bus voltages – less than 108 VDC.	VERIFY elapsed time from Station Blackout greater than 6 hours AND restoration of power NOT expected to occur within 8 hours following a Station Blackout and IDENTIFY Class 1E Battery Bus voltages are 105 VDC and lowering.		Start Time: _____
2	OBTAIN approval of Shift Manager to use G005, Portable Generator to supply: <ul style="list-style-type: none"> - L411, EPPM Panel - Start-up Channel B. 	ACKNOWLEDGE that the Shift Manager has already directed performance of this Floating Step.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
3	INFORM Security and Health Physics that the following doors will be blocked open: <ul style="list-style-type: none"> - Door 302 on Units 2 & 3 (45' Pen. To 50' SEB Roof) - Door 307 on Unit 2 (45' Pen. To Cable Spreading Room) - Door 342 on Unit 3 (45' Pen. To Cable Spreading Room) 	INFORM Security and Health Physics that the following doors will be blocked open: <ul style="list-style-type: none"> - Door 302 on Units 2 & 3 (45' Pen. To 50' SEB Roof) - Door 307 on Unit 2 (45' Pen. To Cable Spreading Room) - Door 342 on Unit 3 (45' Pen. To Cable Spreading Room) 		
CUE: (When located) The doors are blocked open.				
4*	ALIGN L411, EPPM Panel: <ul style="list-style-type: none"> - CONNECT extension cord to L411P, Plug for EPPM Panel. - SELECT HS-411X – to L411P. - SELECT XS-411 – to ALTERNATE. 	ALIGN L411, EPPM Panel: <ul style="list-style-type: none"> - CONNECT extension cord to L411P, Plug for EPPM Panel. - SELECT HS-411X – to L411P. - SELECT XS-411 – to ALTERNATE. 		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
CUE: Another operator will align L539 Start-up Channel in the Train A Switchgear Room.				
NOTE: Step 5 is left for examiner reference only. These actions are not performed in this JPM as it would require the examinee to violate the HP Radiation Control Area and go to the 50' Control Building.				
5	ALIGN L539, Start-up Channel: - CONNECT extension cord L539P, Plug for Start-up Channel: (Train A 1E Switchgear Room). - SELECT HS-539X – to L539P. - SELECT XS-539B – to ALTERNATE.	Another operator ALIGNS L539, Start-up Channel: - CONNECTS extension cord L539P, Plug for Start-up Channel in the Train A 1E Switchgear Room. - SELECTS HS-539X to L539P. - SELECTS XS-539B to ALTERNATE.		
6*	MOVE G005, Portable Generator from G005 locker, (45' Pen. Bldg, west end), to SEB roof outside of Door 302.	MOVE G005, Portable Generator from G005 locker, (45' Pen. Bldg, west end), to SEB roof outside of Door 302.		
NOTE: The examinee will be unable to go out onto the SEB roof without violating HP Radiation Controls. Have the examinee explain where they would go (outside onto the roof) and what they would do (get gas can from locker to fill G005 tank). The gasoline is located in a locker approximately 30' from Door 302.				
CUE: (When located) G005 is on the SEB Roof.				
NOTE: The next step cannot be performed until after exiting the RCA.				
7*	ADD gasoline located in storage area on SEB Roof (Between feedwater regulating valves Rooms 110 and 111) to G005.	ADD gasoline located in storage area on SEB Roof (Between feedwater regulating valves Rooms 110 and 111) to G005.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
CUE: (When located) The gas tank is full.				
8	VERIFY oil level between marks.	VERIFY G005 oil level is between marks on the oil fill stick.		
CUE: (When located) The oil level is between the marks.				
9	ENSURE all loads at G005 – disconnected.	ENSURE all loads at G005 are disconnected.		
10*	ENSURE tank vent – ON.	PLACE the G005 gas tank vent to ON.		
CUE: (When located) The gas tank vent is on.				
11*	ENSURE choke – CLOSED.	PLACE the G005 choke to CLOSED.		
CUE: (When located) The choke is closed.				
12*	ENSURE Eco-throttle switch – CLOSED.	PLACE the G005 Eco-throttle switch to CLOSED.		
CUE: (When located) The Eco-throttle switch is closed.				
13*	ENSURE engine switch – ON.	PLACE the G005 engine switch to ON.		
CUE: (When located) The engine switch is on.				
14*	PULL starter.	PULL the starter on G005.		
CUE: If the previous steps were completed correctly, tell the examinee that G005 is running and the engine is warm.				
15*	MOVE choke – to OPEN as engine warms up.	MOVE choke to OPEN as engine warms up.		
CUE: (When located) The choke is open.				

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Connecting extension cords to Startup Channel B cannot be performed without exiting the RCA.				
16*	CONNECT extension cords to G005 from L411P, EPPM Panel AND from L539P, Start-up Channel B.	CONNECT extension cords to G005 from L411P, EPPM Panel and from L539P, Start-up Channel B.		
CUE: (When located) The extension cords are connected.				
NOTE: L411 (Essential Plant Parameters Monitoring Panel) power supplies are located inside L411 at the bottom of the cabinet. If permission has not been obtained to open the cabinet door then the examinee should explain the general location of the indicating lights and breakers.				
17	VERIFY L411 power supply PS-A energized: - Breaker CLOSED AND Red and Green lights illuminated.	VERIFY L411 power supply PS-A energized with breaker CLOSED and Red and Green lights illuminated.		
CUE: (When located) The breaker is closed and the Red and Green lights are illuminated.				
18	VERIFY L411 power supply PS-B energized: - Breaker CLOSED AND Red and Green lights illuminated.	VERIFY L411 power supply PS-B energized with breaker CLOSED and Red and Green lights illuminated.		
CUE: (When located) The breaker is closed and the Red and Green lights are illuminated.				

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
19*	SELECT SG level indications – to LOCAL. <u>E088</u> <u>E089</u> HS-1106 HS-1105	SELECT HS-1106 for E088 and HS-1105 for E089, SG level indication hand switches to LOCAL.		
CUE: (When located) The SG level indication hand switches are in LOCAL.				
20*	SELECT HS-0100F, PZR pressure indication – to LOCAL.	SELECT HS-0100F, PZR Pressure indication hand switch to LOCAL.		
CUE: (When located) The PZR Pressure indication hand switch is in LOCAL.				
21*	SELECT HS-0103A, PZR level indication – to LOCAL.	SELECT HS-0103A, PZR Level indication hand switch to LOCAL.		
CUE: (When located) The PZR Level indication hand switch is in LOCAL.				
22	VERIFY Startup-up Channel B – energized.	VERIFY Startup-up Channel B is energized.		
CUE: Another operator will energize Startup Channel B.				
TERMINATING CUE: This JPM is complete.				Stop Time: _____

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.
 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.
 - f. X Statements describing important actions or observations that should be made by the Examinee.
 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: R. Hampton **DATE:** 07/23/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO/SRO P-2

INITIAL PLANT CONDITIONS

You are the Unit 2(3) Primary ACO. The Control Room has been evacuated due to dense smoke.

All actions recommended or required to be accomplished prior to leaving the Control Room have been completed.

TASK TO BE PERFORMED

The Control Room Supervisor directs you to perform duties of the Unit 2 (Unit 3) Primary ACO up to and including notifying the Unit 2 (Unit 3) ACO that 2G002 (3G002) is running at normal voltage and frequency.

THIS IS A TIME CRITICAL JPM

SUGGESTED TESTING ENVIRONMENT:	PLANT	X	SIMULATOR	_____
ACTUAL TESTING ENVIRONMENT:	PLANT	_____	SIMULATOR	_____
ACTUAL TESTING METHOD:	PERFORMED	_____	SIMULATED	_____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____
UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO/SRO P-2

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 6 minutes

TIME CRITICAL JPM: YES **CRITICAL TIME:** 10 minutes

POSITION: SPEO

TASK SYS ID: 190519

TASK DESCRIPTION

Perform secondary plant shutdown during a plant shutdown from outside the Control Room.

KA NUMBER: 068-AA1.31

KA VALUES: **RO** 3.9 **SRO** 4.0

10CFR55.45 APPLICABILITY: 5, 6

REFERENCES:

SO23-13-2, Shutdown From Outside the Control Room, Rev. 7-4

AUTHOR: R. Clement

DATE: 11/18/91

OPERATIONS REVIEW: J. Braisted

DATE: 09/05/93

APPROVED BY: M. Kirby

DATE: 10/26/93

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
1	New format. Split step 13 into 2 steps. Minor wording changes. Suggested Time Critical JPM, with a maximum time of 12 minutes. Actual time allow in SONGS 2/3 Appendix R Time and Manpower study is 6.2 minutes. Since we do not have past performance times, it is recommended 25 minutes be used to accommodate the examinees describing their actions until better times are obtained.	SW	07/26/93	MJK
1-1	Compared to SO23-13-2, TCN 2-17; no changes required.	HJW	12/27/93	N/A
1-2	Changed setup page; minor editorial corrections for clarity; changed critical time from 12 to 10 based on history.	HJW	03/17/94	N/A
1-3	Compared against SO23-13-2, TCN 2-18 with no changes required.	HJW	09/08/94	N/A
1-4	Compared against SO23-13-2, TCN 2-20 with no changes required.	HJW	04/26/96	N/A
1-5	Compared against SO23-13-2, Rev. 3 with minor editorial corrections. Upgraded Document page for NUREG-1122, Rev. 1.	HJW	06/04/97	N/A
1-6	Compared against SO23-13-2, Rev. 5 with no changes required. Swapped JPM steps 12 and 13 to coincide with procedure sequencing.	RCW	08/26/98	N/A

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
1-7	Compared against SO23-13-2, TCN 5-2, expanded cue that informs student that D/G will be supplying A04 thus idle start is n/a. Added Unit 3 designator to all components so that JPM can be performed on either unit. Setup includes instructions to provide Att. 8 (U2) or Att. 9 (U3). Upgraded KA and changed old task number to VISION SYS ID. Added clarifying information to the note at the beginning of the JPM that the timing starts when the D/G bldg is entered. Cue changed to reflect that the student already has been to the SSD locker and has his kit and equip.	JJM	10/15/99	FM
1-8	Compared against SO23-13-2, TCN 6-5. Removed BR-0122 Category from doc page. Added equipment obtained from SSD locker and added alpha-numeric designation for reset lamp and reset pushbutton.	JJM	08/06/02	AH
1-9	Compared against SO23-13-2, TCN 7-3. Added several cues. Made minor editorial changes. Updates Task Sys ID.	RCW	09/01/04	AH
1-10	Compared against SO23-13-2, TCN 7-4 with no changes required.	RHH	07/27/05	AHH

SET-UP

Provide the Examinee with a copy of SO23-13-2, Shutdown from Outside the Control Room, Attachment 8 (Unit 2) or Attachment 9 (Unit 3).

NOTE: Circle the Unit on which this JPM will be performed and inform the Examinee.

JPM: SO 10-05 JPM NRC RO/SRO P-2 TITLE: Perform Duties of Unit 2(3) Primary ACO to Start 2(3)G002

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
<p>NOTE: Proceed to 2G002 (3G002), then provide the examinee with a copy of SO23-13-2, Shutdown from Outside the Control Room, Attachment 8(9). The timing of this JPM starts when the student enters the Diesel Generator Building.</p> <p>CUE: You have been to the Safe Shutdown Locker and have obtained the following from Safe Shutdown Kit 23(33): Emergency lantern, earplugs, headset, set of Security keys and Atmosphere Monitor.</p>				
1	Connect headset to CKT No. 1 jack in the West Lobby Area.	LOCATE Circuit 1 jack in West Lobby Area and SIMULATE connecting a headset.		Start Time: _____
2*	Select 2(3)G002 Fire Isolation switch HS-1670A1 to local at 2(3)L160.	SIMULATE PLACING 2(3)HS-1670A1, Fire Isolation Switch DG Control, on 2(3)L160, in LOCAL position.		
CUE: The switch is in LOCAL.				
3*	Select 2(3)G002 Fire Isolation switch HS-1669A1 to local at 2(3)L160.	SIMULATE PLACING 2(3)HS-1669A1, Fire Isolation Switch Gov. & Exct. Cont, on 2(3)L160, in LOCAL.		
CUE: The switch is in LOCAL.				
4*	Select 2(3)G002 Fire Isolation switch HS-9537EI to local at 2(3)L160.	SIMULATE PLACING 2(3)HS-9537E1, Fire Isolation Switch DG Bldg Fans, on 2(3)L160, in LOCAL position.		
<p>CUE: The switch is in LOCAL.</p> <p>CUE: There is no sound of an engine running.</p>				

JPM: SO 10-05 JPM NRC RO/SRO P-2 TITLE: Perform Duties of Unit 2(3) Primary ACO to Start 2(3)G002

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
5	Determine whether 2(3)G002 Cooling Water System has been impaired, as indicated by presence of either of the following alarms: "HI-HI COOLANT TEMPERATURE ENGINE #1" "HI-HI COOLANT TEMPERATURE ENGINE #2"	OBSERVE both HI-HI Coolant Temperature Engine 1 and 2 alarms on 2(3)UA-0160 not alarming.		
CUE: Both alarms are clear.				
6	Select Diesel Generator Control Panel ammeter to 1, 2 or 3.	SIMULATE PLACING Diesel Generator Control Panel Ammeter 2(3)HS-E936 on 2(3)L160 to 1, 2 or 3 position.		
CUE: The switch is as-found.				
7	Select the Diesel Generator Control Panel voltmeter to 1-2, 2-3, or 3-1.	SIMULATE PLACING Diesel Generator Control Panel Voltmeter 2(3)HS-E935 on 2(3)L160 to 1-2, 2-3 or 3-1 position.		
CUE: The switch is as-found.				
8	Ensure Diesel Generator Lockout Relay reset [2(3)HS-E934; Reset Lamp is 2 (3) ZL-E906]	OBSERVE Diesel Generator Lockout Relay Reset lamp 2 (3) ZL-E906 on 2(3)L160 illuminated.		
CUE: Lockout Relay Reset lamp is on.				
9	Establish communications with and notify the Unit 2(3) ACO that 2(3)G002 ready to start.	SIMULATE CONTACTING Unit 2(3) ACO via sound powered phone, radio or PAX, indicate 2(3)G002 is ready to start.		
CUE: Unit 2(3) ACO directs you to start the diesel and informs you that the diesel will be supplying Bus 2(3)A04.				

JPM: SO 10-05 JPM NRC RO/SRO P-2 TITLE: Perform Duties of Unit 2(3) Primary ACO to Start 2(3)G002

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
10*	Start 2(3)G002 by momentarily placing the Local Engine Control Switch to START.	SIMULATE PLACING Local Engine Control Switch, 2(3)HS-5995-1, to START.		
CUE: Engine speed increases.				
11	Observe 2(3)G002 runup to normal voltage and frequency ranges.	OBSERVE indicators 2(3)SI-E933, Generator Frequency, and 2(3)EI-E931, Generator Voltage, for 2(3)G002.		
CUE: (When observed) Frequency indicates 58.5 Hz, Voltage 4100 VAC.				
12	Adjust 2(3)G002 frequency to 60 Hz.	SIMULATE PLACING Governor 2(3)HS-E940 to the RAISE position.		
CUE: (When observed) Frequency indication is 60 Hz.				
13	Adjust 2(3)G002 voltage to 4360 VAC.	SIMULATE PLACING Local Volt Adjust 2(3)HS-E942 to the RAISE position.		
CUE: (When observed) Voltage indication is 4360 VAC.				
14	Notify the Unit 2(3) ACO when 2(3)G002 is running at normal voltage and frequency.	NOTIFY Unit 2(3) ACO via sound powered phone, radio or PAX, that 2(3)G002 is running at normal voltage and frequency.		
TERMINATING CUE: This JPM is complete. Stop Time: _____				

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.

 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.

 - f. X Statements describing important actions or observations that should be made by the Examinee.

 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: R. Hampton **DATE:** 07/24/05

JPM INFORMATION SHEET

JPM NUMBER

SO 10-05 JPM NRC RO/SRO P-3

INITIAL PLANT CONDITIONS

The Control Room has been evacuated. Both Units completed necessary actions prior to evacuation.

You are the Radwaste Operator.

You have been to the Safe Shutdown Locker, and have obtained all of the required equipment.

TASK TO BE PERFORMED

If performing on Unit 2:

The Control Room Supervisor directs you to perform the Unit 2 duties of the Radwaste Operator following a Control Room evacuation, using SO23-13-2, Shutdown from Outside the Control Room, Attachment 10, Radwaste Operator Duties - Unit 2.

If performing on Unit 3:

The Control Room Supervisor directs you to perform the Unit 3 duties of the Auxiliary Primary Operator following a Control Room evacuation, using SO23-13-2, Shutdown from Outside the Control Room, Attachment 11, Auxiliary Primary Operator Duties - Unit 3.

SUGGESTED TESTING ENVIRONMENT:	PLANT	X	SIMULATOR	_____
ACTUAL TESTING ENVIRONMENT:	PLANT	_____	SIMULATOR	_____
ACTUAL TESTING METHOD:	PERFORMED	_____	SIMULATED	_____

OPERATOR'S NAME: _____

The operator's performance was evaluated against the standards contained in this JPM and is determined to be:

SATISFACTORY: _____
UNSATISFACTORY: _____

DOCUMENTATION

SO 10-05 JPM NRC RO/SRO P-3

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 20 minutes

TIME CRITICAL JPM: NO **CRITICAL TIME:** N/A

POSITION: ACO

TASK SYS ID: 191625

TASK DESCRIPTION

Perform the Radwaste Operator/Auxiliary Reactor Operator (Auxiliary Primary ACO) tasks during a shutdown from outside the Control Room.

KA NUMBER: 068 AA1.08

KA VALUES: **RO** 4.2 **SRO** 4.2

10CFR55.45 APPLICABILITY:

REFERENCES:

SO23-13-2, Shutdown from Outside the Control Room, Rev 7-4.

AUTHOR: R. Whitehouse

DATE: 09/20/04

OPERATIONS REVIEW: M. Jones

DATE: 09/20/04

APPROVED BY: S. Whitley

DATE: 09/20/04

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
0	New – from J123F: J123F was Unit 3 only and J122 was dual unit for the same task but not faulted. Converted J123F to J122F to be the faulted version of the dual unit JPM.	RCW	08/17/04	NEW
1	Removed the requirement to go to the SSD locker. This was a critical step.	RCW	09/20/04	REV
1-1	Compared against SO23-13-2, Rev 7-4 with no changes required.	RHH	07/27/05	AHH

SET-UP

Provide Examinee with a copy of SO23-13-2, Shutdown from Outside the Control Room, Attachment 10 if performing on Unit 2 or Attachment 11 if performing on Unit 3.

This is a faulted JPM. The faulted condition is that valve 2(3)HV-6497, SWC/CCW HX Outlet Valve is closed and cannot be opened.

NOTE: Circle the Unit on which this JPM will be performed and inform the Examinee.

JPM: SO 10-05 JPM NRC RO/SRO P-3 TITLE: Perform the Primary Operator Tasks During a Shutdown From Outside the Control Room

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
NOTE: Provide the Examinee with a copy of SO23-13-2, Shutdown from Outside the Control Room, Attachment 10 for Unit 2 or Attachment 11 for Unit 3. CUE: You have been to the SSD locker and have all of the required equipment.				
1	Proceed to Radwaste via Control Building Central Stairwell and the Health Physics Control Point.	PROCEED to Radwaste via the Control Building Central Stairwell and the Health Physics Control Point.		Start Time: _____
NOTE: Both Gravity Feed Valves are opened in any order.				
2*	At 24' Radwaste open 2(3)HV-9235, BAMU Gravity Feed.	At 24' Radwaste, SIMULATE OPENING 2(3)HV-9235, BAMU Tank 2(3)T072 Gravity Feed to Charging Pump suction Isolation Valve.		
CUE: 2(3)HV-9235 is open.				
3*	At 24' Radwaste open 2(3)HV-9240, BAMU Gravity Feed.	At 24' Radwaste, SIMULATE OPENING 2(3)HV-9240 2(3)T071 Gravity Feed to Charging Pump suction Isolation Valve.		
CUE: 2(3)HV-9240 is open.				
4*	At 37' Radwaste close 2(3)LV-0227B, VCT Outlet (RM. 319B, Key No. HR)	At 37' Radwaste, SIMULATE CLOSING 2(3)LV-0227B, VCT Outlet Valve in Room 319B. A key may not be needed for this room depending on present radiological conditions.		
CUE: 2(3)LV-0227B is closed.				

JPM: SO 10-05 JPM NRC RO/SRO P-3 TITLE: Perform the Primary Operator Tasks During a Shutdown From Outside the Control Room

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
5	At 9' Radwaste ensure closed 2 (3) LV-0227C, RWST to Charging Pump suction.	At 9' Radwaste, VERIFY 2(3)LV-0227C, Boric Acid to Charging System Control Valve is CLOSED.		
CUE: 2(3)LV-0227C is closed.				
NOTE: The following steps represent the alternate path of this JPM. This portion of the JPM is performed outside the RCA.				
6*	ENSURE OPEN 2(3)HV-6497, SWC/CCW HX Outlet Valve.	LOCATE 2(3)HV-6497, SWC/CCW HX Outlet Valve, and IDENTIFY the valve position indicator.		
CUE: 2(3)HV-6497, SWC/CCW HX Outlet Valve indicates closed and <u>cannot</u> be opened.				
7*	OPEN MCC Breaker 2BK23 (3BK22).	SIMULATE OPENING MCC Breaker 2BK23 (3BK22), Salt Wtr Fr Component Clg Wtr Heat Exchanger 2(3)HV-6496.		
CUE: 2BK23 (3BK22) is open.				
8*	MANUALLY OPEN 2(3)HV-6496, Overboard Block Valve to Seawall.	SIMULATE OPENING 2(3)HV-6496, Overboard Block Valve to Seawall.		
TERMINATING CUE: 2(3)HV-6496 is open. This JPM is complete.				Stop Time: _____

JPM CHECKLIST

1. The JPM is:
 - a. X Supported by facility's job task analysis.
 - b. X Operationally important (meets threshold criterion of K/A 3.0 or greater).
 - c. X Designed as either SRO only, or RO/SRO.

2. Each JPM includes:
 - a. X Initial conditions.
 - b. X Initiating cues.
 - c. X References, including associated procedures.
 - d. X Performance standards which are specific in that control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step.

 - e. X System response cues that are complete and correct so that the examiner can properly cue the Examinee, if asked.

 - f. X Statements describing important actions or observations that should be made by the Examinee.

 - g. X Criteria for successful completion.
 - h. X Identification of the critical steps and their associated performance standards.
 - i. X Validated time limits (average time allowed for completion).
 - j. X JPMs identified as time critical or not time critical by the Operations Division based on NRC commitments.

COMPLETED BY: R. Hampton **DATE:** 07/24/05

Facility:	San Onofre	Scenario No.:	1	Op Test No.:	NRC
Examiners:	_____	Operators:	_____		
	_____		_____		
	_____		_____		
Initial Conditions: <ul style="list-style-type: none"> 100% power - RCS Boron is 888 ppm by Chemistry Sample Train A Component Cooling Water Pump (P-025) in service Train A Auxiliary Feedwater Pump (P-141) OOS Train A High Pressure Safety Injection (P-017) OOS Condenser Air Ejector Low Range Radiation Monitor (RM-7818) OOS 					
Turnover: Maintain steady-state power conditions.					
Critical Tasks: <ul style="list-style-type: none"> Establish RCS temperature control (Turbine fails to trip). Trip any RCP not satisfying RCP operating limits. Stabilize RCS temperature/pressure following loss of heat removal from the faulted Steam Generator. 					
Event No.	Malf. No.	Event Type*	Event Description		
1 + 5 min	FW23	C (ACO, CRS)	Partial loss of Condenser vacuum @ 3%.		
2 + 10 min		R (CO) N (ACO, CRS)	Downpower for Condenser Backpressure.		
3 + 20 min	CV17A CV17B	C (CO, CRS) TS(CRS)	Both BAMU Pumps trip.		
4 + 25 min		TS (CRS)	Main Steam and Main Feedwater Isolation Valves declared <i>inoperable</i> .		
5 + 30 min	RD2103	C (CO, ACO, CRS) TS (CRS)	Dropped CEA #21.		
6 + 50 min	MS03B	M (ALL)	ESDE on E089 inside Containment.		
7 +50 min	TU07	C (ACO)	Turbine auto trip failure, manual trip required.		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS) Technical Specifications					

SCENARIO SUMMARY NRC #1

The crew will assume the watch at 100% power and maintain steady-state conditions per SO23-5-1.7, Power Operations.

When turnover is complete, a partial loss of vacuum will occur. The crew will respond per the Annunciator Response Procedures (ARP) and AOI SO23-13-10, Loss of Condenser Vacuum and lower power level until the Turbine Vacuum Limit is in the Area of Unrestricted Operation.

When the CO initiates RCS boration for the power reduction, the in-service and standby Boric Acid Makeup Pumps (BAMU) will trip, requiring gravity feed from the BAMU tanks for boration. The CRS will evaluate Technical Specifications.

Once the plant is stabilized, the Main Steam and Main Feedwater Isolation Valves will be declared *inoperable* due to improper hydraulic fluid. The CRS will evaluate Technical Specifications.

This is followed by a dropped CEA and requires crew actions per the ARPs and AOI SO23-13-13, Misaligned or Immovable Control Element Assembly.

The EOP entry point is caused by an ESDE on E089 inside Containment. The crew performs SO23-12-1, Standard Post Trip Actions and diagnoses an ESDE. The crew will transition to SO23-12-5, Excess Steam Demand Event and perform necessary actions to stabilize RCS temperature.

During this event the Turbine fails to trip requiring manual actions on the part of the ACO. The scenario is terminated when the crew stabilizes RCS temperature/pressure following pressure following loss of heat removal from the faulted Steam Generator.

Risk Significance:

- | | |
|---|--|
| • Risk important components out of service: | HPSI P-017, AFW P-141 |
| • Failure of risk important system prior to trip: | Loss of BAMU Pumps |
| • Risk significant core damage sequence: | ESDE with Turbine trip failure |
| • Risk significant operator actions: | Failure to trip Main Turbine |
| | Stabilize RCS temperature following ESDE |

Scenario Event Description

NRC Scenario 1

SONGS

2005 Facility NRC Initial License Examination

Simulator Scenario Setup

Scenario 1

MACHINE OPERATOR'S INSTRUCTIONS

SETUP

IC: Use IC #176 and see attached Event File for NRC Scenario #1.

STEPS	TYPE	MALF #	DESCRIPTION	DEMAND VALUE	INITIATING PARAMETER

Op Test No.:	<u>NRC</u>	Scenario #	<u>1</u>	Event #	<u>1, 2, & 3</u>	Page	<u>4</u>	of	<u>22</u>
Event Description:		Partial Loss of Condenser Vacuum, Downpower, RCS Boration using Gravity Feed							
Time	Position	Applicant's Actions or Behavior							

Control Room Annunciators in Alarm at 100%:**57A58 – EMERGENCY FEEDWATER SYS TRAIN A INOPERABLE****Indications available:****99B37 – VACUUM LO**

Indication of rising Main Condenser backpressure into the area of restricted operation

Slight drop in Main Generator MWe output

Condensate Pump P-053 may auto start due to the secondary transient

58A46 – BAMU PUMP P174 OC (once boration is attempted)

58A47 – BAMU PUMP P175 OC (once boration is attempted)

+1 min	ACO	REFER to Annunciator Response Procedure.
	ACO	DETERMINE that vacuum is degrading due to an unknown and/or uncontrollable cause, and the Main Turbine is operating in the restricted area of SO23-5-1.7, Attachment 5, Turbine Vacuum Limits and INFORM the CRS AOI SO23-13-10 entry required.
	CRS	DIRECT performance of AOI SO23-13-10, Loss of Condenser Vacuum.
	ACO	VERIFY Vacuum Pump P-054 auto starts or manually START Vacuum Pump.
	CRS	DECLARE RT-7870 process flow rate monitor <i>inoperable</i> and INITIATE a LCOAR/EDMR.

Op Test No.:	<u>NRC</u>	Scenario #	<u>1</u>	Event #	<u>1, 2, & 3</u>	Page	<u>5</u>	of	<u>22</u>
Event Description:		Partial Loss of Condenser Vacuum, Downpower, RCS Boration using Gravity Feed							
Time	Position	Applicant's Actions or Behavior							

	CRS/ACO	Within one hour of completing a change of Condenser evacuation flow, PERFORM SO23-3-3.21, Attachment for Shiftly Flow Estimates.
	CRS/ACO	INITIATE aligning S21313MU219, Hogger/SJAE Nozzle Manifold Selector fully to the MP-054 position.
	ACO	After two minutes of operating, PLACE Vacuum Pump P-054 in MANUAL.
	ACO	VERIFY Gland Seal steam pressure > 2 psig on PI-2845.
	ACO	DETERMINE Condenser backpressure is NOT in the area of Unrestricted Operation in Attachment 3.
	CREW	INITIATE Attachment 1 and DISPATCH personnel to locate source of vacuum leak.
	CO	VERIFY a Reactor trip has not occurred.
	ACO	VERIFY a Turbine trip has not occurred.

Op Test No.:	<u>NRC</u>	Scenario #	<u>1</u>	Event #	<u>1, 2, & 3</u>	Page	<u>6</u>	of	<u>22</u>
Event Description:		Partial Loss of Condenser Vacuum, Downpower, RCS Boration using Gravity Feed							
Time	Position	Applicant's Actions or Behavior							

	ACO	REDUCE Turbine load as required to maintain:
		<ul style="list-style-type: none"> Backpressure in the Area of Unrestricted Operation in Attachment 3.
		<ul style="list-style-type: none"> Condenser Delta T $\leq 25^{\circ}\text{F}$.
Floor Cue: If asked, REPORT Condenser Delta T is 22°F.		
	CO	BORATE the RCS or INSERT CEAs as Turbine load is reduced.
	CO	INITIATE boration in accordance with SO23-3-2.2, Makeup Operations.
	CO	DETERMINE amount of boric acid to be added from thumb rules page.
	CO	COMMENCE periodically changing boronometer setpoints to (+50, -25 ppm) of existing boron concentration.
	CO	POSITION FIC-0210Y, BAMU Flow Controller, to AUTOMATIC and set to the required flowrate.

Op Test No.:	<u>NRC</u>	Scenario #	<u>1</u>	Event #	<u>1, 2, & 3</u>	Page	<u>7</u>	of	<u>22</u>
Event Description:		Partial Loss of Condenser Vacuum, Downpower, RCS Boration using Gravity Feed							
Time	Position	Applicant's Actions or Behavior							

	CO	SET FQIS-0210Y, BAMU to VCT T-077, Borate Batching Counter, to the required volume (103 gallons for 5%).
	CO	SELECT the BAMU Pump associated with the BAMU Tank used.
	CO	BORATE to the Charging Pump suction:
		<ul style="list-style-type: none"> • VERIFY closed FV-9253, Blended Makeup to VCT isolation.
		<ul style="list-style-type: none"> • PLACE HV-9257, BAMU to Charging Pump Suction Block Valve in AUTOMATIC.
	CO	SELECT HS-0210, Makeup Mode Selector, to BORATE.
	CO	DETERMINE that selected BAMU Pump tripped upon starting:
		<ul style="list-style-type: none"> • 58A46 - BAMU PUMP P174 OC.
	CO	START BAMU Pump P-175 by placing the pump control switch in START or by placing HS-9264 to the P-175 position.
	CO	DETERMINE that selected BAMU Pump tripped upon starting:
		<ul style="list-style-type: none"> • 58A47 - BAMU PUMP P175 OC.

Op Test No.:	<u>NRC</u>	Scenario #	<u>1</u>	Event #	<u>1, 2, & 3</u>	Page	<u>8</u>	of	<u>22</u>
Event Description:		Partial Loss of Condenser Vacuum, Downpower, RCS Boration using Gravity Feed							
Time	Position	Applicant's Actions or Behavior							

	CO	OPEN Gravity Feed Valves from BAMU Tank (HV-9235 or HV-9240) or RWST Gravity Feed Valve (LV-0227C) to initiate boration or INSERT CEAs.
	CO	MONITOR plant parameters.
+20 min	CRS	EVALUATE Technical Specifications.
		<ul style="list-style-type: none"> 3.1.9.A is applicable (72 hour ACTION) to restore boron injection flowpath to OPERABLE status.
		<ul style="list-style-type: none"> NOTE: Loss of both BAMU Pumps represents loss of a <u>single</u> flowpath as both BAMU Pumps are powered from Train A. The Gravity Feed Valves are powered from Train B and represent the other Train.
	CRS	NOTIFY GCC of the load reduction.
NOTE: Crew may determine that Part Length CEA insertion is necessary for ASI control.		
	CRS	VERIFY that the loss of vacuum is not the result of recent equipment status changes on either Unit.
<i>When vacuum has stabilized and/or power reduction is complete, or at Lead Evaluator's discretion, PROCEED to Event 4.</i>		

Op Test No.: NRC Scenario # 1 Event # 4 Page 9 of 22

Event Description: Main Steam and Main Feedwater Isolation Valves Declared Inoperable

Time	Position	Applicant's Actions or Behavior
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Machine Operator: When directed, **CONTACT** Control Room as Maintenance Engineering and **REPORT** that the wrong hydraulic fluid was placed into the MSIVs and MFW Isolation Valves.

Indications available:

None

+1 min	CRS	EVALUATE Technical Specifications.
		<ul style="list-style-type: none"> No available 3.7.2 LCO for two MSIVs <i>inoperable</i> in Mode 1 requires LCO 3.0.3 entry (7 hour ACTION).
		<ul style="list-style-type: none"> 3.7.3.A is applicable (7 day ACTION).
		<ul style="list-style-type: none"> Close or isolate <i>inoperable</i> MFIV.

Floor Cue: Once the decision to shutdown is made, **REPORT** as the Shift Manager and **DIRECT** plant shutdown at 20% per hour.

+5 min	CRS	DIRECT performance of a Plant Shutdown per SO23-5-1.7, Power Operations to place the Unit in Mode 3.
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When Technical Specifications have been reviewed, or at Lead Evaluator's discretion, PROCEED to Event 5.

Op Test No.: NRC Scenario # 1 Event # 5 Page 10 of 22

Event Description: Dropped CEA #21

Time	Position	Applicant's Actions or Behavior
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Indications available:**50A28 – CEA DEVIATION****50A36 – POWER DEPENDENT INSERTION LIMIT****50A37 – PRE-POWER DEPENDENT INSERTION LIMIT****50A38 – CEA GROUP DEVIATION****50A02 – COLSS ALARM****50A10 – CEDMCS CEA WITHDRAWAL PROHIBIT****CEA #21 Rod Bottom indication**

+1 min	CO	RECOGNIZE that Regulating Group 1 CEA 21 has dropped and INFORM the CRS AOI SO23-13-13 entry required.
	CRS	DIRECT performance of AOI SO23-13-13, Misaligned or Immovable Control Element Assembly.
	CO	VERIFY that no more than one CEA is misaligned > 7 inches.
	CO	ENSURE CEDMCS Mode Selector Switch in OFF.
	ACO	REDUCE Turbine load using CVOL to restore RCS Tcold to the pre-CEA drop value and block load changes.
	CO	VERIFY Reactor is critical.
	CRS	RECORD initial and stabilized reactor power for subsequent SDM calculation.

Op Test No.: NRC Scenario # 1 Event # 5 Page 11 of 22Event Description: Dropped CEA #21

Time	Position	Applicant's Actions or Behavior
	CRS	Within 15 minutes, DIRECT monitoring of DNBR and LPD per SO23-3-3.6, Attachment 1.
Floor Cue: The Work Control Supervisor will complete the DNBR and LPD monitoring in accordance with SO23-3-3.6, Attachment 1.		
	CRS	DIRECT performance of Attachment 3, Misaligned CEA checklist.
	CRS	Within 15 minutes of discovery, DIRECT initiation of Reactor power reduction.
		<ul style="list-style-type: none"> For Non Group 6 Full Length CEA, REDUCE power 10% within 60 minutes.
NOTE: CRS should recognize that power reduction due to dropped CEA (~3%) satisfies the 15 minute requirement to initiate a power reduction. The remaining power reduction must be accomplished within 60 minutes.		
	ACO	COMMENCE lowering Turbine Generator load using CVOL while maintaining Tcold per SO23-5-1.7.
	CRS	DIRECT initiation of boration of the RCS per SO23-3-2.2 to achieve target power level.

Op Test No.: NRC Scenario # 1 Event # 5 Page 12 of 22

Event Description: Dropped CEA #21

Time	Position	Applicant's Actions or Behavior
	CO	COMMENCE attempting to control ASI near full power ESI.
	CRS	REQUEST Reactor Engineering to report to the Control Room.
	CRS	INITIATE recovery of affected CEA per Attachment 1.
	CO	VERIFY CEA position indications agree:
		<ul style="list-style-type: none"> COMPARE affected CEA PIDs from CEAC No. 1 and 2 at CPC Operator Console.
		<ul style="list-style-type: none"> COMPARE affected CEA PIDs from CEAC No. 1 and 2 at Secondary Rod Position CRT.
		<ul style="list-style-type: none"> CHECK UEL and LEL lights.
+20 min	CO/CRS	VERIFY one CEA has not been misaligned >7 inches for an unknown duration.
When the CEA evaluation is completed, or at Lead Evaluator's discretion, PROCEED to Events 6 and 7.		

Op Test No.: NRC Scenario # 1 Event # 6, 7 Page 13 of 22

Event Description: ESDE on E089 Inside Containment / Turbine Trip Failure

Time	Position	Applicant's Actions or Behavior
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Indications available:**60A02 – CONTAINMENT HUMIDITY HIGH****60A12 – REACTOR CAVITY TEMP HI****60A03 – CONTAINMENT / FHB TEMP HI****56A35 – CONTAINMENT PRESSURE HI PRE-TRIP****56A16 – PRESSURIZER PRESSURE LO PRE-TRIP**

	CO/ACO	RECOGNIZE that an uncontrolled cooldown is in progress and INFORM the CRS that reactor trip is required.
	CRS	DIRECT entry into SO23-12-1, Standard Post Trip Actions.
	CRS	INITIATE Administrative Actions:
		<ul style="list-style-type: none"> RECORD time of Reactor trip _____. ANNOUNCE Reactor trip via PA System. INITIATE Attachment 4, WORKSHEET. INITIATE Attachment 5, ADMINISTRATIVE ACTIONS.
	CO	VERIFY Reactivity Control criteria satisfied:
		<ul style="list-style-type: none"> VERIFY Reactor Trip Circuit Breakers (8) – open. VERIFY maximum of one full length CEA – NOT fully inserted. VERIFY Reactor power – lowering AND Startup rate – negative.

Op Test No.: NRC Scenario # 1 Event # 6, 7 Page 14 of 22

Event Description: ESDE on E089 Inside Containment / Turbine Trip Failure

Time	Position	Applicant's Actions or Behavior
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	ACO	VERIFY Vital Auxiliaries functioning properly:
CRITICAL TASK		<ul style="list-style-type: none"> Establish RCS Temperature Control - DETERMINE Main Turbine NOT tripped and MANUALLY TRIP Turbine.
		<ul style="list-style-type: none"> HP and LP Stop and Governor Valves – closed.
		<ul style="list-style-type: none"> MWE output – lowering.
		<ul style="list-style-type: none"> VERIFY both Unit Output Breakers – open.
		<ul style="list-style-type: none"> VERIFY Main Turbine speed - less than 2000 RPM OR - lowering.
		<ul style="list-style-type: none"> VERIFY CCW Pump aligned to Non-Critical Loop (NCL) and Letdown Heat Exchanger – operating.
		<ul style="list-style-type: none"> VERIFY both 1E 4 kV Buses – energized.
		<ul style="list-style-type: none"> VERIFY both 1E 480 V Buses B04 and B06 - energized.
		<ul style="list-style-type: none"> VERIFY all 6.9 kV and Non-1E Buses – energized.
		<ul style="list-style-type: none"> VERIFY all Class 1E DC Buses – energized.
	CO	DETERMINE RCS Inventory Control criteria NOT satisfied:
		<ul style="list-style-type: none"> DETERMINE PZR level NOT between 10% and 70% AND NOT trending to between 30% and 60%.
		<ul style="list-style-type: none"> VERIFY Core Exit Saturation Margin – greater than or equal to 20°F:
		QSPDS page 611.
		CFMS page 311.
	CO	DETERMINE RCS Pressure Control criteria NOT satisfied:
		<ul style="list-style-type: none"> DETERMINE PZR pressure (WR and NR) NOT between 1740 PSIA and 2380 PSIA AND NOT controlled AND NOT trending to between 2025 PSIA and 2275 PSIA.

Op Test No.: NRC Scenario # 1 Event # 6, 7 Page 15 of 22

Event Description: ESDE on E089 Inside Containment / Turbine Trip Failure

Time	Position	Applicant's Actions or Behavior
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	CO	DETERMINE Core Heat Removal criteria is NOT satisfied:
CRITICAL TASK		<ul style="list-style-type: none">• Trip any RCP not satisfying RCP operating limits - STOP all RCPs due to CIAS.
		<ul style="list-style-type: none">• RECORD time of all RCPs off.
		<ul style="list-style-type: none">• VERIFY operating loop Delta T (Th-Tc) less than 58°F.
		<ul style="list-style-type: none">• VERIFY Th and Tc not rising.
		<ul style="list-style-type: none">• VERIFY operating loop Th and REP CET within 16°F.
		<ul style="list-style-type: none">• QSPDS page 611.
		<ul style="list-style-type: none">• CFMS page 311.
		<ul style="list-style-type: none">• VERIFY Core Exit Saturation Margin $\geq 20^{\circ}\text{F}$.
		<ul style="list-style-type: none">• QSPDS page 611.
		<ul style="list-style-type: none">• CFMS page 311.
		<ul style="list-style-type: none">• VERIFY Reactor Vessel level $\geq 100\%$ (plenum).
		<ul style="list-style-type: none">• QSPDS page 622.
		<ul style="list-style-type: none">• CFMS page 312.
NOTE:	It is acceptable for CO to report only “Monitoring for Natural Circulation.”	
	ACO	DETERMINE RCS Heat Removal criteria NOT satisfied:
		<ul style="list-style-type: none">• DETERMINE both SGs level – NOT greater than 21% NR.
		<ul style="list-style-type: none">• VERIFY both SGs level – less than 80% NR.
		<ul style="list-style-type: none">• DETERMINE the following:
		<ul style="list-style-type: none">• Auxiliary feedwater available to restore E088 SG level – between 40% NR and 80% NR.
		<ul style="list-style-type: none">• Main feedwater NOT available to restore both SGs level – between 40% NR and 80% NR with flow to each SG (MSIS actuated):
		<ul style="list-style-type: none">• No MFW Pumps – operating.

Op Test No.: NRC Scenario # 1 Event # 6, 7 Page 16 of 22

Event Description: ESDE on E089 Inside Containment / Turbine Trip Failure

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> RTO – actuated to both SGs.
		<ul style="list-style-type: none"> PREVENT SG high level:
		<ul style="list-style-type: none"> CLOSE MFW Block Valves:
		<div style="display: flex; justify-content: space-around;"> <div> <u>E-088</u> HV-4047 </div> <div> <u>E-089</u> HV-4051 </div> </div>
		<ul style="list-style-type: none"> DETERMINE heat removal NOT adequate:
		<ul style="list-style-type: none"> T_C – less than 555°F.
		<ul style="list-style-type: none"> SG pressures – less than 1000 PSIA.
		<ul style="list-style-type: none"> DETERMINE T_C less than 545°F and NOT controlled.
		<ul style="list-style-type: none"> DETERMINE SG pressures – less than 740 PSIA.
	CO	DETERMINE Containment Isolation criteria NOT satisfied:
		<ul style="list-style-type: none"> DETERMINE Containment pressure – greater than 1.5 PSIG.
		<ul style="list-style-type: none"> VERIFY Containment Area Radiation Monitors energized AND NOT alarming or trending to alarm.
		<ul style="list-style-type: none"> VERIFY Secondary Plant Radiation Monitors energized AND NOT alarming or trending to alarm.
	CO	DETERMINE Containment Temperature, Pressure and Combustible Gas Control criteria NOT satisfied:
		<ul style="list-style-type: none"> DETERMINE Containment average temperature – greater than 120°F.
		<ul style="list-style-type: none"> DETERMINE Containment pressure – greater than 1.5 PSIG.

Op Test No.: NRC Scenario # 1 Event # 6, 7 Page 17 of 22

Event Description: ESDE on E089 Inside Containment / Turbine Trip Failure

Time	Position	Applicant's Actions or Behavior
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+15 min	CRS	DIAGNOSE Event in Progress:
		<ul style="list-style-type: none"> DETERMINE all safety function criteria are NOT met per Attachment 4, WORKSHEET.
		<ul style="list-style-type: none"> COMPLETE Attachment 1, Recovery Diagnostic.
		<ul style="list-style-type: none"> DIAGNOSE ESDE in progress.
		<ul style="list-style-type: none"> NOTIFY personnel of event in progress.
		<ul style="list-style-type: none"> DESIGNATE SRO-in-charge.
		<ul style="list-style-type: none"> DIRECT initiation of Steps 11 through 14.
	CRS	DIRECT performance of SO23-12-5, Excess Steam Demand Event.
	CRS	ENSURE SO23-12-1, Standard Post Trip Actions, Steps 1-10, complete.
		<ul style="list-style-type: none"> RECORD time of EOI entry.
	CRS	VERIFY ESDE diagnosis.
		<ul style="list-style-type: none"> INITIATE SO23-12-10, Safety Function Status Checks.
		<ul style="list-style-type: none"> INITIATE Foldout Page.
		<ul style="list-style-type: none"> FS-7, SI Throttle/Stop
		<ul style="list-style-type: none"> FS-3, Monitor Natural Circulation
		<ul style="list-style-type: none"> Attachment 22, Non-Qualified Loads Restoration
		<ul style="list-style-type: none"> FS-30, Stabilize RCS Temperature

Op Test No.: NRC Scenario # 1 Event # 6, 7 Page 18 of 22

Event Description: ESDE on E089 Inside Containment / Turbine Trip Failure

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> Attachment 28, Isolation of SG with ESDE
		<ul style="list-style-type: none"> VERIFY ESDE diagnosis using Figure 1, Break Identification Chart.
		<ul style="list-style-type: none"> INITIATE sampling of both Steam Generators for radioactivity and boron.
	CRS	INITIATE Administrative Actions.
		<ul style="list-style-type: none"> NOTIFY Shift Manager/Operations Leader of SO23-12-5, Excess Steam Demand Event initiation.
		<ul style="list-style-type: none"> ENSURE Emergency Plan is initiated.
		<ul style="list-style-type: none"> IMPLEMENT Placekeeper.
	CO	VERIFY ESF actuation.
		<ul style="list-style-type: none"> VERIFY SIAS actuation required.
		<ul style="list-style-type: none"> PZR pressure less than SIAS setpoint.
		OR
		<ul style="list-style-type: none"> Containment pressure > 3.4 PSIG.
		<ul style="list-style-type: none"> ENSURE the following actuated:
		<ul style="list-style-type: none"> SIAS / CCAS / CRIS
	CRS	RECORD time of SIAS.
	ACO	STOP unloaded Diesel Generators.
	ACO	INITIATE SO23-12-11, Attachment 22, Non-Qualified Load Restoration.

Op Test No.: NRC Scenario # 1 Event # 6, 7 Page 19 of 22

Event Description: ESDE on E089 Inside Containment / Turbine Trip Failure

Time	Position	Applicant's Actions or Behavior
	ACO	VERIFY MSIS actuation required and ENSURE MSIS actuated.
		<ul style="list-style-type: none"> SG pressure < 740 PSIA..
	CO	VERIFY CIAS actuation required and ENSURE CIAS actuated.
		<ul style="list-style-type: none"> Containment pressure > 3.4 psig.
		<ul style="list-style-type: none"> CFMS pages 342 and 343.
	CO	VERIFY SIAS actuated.
	CO	ESTABLISH Optimum SI Alignment.
		<ul style="list-style-type: none"> ESTABLISH two train operation
		<ul style="list-style-type: none"> All Charging Pumps operating
		<ul style="list-style-type: none"> One HPSI and one LPSI per train operating.
		<ul style="list-style-type: none"> All Cold leg flow paths aligned
		<ul style="list-style-type: none"> VERIFY SI flow required
		<ul style="list-style-type: none"> SI flow indicated
		<ul style="list-style-type: none"> RCS pressure greater than 1250 psia
		OR
		<ul style="list-style-type: none"> VERIFY FS-7, Verify SI Throttle/Stop criteria satisfied.

Op Test No.: NRC Scenario # 1 Event # 6, 7 Page 20 of 22

Event Description: ESDE on E089 Inside Containment / Turbine Trip Failure

Time	Position	Applicant's Actions or Behavior
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	ACO	CLOSE MSIVs and MSIV Bypasses.
		<ul style="list-style-type: none"> ENSURE MSIVs - closed.
		<ul style="list-style-type: none"> HV-8205 for E088
		<ul style="list-style-type: none"> HV-8204 for E089
		<ul style="list-style-type: none"> ENSURE MSIV Bypasses - closed
		<ul style="list-style-type: none"> HV-8203 for E088
		<ul style="list-style-type: none"> HV-8202 for E089
	CREW	PREVENT Pressurized Thermal Shock.
		<ul style="list-style-type: none"> INITIATE FS-30, Establish Stable RCS temperature during ESDE.
NOTE: The following steps from FS-30 will be performed when conditions are met. Both the ESDE procedure and the ESDE Foldout Page direct performance of these steps.		
+20 min	ACO	VERIFY SG least affected by ESDE, SG E088, NOT isolated for SGTR.

Op Test No.: NRC Scenario # 1 Event # 6, 7 Page 21 of 22

Event Description: ESDE on E089 Inside Containment / Turbine Trip Failure

Time	Position	Applicant's Actions or Behavior
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CRITICAL TASK	ACO	Stabilize RCS temperature/pressure following loss of heat removal from the faulted Steam Generator.
		OPERATE ADV on SG E088 to stabilize RCS temperatures as faulted SG level lowers.
		<ul style="list-style-type: none"> SG E089 at 10% WR, position SG E088 ADV, HV-8419 to 10% open.
		<ul style="list-style-type: none"> SG E089 at 5% WR, set SG E088 ADV, HV-8419, at P_{sat} for lowest T_c.
		<ul style="list-style-type: none"> SG E089 initial dryout, adjust SG E088 ADV, HV-8419, at P_{sat} for lowest T_c attained as SG boils dry.
	ACO	STABILIZE least affected SG E088 pressure.
		<ul style="list-style-type: none"> OPERATE ADV in automatic.
		<ul style="list-style-type: none"> STABILIZE AFW flow.
	CO	VERIFY RCS pressure is to the right of the Appendix E curve on Attachment 29, Post-Accident Pressure/Temperature Limits.
	ACO	OPERATE feedwater on SG E088 to maintain level between 40% and 80% NR.

Op Test No.: NRC Scenario # 1 Event # 6, 7 Page 22 of 22

Event Description: ESDE on E089 Inside Containment / Turbine Trip Failure

Time	Position	Applicant's Actions or Behavior
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	ACO	ISOLATE SG E089. CLOSE/STOP the following components:
		• MSIV HV-8204
		• MSIV Bypass HV-8202
		• ADV HV-8421
		• MFIV HV-4052
		• AFW valves HV-4715, HV-4731
		• Steam to AFW P-140 HV-8200
		• SG Blowdown Isolation HV-4053
		• SG Water Sample Isolation HV-4057
		• Electric AFW Pump P-141
	ACO	ENSURE ADV on SG E089 selected to MANUAL.
When the affected Steam Generator E089 is isolated, TERMINATE the scenario.		

Facility:	San Onofre	Scenario No.:	3	Op Test No.:	NRC
Examiners:	_____	Operators:	_____		
	_____		_____		
	_____		_____		
Initial Conditions: <ul style="list-style-type: none"> 30% power – RCS Boron is 1237 ppm by Chemistry Sample Train A Component Cooling Water Pump (P-025) in service Train A Auxiliary Feedwater Pump (P-141) OOS Train A High Pressure Safety Injection (P-017) OOS Condenser Air Ejector Low Range Radiation Monitor (RM-7818) OOS 					
Turnover: Boration and downpower as directed by Operations Management.					
Critical Tasks: <ul style="list-style-type: none"> Energize at least one vital electrical AC bus and associated 480 V 1E bus. Restore flow to the Component Cooling Water Non-Critical Loop (RCPs operating). 					
Event No.	Malf. No.	Event Type*	Event Description		
1 + 15 min		R (CO) N (ACO, CRS)	Boration and downpower at 10%/hr.		
2 + 20 min	NI08B	I (CO, CRS) TS (CRS)	NI Channel B Upper Detector failure.		
3 +30 min	PG22 PG23	C (ACO, CRS) TS (CRS)	Degraded grid voltage to Sustained Degraded Voltage Setpoint.		
4 +45 min		I (CO, CRS)	Letdown Pressure instrument fails low (2PIC-0201 B-CR58-MOI).		
5 +55 min	FW18A	I(ACO, CRS)	SG E089 Feed Flow Transmitter fails high.		
6 + 65 min	PG24 TU08	M (ALL)	Loss of Offsite Power. Turbine trip.		
7 + 66 min	ED03B	M (ALL)	2A06 Bus Fault.		
8 +67 min	EG08A	C (ACO)	EDG 2G002 mechanical failure.		
9 +70 min	PG57	M (ALL)	Loss of SDG&E Switchyard.		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS) Technical Specifications					

SCENARIO SUMMARY NRC #3

The crew will assume the watch with a boration requested by Reactor Engineering (to obtain calorimetric data at 25% power) per SO23-5-1.7, Power Operations.

After the crew has demonstrated control of the power change, a Nuclear Instrument Upper Detector failure will occur. The crew will respond per the Annunciator Response Procedures (ARP) and Abnormal Operating Instruction (AOI) SO23-13-18, Reactor Protection System Failure. The CRS will evaluate Technical Specifications.

This is followed by a frequency drop and grid voltage decrease to the Sustained Degraded Voltage Signal (SDVS) for 110 seconds that will require crew response and entry into AOI SO23-13-4, Operation during Major System Disturbances. The ACO will be required to adjust Main Generator MVARs and restart a CCW Pump. The CRS will evaluate Technical Specifications.

With the plant stable, the crew will respond to a Letdown Pressure Instrument failure. This will require action per the Annunciator Response Procedures and SO23-3-2.1, CVCS Charging and Letdown Operations.

Once Letdown is restored, a feed flow transmitter will fail high on SG E089. The crew will regain control of feedwater flow per Annunciator Response Procedures and AOI SO23-13-24, Feedwater Malfunctions.

When the crew has stabilized feedwater flow, a Loss of Offsite Power will occur along with a mechanical failure of 2G002 and 2A06 Bus fault. The crew will perform SO23-12-1, Standard Post Trip Actions and during the SPTAs the ACO will take action associated with the mechanical failure of EDG 2G002. The crew will then transition to SO23-12-8, Station Blackout and attempt to restore offsite power.

Event termination will occur once an offsite line is restored and aligned to 1E Bus 2A04 with plant conditions stable.

Risk Significance:

- | | |
|---|-------------------------------------|
| • Risk important components out of service: | HPSI P-017, AFW P-141 |
| • Failure of risk important system prior to trip: | Loss of CCW Pump |
| • Risk significant core damage sequence: | LOOP with loss of EDGs |
| • Risk significant operator actions: | Restore Non-Critical Loop |
| | Recover Offsite Power in 60 minutes |

Scenario Event Description

NRC Scenario 3

SONGS

2005 Facility NRC Initial License Examination

Simulator Scenario Setup

Scenario 3

MACHINE OPERATOR'S INSTRUCTIONS

SETUP

IC: Use IC #172 and see attached Event File for NRC Scenario #3.

STEPS	TYPE	MALF #	DESCRIPTION	DEMAND VALUE	INITIATING PARAMETER

Op Test No.:	<u>NRC</u>	Scenario #	<u>3</u>	Event #	<u>1</u>	Page	<u>4</u>	of	<u>22</u>
Event Description:		Boration and Downpower at 10%/hr							
Time	Position	Applicant's Actions or Behavior							

Control Room Annunciators in Alarm at 30%:

57A58 – SI/ECW SYS TRAIN A INOPERABLE

56A30/40/50/60 – LOSS OF LOAD CHANNEL 1/2/3/4 TRIP DISABLED

53A20 – MFWP MINI FLOW VALVE OPEN

53B01 – CONDENSATE PUMP P053 AUTO START

53A49 – 5TH POINT HEATER LEVEL HI/LO

53A50 – 6TH POINT HEATER LEVEL HI/LO

+1 min	CRS	REFER to SO23-5-1.7, Section for Power Reduction.
	CRS	NOTIFY GCC of the power reduction.
NOTE: The crew may perform a manual calculation for amount of boron required or use the Plant Monitoring System and access the “Reactor Coolant System Calculation” page under MAIN MENU/USER FUNCTION. Either method is acceptable.		
	CRS	ENSURE SO23-5-1.7, Section 6.5, Preparations for Power Descension has been completed.
	CRS	MAINTAIN the guidelines of Section 6.6, Guidelines During Power Descension.
	CO	DETERMINE boration/CEA position requirements.
	CRS	NOTIFY Chemistry Foreman of the planned power reduction.

Op Test No.:	<u>NRC</u>	Scenario #	<u>3</u>	Event #	<u>1</u>	Page	<u>5</u>	of	<u>22</u>
Event Description:		Boration and Downpower at 10%/hr							
Time	Position	Applicant's Actions or Behavior							

	CRS	CONTACT Reactor Engineering for ASI control recommendations.
	CO	INITIATE ASI monitoring.
	CO	COMMENCE forcing Pressurizer Spray flow:
		• PLACE both Spray Valve Controllers in AUTO.
		• PLACE PZR Proportional Heaters ON.
		• PLACE Backup Heaters in AUTO or ON as necessary to maintain desired Spray Valve position.
		• LOWER PIC-100, PZR pressure controller setpoint as required maintaining RCS pressure as directed by CRS.
	ACO	REDUCE Main Turbine load as necessary to maintain Tcold on program.
	CO	INITIATE boration in accordance with SO23-32.2, Makeup Operations.
	CO	DETERMINE the difference between the existing and the desired RCS boron concentration.
	CO	DETERMINE amount of boric acid to be added.

Op Test No.:	<u>NRC</u>	Scenario #	<u>3</u>	Event #	<u>1</u>	Page	<u>6</u>	of	<u>22</u>
Event Description:		Boration and Downpower at 10%/hr							
Time	Position	Applicant's Actions or Behavior							

	CO	COMMENCE periodically changing Boronometer setpoints to (+50, -25 ppm) of existing boron concentration.
	CO	POSITION FIC-0210Y, BAMU Flow Controller, to AUTOMATIC and set to the required flowrate (~3.4 gpm).
	CO	SET FQIS-0210Y, BAMU to VCT T-077, Borate Batching Counter, to the required volume.
	CO	SELECT the BAMU Pump associated with the BAMU Tank used.
	CO	BORATE the Charging Pump suction:
		<ul style="list-style-type: none"> • VERIFY closed FV-9253, Blended Makeup to VCT isolation.
		<ul style="list-style-type: none"> • PLACE HV-9257, BAMU to Charging Pump Suction Block Valve, in AUTOMATIC.
	CO	SELECT HS-0210, Makeup Mode Selector, to BORATE.
+15 min	CO/ACO	MONITOR plant parameters.
When power has been reduced 3-5%, or at Lead Evaluator's discretion, PROCEED to Event 2.		

Op Test No.: NRC Scenario # 3 Event # 2 Page 7 of 22

Event Description: NI Channel B Upper Detector Failure

Time	Position	Applicant's Actions or Behavior
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Indications available:**56A03 – LOCAL POWER DENSITY HI CHANNEL TRIP****56A04 – DNBR LO CHANNEL TRIP****56A13 – LOCAL POWER DENSITY HI PRETRIP****56A14 – DNBR LO RPS PRETRIP****56B11 – LINEAR POWER DEVIATION CHANNEL 2 HI/LO****56B16 – PPS CHANNEL 2 TROUBLE****56C11 – CPC CHANNEL 2 SENSOR FAILURE****Linear Power Range Channel B Recorder failing high (2JR0002B2)**

+1 min	CO	REFER to Annunciator Response Procedures.
	CO	RECOGNIZE Power Range Channel failure and INFORM the CRS AOI SO23-13-18 entry required.
	CRS	DIRECT performance of AOI SO23-13-18, Reactor Protection System Failure/Loss of Vital Bus.
	CO	DETERMINE failure by observing instrumentation for the affected channel and alternate redundant indications monitoring the same parameter.
+3 min	CO	IDENTIFY Linear Power Channel B Upper Detector failure and REFER to SO23-3-2.13, CPC/CEAC Operation.
	CO	VERIFY that the same bistable is not in bypass on any other channel.

Op Test No.: NRC Scenario # 3 Event # 2 Page 8 of 22

Event Description: NI Channel B Upper Detector Failure

Time	Position	Applicant's Actions or Behavior
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	CO	VERIFY the Trip Channel Bypassed Annunciator alarms.
		<ul style="list-style-type: none"> 56A39 – PPS CHANNEL 2 TRIP BYPASSED
	CO	LOG the bypass and the reason for the bypass in the Control Operator's Log.
	CRS	INITIATE a LCOAR or follow guidelines of SO123-0-A5.
+10 min	CRS	EVALUATE Technical Specifications
		<ul style="list-style-type: none"> LCO 3.3.1.A is applicable (1 hour ACTION).
		<ul style="list-style-type: none"> PLACE Channel in Bypass or Trip.
<i>When Channel B trips have been placed in bypass, or at Lead Evaluator's discretion, PROCEED to Event 3.</i>		

Op Test No.: NRC Scenario # 3 Event # 3 Page 9 of 22

Event Description: Degraded Grid Voltage to Sustained Degraded Voltage Setpoint

Time	Position	Applicant's Actions or Behavior
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Indications available:**63B01 – UNIT 2 DIGITAL FAULT RECORDER INITIATED****63B05 – 2A04 VOLTAGE LO****63C05 – 2A06 VOLTAGE LO****63B51 – OFFSITE POWER TROUBLE (on low frequency)**

	ACO	REFER to Annunciator Response Procedures.
	ACO	RECOGNIZE low grid voltage and frequency and INFORM the CRS AOI SO23-13-4 entry required.
+1.5 min	CRS	DIRECT performance of SO23-13-4, Operation During Major System Disturbances.
NOTE: Grid voltage will initially drop to <218 kV to activate the Sustained Degraded Voltage Signal (SDVS) then return to ~228 kV.		
	ACO	DETERMINE System Voltage is \leq 218 kV.
CRITICAL TASK	ACO	Restore flow to the Component Cooling Water Non-Critical Loop (RCPs operating).
		When SDVS initiates, START CCW Pump P-025 and VERIFY SWC Pump P-112 starts.
	ACO	VERIFY Generator AVR is in AUTO.

Op Test No.: NRC Scenario # 3 Event # 3 Page 10 of 22

Event Description: Degraded Grid Voltage to Sustained Degraded Voltage Setpoint

Time	Position	Applicant's Actions or Behavior
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+4 min	ACO	RAISE Exciter output to maintain rated Generator terminal voltage.
M.O. Cue: If contacted as Grid Control Center (GCC), DIRECT SONGS to maintain 200 MVARs on the Unit 2 Main Generator.		
	ACO	MAXIMIZE Generator MVARs for the current power level to assist in raising voltage:
		<ul style="list-style-type: none"> • JI-2990, Generator Megavars < 500 MVARs.
		<ul style="list-style-type: none"> • II-2916, Field Current < 4680 Amps.
		<ul style="list-style-type: none"> • EI-2917, Field Volts < 550 Volts.
+15 min	CRS	EVALUATE Technical Specifications.
		<ul style="list-style-type: none"> • LCO 3.8.1.C is applicable (24 hour ACTION).
		<ul style="list-style-type: none"> • Both off-site lines are <i>inoperable</i> per SO23-3-3.23, Attachment 7, AC Sources Verification due to the EDGs powering the Vital 4 kV Buses.
		<ul style="list-style-type: none"> • Restore one required off-site circuit to OPERABLE status.
When Technical Specifications are addressed, or at Lead Evaluator's discretion, PROCEED to Event 4.		

Op Test No.: NRC Scenario # 3 Event # 4 Page 11 of 22

Event Description: Letdown Pressure Instrument Fails Low

Time	Position	Applicant's Actions or Behavior
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Indications available:**58A21 – LETDOWN BACKPRESSURE HI/LO****61B11 – RELIEF VALVE LEAKING**

+10 sec	CO	REFER to Annunciator Response Procedures.
	CO	RECOGNIZE pressure instrument failure and INFORM the CRS.
	CRS	DIRECT isolation of Letdown.
	CO	ISOLATES Letdown by closing 2TV-0221 or 2HV-9294.
	CO	VERIFY Letdown Flow isolated at 2FT-0202.
	CRS/CO	If only one Back Pressure Control Valve is in service, PLACE the Standby Back Pressure Control Valve per SO23-3-2.1, Attachment for Shifting Flow and Back Pressure Control Valves.
Floor CUE: DO NOT wait for restoration of Letdown to proceed to the next event.		
When Letdown is isolated, or at Lead Evaluator's discretion, PROCEED to Event 5.		

Op Test No.: NRC Scenario # 3 Event # 5 Page 12 of 22

Event Description: Feed Flow Transmitter Failure

Time	Position	Applicant's Actions or Behavior
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Indications available:**53B23 – CONDENSATE FLOW BALANCE TROUBLE****52A06 – SG1 E089 LEVEL HI/LO****Feedwater Regulating Valve position modulates closed****Actual SG E089 level trending down**

+1 min	ACO	REFER to Annunciator Response Procedures.
	ACO	RECOGNIZE Feed Flow Transmitter failure and INFORM the CRS AOI SO23-13-24 entry required.
	CRS	DIRECT performance of SO23-13-24, Feedwater Control System malfunction.
	ACO	DIRECT use of SO23-13-24, Attachment 1 for initial action.
	ACO	DETERMINE SG E089 level is lowering.
	ACO	DETERMINE Master Controller Output is NOT rising.
+5 min	ACO	PLACE SG E-089 Master Controller in MANUAL and RAISE output to stabilize SG level.
	ACO	REFER to flowchart to determine if other failures are present.

Op Test No.: NRC Scenario # 3 Event # 5 Page 13 of 22

Event Description: Feed Flow Transmitter Failure

Time	Position	Applicant's Actions or Behavior
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+10 min	ACO	Continue to MONITOR and ADJUST SG E089 Level Control as necessary.
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When SG E089 level is controlled, or at Lead Evaluator's discretion, PROCEED to Events 6, 7, and 8.

Op Test No.: NRC Scenario # 3 Event # 6, 7, and 8 Page 14 of 22

Event Description: Turbine Trip / Loss of Offsite Power / EDG Mechanical Failure / 2A06 Bus Fault

Time	Position	Applicant's Actions or Behavior
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Machine Operator: When directed, EXECUTE TU08, Turbine Trip, PG24 Loss of Offsite Power (+5 secs), ED03B, 2A06 Bus Fault (+1 min), EG08A, 2G002 EDG Mechanical Failure (+2 min) and PG57, Loss of SDGE Switchyard (+5 min) trip.

Indications available:

99A24 – TURBINE TRIP RELAY TRIPPED
Numerous Loss Of Offsite Power Related Alarms

+10 secs	CO/ACO	RECOGNIZE Reactor trip, Turbine trip, and Loss of Offsite Power and INFORM the CRS SO23-12-11 entry required.
	CRS	DIRECT performance of SO23-12-1, Standard Post Trip Actions.
	CRS	INITIATE Administrative Actions:
		<ul style="list-style-type: none"> RECORD time of Reactor trip _____.
		<ul style="list-style-type: none"> ANNOUNCE Reactor trip via PA System.
		<ul style="list-style-type: none"> INITIATE Attachment 4, WORKSHEET.
		<ul style="list-style-type: none"> INITIATE Attachment 5, ADMINISTRATIVE ACTIONS.
	CO	VERIFY Reactivity Control criteria satisfied:
		<ul style="list-style-type: none"> VERIFY Reactor Trip Circuit Breakers (8) – open.
		<ul style="list-style-type: none"> VERIFY maximum of one full length CEA – NOT fully inserted.
		<ul style="list-style-type: none"> VERIFY Reactor power – lowering AND Startup rate – negative.

Op Test No.: NRC Scenario # 3 Event # 6, 7, and 8 Page 15 of 22

Event Description: Turbine Trip / Loss of Offsite Power / EDG Mechanical Failure / 2A06 Bus Fault

Time	Position	Applicant's Actions or Behavior
	ACO	DETERMINE Vital Auxiliaries NOT functioning properly:
		<ul style="list-style-type: none"> • VERIFY Main Turbine tripped:
		<ul style="list-style-type: none"> • HP and LP Stop and Governor Valves – closed.
		<ul style="list-style-type: none"> • Mwe output – lowering.
		<ul style="list-style-type: none"> • VERIFY both Unit Output Breakers – open.
		<ul style="list-style-type: none"> • VERIFY Main Turbine speed - less than 2000 RPM and lowering.
		<ul style="list-style-type: none"> • DETERMINE CCW Pump NOT aligned to Non-Critical Loop (NCL) and Letdown Heat Exchanger.
		<ul style="list-style-type: none"> • DETERMINE both 1E 4 kV Buses de-energized.
		<ul style="list-style-type: none"> • DETERMINE loss of 2A04 due to loss of EDG 2G002.
		<ul style="list-style-type: none"> • DETERMINE loss of 2A06 due to bus fault.
		<ul style="list-style-type: none"> • DETERMINE both 1E 480 V Buses B04 and B06 de-energized.
		<ul style="list-style-type: none"> • DETERMINE all 6.9 kV and Non-1E Buses de-energized.
		<ul style="list-style-type: none"> • VERIFY all Class 1E DC Buses – energized.
M.O. Cue: If directed to investigate 2G002, WAIT 3 minutes and REPORT it is shutdown and there is a large amount of oil on the DG room floor. If directed to investigate 2G003, WAIT 3 minutes and REPORT it is shutdown and that it appears to have tripped electrically.		
	CO	VERIFY RCS Inventory Control criteria satisfied:
		<ul style="list-style-type: none"> • VERIFY PZR level between 10% and 70% and trending to between 30% and 60%.
		<ul style="list-style-type: none"> • VERIFY Core Exit Saturation Margin – greater than or equal to 20°F:
		<ul style="list-style-type: none"> • QSPDS page 611.
		<ul style="list-style-type: none"> • CFMS page 311.

Op Test No.: NRC Scenario # 3 Event # 6, 7, and 8 Page 16 of 22

Event Description: Turbine Trip / Loss of Offsite Power / EDG Mechanical Failure / 2A06 Bus Fault

Time	Position	Applicant's Actions or Behavior
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	CO	VERIFY RCS Pressure Control criteria satisfied:
		<ul style="list-style-type: none"> VERIFY PZR pressure (WR and NR) between 1740 PSIA and 2380 PSIA and controlled AND trending to between 2025 PSIA and 2275 PSIA.
	CO	DETERMINE Core Heat Removal criteria is NOT satisfied:
		<ul style="list-style-type: none"> DETERMINE no RCPs are operating.
		<ul style="list-style-type: none"> RECORD time of all RCPs off.
		<ul style="list-style-type: none"> VERIFY operating loop Delta T (Th-Tc) less than 58°F.
		<ul style="list-style-type: none"> VERIFY Th and Tc not rising.
		<ul style="list-style-type: none"> VERIFY operating loop Th and REP CET within 16°F.
		<ul style="list-style-type: none"> QSPDS page 611.
		<ul style="list-style-type: none"> CFMS page 311.
		<ul style="list-style-type: none"> VERIFY Core Exit Saturation Margin $\geq 20^{\circ}\text{F}$.
		<ul style="list-style-type: none"> QSPDS page 611.
		<ul style="list-style-type: none"> CFMS page 311.
		<ul style="list-style-type: none"> VERIFY Reactor Vessel level $\geq 100\%$ (plenum).
		<ul style="list-style-type: none"> QSPDS page 622.
		<ul style="list-style-type: none"> CFMS page 312.
NOTE: It is acceptable for CO to report only "Monitoring for Natural Circulation."		

Op Test No.: NRC Scenario # 3 Event # 6, 7, and 8 Page 17 of 22

Event Description: Turbine Trip / Loss of Offsite Power / EDG Mechanical Failure / 2A06 Bus Fault

Time	Position	Applicant's Actions or Behavior
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	ACO	VERIFY RCS Heat Removal criteria satisfied:
		<ul style="list-style-type: none"> VERIFY both SGs level – greater than 21% NR.
		<ul style="list-style-type: none"> VERIFY both SGs level – less than 80% NR.
		<ul style="list-style-type: none"> VERIFY the following:
		<ul style="list-style-type: none"> Auxiliary feedwater available to restore both SGs level – between 40% NR and 80% NR.
		<ul style="list-style-type: none"> PREVENT SG high level:
		<ul style="list-style-type: none"> CLOSE MFW Block Valves:
		<u>E-088</u> <u>E-089</u>
		HV-4047 HV-4051
		<ul style="list-style-type: none"> VERIFY heat removal adequate:
		<ul style="list-style-type: none"> T_C – less than 555°F.
		<ul style="list-style-type: none"> SG pressures – approximately 1000 PSIA.
		<ul style="list-style-type: none"> VERIFY T_C - greater than 545°F or controlled.
		<ul style="list-style-type: none"> VERIFY SG pressures – greater than 740 PSIA.
	CO	VERIFY Containment Isolation criteria satisfied:
		<ul style="list-style-type: none"> VERIFY Containment pressure – less than 1.5 PSIG.
		<ul style="list-style-type: none"> DETERMINE some Containment Area Radiation Monitors energized and NOT alarming or trending to alarm.
		<ul style="list-style-type: none"> DETERMINE some Secondary Plant Radiation Monitors energized and NOT alarming or trending to alarm.
	CO	VERIFY Containment Temperature, Pressure and Combustible Gas Control criteria satisfied:
		<ul style="list-style-type: none"> VERIFY Containment average temperature – less than 120°F.
		<ul style="list-style-type: none"> VERIFY Containment pressure – less than 1.5 PSIG.

Op Test No.: NRC Scenario # 3 Event # 6, 7, and 8 Page 18 of 22

Event Description: Turbine Trip / Loss of Offsite Power / EDG Mechanical Failure / 2A06 Bus Fault

Time	Position	Applicant's Actions or Behavior
+15 min	CRS	DIAGNOSE Event in Progress:
		<ul style="list-style-type: none"> DETERMINE all safety function criteria are NOT met per Attachment 4, WORKSHEET.
		<ul style="list-style-type: none"> COMPLETE Attachment 1, Recovery Diagnostic.
		<ul style="list-style-type: none"> DIAGNOSE Station Blackout.
		<ul style="list-style-type: none"> NOTIFY personnel of event in progress.
		<ul style="list-style-type: none"> DESIGNATE SRO-in-charge.
		<ul style="list-style-type: none"> DIRECT initiation of Steps 11 through 14.
	CRS	DIRECT performance of SO23-12-8, Station Blackout.
	CRS	VERIFY Station Blackout diagnosis:
		<ul style="list-style-type: none"> INITIATE SO23-12-10, Safety Function Status Checks.
		<ul style="list-style-type: none"> INITIATE Foldout Page.
		<ul style="list-style-type: none"> DIRECT performance of FS-3, Monitor Natural Circulation.
		<ul style="list-style-type: none"> DIRECT performance of SO23-12-11, Attachment 8, Restoration of Offsite Power.
		<ul style="list-style-type: none"> DIRECT transfer of Q0612 to Emergency Source.
		<ul style="list-style-type: none"> DIRECT performance of FS-18, Secondary Plant Protection.
		<ul style="list-style-type: none"> EVALUATE 4 kV Bus cross tie per SO23-12-11, Attachment 24 (Cannot perform).
		<ul style="list-style-type: none"> DIRECT performance of SO23-12-11, Attachment 6, Diesel Generator Failure Follow-up Actions.
		<ul style="list-style-type: none"> DIRECT Chemistry to sample both SGs for radioactivity and boron.

Op Test No.: NRC Scenario # 3 Event # 6, 7, and 8 Page 19 of 22

Event Description: Turbine Trip / Loss of Offsite Power / EDG Mechanical Failure / 2A06 Bus Fault

Time	Position	Applicant's Actions or Behavior
	CRS	DIRECT initiation SO23-12-11, Attachment 8, Restoration of Off-Site Power.
	ACO	VERIFY Annunciators for Reserve Auxiliary Transformers clear/reset.
	ACO	VERIFY any 220kV Section Bus de-energized.
	ACO	VERIFY System Separation alarm clear/reset.
	ACO	ESTABLISH communication with SDG&E Grid Control Center within 5 minutes.
	ACO	VERIFY SONGS Switchyard status.
		<ul style="list-style-type: none"> VERIFY all four 220 kV Section Buses de-energized.
	ACO	ISOLATE 220kV Switchyard.
		<ul style="list-style-type: none"> ENSURE all SCE controlled 220 kV CBs open OR switched out.
	ACO	DETERMINE both 1E 4 kV buses NOT energized.

Op Test No.: NRC Scenario # 3 Event # 6, 7, and 8 Page 20 of 22

Event Description: Turbine Trip / Loss of Offsite Power / EDG Mechanical Failure / 2A06 Bus Fault

Time	Position	Applicant's Actions or Behavior
	ACO	ALIGN 1E 4 kV buses for restoration.
		<ul style="list-style-type: none"> ENSURE 1E 4 kV Bus Tie Breaker AUTO/MANUAL transfer switches selected to MANUAL.
		<ul style="list-style-type: none"> A04 – HS-1660B1
		<ul style="list-style-type: none"> A06 – HS-1639B2
	ACO	DISPATCH an operator to open TS-2 DC knife switches 127F1 through 127F4 at DG Bus PT cubicle for Bus 2A04.
	ACO	ALIGN all de-energized 6.9 kV buses on affected unit for restoration.
		<ul style="list-style-type: none"> ENSURE all 6.9 kV supply breakers and AUTO/MANUAL switches are aligned.
	ACO	ALIGN all de-energized Non-1E 4 kV buses on affected unit for restoration.
		<ul style="list-style-type: none"> ENSURE all Non-1E 4 kV bus supply breakers and AUTO/MANUAL switches are aligned.
	ACO	ENSURE breakers open to the following de-energized Non-1E 4 kV loads.
		<ul style="list-style-type: none"> Heater Drain Pumps
		<ul style="list-style-type: none"> Main Condensate Pumps
		<ul style="list-style-type: none"> Main Condenser Vacuum Pump
		<ul style="list-style-type: none"> Turbine Plant Cooling Water Pumps
		<ul style="list-style-type: none"> Main Circulating Water Pumps

Op Test No.: NRC Scenario # 3 Event # 6, 7, and 8 Page 21 of 22

Event Description: Turbine Trip / Loss of Offsite Power / EDG Mechanical Failure / 2A06 Bus Fault

Time	Position	Applicant's Actions or Behavior
	CRS	When SO23-12-11, Attachment 8, Restoration of Off-Site Power lineup is complete, REQUEST GCC energizes San Luis Rey Line.
	ACO	VERIFY 220 kV Bus Section B energized from the San Luis Rey Line.
	ACO	ENERGIZE Unit 3 Reserve Auxiliary Transformer.
	ACO	ENERGIZE adjacent 220 kV Section A.
	ACO	ENERGIZE Unit 2 Reserve Auxiliary Transformer.
	ACO	ENERGIZE CR63 220 kV metering.
	ACO	VERIFY 1E 4 kV bus status.
		<ul style="list-style-type: none"> DETERMINE both 1E 4 kV buses NOT energized.
	ACO	ENSURE breakers open to the NOT OPERATING 4 kV loads.
		<ul style="list-style-type: none"> Emergency Chillers
		<ul style="list-style-type: none"> Containment Spray Pumps
		<ul style="list-style-type: none"> HPSI Pumps
		<ul style="list-style-type: none"> LPSI Pumps
		<ul style="list-style-type: none"> AFW Pumps
		<ul style="list-style-type: none"> CCW Pumps
		<ul style="list-style-type: none"> SWC Pumps

Op Test No.: NRC Scenario # 3 Event # 6, 7, and 8 Page 22 of 22

Event Description: Turbine Trip / Loss of Offsite Power / EDG Mechanical Failure / 2A06 Bus Fault

Time	Position	Applicant's Actions or Behavior
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CRITICAL TASK	ACO	Energize at least one vital electrical AC bus and associated 480 V 1E bus.
+30 min		ENERGIZE Bus 2A04 from the Reserve Auxiliary Transformer.
	ACO	DISPATCH an operator to close TS-2 DC knife switches 127F1 through 127F4 at DG Bus PT cubicle for Bus 2A04.
	ACO	ENSURE associated 480 V 1E Bus 2B04 is energized.
When power is restored to Bus 2A04, TERMINATE the scenario.		