JPM INFORMATION SHEET

JPM NUMBER

2009A NRC SRO A-1a

INITIAL PLANT CONDITIONS

You have been directed to perform a blended makeup to the RWSTs at a total flow of 50 gpm.

The Plant Computer System (PCS) is UNAVAILABLE.

RWST Boron concentration is 2700 ppm.

BAMU Tank concentration is 5950 ppm.

TASK TO BE PERFORMED

Determine required Boric Acid Flow Rate and PMW Flow Rate for the required RWST makeup per SO23-3-2.2, MAKEUP OPERATIONS

JOB PERFORMANCE MEASURE **2009A NRC SRO A-4**

SUGGESTED TESTING ENVIRONMENT:	**PLANT**	**+-**	**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: _____

Examiner:_____ _____
Signature **Date**

Comments:

DOCUMENTATION

2007 NRC SRO A-4

JPM LEVEL: RO

ESTIMATED TIME TO COMPLETE: 10 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: 11

REFERENCES:

SO23-3-2.2, Makeup Operations, Rev 23.

AUTHOR: _____ **DATE:** _____

OPERATIONS REVIEW: _____ **DATE:** _____

APPROVED BY: _____ **DATE:** _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
0	From 2003 Audit Exam JPM RO/SRO A.1b.	new	new	new

SET-UP

EXAMINER:

Provide candidate with a copy of SO23-3-2.2, Makeup Operations.

JPM: 2009A NRC A-1.a **TITLE: Perform an RWST Blended Makeup Calculation.**

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
	NOTE: Provide the Examinee with a copy of SO123-VIII-1, Recognition and Classification of Emergencies.			
	NOTE: The following steps can be performed in any order.			
1	Identify proper attachment for performing the required calculations..	Identifies Attachment 10, section 2.2, formula to Calculate a Blended Makeup to the RWST.		**Start Time:** _____
2*	Determines Boric Acid flow rate	RWST ppm (2700)/ BAMU ppm (5950) X Desired Flow Rate (50 gpm) = 22.69 gpm. **(*22-23 is acceptable)**		
3*	Determines PMW flow rate	Desired Total Flow (50 gpm) - gpm Acid for Blend (22-23) = gpm for blend. **(*27-28 is acceptable)** **TERMINATING CUE:** **This JPM is complete.**		
		TERMINATING CUE: **This JPM is complete.**		**Stop Time:** _____

JPM INFORMATION SHEET

JPM NUMBER

2009A A-1b

INITIAL PLANT CONDITIONS

Unit 2 is at 100% power. RCS Flow Rate must be determined to comply with Technical Specification Surveillance Requirement 3.4.1.3. The PMS computer is not available.

TASK TO BE PERFORMED

The Control Room Supervisor directs you to perform SO23-3-3.3, RCS Flow Rate Determination, Attachment 2, RCP ΔP Flow Calculation for SONGS Unit 2 and determine if Acceptance Criteria is met.

JOB PERFORMANCE MEASURE **SO-05 NRC RO JPM A.1.b**

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-05 NRC RO JPM 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: 179879

TASK DESCRIPTION

Perform an RCS Flow Rate Determination.

KA NUMBER: 2.1.19

KA VALUES: **RO** 3.0 **SRO** 3.0

10CFR55.45 APPLICABILITY: 12

REFERENCES:

SO23-3-3.3, RCS Flow Rate Determination, EC 6-2, Attachment 2, RCP ΔP Flow Calculation

Technical Specification 3.4.1

AUTHOR:	L. Zilli	**DATE:**	04/05/05
OPERATIONS REVIEW:	M. Jones	**DATE:**	04/08/05
APPROVED BY:	A. Hagemeyer	**DATE:**	04/08/05

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
2	Compared against SO23-3-3.3, Rev. 6 and modified calculations to conform with new RCP Curves and procedure changes.	LRZ	04/05/05	REV

SET-UP

Obtain a copy of SO23-3-3.3 and markup Attachment 2, complete up to Step 3.1.2 with the following data:

Step 3.1.1:

Ch. A	**TC1 RAW Avg. – 542°F**
	TC2 RAW Avg. – 541°F
Ch. B	**TC1 RAW Avg. – 540°F**
	TC2 RAW Avg. – 539°F
Ch. C	**TC1 RAW Avg. – 539°F**
	TC2 RAW Avg. – 538°F
Ch. D	**TC1 RAW Avg. – 538°F**
	TC2 RAW Avg. – 539°F

Step 3.1.2:

P001	**ΔP AVG – 102 psid**
P002	**ΔP AVG – 105 psid**
P003	**ΔP AVG – 103 psid**
P004	**ΔP AVG – 104 psid**

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
	NOTE: Provide the candidate with a copy of SO23-3-3.3 completed to Step 3.1.2 of Attachment 2.			
	CUE: Steps 3.1.1 and 3.1.2 of Attachment 2 were completed last shift.			
1	Calculate Average RCS Cold Leg Temperature TC_1.	Calculates TC_1 using the data from Attachment 2, Step 3.1.1. **TC_1 = 539.75°F** TC_1 = (Sum all CPC Ch. TRC_1 RAW) / 4		**Start Time: _____**
2	Calculate Average RCS Cold Leg Temperature TC_2.	Calculates TC_2 using the data from Attachment 2, Step 3.1.1. **TC_2 = 539.25°F** TC_2 = (Sum all CPC Ch. TRC_2 RAW) / 4		
3	Determine density ρTC_1 for RCS Cold Leg Temp TC_1.	Determines ρTC_1, using TC_1 and Attachment 12. **ρTC_1 = 47.4947**		
4	Determine density ρTC_2 for RCS Cold Leg Temp TC_2.	Determines ρTC_2, using TC_2 and Attachment 12. **ρTC_2 = 47.5545**		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
	NOTE: The Formula for this step: $\Delta Pc = \Delta P_{avg}$ (Step 3.1.2) x (46.654 lbm/ft3) / ρTC_1 (Step 3.1.4)			
5	Calculate ΔPc, the Compensated Pump Average ΔP for RCP P001.	Calculates ρPc for RCP P001 using ρTC_1 and the data from Steps 3.1.2 & 3.1.4. **ΔPc = 100.2 ± 0.1 psid**		
	NOTE: The Formula for this step: $\Delta Pc = \Delta P_{avg}$ (Step 3.1.2) x (46.654 lbm/ft3) / ρTC_2 (Step 3.1.5)			
6	Calculate ΔPc, the Compensated Pump Average ΔP for RCP P002.	Calculates ΔPc for RCP P002 using ρTC_2 and the data from Steps 3.1.2 & 3.1.5. **ΔPc = 103.0 ± 0.1 psid**		
	NOTE: The Formula for this step: $\Delta Pc = \Delta P_{avg}$ (Step 3.1.2) x (46.654 lbm/ft3) / ρTC_1 (Step 3.1.4)			
7	Calculate ΔPc, the Compensated Pump Average ΔP for RCP P003.	Calculates ΔPc for RCP P003 using ρTC_1 and the data from Steps 3.1.2 & 3.1.4. **ΔPc = 101.2 ± 0.1 psid**		
	NOTE: The Formula for this step: $\Delta Pc = \Delta P_{avg}$ (Step 3.1.2) x (46.654 lbm/ft3) / ρTC_2 (Step 3.1.5)			
8	Calculate ΔPc, the Compensated Pump Average ΔP for RCP P004.	Calculates ΔPc for RCP P004 using ρTC_2 and the data from Steps 3.1.2 & 3.1.5. **ΔPc = 102.0 ± 0.1 psid**		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
9	Determine the flow for RCP P001.	Determines the flow for RCP P001 using ΔPc and Attachment 3. **P001 flow = 112,500 ± 1000 gpm**		
10	Determine the flow for RCP P002.	Determines the flow for RCP P002 using ΔPc and Attachment 4. **P002 flow = 108,750 ± 1000 gpm**		
11	Determine the flow for RCP P003.	Determines the flow for RCP P003 using ΔPc and Attachment 5. **P003 flow = 114,000 ± 1000 gpm**		
12	Determine the flow for RCP P004.	Determines the flow for RCP P004 using ΔPc and Attachment 6. **P004 flow = 112,500 ± 1000 gpm**		

* Denotes a CRITICAL STEP

	NOTE: The Formula for next step: Q_t = P001 gpm + P002 gpm + P003 gpm + P004 gpm			
13*	Calculate the total RCS volumetric flow rate (Q_t).	Calculates the total RCS volumetric flow rate (Q_t) by summing the flow for each RCP. **Q_t = 447,750 gpm ± 5,000 gpm**		
	CUE: Another operator will independently verify the calculations.			
14*	Verify Acceptance Criteria per Technical Specifications.	Verifies Acceptance Criteria of ≥ **396,000 gpm** is met per Technical Specifications.		
		TERMINATING CUE: **This JPM is complete.**		**Stop Time: _____**

JPM INFORMATION SHEET

JPM NUMBER

2009A A-2

INITIAL PLANT CONDITIONS

The Condensate Transfer pump 2MP049 has recently been overhauled and is ready to be aligned for return to service.
Condensate Storage Tank level valve 2HV-3293 is aligned for semi-automatic makeup to T-121.
2MP049 motor has been meggered SAT.

TASK TO BE PERFORMED

The Shift Manager directs you to review the Return to Service document and report your finding when complete.

JOB PERFORMANCE MEASURE **2009A 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-05 NRC SRO JPM A.2

JPM LEVEL: SRO only

ESTIMATED TIME TO COMPLETE: 30 minutes

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

POSITION: SM

TASK SYS ID: 182220

TASK DESCRIPTION

Manage the control of equipment status.

KA NUMBER: 2.2.13

KA VALUES: **RO** 3.6 **SRO** 3.8

10CFR55.45 APPLICABILITY: 13

REFERENCES:

SO123-XX-5, Work authorizations, Revision 22.

SO23-9-5, Condensate Storage and Transfer System, Revision 24.

Condensate Pumps System (Tanks) P&ID #40150D, Revision 44.

Condensate Transfer Pump P&ID #30967, Revision 7.

480V Motor Control Center 2BF P&ID #30139, Revision 17.

480V Motor Control Center 2BV One Line Diagram #30159, Revision 35.

AUTHOR: R. Hampton **DATE:** 12/18/2008

OPERATIONS REVIEW: _____ **DATE:** _____

APPROVED BY: _____ **DATE:** _____

MODIFICATION HISTORY

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

SET-UP

Prepare a Work Authorization Return to Service WAM that is complete up to the SRO review of the Return to Service WAM sheet. Include errors associated with the Return to Service WAM sheet.

Obtain P&IDs for:

- **Condensate Storage Transfer Pump #40150D**
- **Condensate Storage Transfer Pump #40150D**

Obtain One-Line Diagram for:

- **480 V Load Center Bus 2BV43E**
- **480 V Load Center Bus 2BF-17**

The P&IDs should be prepared as follows:

- **Highlight in BLUE the problem area(s)**
- **Highlight in YELLOW the Cleared line(s)**
- **Highlight in RED the isolation area(s)**

The completed Return to Service List should be prepared as follows:

- **Obtain a blank work document and complete as necessary.**
- **Modify the document to include errors as listed in the JPM body by cutting and pasting.**

NOTE: Provide the examinee with a copy of SO123-XX-5, Work Authorizations, the applicable P&IDs and drawings, and the completed Work document.

JPM: 2009A NRC A-4 **TITLE: Review the Return to Service WAM List of a Completed Work Authorization**

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
	NOTE: The following steps may be performed in a sequence other than indicated below.			
1	Check the Equipment ID, Equipment Description and Work Description.	Checks the Equipment ID, Equipment Description and Work Description on the WAR to compare with the information on the Tagging List and the applicable drawings.		**Start Time:** _____
2	Check the Work Authorization Numbers match for each page of the Request.	Checks the Work Authorization Numbers match on each page of the Request.		
3*	Examine the Return to Service (RTS) WAM to determine if it is correct and adequate for system restoration.	Examines the adequacy and accuracy of the RTS alignment and identifies: • S21414MU008 should be **OPEN**. • S21414MU077 should be **OPEN**. • 2BVE42E should be **CLOSED**.		
	NOTE: SEALED positions are optional. e.g. Locked, capped, flanged, etc.			
4	Report to the Shift Manager the incorrect Return to Service alignment and return the WAM Installation Sheet without signature.	Reports to the Shift Manager the incorrect Return to Service alignment and returns the WAM Installation Sheet without signature.		
		TERMINATING CUE: **This JPM is complete.**		**Stop Time:** _____

JPM INFORMATION SHEET

JPM NUMBER

2009A A-3

INITIAL PLANT CONDITIONS

You have been directed to perform a valve alignment in 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**
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 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, six survey maps and three REPs to choose from. Also supply Unit 3 Safety Equipment Building Floor Plan. (SAP & IHPS 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.

REP's:

200116
200198
200214

Survey maps:

080210-006 (PAGES 1-4) U3 SB 8′ & -15′
HP (2/3)1259-1652
HP (2/3)1259-1653
HP (2/3)1259-1678
HP (2/3)1259-1677

080216-004 (PAGES 1-2) U3 SB -2′ & -15′
HP (2/3)1259-1654
HP (2/3)1259-1680

Plant layouts:

SE.6 U3 SEB -15′ 6″ & 5′ 3″
SE.7 U3 SEB 8′ 0″

Blank survey maps can be obtained via SAP CASE management, nuclear controlled forms. Active REP's and survey maps can be obtained via IHPS.

JPM: 2009A NRC 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 references listed on the Setup Page.			
	CUE: Direct examinee to assume all radiation exposure received is in the general area.			
1*	Determine applicable survey map.	LOCATE survey map **#080216-004, Page 1 of 2** 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 INFORMATION SHEET

JPM NUMBER

2009A NRC SRO A-4

INITIAL PLANT CONDITIONS

Unit 2 has had a Steam Generator Tube Rupture on E088. The following conditions exist:

- U2 reactor is tripped.
- All of the U2 control room annunciators were lost 16 minutes ago.
- The unit has transitioned to SO23-12-4, STEAM GENERATOR TUBE RUPTURE.
- All three charging pumps operating with 128 gpm total flow indicated to RCS.
- The following have automatically actuated:
    - SIAS
    - CCAS
- RE7874A and B both indicate 65 mr/hr.
- RCS leakage is calculated to be 88 gpm.
- 2HV8419 and 2HV8421 Automatic Dump Valves indicate CLOSE in the control room. Reports from outside the control room indicate **no** steam coming from 2HV8421 but 2HV8419 is blowing steam heavily.
- The Plant Computer System (PCS) is operating normally.

TASK TO BE PERFORMED

Classify the event using SO123-VIII-1, Recognition and Classification of Emergencies.

JOB PERFORMANCE MEASURE **2009A NRC SRO 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: _____

Examiner:_____ _____
Signature **Date**

Comments:

DOCUMENTATION

2007 NRC SRO A-4

JPM LEVEL: SRO

ESTIMATED TIME TO COMPLETE: 10 minutes

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

POSITION: SM/EC

TASK SYS ID: 192840

TASK DESCRIPTION

Classify emergency events requiring emergency plan implementation.

KA NUMBER: 2.4.41

KA VALUES: **RO** 2.9 **SRO** 4.6

10CFR55.45 APPLICABILITY: 11

REFERENCES:

SO123-VIII-1, Recognition and Classification of Emergencies, Revision 27.

AUTHOR: R L Hampton **DATE:** _____

OPERATIONS REVIEW: _____ **DATE:** _____

APPROVED BY: _____ **DATE:** _____

MODIFICATION HISTORY

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

SET-UP

EXAMINER:

Provide the Examinee with a copy of SO123-VIII-1, Recognition and Classification of Emergencies when identified.

JPM: 2009A NRC A-4 **TITLE: Classification and Reporting Requirement for an Emergency Event.**

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
	NOTE: Provide the Examinee with a copy of SO123-VIII-1, Recognition and Classification of Emergencies.			
	NOTE: The following steps can be performed in any order.			
1	CLASSIFY the Emergency by Event Code:	DETERMINE the event to be a Steam Generator Tube Rupture.		**Start Time:**_____
2	Identify the Event Code using Attachment 1. EVENT CODES TABLE and Attachment 2, UNITS 2/3 AND SITE-WIDE EVENT CATEGORY TABS or Attachment 3, UNIT 1 EVENT CATEGORY TABS.	REVIEW EAL descriptions to determine the EAL that most closely matches the plant conditions.		
3	Review the notes preceding the applicable Event Category tabs.	REVIEW notes preceding Event Categories.		
4	Review the notes following the applicable Emergency Action Levels.	REVIEW notes following the Emergency Action Levels.		
5*	Classify the emergency using the highest applicable Event Code.	CLASSIFY event as an **D4-2.**		
		TERMINATING CUE: **This JPM is complete.**		**Stop Time:**_____

JPM INFORMATION SHEET

JPM NUMBER

2009A NRC P-1

INITIAL PLANT CONDITIONS

You are the Auxiliary Operator.

Unit 2 (Unit 3) is in Mode 3, HOT STANDBY.

The Unit 2 (Unit 3) Atmospheric Dump Valve, 2(3)HV-8419, needs to be tested to prove operability following maintenance.

2(3)HV-8419 is currently closed.

TASK TO BE PERFORMED

Manually OPEN the Atmospheric Dump Valve 2(3)HV-8419 per procedure SO23-3-2.18.1, Attachment 4, LOCAL MANUAL OPERATION OF HV-8419 ATMOSPHERIC DUMP VALVE.

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: _____

Examiner:_____ _____
Signature **Date**

Comments:

DOCUMENTATION

2009A7 NRC P-1

JPM LEVEL: RO / SRO

ESTIMATED TIME TO COMPLETE: 16 minutes

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

POSITION: PPEO

TASK SYS ID: 141183

TASK DESCRIPTION

Operate the Atmospheric Dump Valve in Local Manual

KA NUMBER: 039-A2.04

KA VALUES: **RO** 3.4 **SRO** 3.7

10CFR55.45 APPLICABILITY: 3, 5, 13

REFERENCES:

SO23-3-2.18.1, Atmospheric Dump Valve Operation, Rev 15.

AUTHOR:	S Popowski	**DATE:**	11/05/91
OPERATIONS REVIEW:	D.J. Turner	**DATE:**	10/02/93
APPROVED BY:	M Kirby	**DATE:**	10/14/93

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
1-4	Compared against SO23-3-2.18.1, Rev. 9 with no changes required. Changed equipment designations so that JPM can be performed on either unit. Updated KA designation and changed old task number to VISION SYS ID	JJM	10/27/99	WLL
1-5	Compared against SO23-3-2.18.1, TCN 9-1 with no changes required. Changed cue near end of JPM that directs the operator to realign the isolation valve in the locked open position. Changed note to provide the examinee with the entire procedure rather than attachment 6 only.	JJM	09/14/00	WLL
1-6	Compared against SO23-3-2.18.1, Rev 12 with no changes required. Corrected typos	JJM	10/21/02	WLL
1-7	Compared against SO23-3-2.18.1, Rev. 12-1, with no changes required.	RCW	08/18/04	AHH
1-8	Compared against SO23-3-2.18.1, Rev. 12-4, with no changes required.	LRZ	03/10/05	AHH
		-	-	-

SET-UP

EXAMINER:

Provide examinee with a copy of SO23-3-2.18.1, Atmospheric Dump Valve Operation.

On the candidate's copy of the cover sheet, circle the unit on which this JPM will be performed.

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
	NOTE: Provide examinee with a copy of SO23-3-2.18.1.			
1	Establish communications between the Control Room and the Operator at HV-8419.	Indicate the form of communication to be used between the control room operator and the operator at the valve.		**Start Time:** _____
	NOTE: Communications may be established via radio, telephone (Hear-here booth) or sound powered phone. If sound powered phone is selected, examinee should point out location of jack on west fence.			
	CUE: Communications have been established.			
2*	CLOSE S2(3)1301MU1304, HV-8419 Positioner Instrument Air Isolation Valve.	Simulate closing S2(3)1301MU1304, 2(3)HV-8419 Positioner Instrument Air Isolation Valve.		
	CUE: The Valve is CLOSED.			
3*	CLOSE S2(3)1301MU1328, HV-8419 Positioner Nitrogen Isolation Valve.	Simulate closing S2(3)1301MU1328, HV-8419 Positioner Nitrogen Isolation Valve.		
	CUE: The Valve is CLOSED.			
4*	OPEN ADV S2(3)1301MU1264, Positioner Equalizing Valve.	Simulate opening ADV S2(3)1301MU1264, Positioner Equalizing Valve.		
	CUE: The valve is OPEN.			
5*	Engage the Manual Override Shaft, as follows: UNSCREW the clevis from the Manual Override Shaft.	Simulate unscrewing the clevis from the Manual Override Shaft.		
	CUE: The Clevis is UNSCREWED from the shaft.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
6*	Engage the Manual Override Shaft, as follows: TURN the handwheel in the CLOSE (clockwise) POSITION until the clevis detent on the Actuator Shaft is exposed.	Simulate turning 2(3)HV-8419 handwheel in the close (clockwise) direction.		
	CUE: The detent is exposed.			
7*	Engage the Manual Override Shaft, as follows: When the clevis detent on the Actuator Shaft is exposed below the Manual Override Shaft, then SLIDE the clevis into the detent.	Simulate sliding the clevis into the detent.		
	CUE: The clevis is in the detent.			
8	OPERATE HV-8419 Handwheel as directed by the NCO or CRS.	Simulate informing the Control Room that 2(3)HV-8419 is ready to operate locally.		
	CUE: No leverage device is needed.			
	CUE: The Control Room directs opening the Atmospheric Dump Valve 2(3)HV-8419 approximately 5%.			
9	OPERATE HV-8419 Handwheel as directed by the NCO or CRS.	Simulate turning 2(3)HV-8419 handwheel in the counterclockwise direction.		
	CUE: The handwheel will not turn. The valve stem did not move.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
10	IF HV-8419 cannot be opened manually due to high ΔP across the valve seat, then perform the following: Perform Section 2.2.	Simulate contacting the Control Room to inform them that Atmospheric Dump Valve 2(3)HV-8419 will not open.		
	CUE: The Control Room directs you to restore the ADV per section 2.2 of this attachment.			
11*	MANUALLY CLOSE HV-8419.	Simulate closing 2(3)HV-8419.		
	CUE: The valve is CLOSED.			
12*	ROTATE the Handwheel back and forth until pressure is relieved from the clevis.	Simulate rotating 2(3)HV-8419 handwheel back and forth.		
	CUE: The pressure is relieved from the clevis.			
13*	REMOVE the clevis from the detent in the Actuator Shaft.	Simulate removing the clevis from the detent in the shaft.		
	CUE: The clevis is removed.			
14*	FULLY EXTEND the Manual Override Shaft by TURNING the Handwheel Counter-Clockwise until resistance is encountered.	Simulate fully extending the Manual Override Shaft by turning the handle counterclockwise.		
	CUE: You feel resistance.			
15*	When the Manual Override Shaft is fully extended, then SCREW the clevis fully into the Manual Override Shaft.	Simulate screwing the clevis into the Manual Override Shaft.		
	CUE: The clevis is in the Manual Override Shaft.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
16	Contact the control room to verify that the Atmospheric Dump Valve Position Controller is adjusted to Zero and the Atmospheric Dump Valve Control Switches are selected to close at CR-52, and L-042.	Simulate contacting the control room to verify that the Atmospheric Dump Valve Position Controller is adjusted to zero, and the Atmospheric Dump Valve control switches are selected to close at CR-52, and L-042.		
	CUE: The positioners are at zero. The hand switches are selected to close.			
17*	CLOSE S2(3)1301MU1264, HV-8419 Controller Equalizing Valve.	Simulate closing S2(3)1301MU1264, HV-8419 Controller Equalizing Valve.		
	CUE: The valve is CLOSED.			
18*	OPEN S2(3)1301MU1304, HV-8419 Controller Instrument Air Isolation Valve.	Simulate opening S2(3)1301MU1304, HV-8419 Controller Instrument Air Isolation Valve.		
	CUE: The valve is OPEN.			
19*	OPEN S2(3)1301MU1328, HV-8419 Positioner Nitrogen Isolation Valve.	Simulate opening S2(3)1301MU1328, HV-8419 Positioner Nitrogen Isolation Valve.		
	CUE: The valve is OPEN.			
20	Contact the control room and inform them that Atmospheric Dump Valve 2(3)HV-8419 is aligned for remote functional stroke test.	Simulate informing the Control Room that the Atmospheric Dump Valve is aligned for remote operation.		
	CUE: The Control Room directs you to CLOSE ADV Isolation Valve 2(3)1301MU231 per step 2.2.10.1. **CUE: You have the appropriate Train Key.**			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD		S/U	COMMENTS (Required for Unsat)
21*	IF excessive cooldown, OR loss of N2 will occur when opening HV-8419, THEN UNLOCK (ESF 'A' Lock) and CLOSE S2(3)1301MU231, HV-8419 Isolation Valve.	Simulate unlocking Atmospheric Dump Valve 2(3) HV-8419 Manual Isolation Valve S2(3)1301MU231.			
	CUE: **The valve is UNLOCKED.**				
22*	IF excessive cooldown, OR loss of N2 will occur when opening HV-8419, THEN UNLOCK (ESF 'A' Lock) and CLOSE S2(3)1301MU231 HV-8419 Isolation Valve	Simulate closing S2(3)1301MU231, HV-8419 Isolation Valve.			
	CUE: **The valve is CLOSED.**				
	CUE: **The Atmospheric Dump Valve 2HV-8419 has been successfully opened from the control room. You are directed to realign ADV isolation Valve MU231 in the LOCKED OPEN position per 2.2.10.7.**				
23*	LOCK OPEN (ESF 'A' Lock) S2(3)1301MU231, HV-8419 Atmospheric Dump Valve Isolation Valve.	Simulate opening S2(3)1301MU231, HV-8419 Atmospheric Dump Valve Isolation Valve.			
24	LOCK OPEN (ESF 'A' Lock) S2(3)1301MU231, HV-8419 Atmospheric Dump Valve Isolation Valve.	Simulate locking S2(3)1301MU231, HV-8419 Atmospheric Dump Valve Isolation Valve.			
		TERMINATING CUE: **This JPM is complete.**	**The valve is locked OPEN.**		**Stop Time: _____**

JPM INFORMATION SHEET

JPM NUMBER

2009A NRC P-2

INITIAL PLANT CONDITIONS

The Control Room has been evacuated.

Both Units completed necessary actions prior to evacuation.

You are the Radwaste Operator (Auxiliary Primary Operator).

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

TASK TO BE PERFORMED

Perform the Unit 2(3) duties of the Radwaste Operator (Auxiliary Primary Operator) following a Control Room evacuation, using SO23-13-2, Shutdown From Outside The Control Room, Attachment 10(11), Radwaste Operator Duties (Auxiliary Primary Operator) - Unit 2(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: _____

Examiner:_____ _____
Signature **Date**

Comments:

DOCUMENTATION

2009A NRC P-2

JPM LEVEL: RO / SRO

ESTIMATED TIME TO COMPLETE: 20 minutes

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

POSITION: CO, 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: 6, 8, 12

REFERENCES:

SO23-13-2, Shutdown from Outside the Control Room, Rev 11.

AUTHOR:	R Whitehouse	**DATE:**	9/20/04
OPERATIONS REVIEW:	M. Jones	**DATE:**	9/20/04
APPROVED BY:	S. Whitley	**DATE:**	9/20/04

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	8/17/04	NEW
1	Removed the requirement to go to the SSD locker. This was a critical step.	RCW	9/20/04	REV
1-1	Compared against SO23-13-2, rev 8-1. Updated titles to match procedure.	HJW	9/14/06	AH

SET-UP

EXAMINER:

Provide Examinee with a copy of SO23-13-2, Shutdown from Outside the Control Room, Attachment (10)11.

Be prepared to provide attachment 27, Miscellaneous Cooling Systems Recovery.

JPM: 2009A NRC P-2 **TITLE: Perform duties of Primary Operator on Shutdown from Outside 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, Att #10(11). **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.	Proceeds to Radwaste via the Control Building Central Stairwell and the Health Physics Control Point.		**Start Time:** _____
2*	At 24' Radwaste: OPEN 2(3)HV-9235, BAMU Gravity Feed.	Simulates opening 2(3)HV9235, BORIC ACID MAKEUP TANK 2(3)T072 GRAVITY FEED TO CHARGING PUMP SUCTION ISO VALVE.		
	CUE: The valve is OPEN.			
3*	At 24' Radwaste: OPEN 2(3)HV-9240, BAMU Gravity Feed.	Simulates opening 2(3)HV9240, BORIC ACID MAKEUP TANK 2(3)T071 GRAVITY FEED TO CHARGING PUMP SUCTION ISO VALVE.		
	CUE: The valve is OPEN.			
4*	At 37' Radwaste: CLOSE 2(3)LV-0227B, VCT Outlet (RM. 319A(B), Key No. HR)	Simulates closing 2(3)LV-0227B, VCT OUTLET VALVE in Room 319A(B). A key may not be needed for this room depending on present radiological conditions.		
	CUE: The valve is CLOSED.			
5	At 9' Radwaste: ENSURE CLOSED 2(3)LV-0227C, RWST to Charging Pump suction.	Verifies 2(3)LV0227C, RWST TO CHARGING PUMP SUCTION ISOLATION VALVE is closed.		
	CUE: The valve is CLOSED.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
	CUE: The U2 CRS directs you to step #13 of this attachment and directs you to perform SO23-13-2 attachment # 27. Another operator has initiated this attachment and the section you are to perform is section 5.0.			
6*	Open BA-02, MP-001 CCW TV-9144	Simulates positioning breaker 2BA02, MP-001 CCW 2TV-9144 to off.		
	CUE: 2BA-02 IS OPEN.			
7*	Open BA-03, MP-003 CCW TV-9154	Simulates positioning breaker 2BA03, MP-003 CCW 2TV-9154 to off.		
	CUE: 2BA-03 IS OPEN.			
8*	Open BN-26, MP-004 CCW TV-9164	Simulates positioning breaker 2BN26, MP-004 CCW 2TV-9164 to off.		
	CUE: 2BN-26 IS OPEN.			
9*	Open BN-27, MP-002 CCW TV-9174	Simulates positioning breaker 2BN27, MP-002 CCW 2TV-9174 to off.		
	CUE: 2BN-27 IS OPEN. Another operator will complete the alignment inside containment.			
		TERMINATING CUE: **This JPM is complete.**		**Stop Time: _____**

JPM INFORMATION SHEET

JPM NUMBER

2009A NRC P-3

INITIAL PLANT CONDITIONS

A Station Blackout has occurred on Unit 2.

Offsite power has just been restored to Unit 3.

Buses 3A04 and 3B04 are energized from Off-Site power.

The Unit 2 Crew has determined that Bus 2B04 needs to be energized from Unit 3.

3G003 has been secured.

Declaration of 10CFR50.54(x) and (y) has been made.

MCC BQ is currently aligned to Unit 2.

TASK TO BE PERFORMED

Energize 1E 480V bus 2B04 from Unit 3 per SO23-12-11, Attachment 23. Use MCC BQ for the cross-connect. You have been issued an extra interlock key for MCC BQ.

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: _____

Examiner:_____ _____
Signature **Date**

Comments:

DOCUMENTATION

2009A NRC P-3

JPM LEVEL: RO / SRO

ESTIMATED TIME TO COMPLETE: 13 minutes

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

POSITION: PEO

TASK SYS ID: 188352

TASK DESCRIPTION

Energize class 1E 4KV buses from the other unit during response to a station blackout.

KA NUMBER: 055 EA2.03

KA VALUES: **RO** 3.9 **SRO** 4.7

10CFR55.45 APPLICABILITY: 6, 12

REFERENCES:

SO23-12-11, EOI Supporting Attachments, Attachment 23, Rev. 6

AUTHOR: H. J. Wurtz **DATE:** 10/9/07

OPERATIONS REVIEW: _____ **DATE:** _____

APPROVED BY: _____ **DATE:** _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
0	New	-	-	-
0-1	Compared against SO23-12-11, Rev. 2, Attachment 23 with minor changes required.	LRZ	2/24/05	AHH
0-2	Incorporated changes made for 2005B NRC Exam. Compared against SO23-12-11, Rev. 3, Attachment 23 with no changes required.	RCW	11/27/05	MRN
1	Compared against SO23-12-11, Rev 5. Updated steps for procedure changes. Changed some critical steps.	HJW	10/09/07	N/A

SET-UP

EXAMINER:

NOTE: Provide the Examinee with a copy of SO23-12-11, EOI Supporting Attachments, Attachment 23, Cross Connecting Class 1E 480V Buses between Units.

JPM: 2009A NRC P-3 **TITLE: Cross tie electrical bus B04 through BQ to other unit.**

* 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, EOI Supporting Attachments, Attachment 23, Cross Connecting Class 1E 480V Buses Between Units.			
1	VERIFY BS - required by Attachment 9, CONTROL BUILDING VENTILATION EMERGENCY ACTIONS.	Contact Control Room to determine BS required by attachment 9.		**Start Time:** _____
	CUE: BS is required by attachment 9.			
2	VERIFY A04 and B04 on other unit - energized.	Contact Control Room to verify A04 and B04 on other unit energized.		
	CUE: 3A04 and 3B04 are energized from off site power.			
3	VERIFY A04 and B04 energized on other unit - NOT supplied by Diesel Generator.	Contact Control Room to verify A04 and B04 on other unit not energized from diesel generators.		
	CUE: 3A04 and 3B04 are not energized from Diesel Generators.			
4*	ENERGIZE B04 from energized B04 on other unit: OPEN affected B04 supply breakers: 4kV - 2A0420 (3A0417)	Contact Unit 2 Control Room and request that they open breaker 2A0420 **OR** simulate opening 2(3)A0420(17) LOADCENTER XFMR 2(3)B04X by turning the handswitch to TRIP.		
	CUE: Breaker 2(3)A0420(17) is OPEN.			

JPM: 2009A NRC P-3 **TITLE: Cross tie electrical bus B04 through BQ to other unit.**

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
5*	ENERGIZE B04 from energized B04 on other unit: OPEN affected B04 supply breakers: 480V - 2B0401 (3B0401)	Simulate opening 2(3)B0401 FEEDER FROM XFMR 2(3)B04X by pressing the TRIP pushbutton.		
	CUE: **Breaker 2(3)B0401 is OPEN.**			
6*	ENERGIZE B04 from energized B04 on other unit: OPEN all breakers on affected unit B04.	Simulate opening all breakers on 2B04 by pressing the TRIP pushbuttons.		
	NOTE: **Trainee does not have to simulate opening each individual breaker. After first breaker is done, and identifies he will open the remaining breakers, provide the Cue below.**			
	CUE: **All breakers on 2B04 are OPEN.**			
7	ENERGIZE B04 from energized B04 on other unit: Ensure both MCC BQ supply breakers OPEN: • 2B0417	Verify 2B0417 TRANSFER SWITCH MCC BQ is open by checking indicating flag in the breaker window (breaker was opened on previous step).		
	NOTE: **Breaker is already open due to initial condition of BQ aligned to Unit 2.**			
	CUE: **Breaker 2B0417 is OPEN.**			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
8	ENERGIZE B04 from energized B04 on other unit: Ensure both MCC BQ supply breakers OPEN: • 3B0417	Verify 3B0417 TRANSFER SWITCH MCC BQ is open by checking indicating flag in the breaker window.		
	CUE: Breaker 3B0417 is OPEN.			
	NOTE: The next three (3) steps can be done in any order.			
9*	ENERGIZE B04 from energized B04 on other unit: OPEN all MCC breakers on: BE (affected unit).	Simulate opening all breakers on MCC 2BE by pulling the breaker levers down to the OFF position.		
	NOTE: Examinee does not have to simulate opening each individual breaker. After trainee simulates opening the first breaker, and identifies he will open the remaining breakers, provide the Cue below.			
	CUE: All breakers on MCC 2BE are OPEN.			
10*	ENERGIZE B04 from energized B04 on other unit: OPEN all MCC breakers on: BY (affected unit).	Simulate opening all breakers on MCC 2BY by pulling the breaker levers down to the OFF position.		
	NOTE: Examinee does not have to simulate opening each individual breaker. After examinee simulates opening the first breaker and identifies they will open the remaining breakers, provide the Cue below.			
	CUE: All breakers on MCC 2BY are OPEN.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
11*	ENERGIZE B04 from energized B04 on other unit: OPEN all MCC breakers on: BQ.	Simulate opening all breakers on MCC by BQ by pulling the breaker levers down to the OFF position. (Unit 2 supply breaker BQ-01 is currently closed and does not have to be opened.)		
	NOTE: Examinee does not have to simulate opening each individual breaker. After examinee simulates opening the first breaker and identifies he will open the remaining breakers, provide the Cue below.			
	CUE: All breakers on MCC 2BQ are OPEN.			
12	ENERGIZE B04 from energized B04 on other unit: OBTAIN second MCC BQ power supply interlock key.	Simulates obtaining 2nd key from NOA.		
	CUE: You have an additional interlock key.			
13	ENERGIZE B04 from energized B04 on other unit: ENSURE both Unit 2 and Unit 3 power supply feeders to MCC BQ - closed. BQ-01 BQ-02	Verify BQ-01 FROM 480V LOAD CENTER BREAKER 2B0417 is closed by observing breaker lever up in the ON position.		
	CUE: Breaker BQ-01 is closed.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
14*	ENERGIZE B04 from energized B04 on other unit: ENSURE both Unit 2 and Unit 3 power supply feeders to MCC BQ - closed. BQ-01 BQ-02	Simulate opening the Kirk Key Panel door to the right of the BQ-02 supply breaker to expose the Kirk Key lock.		
	CUE: The panel door is open and the kirk key lock is exposed.			
15*	ENERGIZE B04 from energized B04 on other unit: ENSURE both Unit 2 and Unit 3 power supply feeders to MCC BQ - closed. BQ-01 BQ-02	Simulate inserting the second Kirk Key into the BQ-02 Kirk Key lock.		
	CUE: The second kirk key is inserted into the BQ-02 kirk key lock.			
16*	ENERGIZE B04 from energized B04 on other unit: ENSURE both Unit 2 and Unit 3 power supply feeders to MCC BQ - closed. BQ-01 BQ-02	Simulate turning the BQ-02 Kirk Key to unlock the breaker.		
	CUE: The breaker is unlocked.			

JPM: 2009A NRC P-3 **TITLE: Cross tie electrical bus B04 through BQ to other unit.**

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
17*	ENERGIZE B04 from energized B04 on other unit: ENSURE both Unit 2 and Unit 3 power supply feeders to MCC BQ - closed. BQ-01 BQ-02	Simulate closing the MCC supply breaker BQ-02 FROM 480V LOAD CENTER BREAKER 3B0417 by raising the breaker lever up to the ON position.		
	NOTE: If examinee opened BQ-01 in Step 10, they will have to re-close it here.			
	If examinee attempts to close BQ-02 without using Kirk Key, tell him, **CUE: The breaker <u>didn't</u> CLOSE.**			
	CUE: The breaker is CLOSED.			
18*	ENERGIZE B04 from energized B04 on other unit: ENERGIZE MCC BQ by closing supply breaker from energized B04: 2B0417 OR 3B0417.	Simulate closing 3B0417 by pressing the CLOSE pushbutton.		
	CUE: The breaker is CLOSED.			

JPM: 2009A NRC P-3 **TITLE: Cross tie electrical bus B04 through BQ to other unit.**

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
19*	ENERGIZE B04 from energized B04 on other unit: ENERGIZE affected B04 by closing MCC BQ supply breaker: 2B0417 OR 3B0417	Simulate closing 2B0417 by pressing the CLOSE pushbutton.		
	CUE: The breaker is CLOSED.			
		TERMINATING CUE: **Another operator will energize loads. This JPM is complete.**		**Stop Time: _____**

JPM INFORMATION SHEET

JPM NUMBER

2009A NRC S-1

INITIAL PLANT CONDITIONS

You are operating at a power level of 69% and ESI is determined to be negative (-)0.06.

TASK TO BE PERFORMED

The CRS directs you to restore ASI to the 70% power level ESI using group 6 CEAs:

SO23-5-1.7, Power Operations, Attachment 6, section 4.0.
SO23-3-2.19, Control Element Drive Mechanism Control System (CEDMCS) Operation, section 6.2 and/or 6.12.

JOB PERFORMANCE MEASURE **2009A NRC S-1**

SUGGESTED TESTING ENVIRONMENT:	**PLANT**		**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: _____

Examiner:_____ _____
Signature **Date**

Comments:

DOCUMENTATION

2009A NRC S-1

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. 39

SO23-3-2.19, CEDMCS, Rev. 20

SO23-13-13, Misaligned or Immovable Control Element Assembly, Rev.11-2

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
0-2	Incorporated changes made for 2005A NRC Exam.	RCW	11/27/05	MRN

SET-UP

2009A NRC JPM Exam
Reset to IC #241. Event file is part of IC. No setup installation required.

Malfunction numbers:
RD0103 for CEA # 01
RD2003 for CEA # 20

Ensure the PCS screen at the ACO desk is set up as follows;

MAIN MENU
NSSS
Under "COLLSS PRIMARY CEA MONITORING"
Select "CEA GROUP & POSITION"

Ensure the ASI PCS indication is aligned at the ACO desk (upper scale @ -0.08 and lower scale @ .04).

Ensure the T_c PCS indication is aligned at the ACO desk (upper scale @ 541.8 ^oF and lower scale @ 537.8 ^oF)

Provide the examinee with a copy of:
SO23-5-1.7, Power Operations.
SO23-3-2.19, Control Element Drive Mechanism Control System (CEDMCS) Operation.

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

Ensure the PCS screen at the ACO desk is set up as follows;

MAIN MENU
NSSS
Under "COLLSS PRIMARY CEA MONITORING"
Select "CEA GROUP & POSITION"

JPM: 2009A NRC S-1 **TITLE: Restore ASI to ESI.**

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
	NOTE: The applicant should refer to SO23-3-2.19, CEDMCS Operation.			
1	VERIFY all CEA Regulating Group Rod Bottom Lamps on the Core Mimic Panel are EXTINGUISHED.	VERIFY all Regulating Group Rod Bottom Lamps on the Core Mimic Panel are extinguished.		**Start Time:** _____
2*	POSITION Mode Select switch to MS.	PLACE the MODE SELECT Switch to MS.		
3*	WITHDRAW or INSERT Regulating Group as required.	POSITIONS shim switch to the WITHDRAW direction and moves regulating groups in small frequent steps.		
4*	WITHDRAW or INSERT Regulating Group as required.	OBSERVE PCS screen and/or chart for ASI trend. DETERMINE that a second CEA withdrawal is required. POSITIONS shim switch to the WITHDRAW direction and moves regulating groups in small frequent steps.		
5	When Manual Sequential positioning is completed, then POSITION the Mode Select Switch to OFF.	PLACE Mode Select Switch in OFF when rod withdrawal is complete.		
	NOTE: Steps 1-4 will be repeated as necessary to restore ASI to ESI.			
	NOTE: Cue the Machine Operator to insert the dropped rod malfunctions once the second CEA movement is initiated by the examinee.			
	M. O. CUE: When Examiner directs, initiate malfunction to drop CEAs #01 and #20.			
	NOTE: The following steps represent the alternate path of this JPM.			
	NOTE: Applicant may immediately trip the reactor or may refer to SO23-13-13, Misaligned Control Element Assembly, to determine appropriate action.			

JPM: 2009A NRC S-1 **TITLE: Restore ASI to ESI.**

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
6	VERIFY Special Test Exception 3.1.12 (Low Power Physics Testing) is NOT invoked.	VERIFY Special Test Exception is NOT invoked.		
	CUE: Special Test Exception is NOT invoked.			
7	VERIFY NOT more than one CEA is misaligned > 7 inches.	VERIFY Rod Bottom indication for CEAs #01 and #20.		
8*	ENSURE Reactor – tripped AND GO TO SO23-12-1.	INITIATE a Reactor Trip by DEPRESSING at least two manual Reactor trip pushbuttons: 2HS-9132-2 and 2HS-9132-3 **or** 2HS-9132-1 and 2HS-9132-4.		
		TERMINATING CUE: This JPM is complete.		**Stop Time:** _____

JPM INFORMATION SHEET

JPM NUMBER

2009A NRC S-2

INITIAL PLANT CONDITIONS

The following plant conditions exist:

- A Unit 2 Reactor trip occurred 8 minutes ago.
- SG pressures are approximately 1000 psia.
- EFAS-1 and EFAS-2 has actuated.

The Control Room Supervisor (CRS) has directed the ARO to verify proper EFAS-1and EFAS-2 actuation in accordance with SO23-3-2.22, ESFAS System Operation.

TASK TO BE PERFORMED

As the ARO, verify proper EFAS-1and EFAS-2 actuation per SO23-3-2.22, ESFAS System Operation, Attachment 13.

JOB PERFORMANCE MEASURE **2009A NRC S-2**

SUGGESTED TESTING ENVIRONMENT:	**PLANT**		**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: _____

Examiner:_____ _____
Signature **Date**

Comments:

DOCUMENTATION

2009A NRC S-2

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 10 minutes

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

POSITION: CO

TASK SYS ID: 186173

TASK DESCRIPTION

Verify the proper operation of the Auxiliary Feedwater System following an EFAS or DEFAS.

KA NUMBER: 061-A3.02

KA VALUES: **RO** 4.1 **SRO** 4.2

10CFR55.45 APPLICABILITY: 5, 7

REFERENCES:

SO23-3-2.22, Engineered Safety Features Actuation System, EC 15-5.

AUTHOR:	H. J. Wurtz	**DATE:**	09/27/07
OPERATIONS REVIEW:	H. Luque	**DATE:**	10/09/07
APPROVED BY:	William E. Arbour	**DATE:**	10/18/07

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
3	Compared against SO23-3-2.22, Rev 13, TCN 13-3 with minor changes required. Updated reviews.	LRZ	06/30/00	REV
3-1	Compared to SO23-3-2.22, Rev. 13-4 with no changes required. Updated setup page to use IC 80 which was developed for 2001 JPM exams. This IC might be deleted after the exams.	KM	7-25-01	KR
3-2	Compared against SO23-3-2.22, Rev. 14-2. Minor modification to Initial Plant Conditions. Modified Simulator Setup.	RCW	11-05-03	AHH
3-3	Fixed typo on cover page: ESFAS vs. EFAS.	RCW	01-06-04	n/a
3-4	Compared against SO23-3-2.22, Rev. 14-7. Minor modification to Initial Plant Conditions.	RCW	11/03/05	AHH
4	Compared against SO23-3-2.22, EC 15-5. Updated setup. Minor editorial changes to steps due to rewording in procedure. Revised for signed copy purposes.	HJW	09/27/07	NA

SET-UP

SIMULATOR

2009A use IC-242. Set up file has been run. Event #2 needs to be activated after this IC goes to run.
Perform the following:

- Insert RP01P to block P141 starting on EFAS
- Override A394 Red light OFF
- Override A394 Green light ON
- Override A394 Red light ON on condition when A394 START PB depressed
- Override A394 Green light OFF on condition when A394 START PB depressed
- Trip the plant
- Trip both MFWP's
- Wait until EFAS has actuated
- Run event #2 for fan 2A394 setup

INSTRUCTOR/MACHINE OPERATOR NOTES

Provide the Examinee with a copy of SO23-3-2.22, ESFAS System Operation, Attachment 13, EFAS/DEFAS Actuation Verification, with the Prerequisites completed, step 1.2 should have the first block checked.

NOTE: Maintain the simulator in freeze until the Examinee is ready to start the JPM. This will assist in keeping the level low in the Steam Generators.

JPM: 2009A NRC S-2 **TITLE: Verify the proper operation of AFW System following an EFAS.**

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
	NOTE: Provide the Examinee with a copy of SO23-3-2.22, Attachment 13, EFAS/DEFAS Actuation Verification, with the Prerequisites completed. **NOTE: If SG level is greater than 26%, the AFW valves may be cycling open &/or closed.**			
1*	P-141 Motor Driven AFW Pump START.	Depresses start pushbutton AFWP 2P141 on 2HS-4707-1.		
2	HV-4713 P-141 Flow Control Valve to 2E-089 OPEN/CLOSED.	Observes OPEN indicating light for AFWP 2P141 to SG E089 Discharge Valve on 2HV-4713.		
3	HV-4731 S/G E-089 Containment Isolation Valve OPEN/CLOSED.	Observes OPEN indicating light for AFW to SG E089 Iso Valve on 2HV-4731.		
4	HV-8200 Main Steam to P-140 Isolation OPEN.	Observes OPEN indicating light for Main Steam to P-140.		
5	HV-4706 P-140 Flow Control Valve to E-089 OPEN/CLOSED.	Observes OPEN indicating light for AFWP 2P140 to SG 2E089 Discharge Valve on 2HV-4706.		
6	HV-4715 S/G E-089 Containment Isolation Valve OPEN/CLOSED.	Observes OPEN indicating light for AFW to SG 2E089 Iso Valve on 2HV-4715.		
7	HV-4053 S/G E-089 Blowdown Isolation Valve CLOSED.	Observes CLOSE indicating light for SG 2E089 Blowdown Iso Valve on 2HV-4053.		
8	HV-4763 P-141 Discharge Bypass Valve to E-089 CLOSED.	Observes CLOSE indicating light for AFWP 2P141 to SG 2E089 Discharge Valve Bypass on 2HV-4763.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
9	HV-4716 Main Steam Valve to P-140 OPEN.	Observes OPEN indicating light for AFWPT 2K007 Steam Inlet Valve on 2HV-4716.		
10	P-504 Motor Driven AFW Pump START.	Observes START indicating light for AFWP 2P504 on 2HS-4733-2.		
11	HV-4712 P-504 Flow Control Valve to E-088 OPEN/CLOSED.	Observes OPEN indicating light for AFWP 2P504 to SG E088 Discharge Valve on 2HV-4712.		
12	HV-4714 S/G E-088 Containment Isolation Valve OPEN/CLOSED.	Observes OPEN indicating light for AFW to SG E088 Iso Valve on 2HV-4714.		
13	HV-8201 Main Steam to P-140 Isolation OPEN.	Observes OPEN indicating light for Main Steam to AFWPT 2K007 SG 2E088 Iso Valve on 2HV-8201.		
14	HV-4705 P-140 Flow Control Valve to E-088 OPEN/CLOSED.	Observes OPEN indicating light for AFWP 2P140 to SG 2E088 Discharge Valve on 2HV-4705.		
15	HV-4730 S/G 2E-088 Containment Isolation Valve OPEN/CLOSED.	Observes OPEN indicating light for AFW to SG 2E-088 Iso Valve on 2HV-4730.		
16	HV-4054 S/G 2E-088 Blowdown Isolation Valve CLOSED.	Observes CLOSE indicating light for SG 2E088 Blowdown Iso Valve on 2HV-4054.		
17	HV-4762 P-504 Discharge Bypass Valve to E-088 CLOSED.	Observes CLOSE indicating light for AFWP 2P504 to SG 2E088 Discharge Valve Bypass on 2HV-4762.		
18	HV-4716 Steam Supply Valve to P-140 OPEN.	Observes OPEN indicating light for AFWPT 2K007 Steam Inlet Valve on 2HV-4716.		
19	A-443 AFW Pump Room Fan START.	Observes START indicating light for AFW Pump Area Fan, 2A443, on 2HS-9532-2.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
20*	A-394 AFW Pump Room Fan START.	Depresses START pushbutton for AFW Pump Area Fan, 2A394, on 2HS-9581-1.		
21	E-128 Pressurizer Backup Heater on CR-50 OFF.	Observes OFF indicating light for Backup Heaters Bank 128 from 2B0402 on 2HS-0100F1.		
22	E-129 Pressurizer Backup Heater on CR-50 OFF.	Observes OFF indicating light for Backup Heaters Bank 129 from 2B0602 on 2HS-0100I2.		
		TERMINATING CUE: **This JPM is complete.**		**Stop Time:** _____

JPM INFORMATION SHEET

JPM NUMBER

2009A NRC S-3

INITIAL PLANT CONDITIONS

An ESDE and a LOCA have occurred on Unit 2. 1E 4 kV Vital Bus 2A06 was lost upon plant trip. The Control Room Supervisor has entered SO23-12-9, Functional Recovery.

TASK TO BE PERFORMED

The Control Room Supervisor has reviewed the Resource Assessment Charts and directs you to perform SO23-12-9, Functional Recovery Attachment FR-4, PC-1C - Subcooled Pressure Control Recovery Actions (HPSI), Step 9.

JOB PERFORMANCE MEASURE **2009A NRC S-3**

SUGGESTED TESTING ENVIRONMENT:	**PLANT**		**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: _____

Examiner:_____ _____
Signature **Date**

Comments:

DOCUMENTATION

2009A NRC S-3

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 10 minutes

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

POSITION: CO

TASK SYS ID: 192187

TASK DESCRIPTION

Respond to a Loss of Coolant Accident.

KA NUMBER: EA1.3

KA VALUES: **RO** 3.6 **SRO** 3.8

10CFR55.45 APPLICABILITY: 6, 7

REFERENCES:

SO23-12-9, Functional Recovery, Attachment FR-4, Recovery - RCS Pressure Control, Rev. 25.

SO23-12-11, EOI Supporting Attachments, FS-7, SI Throttle / Stop Criteria, Rev. 6.

AUTHOR:	L. Zilli	**DATE:**	02/15/05
OPERATIONS REVIEW:	M. Jones	**DATE:**	03/09/05
APPROVED BY:	A. Hagemeyer	**DATE:**	03/09/05

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
0	New	-	-	-
0-1	Compared against SO23-12-9, Rev. 24 with no changes required.	LRZ	09/08/05	AHH
0-2	Compared against SO23-12-9, Rev. 24 with no changes required.	LRZ	07/14/06	

SET-UP

MACHINE OPERATOR:

Use IC #243 for 2009A NRC Exam.
Set up file is run for this IC. Event #7 needs to be run when candidate requests p/s close for BY29, HV9420.
2G003 is in Maintenance Lockout. Insert key #78 into maint lockout switch.
Transfer HPSI P-18 to Train B.
HPSI P-17 auto start failure.
RCS leak 75%.

EXAMINER:

Provide the Examinee with a copy of SO23-12-9, Functional Recovery, Attachment FR-4, Recovery - RCS Pressure Control and a copy of FS-7, SI Throttle/Stop Criteria from SO23-12-11, EOI Supporting Attachments.

Have key # 174 ready to give to candidate to operate 2HV-9420 HPSI hot leg iso valve.

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
	NOTE: Provide the Examinee with a copy of SO23-12-9, Functional Recovery, Attachment FR-4, Recovery - RCS Pressure Control.			
1	VERIFY RWST level – greater than 19%.	VERIFY RWST level greater than 19% by OBSERVING 2LI-0305-1, -2, -3, or -4 for RWST T006 or 2LI-0301 for RWST T005.		**Start Time:** _____
2	INITIATE FS-20, MONITOR RWST Level.	INITIATE FS-20, Monitor RWST Level.		
	CUE: Another operator will perform FS-20, Monitor RWST Level.			
3	ENSURE at least one RWST Outlet Valve – open: Train A HV-9300 Train B HV-9301	VERIFY RWST Outlet Valve OPEN on Train A, HV-9300, RWT 2T005 Outlet ISO Valve and OBSERVE red OPEN light illuminated.		
4	VERIFY PZR pressure – less than 1500 PSIA.	VERIFY PZR pressure less than 1500 psia by OBSERVING any W.R. Pressurizer Pressure instruments on CR-56 or CR-50.		
5	VERIFY FS-7, VERIFY SI Throttle/Stop Criteria – NOT satisfied.	TRANSITION to FS-7, SI Throttle/Stop Criteria.		
6	VERIFY at least one S/G operating: SBCS available OR ADV available.	OBSERVE 2PIC-8421-2, SG E089(S) Atmospheric Dump Valve Control in service.		
7	VERIFY at least one S/G operating – Feedwater available.	OBSERVE 2P140 in service to Steam Generator E088 and 2P141 running.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
8	VERIFY PZR level -greater than 30% AND -NOT lowering.	OBSERVE 2LI-0110A, -A1, and/or -A2 Pressurizer level instruments less than 30%.		
9	VERIFY Core Exit Saturation Margin -greater than or equal to 20 °F:	DETERMINE Core Exit Saturation Margin is less than 20 °F.		
10	VERIFY Reactor Vessel level -greater than or equal to 100% (Plenum)'	DETERMINE Reactor Vessel level is less than 100% Plenum.		
11	VERIFY FS-7, VERIFY SI Throttle/Stop Criteria – NOT satisfied.	DETERMINE FS-7, SI Throttle/Stop Criteria – NOT satisfied.		
	CUE: Another operator will continue to monitor FS-7, SI Throttle/Stop Criteria.			
12	VERIFY at least two HPSI to RCS Cold Leg Injection valves on operating HPSI train – open: Train A / Train B HV-9324 / HV-9323 HV-9327 / HV-9326 HV-9330 / HV-9329 HV-9333 / HV-9332	VERIFY that only HPSI to RCS Cold Leg Injection Valve, 2HV-9327, HDR to Loop 1B on HPSI Train A is open.		
	NOTE: The examinee may attempt to open another HPSI to RCS Cold Leg Injection Valve, however, these valves will fail to open.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
13	ESTABLISH HPSI Hot Leg Injection for operating HPSI trains: CLOSE applicable breakers: Train A: BY-29 Train B: BZ-39	ESTABLISH HPSI Hot Leg Injection for HPSI Train A. DIRECT an operator to close Train A breaker BY-29.		
	CUE: Breaker BY-29 is closed.			
14*	ESTABLISH HPSI Hot Leg Injection for operating HPSI trains: OPEN applicable HPSI to RCS Hot Leg Injection Valves: Train A: HV-9420 Train B: HV-9434	ESTABLISH HPSI Hot Leg Injection for HPSI Train A. INSERT key #174 and TURN to OPEN on 2HV-9420, HPSI HDR 1 to Loop 2 Hot Leg ISO Valve and OBSERVE red OPEN light illuminated.		
15*	ENSURE available HPSI Pumps –operating.	DEPRESS 2HS-9392-1, HPSI Pump 2P017 (E) START pushbutton.		
16	ENSURE proper system response.	VERIFY: • Pump amps of ~ 40 to 50 amps.		
17	ENSURE proper system response.	VERIFY: • Pressure indication on 2PI-0308, HPSI HDR 1 / P017 Pressure.		
18	ENSURE proper system response.	VERIFY: • Pressure indication on 2PI-9422, Hot Leg Injection Line Loop 2 Pressure.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
19	ENSURE proper system response.	VERIFY: • Flow response on 2FI-0321-1, Cold Leg Injection Line Loop 2 flow.		
20	ENSURE proper system response.	VERIFY: • Flow response on 2FI-9421-1, Hot Leg Injection Line Loop 2 flow.		
		TERMINATING CUE: **This JPM is complete.**		**Stop Time:**_____

JPM INFORMATION SHEET

JPM NUMBER

2009A NRC S-4

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.

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

E088 is isolated.

TASK TO BE PERFORMED

Verify isolation of the most affected Steam Generator per SO23-12-4, Steam Generator Tube Rupture, Step 16.

JOB PERFORMANCE MEASURE **2009A NRC S-4**

SUGGESTED TESTING ENVIRONMENT:	**PLANT**		**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: _____

Examiner:_____ _____
Signature **Date**

Comments:

DOCUMENTATION

2009A NRC S-4

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 25 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, Rev. 21.

AUTHOR:	R. Whitehouse	**DATE:**	08/18/04
OPERATIONS REVIEW:	M. Jones	**DATE:**	08/18/04
APPROVED BY:	A. Hagemeyer	**DATE:**	09/10/04

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
1	Incorporated changes to the procedure and testing comments. Added critical steps 12, 13, 14, 16, 19, 22, 24, and 25.	RJR	10/07/93	MJK
1-1	Checked current to Rev 10, will not be updated to Rev 11 this year.	SW	12/13/93	N/A
1-2	Compared against SO23-12-4, Rev 11; renumbered step to be performed in step 1.	HJW	01/10/94	N/A
2	Upgraded steps 20, 21, 23, & 25 to require action rather than verify; made steps 20, 21, & 23 critical steps; increased expected time from 15 to 20 minutes based on history.	HJW	02/09/94	MJK
2-1	Compared against SO23-12-4, Rev. 13 with minor upgrades to information contained in standards.	HJW	08/16/96	N/A
2-2	Compared against SO23-12-4, Rev. 17. Changed verb “check” to “verify”; inserted new step at beginning to verify one S/G isolated; added “SBCS avail” to step 7; added “on isol. S/G” to step 11; deleted reqmt for >200 gpm AFW and added “if necessary” to step 14. Updated KA designation and changed old task number to VISION SYS ID.	JJM	10/04/99	WLL
4	Compared against SO23-12-4, Rev. 17 with the following changes required. Made JPM Steps 14 and 15 not critical since they may not need to be done. Made JPM Step 16 critical.	KM	09/16/01	REV
5	Compared against SO23-12-4, Rev. 19. Major changes. Removed steps no longer in procedure, and added new steps.	RCW	08/18/04	REV

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
5-1	Modified set-up and Initial Plant Conditions. Inserted previous modification history. Removed step to verify one S/G isolated.	RCW	09/10/04	AH

SET-UP

MACHINE OPERATOR:

SIMULATOR

2009A NRC JPM. Use IC-242. The setup file is activated for this IC. No activations required for setup.

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

- Insert SG06A = 0.01 (SGTR on E088).
- Insert SG06B = 0.6 (SGTR on E089).
- Restore Non Qualified Loads.
- 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%.

INSTRUCTOR/MACHINE OPERATOR

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

BOP OPERATOR

Ensure MSIS setpoint remain low enough to prevent MSIS actuation during the performance of this JPM, by resetting the setpoints at regular intervals.

JPM: 2009A NRC S-4 **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 SO23-12-4, Steam Generator Tube Rupture, when located.			
1	VERIFY one S/G – isolated.	IDENTIFY E088 isolated and E089 is not isolated.		**Time Start:** _____
	NOTE: The Examinee may go to 16 b RNO column for any of the next four steps.			
2	VERIFY: Steam Line radiation level – NOT rising.	Using DAS or 2L-405, Wide Range Monitoring Panel, observes 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.	Using DAS or Observes Blowdown Radiation Monitors 2RR6753 and 2RR6759.		
	CUE: 2RIT-6753, SG E089 Blowdown Radiation Monitor, indicates a rising trend.			
4	VERIFY: Air Ejector radiation level – NOT rising.	Using DAS or Observes Air Ejector Radiation Monitors 2RT-7818 and 2RY-78701.		
5*	VERIFY: Available S/G samples – high activity in isolated S/G.	Identifies 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 4.1E-2 μci/ml and Steam Generator E088 activity is 3.9E-3μci/ml.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
6	VERIFY Isolated S/G level trend – consistent with plant conditions.	Observes E088 level indications.		
	NOTE: The SBCS Interlock Setpoint is 10.0 inches of mercury absolute.			
7	VERIFY SBCS – available: Condenser Back pressure – less than SBCS Interlock Setpoint.	Observes Condenser back pressure on Condenser absolute pressure recorder **or** Condenser pressure instruments 2PI-3202A, 2PI-3383A, or 2PI-3395A. Determines that condenser vacuum is satisfactory for SBCS operation.		
8*	OPEN MSIV Bypass on isolated S/G: E-088 HV-8203	Depresses OPEN/MODULATE pushbutton for SG 2E088 Main Steam Iso Valve Bypass, 2HV-8203, and operates SG 2E088/2E089 Main Steam Iso Valve Bypass Control 2HV-8203/2HV-8202 to open 2HV-8203.		
9	Lower MSIV ΔP to: E-088 HV-8205 85 PSID	Compares 2PI-1023A1 through A4, SG E088 Pressure, with 2PI-8207, Steam Pressure to MFWPT K006, or 2PI-8214, Steam Pressure to MFWPT K005, and verifies differential pressure is $\leq$85psid.		
10*	OPEN MSIV on isolated S/G.	Depresses both OPEN pushbuttons on Train A 2HV-8205 and Train B 2HV-8205 for SG E088 Main Steam Iso Valve.		
	NOTE: It takes approximately 8 minutes for the MSIV to open.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
11	ESTABLISH RCS temperature control with SBCS on isolated S/G.	Establishes RCS temperature control with SBCS by adjusting the controller(s) to throttle 2HV-8423 and/or 2HV-8425 as required.		
	NOTE: The canidate may start either P140 or P504 to supply feedwater to E088. P140 requires both HV-4716 and HV-8201 to be open.			
	CUE: The CRS authorizes starting either P140 or P504 to feed E088			
12	ENSURE at least one associated AFW Pump – operating.	START 2P-504 or OPEN 2HV-8201 main steam to 2P-140.		
13	OVERRIDE and OPEN AFW Pump Discharge Bypass valve to 35% open: P-504 - HV-4762 P-141 - HV-4763	Depresses OVERRIDE and then OPEN for 2HV-4762.		
14	MAINTAIN reduced AFW flow for 5 minutes.	Monitors AFW flow to E088 by observing 2FI-4720-2 on CR52**.**		
	CUE: 5 minutes have elapsed.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
15	VERIFY for recovered S/G: Level – greater than 40% NR AND Feedwater available. OR Level – trending to between 40% NR and 80% NR.	Verifies SG E-088 level >40% NR by: Observing 2LI-1123-1,-2,-3 and A4, SG E088 Down comer Level, and verifies feedwater available.		
	CUE: Steam Generator E088 level is greater than 40% narrow range level.			
16	ENSURE all valves to other S/G – closed per step 9.	Transitions to step 9.		
17*	CLOSE/STOP the following components for most affected S/G: MSIV HV-8204	Depresses both CLOSE pushbuttons on Train A 2HV-8204 and/or Train B 2HV-8204, SG 2E089 Main Steam Iso Valve, and verifies 2HV-8204 closed at CR52 or CR57.		
18	CLOSE/STOP the following components for most affected S/G: MSIV Bypass HV-8202	Verifies green closed indicating light on 2HV-8202, SG 2E089 Main Steam Iso Valve Bypass.		
19	CLOSE/STOP the following components for most affected S/G: ADV HV-8421	Verifies green closed indicating light on 2HV-8421, SG 2E089 Atmospheric Dump Valve.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
20*	CLOSE/STOP the following components for most affected S/G: MFIV HV-4052.	Depresses both CLOSE pushbuttons on Train A 2HV-4052 and/or Train B 2HV-4052, FW to SG 2E089 Iso Valve, and verifies 2HV-4052 closed at CR52 or CR57.		
21	CLOSE/STOP the following components for most affected S/G: AFW valves HV-4731.	Verifies 2HV-4731, AFW to SG 2E089 Iso Valve, is CLOSED.		
22	CLOSE/STOP the following components for most affected S/G: AFW valves HV-4715.	Verifies 2HV-4715, AFW to SG 2E089 Iso Valve, is CLOSED.		
23*	CLOSE/STOP the following components for most affected S/G: Steam to AFW P-140 HV-8200.	Depresses OVERRIDE and CLOSE pushbuttons for 2HV-8200, Main STM to AFWPT 2K007 SG 2E089 Iso Valve.		
24	CLOSE/STOP the following components for most affected S/G: S/G Blowdown Isolation HV-4053.	Verifies 2HV-4053-2, SG 2E089 Blowdown Iso Valve, is closed.		
25*	CLOSE/STOP the following components for most affected S/G: S/G Water Sample Isolation HV-4057	Depresses CLOSE for 2HV-4057, SG 2E089 Water Sample Iso Valve.		

JPM: 2009A NRC S-4 **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)
26*	CLOSE/STOP the following components for most affected S/G: Electric AFW Pump P-141.	Depresses OVERRIDE and STOP pushbuttons for 2HS-4707-1, AFWP 2P141. **TERMINATING CUE:** **This JPM is complete.**		**Time Stop:** _____

JPM INFORMATION SHEET

JPM NUMBER

2009A NRC S-5

INITIAL PLANT CONDITIONS

Unit 2 was operating at 100% power when a Steam Line Break occurred inside Containment. Containment Spray Actuation System (CSAS) failed to automatically actuate. Up to this point, all attempts to manually actuate CSAS have been unsuccessful. Containment pressure is rising.

TASK TO BE PERFORMED

The Control Room Supervisor directs you to perform Floating Step 12, Monitor Containment Pressure, of SO23-12-11, EOI Supporting Attachments.

JOB PERFORMANCE MEASURE **2009A NRC S-5**

SUGGESTED TESTING ENVIRONMENT:	**PLANT**		**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: _____

Examiner:_____ _____
Signature **Date**

Comments:

DOCUMENTATION

2009A NRC S-5

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 10 minutes

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

POSITION: CO

TASK SYS ID: 184570

TASK DESCRIPTION

Initiate Containment Temperature and Pressure Control Recovery by CSAS.

KA NUMBER: 009 EA1.07

KA VALUES: **RO** 3.7 **SRO** 3.9

10CFR55.45 APPLICABILITY: 5, 6

REFERENCES:

SO23-12-11, EOI Supporting Attachments, FS-12, Monitor Containment Pressure, Rev. 6.

SO23-3-2.22, Engineered safety Features Actuation System Operation, Rev. 15-5

AUTHOR:	L. Zilli	**DATE:**	02/15/05
OPERATIONS REVIEW:	M. Jones	**DATE:**	03/09/05
APPROVED BY:	A. Hagemeyer	**DATE:**	03/09/05

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
1	Reviewed SO23-12-5, Rev. 16 and modified as required.	LRZ	07/05/00	WLL
1-1	Compared against SO23-12-5, Rev. 16 with no changes required.	LRZ	08/29/01	WLL
2	Revised to reflect new procedure and Floating Step number SO23-12-11, EOI Supporting Attachments, Rev. 2, Floating Step 12. Added steps required by procedure revision. New VISION ID.	LRZ	02/15/05	REV
2-1	Compared against SO23-12-11, EOI Supporting Attachments, Rev. 3, with no changes required.	LRZ	07/27/05	AHH
2-2	Compared against SO23-12-11, EOI Supporting Attachments, Rev. 5, with no changes required.	RCW	05/09/07	

SET-UP

MACHINE OPERATOR:

2009A NRC JPM. Use IC #245. Set up file has been activated. No other events need to be activated.

Run the Setup to disable CSAS automatic and manual actuation of Containment Spray and Containment Spray Pump P012 to start.

Otherwise, use IC-20, and perform the following instructions to set up the required conditions:
Insert the CSAS and P012 failures prior to initiating the steam leak.
Insert the malfunction for a Steam Line Break inside Containment and allow the Simulator to run until Containment pressure reaches at least 15 psig. Choose the severity such that pressure is rising slowly then FREEZE the simulator.

- MS03A = 10% for ~1 minute then reduce to 0.9% (Steam Line Break Inside Ctmt)
- RP01M = Failure to Start (CS Pump P012)
- On Rose Schematic page for CSAS (RPL104), override the following = TRUE
    - RP_CSAS_MI1_FAILFAILON
    - RP_CSAS_MI2_FAILFAILON
    - RP_CSAS_MI3_FAILFAILON
    - RP_CSAS_MI4_FAILFAILON
    - RP_CSAS_SSR1_FAILFAILON
    - RP_CSAS_SSR2_FAILFAILON
    - RP_CSAS_SSR3_FAILFAILON
    - RP_CSAS_SSR4_FAILFAILON

EXAMINER:

Provide the Examinee with a copy of SO23-12-11, EOI Supporting Attachments, Floating Step 12, Monitor Containment Pressure, with box checked for 12-5.

NOTE: Ensure DAS alarms are reset.

JPM: 2009A NRC S-5 **TITLE: Initiate Containment Temperature and Pressure Control Recovery by CSAS.**

* 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, EOI Supporting Attachments, Floating Step 12, Monitor Containment Pressure.			
	NOTE: Ensure the DAS alarms are reset.			
1	VERIFY Containment pressure – less than 3.4 PSIG	VERIFY Containment Pressure indications greater than 3.4 psig and enters the RNO: • Narrow Range: 2PI-0351-1, 2, 3, 4 • Wide Range: 2PI-0352-1, 2, 3, 4		**Time Start:** _____
2	ENSURE the following – actuated: SIAS	**VERIFY SIAS actuated by observing the following annunciators:** • 57A01 SIAS TRAIN A ACTUATION • 57B01 SIAS TRAIN B ACTUATION.		
	Note: The following steps represent the alternate path for this JPM.			
3*	ENSURE the following – actuated: SIAS	Recognizes that Containment Spray Pump 2P-012 is not running. START Containment Spray Pump 2P-012 by depressing the START pushbutton, 2HS-9395-1.		
4	ENSURE the following – actuated: CCAS	VERIFY CCAS actuated by observing the following annunciators: • 57A07 CCAS TRAIN A ACTUATION • 57B07 CCAS TRAIN B ACTUATION.		
5	ENSURE the following – actuated: CRIS	VERIFY CRIS actuated by observing annunciator 60B07 CRIS ACTUATION.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
6	ENSURE the following – actuated: CIAS	VERIFY CIAS actuated by observing the following indications: • 57A02 CIAS TRAIN A ACTUATION • 57A02 CIAS TRAIN B ACTUATION • CFMS page 342.		
	CUE: (If CFMS page 342 and/or343 are accessed, give the following information) All CIAS valves are closed.			
7	VERIFY Containment Area Radiation Monitors – NOT alarming or trending to alarm.	VERIFY Containment Area Radiation Monitors are not alarming or trending to alarm using DAS or in hallway. • 2RISH-7845 • 2RISH-7848		
8	VERIFY Containment High Range Area Radiation Monitors reading – less than 40R/HR.	VERIFY Containment Area Radiation Monitors are not alarming or trending to alarm using DAS or in hallway. • 2R-7820-1 • 2R-7820-2		
9	VERIFY Containment pressure – less than 14 PSIG.	VERIFY Containment Pressure indications greater than 14 psig and enters the RNO: • NR: 2PI-0351-1, 2, 3, or 4 • WR: 2PI-0352-1, 2, 3, or 4		

JPM: 2009A NRC S-5 **TITLE: Initiate Containment Temperature and Pressure Control Recovery by CSAS.**

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
10	ENSURE CSAS – actuated.	OBSERVE CSAS <u>not</u> actuated: • 57A03 CSAS TRAIN A ACTUATION 57B03 CSAS TRAIN B ACTUATION • 2HV-9367, Containment Spray Header 1 Control Valve, did not open • 2HV-9368, Containment Spray Header 2 Control Valve, did not open		
		ATTEMPT to actuate CSAS by DEPRESSING at least either pair of CSAS pushbuttons, 2HS-9139-1 & 2, or 3 & 4.		
	CUE: **If asked; An ARO has been sent to L-034 and L-035 and CSAS actuation has been unsuccessful**			
	NOTE: **The candidate may use SO23-3-2.22, ESFAS OPERATION, for the following steps.**			
11*	ENSURE P-012 Containment Spray Pump START.	VERIFY Containment Spray Pump P-012 has started by observing: • Red START light illuminated on 2HS-9396-2. • Pump amps at a normal no flow value of about 25 amps on 2HS-9396-2. • Discharge pressure is approximately 250 psig on 2PI-0303-2.		
12*	ENSURE HV-9367 Containment Spray Header Isolation OPEN.	OPEN 2HV-9367, CNTMT Spray Hdr No 1 Control Valve, by DEPRESSING and HOLDING the JOG OPEN pushbutton and observing the red JOG OPEN light illuminates and the green JOG CLOSED light extinguishes.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
13*	ENSURE HV-6501 SDC HX E-004 CCW Isolation OPEN.	OPEN 2HV-6501, SDC HX E-004 CCW Isolation valve.		
14	ENSURE P-013 Containment Spray Pump START.	VERIFY Containment Spray Pump P-013 has started by observing: • Red START light illuminated on 2HS-9396-2. • Pump amps at a normal no flow value of about 25 amps on 2HS-9396-2. • Discharge pressure is approximately 250 psig on 2PI-0303-2.		
15*	ENSURE HV-9368 Containment Spray Header Isolation OPEN.	OPEN 2HV-9368, CNTMT Spray Hdr No 2 Control Valve by DEPRESSING and HOLDING the JOG OPEN pushbutton and observing the red JOG OPEN light illuminates and the green JOG CLOSED light extinguishes.		
16*	ENSURE HV-6500 SDC HX E-003 CCW Isolation OPEN.	OPEN 2HV-6500, SDC HX E-003 CCW Isolation valve.		
17*	CLOSE CCW to/from Letdown Heat Exchanger Valves for Train A and Train A.	DEPRESS the CLOSE pushbutton for 2HV-6293B/A, CCW CLA LTDN HX 2E062 Supply/Return Valve.		
18	CLOSE CCW to/from Letdown Heat Exchanger Valves for Train A and Train B.	VERIFY CLOSED 2HV-6522B/A, CCW CLA LTDN HX 2E062 Supply/Return Valve.		
		TERMINATING CUE: **This JPM is complete.**		**Stop Time: _____**

JPM INFORMATION SHEET

JPM NUMBER

2009A NRC S-6

INITIAL PLANT CONDITIONS

Both units have experienced a loss of off-site power. Both of the Emergency Diesel Generators for Unit 2 are not operating due to mechanical problems. Both of the Emergency Diesel Generators for Unit 3 are functioning normally. The Shift Manager has directed the Unit 2 Control Room Supervisor to re-energize bus 2A06 from the Unit 3 Diesel Generator, 3G003. The Shift Manager has declared 10 CFR 50.54(x) and 10 CFR 50.54(y) and has given his approval to implement the attachment for restoring power to bus 2A06. The STA will notify the NRC within one hour regarding actions per this attachment.

TASK TO BE PERFORMED

The Unit 2 CRS directs you to perform the actions of SO23-12-11, Attachment 24, Supplying 1E 4kV Bus with Opposite Unit Diesel, starting at step 12.

JOB PERFORMANCE MEASURE **2009A NRC S-6**

SUGGESTED TESTING ENVIRONMENT:	**PLANT**		**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: _____

Examiner:_____ _____
Signature **Date**

Comments:

DOCUMENTATION

2009A NRC S-6

JPM LEVEL: RO/SRO

ESTIMATED TIME TO COMPLETE: 12 minutes

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

POSITION: ACO

TASK SYS ID: 188352

TASK DESCRIPTION

Respond to a Station Blackout.

KA NUMBER: 055-EA2.03

KA VALUES: **RO** 3.9 **SRO** 4.7

10CFR55.45 APPLICABILITY: 6, 8

REFERENCES:

SO23-12-11, EOI Supporting Attachments, Attachment 24, Rev. 6.

AUTHOR: _____ **DATE:** _____

OPERATIONS REVIEW: _____ **DATE:** _____

APPROVED BY: _____ **DATE:** _____

MODIFICATION HISTORY

REV	DESCRIPTION OF CHANGE	MODIFIED BY	DATE MODIFIED	SOT APPROVAL
0	NEW			
1	Compared against SO23-12-11, Rev 5 with no changes required. Moved CRS direction from INITIAL PLANT CONDITIONS to TASK TO BE PERFORMED. Updated DOCUMENTATION page. Added detail to SETUP page. Made minor enhancements to the CUE prior to JPM step 5. Made major enhancements to most steps, adding proper nomenclature and standardizing format. Made JPM step 5 a Critical Step due to the requirement to have the 50.54X switches in the 50.54X position to be able to proceed with the task assigned.	RCW	05/08/07	REV

SET-UP

MACHINE OPERATOR:

Use IC #246 for the 2009A NRC JPM Exam. Ensure the Maintenance Lockout switches for both Unit 2 Emergency Diesel Generators (2G002 and 2G003) are in the MAINT position (Keys 77 and 78).

Use any full power IC with CCW in a Train A alignment.

- **Insert malfunctions EG08A and EG08B to disable both Emergency Diesel Generators, and place both diesels in Maintenance Lockout using Keys 77 and 78.**
- **Insert malfunction TU08, and 5 seconds later PG24, to trip the plant and cause a loss of Edison Grid.**
- **Insert malfunction PG57 SDG&E switchyard breakers open.**
- **5 minutes after the trip close both MSIVs.**
- **Place the ADVs in AUTO and OPEN/MODULATE.**
- **Ensure 3A06 is being supplied by 3G003.**
- **Ensure both Bus Tie switches are in AUTO.**
- **Align NCL & LD HX from train "A" to train "B"**
- **Ensure SWC bearing seal H2O and pump disch vlvs train "A" closed and train "B" are open.**
- **Allow the plant to stabilize for about 10 minutes.**

When the examinee calls for the outside operator to position the 50.54X switches, place all 50.54X switches in the 50.54X position using remote functions EG62A, EG62B, EG62C, and EG62D.

EXAMINER:

Provide the Examinee with a copy of SO23-12-11, Attachment 24, Supplying 1E 4KV Bus with Opposite Unit Diesel.

JPM: 2009A NRC S-6 **TITLE: Perform the Actions of Supplying 1E 4kV Bus with Opposite Unit's Diesel**

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
	NOTE: Provide examinee with a copy of SO23-12-11, Attachment 24.			
1	VERIFY opposite unit 1E 4kV bus A06 - energized by Diesel Generator.	Observes the following breaker status: • Green Trip light illuminated on 3HS-1637-2, Res Aux XFMR 3XR2 Fdr Breaker 3A0618. • Green Trip light illuminated on 3HS-1638-2, Unit Aux XFMR 3XU1 Fdr Breaker 3A0616. • Green Trip light illuminated on 3HS-1639A2, Bus Tie 3A06 to 2A06 Fdr Breaker 3A0603. • Red Close light illuminated on 3HS-1642-2, Generator Breaker 3A0613.		**Start Time:** _____
2	ENSURE 1E 4kV Bus Tie breaker AUTO/MANUAL transfer switches to - selected to MANUAL: 2A0619 (2HS-1639B2)	DEPRESS the manual pushbutton and observe the blue backlight illuminated; • Blue Manual light illuminated on 2HS-1639B2, Bus Tie 2A06 to 3A06 Fdr Breaker 2A0619 Selector.		
3*	ENSURE 1E 4kV Bus Tie breaker AUTO/MANUAL transfer switches to - selected to MANUAL: 3A0603 (3HS-1639B2)	DEPRESS the manual pushbutton and observe the blue backlight illuminated; • Blue Manual light illuminated on 3HS-1639B2, Bus Tie 3A06 to 2A06 Fdr Breaker 3A0619 Selector.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
4	ENSURE 1E 4kV Bus Tie breakers – open: 2A0619 AND 3A0603	Observes the following breaker status: • Green Trip light illuminated on 3HS-1639A2, Bus Tie 2A06 to 3A06 Fdr Breaker 2A0619. • Green Trip light illuminated on 3HS-1639A2, Bus Tie 3A06 to 2A06 Fdr Breaker 3A0603.		
5	ENSURE affected unit G003 Diesel Generator - selected to MAINTENANCE LOCKOUT.	Observes 2HS1770-2, Maintenance Lockout keyswitch for 2G003, is in MAINT.		
6*	INITIATE Diesel Generator Cross-Tie Permissive switch alignment on 50' Elevation: • On **Affected** Unit • On **Opposite** Unit	Calls an outside operator to perform Step 13.		
	CUE: An outside operator has been dispatched to the 50' elevation to perform step 13. He reports that Step 13 is complete, and there are no relay flags on any of the 2A06 feeder breakers.			
	MO: Position all Diesel Generator Cross-Tie Permissive Switches on BOTH units to the 50.54X position with EG62A, EG62B, EG62C, and EG62D.			
7	VERIFY opposite unit Diesel Generator G003 loading - less than 3.4 MW.	Observes load on 3JI-1651A2, Diesel Gen 3G003 Watts, indicates about 0.91 MW.		
8	MAINTAIN loads on opposite unit 1E 4kV bus A06 - stable.	CONTACTS the Unit 3 CRS to verify 3A06 loads will be maintained stable.		
	CUE: The Unit 3 CRS reports that 3A06 electrical loads will be maintained stable.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
9	VERIFY affected unit 1E 4kV bus A06 - NOT energized.	Observes voltage on 2EI-1641-2, 4.16 kV Bus 2A06 Volts, indicates zero.		
10	VERIFY affected unit over current/ground alarms – reset: • 63C15 SUPPLY BKR A0616 OC • 63C25 SUPPLY BKR A0618 OC	Observes the following alarms are reset: • 63C15 2A06 SUPPLY BKR 2A0616 OC • 63C25 2A06 SUPPLY BKR 2A0618 OC		
11	VERIFY 1E DC bus voltages: 2D2 - greater than 108 VDC AND 3D2 - greater than 108 VDC	Observes voltage on 2EI-1757-2, 125 VDC Bus 2D2 Volts, indicates about 119 volts.		
	CUE: The 32 Watch reports that 3D2 voltage is 131 volts and stable.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
12	ON AFFECTED unit: ENSURE 1E 4kV bus A06 supply breakers (3) – open: A0616 – Unit Aux XFMR A0618 – Reserve Aux XFMR A0613 – Diesel Generator	Observes the following breaker status: • No lights illuminated on 2HS-1638-2, Unit Aux XFMR 2XU1 FDR Breaker 2A0616. • Green Trip light illuminated on 2HS-1637-2, Res Aux XFMR 2XR2 FDR Breaker 2A0618. • Green Trip light illuminated on 2HS-1642-2, Generator Breaker 2A0613.		
13	ENSURE 1E 4kV bus A06 Bus Tie Breakers (2) – open: 2A0619 – A06 Bus Tie 3A0603 – A06 Bus Tie	Observes the following breaker status: • Green Trip light illuminated on 2HS-1639A2, Bus Tie 2A06 to 3A06 FDR Breaker 2A0619. • Green Trip light illuminated on 3HS-1639A2, Bus Tie 3A06 to 2A06 FDR Breaker 3A0603.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
14	ENSURE affected unit 1E 4kV bus A06 load breakers – open: • Emergency Chiller • Containment Spray Pump • High Pressure Safety Injection Pumps • Low Pressure Safety Injection Pump • Auxiliary Feedwater Pump • Component Cooling Water Pumps • Salt Water Cooling Pumps	Observes the following breaker status: • Green Trip light illuminated on 2/3HS-9895-2, Emer Chld Water Chiller E335 (N) Unit 2 Ctl • Green Trip light illuminated on 2HS-9396-2, Containment Spray Pump 2P013 (NW) • No lights illuminated on 2HS-9393-2, HPSI Pump 2P018 (SW) • Green Trip light illuminated on 2HS-9394-2, HPSI Pump 2P019 (N) • Green Trip light illuminated on 2HS-9391-2, LPSI Pump 2P016 (N) • Green Trip light illuminated on 2HS-4733-2, AFWP 2P504 • No lights illuminated on 2HS-6320-2, CCW Pump 2P025 (C) • Green Trip light illuminated on 2HS-6324-2, CCW Pump 2P026 (W) • No lights illuminated on 2HS-6381-2, Salt Water Pump 2P113 (CW) • Green Trip light illuminated on 2HS-6383-2, Salt Water Pump 2P114 (E) Unit 3 Intake		
15	VERIFY **Train B** Diesel Generator Cross-Tie Permissive switches on **both** units are in the 50.54X position.	Calls outside operator to verify that the Diesel Generator Cross-Tie Permissive Switches on both units are in the 50.54X position.		
	MO: **Position all Diesel Generator Cross-Tie Permissive Switches on BOTH units to the 50.54X position with EG62A, EG62B, EG62C, and EG62D if not done yet.**			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
	CUE: The outside operator reports that all Diesel Generator Cross-Tie Permissive Switches on BOTH units are in the 50.54X position.			
	NOTE: Of the following steps, all are critical to closing the breaker, with the exception of the last two steps (depressing the SYNC pushbutton and placing the keyswitch to OFF).			
16*	CLOSE opposite unit Bus Tie breaker: 3A0603 (2A0619).	Closes 3A0603 using the following sequence: • Places 3HS-1627-2, Train B Sync Ckt Control, keyswitch to ON. • Depresses the Sync pushbutton on 3HS-1639A2, Bus Tie 3A06 to 2A06 Fdr Breaker 3A0603. • Depresses the Close pushbutton on 3HS-1639A2, Bus Tie 3A06 to 2A06 Fdr Breaker 3A0603. • Depresses the Sync pushbutton on 3HS-1639A2, Bus Tie 3A06 to 2A06 Fdr Breaker 3A0603. • Places 3HS-1627-2, Train B Sync Ckt Control, keyswitch to OFF.		
17	VERIFY opposite unit Diesel Generator G003 output breaker remains - closed.	Observes that the red Closed light remains illuminated on 3HS-1642-2, Generator Breaker 3A0613.		
	NOTE: Of the following steps, all are critical to closing the breaker, with the exception of the last two steps (depressing the SYNC pushbutton and placing the keyswitch to OFF)**.**			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
18*	ENERGIZE A06: CLOSE affected unit Bus Tie breaker: 2A0619 (3A0603)	Closes 2A0619 using the following sequence: • Places 2HS-1627-2, Train B Sync Ckt Control, keyswitch to ON. • Depresses the Sync pushbutton on 2HS-1639A2, Bus Tie 2A06 to 3A06 Fdr Breaker 2A0619. • Depresses the Close pushbutton on 2HS-1639A2, Bus Tie 2A06 to 3A06 Fdr Breaker 2A0619. • Depresses the Sync pushbutton on 2HS-1639A2, Bus Tie 2A06 to 3A06 Fdr Breaker 2A0619. • Places 2HS-1627-2, Train B Sync Ckt Control, keyswitch to OFF.		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
19	VERIFY opposite unit Diesel Generator G003: Output breaker remains – closed. Droop-In light at HS-1650-2 - extinguished. Voltage – approximately 4.36 kV. Frequency – approximately 60 Hz.	Observes the following indications: • Red Closed light remains illuminated on 3HS-1642-2, Generator Breaker 2A0613. • White Droop-In light is extinguished on 3HS-1650-2, Governor Control. • Voltage on 3EI-1651-2, Diesel Gen 3G003 Volts, indicates about 4.40 kV. • Frequency on 3SI-1651-2, Diesel Gen 3G003 Hertz, indicates about 60 Hz.		
20	VERIFY affected unit 1E buses A06 and B06 - energized.	Observes the following indications: • Voltage on 2EI-1641-2, 4.16 kV Bus 2A06 Volts, indicates about 4.40 kV. • Voltage on 2EI-1699A2, 480 V Bus 2B06 Volts, indicates about 508 V.		
21	VERIFY Train B supplied 1E DC Buses _ energized: VERIFY 1E DC Bus D2: - energized.	Observes the following indications: • Voltage on 2EI-1641-2, 4.16 kV Bus 2A06 Volts, indicates about 4.40 kV. • Voltage on 2EI-1699A2, 480 V Bus 2B06 Volts, indicates about 508 V.		
	CUE: CRS confirms that 2D2 is energized from the battery charger.			
	CUE: The CRS directs you to establish the following loads on the Diesel Generator per SO23-12-11, att # 24: Salt water cooling pump 2P114 <u>and THEN</u> Component Cooling Water Pump 2P26			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD		S/U	COMMENTS (Required for Unsat)
22*	ESTABLISH essential loads as determined by the SRO-in charge: Saltwater Cooling Pump (0.413 MW) - operating.	STARTS 2P114 by depressing start push button 2HS-6383-2, SALTWATER PUMP 2P114. Monitors diesel loading. Determines load is within limits.			
23*	ESTABLISH essential loads as determined by the SRO-in charge: One CCW Pump (0.594 MW) - operating	STARTS 2P026 by depressing start push button 2HS-6324-2, CCW PUMP 2P026. Monitors diesel loading. Determines load is within limits.			
		TERMINATING CUE:			**Stop Time: _____**
		This JPM is complete.			

JPM INFORMATION SHEET

JPM NUMBER

2009A NRC S-7

INITIAL PLANT CONDITIONS

Channel "A" Narrow Range Pressurizer Pressure Channel, 2PI-0101-1, is off-scale low.

TASK TO BE PERFORMED

The Control Room Supervisor directs you to respond to alarms for Channel "A" Narrow Range Pressurizer Pressure Transmitter failure.

JOB PERFORMANCE MEASURE 2009A NRC S-7

SUGGESTED TESTING ENVIRONMENT:	**PLANT**		**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: _____

Examiner:_____ _____
Signature **Date**

Comments:

DOCUMENTATION

2009A NRC S-7

JPM LEVEL: RO / SRO

ESTIMATED TIME TO COMPLETE: 8 minutes

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

POSITION: CO

TASK SYS ID: 608

TASK DESCRIPTION

Bypass a Reactor Protective System Trip Channel.

KA NUMBER: 012 A4.03

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

10CFR55.45 APPLICABILITY: 4, 6

REFERENCES:

SO23-13-18, Reactor Protection System Failure, Rev. 8.

SO23-3-2.12, Reactor Protection System Operation, Rev. 14.

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 SO23-13-18 Rev. 7-2 and SO23-3-2.12 Rev. 12 with changes required to comply with procedure steps.	LRZ	07/13/06	REV

SET-UP

MACHINE OPERATOR:

Use IC #247 for 2009A NRC JPM Exam.

Otherwise, use any 100% IC and perform the following:

- Ensure Annunciators 56A03, 56A04, and 56A14 are in alarm
- Insert Malfunction RC20A and fail low (1500).

EXAMINER:

Provide the examinee with a copy of SO23-13-18, Reactor Protection System Failure/Loss of Vital Bus when located.

Provide the examinee with a copy of SO23-3-2.12, Reactor Protective System Operation, Section 6.2 (Bypass Operation of Trip Channels).

Pictures of the PPS A bypass switches should be in the JPM file folder. If available, use the pictures of the inside of PPS Cabinet 2UI K078 to aid the Examinee.

Station an instructor, in contact with the Machine Operator, who can relay the operation of the pushbuttons inside 2UI K078 Cabinet A.

JPM: 2009A NRC S-7 **TITLE: Channel "A" Pressurizer Pressure Transmitter Failure.**

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
1	Respond to alarms: • 56A03 - LOCAL POWER DENSITY HI CHANNEL TRIP • 56A04 - DNBR LO CHANNEL TRIP • 56A14 - DNBR LO RPS PRETRIP • 56B06 - PPS CHANNEL 1 TROUBLE • 56C01 - CPC CHANNEL 1 SENSOR FAILURE Failed channel If only one channel has tripped due to failure, then Obtain the SRO Operation Supervisors permission and BYPASS the trip. If channel failure is due to failed instrument of a measured variable channel, then refer to SO23-13-18, Attachment for Affected Functional Units, to determine which units(s) is (are) affected.	Using Annunciator Response Procedures 56A03 and 56A04 DETERMINE that alarms are due to a failed channel and ENTER SO23-13-18, Reactor Protection System Failure / Loss of Vital Bus.		**Start Time:** _____

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
	CUE:	**If candidate addresses ARP for 56C01, CPC Channel 1 Sensor Failure state that SO23-3-2.13 is complete and no auxiliary relay failure was found.**		
	NOTE:	**Provide the examinee with a copy of SO23-13-18, Reactor Protection System Failure/Loss of Vital Bus.**		
2*	DETERMINE failure by observing instrumentation for the affected channel AND alternate redundant indications monitoring the same plant parameters.	VERIFY 2PI-0101-1, Channel A Pressurizer 2E087 Pressure Narrow Range Pressurizer Pressure, indication is low. COMPARE indication to other three channels (2PI-0101-2, 3, & 4) of Pressurizer pressure for validity.		
3	CPC Sensor Failure **OR** A Single Functional **OR** a Single PPS Channel has FAILED.	VERIFY a single functional unit or a single PPS channel has failed and GO TO procedure Step 3.		
4*	REFER to Attachment 5 and determine Functional Unit(s) affected.	REFER to Attachment 5 and DETERMINE: • Pressurizer Pressure - High • Local Power Density - High • DNBR - Low are the affected Functional Units and must be bypassed.		
	NOTE:	**The Operator may place trips in BYPASS without referring to SO23-3-2.12. This action is within the normal skill of the Operator. The three trips may be bypassed in any order.**		

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
5	PLACE the affected Functional Unit in BYPASS per SO23-3-2.12, Section for Bypass Operation of Trip Channels.	LOCATE copy of SO23-3-2.12, and IDENTIFY Section 6.3 as the appropriate section for Bypass Operation of Trip Channels.		
	NOTE: Provide the Examinee with a copy of SO23-3-2.12, Reactor Protective System Operation, Section 6.3, Bypass Operation of Trip Channels.			
6	Verify that the same bistable is not in bypass on any other channel.	VERIFY no other channels are in bypass by OBSERVING PPS Channels.		
7	UNLOCK and OPEN the Bistable Control Panel.	UNLOCK and OPEN the Bistable Control Panel.		
	NOTE: Provide the cabinet mimic photos to the Examinee.			
8*	DEPRESS the Bypass pushbutton on the Bistable Control Panel corresponding to the trip channel to be bypassed.	DEPRESS Bypass pushbutton 5, for HI PZR PRESS, at PPS A Cabinet 2UI K078.		
9	Verify that the Trip Bypass light is illuminated.	VERIFY that the Trip Bypass white light is illuminated.		
	CUE: The Trip Bypass white light is illuminated. If amber Bypass light is checked, it too is illuminated.			
10	Verify the switch remains latched after being depressed.	VERIFY the Trip Bypass switch remains latched after being depressed.		
	CUE: The Trip Bypass pushbutton remains depressed.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
11	Verify the Trip Channel Bypassed Annunciator 56A29 alarms.	VERIFY annunciator 56A29, PPS CHANNEL 1 TRIP BYPASSED, alarms on CR56.		
	CUE: The Trip Channel Bypass alarm is in.			
12*	DEPRESS the Bypass pushbutton on the Bistable Control Panel corresponding to the trip channel to be bypassed.	DEPRESS Bypass pushbutton 4, for LOW DNBR, at PPS A Cabinet 2UI K078.		
13	Verify that the Trip Bypass light is illuminated.	VERIFY that the Trip Bypass white light is illuminated.		
	CUE: The Trip Bypass white light is illuminated. If amber Bypass light is checked, it too is illuminated.			
14	Verify the switch remains latched after being depressed.	VERIFY the Trip Bypass switch remains latched after being depressed.		
	CUE: The Trip Bypass pushbutton remains depressed.			
15*	DEPRESS the Bypass pushbutton on the Bistable Control Panel corresponding to the trip channel to be bypassed.	DEPRESS Bypass pushbutton 3, for HI LOCAL POWER, at PPS A Cabinet 2UI K078.		
16	Verify that the Trip Bypass light is illuminated.	VERIFY that the Trip Bypass white light is illuminated.		
	CUE: The Trip Bypass white light is illuminated. If amber Bypass light is checked, it too is illuminated.			

* Denotes a CRITICAL STEP

NO	PERFORMANCE STEP	STANDARD	S/U	COMMENTS (Required for Unsat)
17	Verify the switch remains latched after being depressed.	VERIFY the Trip Bypass switch remains latched after being depressed.		
		TERMINATING CUE: **The Trip Bypass pushbutton remains depressed.** **This JPM is complete.**		**Stop Time: _____**