INITIAL SUBMITTAL OF THE WALKTHROUGH JPMS

FOR THE PRAIRIE ISLAND INITIAL EXAMINATION

THE WEEKS OF SEPTEMBER 10 AND 17, 2001

JOB PERFORMANCE MEASURE WORKSHEET

TASK TITLE: ISOLATE A RUPTURED STEAM GENERATOR

JPM NUMBER: 2001 NRC EXAM RO B.1.A **REV.** 0

RELATED PRA INFORMATION (SEE PITC 2.3): PRA Identified Task

TASK NUMBERS: 3010030601

K/A NUMBERS: 038EA1.14 / 038EA1.16 / 038EA1.18 / 038EA1.27 / 038EA1.32 / 038EA2.01 / 038EA2. 12

APPLICABLE METHOD OF TESTING:

Simulate Performance: [ ] Actual Performance: [x]

Evaluation Location: Turbine Building: [ ] Auxiliary Building: [ ]

Simulator: [x] Control Room: [ ]

Other: [ ]

Time for Completion: 15 Minutes Time Critical: NO

TASK APPLICABILITY: (Check all that apply) SRO: [x] RO: [x] NLO: [ ]

PREPARED BY: Joe Loesch **DATE:** 2/22/01

APPROVED BY: D Smith **DATE:** 7/20/01

PERFORMANCE RESULTS: **SAT:** [ ] **UNSAT:** [ ]

JPM Review Tool

The following table should be used when reviewing each JPM chosen for the 2001 RO and SRO exam to ensure it meets the requirements of NUREG 1021.

ISOLATE A RUPTURED STEAM GENERATOR		
JPM Element:	***Number:***	***Remarks:***
Total number of elements:	18	Includes total of actions taken or directed, operational decisions, and system status verification.
Verifiable actions taken by the candidate	9	
Verifiable actions directed to be taken by the candidate	2	
System status verification elements requiring no actions	7	
Critical steps	9	All verifiable actions which, if performed incorrectly, could result in a release of the ruptured SG contents to the environment are considered "critical".
Operational decisions required by candidate	3	
Alternate paths required	1	The ruptured MSIV does not close requiring alternate method to isolate the ruptured SG as directed by the RNO actions and Attachment B.
Consequences for not performing task correctly		
If the critical tasks associated with this JPM are performed incorrectly, it could result in a release of the ruptured steam generator contents to the environment. This is compounded by the fact that there was a pre-existing fuel leak.		

Operator: _____ **(SRO / RO / NLO)**

Evaluator: _____

Date: _____

READ TO THE OPERATOR

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Unit 1 was at 100% power.
- There is a small pre-existing fuel cladding leak that has been stable for two months.
- A Reactor trip and Safety Injection has occurred due to a SG tube rupture.
- "A" Steam Generator has been identified as the ruptured SG per step 2 of 1E-3.

INITIATING CUES:

- The Shift Supervisor directs you to **continue** with 1E-3, beginning with step 3.

JPM PERFORMANCE INFORMATION

Required Materials:

General References: **1E-3**

Task Standards: **"A" Steam Generator Isolated per 1E-3 step 3 and Attachment B.**

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e. the examinee looks or asks for the indication).

NOTE: Critical steps are marked with an "X" below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

E-3 Caution before step 3:

- *IF no MD AFW pump is running, THEN steam supply to the TD AFW pump must be maintained from at least one SG.*
- *At least one SG must be maintained available for RCS cooldown.*

Performance Step: **Critical** _____	(E-3 step 3) **Isolate Flow From Ruptured SG(s)**
	a. Verify ruptured SG PORV controller setpoint in Auto at 75% (1050 psig)
Standard:	Candidate verifies "A" S/G PORV controller setpoint at 75%.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	(E-3 step 3)
Critical _____	**Isolate Flow From Ruptured SG(s)**
	b. Check ruptured SG PORV - CLOSED
Standard:	Candidate verifies "A" S/G PORV – CLOSED.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	(E-3 step 3)
Critical X	**Isolate Flow From Ruptured SG(s)**
	c. Close steam supply from ruptured SG(s) to TD AFW pump.
Standard:	Candidate closes steam supply MV from 11 SG.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	(E-3 step 3)
Critical _____	**Isolate Flow From Ruptured SG(s)**
	d. Verify blowdown isolation valve from ruptured SG(s) - CLOSED
Standard:	Candidate verifies blowdown isolation valve from 11 SG – CLOSED.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(E-3 step 3) **Isolate Flow From Ruptured SG(s)** e. Close ruptured SG MSIV and bypass valve
Standard:	Candidate attempts to close "A" loop MSIV.
Evaluator Note:	**The "A" loop MSIV will not close requiring the following alternate path actions.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** **X**	(E-3 step 3.e RNO) 1) Close intact SG MSIV and bypass valve.
Standard:	Candidate closes "B" loop MSIV.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	(E-3 step 3.e RNO)
Critical X	2) Adjust intact SG PORV controller setpoint in Auto to 71.8% (1005 psig).
Standard:	Candidate adjusts 12 SG PORV setpoint to 71.8%.
Evaluator Note:	**Adjustment of the SG PORV to 71.8% +/- 2% will satisfy the critical step.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	(E-3 step 3.e RNO)
Critical X	3) Place steam dumps to "OFF" position.
Standard:	Candidate places both CS-46460 and CS-46461 to the OFF position.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	(E-3 step 3.e RNO)
Critical _____	4) While continuing with procedure, isolate steam flowpaths per ATTACHMENT B to maintain ruptured SG pressure.
Standard:	Candidate locates and references ATTACHMENT B.
Evaluator Cue:	**Inform candidate that the Shift Supervisor directs you to perform Attachment B while the crew continues on in E-3.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical X**	(E-3 ATTACHMENT B) 1. Dispatch personnel to locally close cylinder heating isolation valves (CY-1-1 and CY-1-4)
Standard:	Turbine Building Operator requested to close CY-1-1 and CY-1-4.
Evaluator Note:	**Do not indicate that they are closed yet. Report back on these valves comes later in the JPM.** **Step 2 may also be done in conjunction with this step.**
Evaluator Cue:	**As Turbine Building Operator, acknowledge request to close CY-1-1 and CY-1-4.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical X**	(E-3 ATTACHMENT B) 2. Dispatch personnel to locally close air ejector suction valves (AR-5-1 and AR-5-2)
Standard:	Turbine Building Operator requested to close AR-5-1 and AR-5-2.
Evaluator Note:	**Do not indicate that they are closed yet. Report back on these valves comes later in the JPM.**
Evaluator Cue:	**As Turbine Building Operator, acknowledge request to close AR-5-1 and AR-5-2.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(E-3 ATTACHMENT B) 3. Verify turbine stop valves - CLOSED.
Standard:	Checks stop valve status lights on EHC panel for Green on SV-1 and SV-2 (upper left on each side) and/or checks annunciators 47007:0603 and 47007:0604 solid.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(E-3 ATTACHMENT B) 4. Verify MSR steam isolation valves – CLOSED • CV-31096 • CV-31097 • CV-31094 • CV-31095
Standard:	Candidate verifies green valve indicating lights above the turbine control panel lit for: CV-31096, CV-31097, CV-31094, and CV-31095.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** **X**	(E-3 ATTACHMENT B) 5. WHEN air ejector suction valves are closed, THEN close normal and secondary air ejector steam supply valves (MV-32327 and MV-32355)
Standard:	Candidate closes MV-32327/MV-32355 using CS-46401 after CY-1-1, CY-1-4, AR-5-1, and AR-5-2 are reported to be closed.
Evaluator Cue:	**As Turbine Building Operator, report that, "CY-1-1, CY-1-4, AR-5-1, and AR-5-2 are closed."**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(E-3 ATTACHMENT B) 6. Verify standby air ejector suction valves (MV-32346 and MV-32347) - CLOSED
Standard:	Checks MV-32346 and MV-32347 Green lights lit.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(E-3 ATTACHMENT B) 7. Verify standby air ejector steam supply valves (MV-32328) - CLOSED
Standard:	Checks MV-32328 Green light lit.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(E-3 ATTACHMENT B) 8. Verify 11 and 12 hogging jet suction valves (MV-32308 and MV-32309) - CLOSED
Standard:	Verify MV-32308 and MV-32309 - CLOSED.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical X**	(E-3 ATTACHMENT B) 9. Verify 11 and 12 hogging jet steam supply valves (MV-32316 and MV-32317) - CLOSED
Standard:	Candidate closes MV-32316 and MV-32317.
Evaluator Note:	**Candidate must close both Motor Valves to satisfy critical step.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(E-3 ATTACHMENT B) 10. Verify steam dumps selected to OFF.
Standard:	Candidate verifies CS-46460 or CS-46461 in OFF/RESET.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical X**	(E-3 ATTACHMENT B) 11. Verify A/B main steam line free blows (CV-31645 and CV-31646) - CLOSED
Standard:	Closes CV-31645 and CV-31646 on "B" panel using CS-46320.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(E-3 ATTACHMENT B) 12. Evaluate the need to transfer gland steam to heating steam.
Standard:	Directs the Turbine Building Operator to transfer gland steam to heating steam.
Evaluator Note:	**Candidate may confer with SS on need to transfer gland steam.**
Evaluator Cue:	**If asked as SS, respond to candidate that, "we need to transfer gland steam to heating steam."** **When directed as Turbine Building Operator, respond to candidate that, "gland steam is being transferred to heating steam."**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Terminating Cues: **The candidate should report to the SS that, "E-3 Attachment B is complete." At this point, inform the candidate that, "this JPM is complete."**

Stop Time: _____

SIMULATOR SETUP

Instructor Guide:

- **Initialize** the simulator to IC-10.
- **Place** the simulator in "RUN" and **allow** ERCS to come up and stabilize.
- **Enter** pre-existing malfunctions. ***(Relative Order 0)***
- **Enter** malfunction to cause a SGTR on 11 SG. ***(Relative Order 1)***
- **Trip** the reactor and **actuate** SI.
- **Close** MV-32115, CC supply to SFP HXs.
- **Open** the turbine HP drains using **CS-46392**.
- **Place** steam dump in "STM PRESS" mode using **CS-46338**.
- **Open** the following valves:
  - MV-32316 using **CS-46395**
  - MV-32317 using **CS-46396**
  - CV-31645/CV-31646 using **CS-46320**
- IF desired, THEN **snap** to an available IC.
- **Place** the simulator in FREEZE.
- **Peer-check** the simulator setup.
- **Conduct** turnover.
- **Place** the simulator in RUN.
- **Administer** JPM.

SIMULATOR SETUP

Relative Order	*System or Panel Drawing*	*TYPE*	*CODE*	*Severity or Value*	*Event Trigger*	*TIMING*	*DESCRIPTION*
0	MCB-D1-D11	OVRD DI	DI-46158C CLOSE	OFF			11 MSIV control switch as is
1	SG01	MALF	SG02A	10			11 SGTR

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 1 was at 100% power.
- There is a small pre-existing fuel cladding leak that has been stable for two months.
- A Reactor trip and Safety Injection has occurred due to a SG tube rupture.
- "A" Steam Generator has been identified as the ruptured SG per step 2 of 1E-3.

INITIATING CUES:

- The Shift Supervisor directs you to **continue** with 1E-3, beginning with **step 3**.

JOB PERFORMANCE MEASURE WORKSHEET

TASK TITLE: Contingency Actions for Loss of All AC power with RCS Level 1 foot below the Reactor Vessel Flange

JPM NUMBER: 2001 NRC EXAM RO B.1.B AND SRO B.1.A **REV.** 0

RELATED PRA INFORMATION (SEE PITC 2.3): None

TASK NUMBERS: CRO 002.ATI.024

K/A NUMBERS: APE 025 AA1.02 / APE 056 AA1.05

APPLICABLE METHOD OF TESTING:

Simulate Performance: [ ] Actual Performance: [x]

Evaluation Location: Turbine Building: [ ] Auxiliary Building: [ ]

Simulator: [x] Control Room: [ ]

Other: [ ]

Time for Completion: 12 Minutes Time Critical: NO

TASK APPLICABILITY: (Check all that apply) SRO: [x] RO: [x] NLO: [ ]

PREPARED BY: Joe Loesch **DATE:** 2/22/01

APPROVED BY: D Smith **DATE:** 2/20/01

PERFORMANCE RESULTS: **SAT:** [ ] **UNSAT:** [ ]

JPM Review Tool

The following table should be used when reviewing each JPM chosen for the 2001 RO and SRO exam to ensure it meets the requirements of NUREG 1021.

Contingency Actions for Loss of All AC power with RCS Level 1 foot below the Reactor Vessel Flange		
JPM Element:	***Number:***	***Remarks:***
Total number of elements:	8	Includes total of actions taken or directed, operational decisions, and system status verification.
Verifiable actions taken by the candidate	1	Initiate Containment Isolation
Verifiable actions directed to be taken by the candidate	2	• Open RWST to RHR Motor Valve. • Initiate Containment evacuation
System status verification elements requiring no actions	5	
Critical steps	3	
Operational decisions required by candidate	1	Determine appropriate step based on manway status.
Alternate paths required	0	
Consequences for not performing task correctly		
Failure to initiate containment isolation may result in a release to the environment if the condition worsens to the point of core damage. Failure to direct opening of RWST to RHR will result in a loss of inventory and eventual core uncovery/core damage. Failure to initiate containment evacuation could result in excessive exposure to those persons in containment during the loss of inventory.		

Contingency Actions for Loss of All AC power with RCS Level 1 foot below the Reactor Vessel Flange	2001 NRC EXAM RO B.1.B AND SRO B.1.A

Operator: _____ **(SRO / RO / NLO)**

Evaluator: _____

Date: _____

READ TO THE OPERATOR

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Unit one is in cold shutdown for a maintenance outage
- The RCS is being maintained at one foot below the reactor vessel flange in preparation for SG nozzle dam installation per 1C1.6.
- The Pressurizer manway has been removed.
- The SG manways have not yet been removed.
- A loss of all AC power has occurred resulting in a loss of RHR cooling. (12 RHR Pump was aligned for core cooling)
- 1ECA-0.0 Loss of All AC Power has been implemented.

INITIATING CUES:

- The Shift Supervisor directs you to **complete Table 1** of **1C1.6** beginning with **step 2.**

JPM PERFORMANCE INFORMATION

Required Materials:

General References: **1C1.6 Table 1**
E-4 Attachment I

Task Standards: **Containment Isolated and evacuated. RHR gravity flow initiated.**

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e. the examinee looks or asks for the indication).

NOTE: Critical steps are marked with an "X" below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: **Critical** _____	**Initiate** containment closure per 1E-4, Core Cooling Following Loss of RHR Flow, Attachment I.
Standard:	Candidate references 1E-4 Attachment I.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(1E-4 Attachment I) Step 1. Notify the individuals responsible for closure to close all penetrations that are logged open on C19.9, Table 1, ALTERNATE ISOLATION AND CONTAINMENT BOUNDARY OPENING LOG.
Standard:	Candidate inquires about logged openings.
Evaluator Cue:	WHEN the candidate inquires about logged openings, THEN **state** "There are no penetrations logged open on C19.9, Table 1"
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** **X**	(1E-4 Attachment I) Step 2. Manually initiate Containment Isolation Train A and Train B.
Standard:	Candidate manually initiates Train A and B Containment Isolation using CS-46085.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: (1E-4 Attachment I)
Critical _____ Step 3. Verify the Containment Isolation Monitor Lights are lit with exceptions.

Standard: Candidate verifies all CI lights are lit with multiple exceptions.

Evaluator Note: **The exceptions are due to loss of power to various motor valves.**

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: (1E-4 Attachment I)
Critical _____ Step 4. Evaluate and rectify any unanticipated exceptions on the Containment Isolation Panel. An appropriate solution would be to close alternate isolation valves in the penetration. Systems that are pressurized to greater than 40 psig are acceptable and do not require isolation.

Standard: CI exceptions are addressed.

Evaluator Cue: WHEN the candidate identifies the exceptions, THEN **state:** "Another Operator will evaluate and rectify the exceptions"

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Critical** _____	IF all RCS primary manways (pressurizer and steam generators) are installed, THEN **perform** the following: • **CLOSE** valves to isolate ALL RCS vent and drain paths • **Verify** natural circulation is beginning to develop per the following indication
Standard:	Candidate determines step is **NOT** applicable.
Evaluator Note:	**All primary manways are NOT installed. The Pressurizer manway is removed.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: IF a primary manway is removed (pressurizer or steam generator), THEN manually **OPEN** RWST supply to RHR pump aligned for core cooling. This will provide a makeup path for core cooling from the RWST through the normal RHR return to loop B.

Critical X

MV-32084, RWST TO 11 RHR PUMP

OR

MV-32085, RWST TO 12 RHR PUMP

Standard: Candidate directs Aux. Bldg. operator to manually open MV-32085.

Evaluator Cue: WHEN the candidate directs opening of MV-32085, THEN **repeat** the command AND **report** that MV-32085 has been manually opened.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Evacuate** containment of all personnel.

Critical X

Standard: Candidate initiates containment evacuation OR requests Shift Supervisor to evacuate containment.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Terminating Cues: **When candidate has initiated or requested containment evacuation.**

Stop Time: _____

SIMULATOR SETUP

Instructor Guide:

- **Initialize** simulator to IC-27.
- **Place** the simulator in RUN AND **allow** ERCS to initialize.
- **Enter** pre-existing malfunctions **(Relative order of 0)**.
- **Place** ERCS display "FLANGE" up on the RO desk.
- **Enter** the loss of all offsite power event **(Relative order 1)**
- IF desired, THEN **snap** to an available IC.
- **Place** the simulator in FREEZE.
- **Peer-check** the simulator setup.
- **Conduct** turnover.
- **Place** the simulator in RUN.
- **Administer** JPM.

SIMULATOR SETUP

Relative Order	System or Panel Drawing	TYPE	CODE	Severity or Value	Event Trigger	TIMING	DESCRIPTION
0		Malfunction	ED13A	Insert			Bus 15 sequencer failure
0		Malfunction	ED13B	Insert			Bus 16 sequencer failure
0		Remote Function	RC123	Open			PRZR Manual vent open
1		Malfunction	ED14	Insert			Loss of all offsite power

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit one is in cold shutdown for a maintenance outage
- The RCS is being maintained at one foot below the reactor vessel flange in preparation for SG nozzle dam installation per 1C1.6.
- The Pressurizer manway has been removed.
- The SG manways have NOT yet been removed.
- A loss of all AC power has occurred resulting in a loss of RHR cooling. (12 RHR Pump was aligned for core cooling)
- 1ECA-0.0 Loss of All AC Power has been implemented.

INITIATING CUES:

- The Shift Supervisor directs you to **complete Table 1** of **1C1.6** beginning with **step 2**.

JOB PERFORMANCE MEASURE WORKSHEET

TASK TITLE: PERFORM CONTROL ROD EXERCISE SURVEILLANCE

JPM NUMBER: 2001 NRC EXAM RO B.1.C **REV.** 1

RELATED PRA INFORMATION (SEE PITC 2.3): None

TASK NUMBERS: 0010010201

K/A NUMBERS: 2.1.23 001 A2.14 001 A2.17

APPLICABLE METHOD OF TESTING:

Simulate Performance: [ ] Actual Performance: [x]

Evaluation Location: Turbine Building: [ ] Auxiliary Building: [ ]

Simulator: [x] Control Room: [ ]

Other: [ ]

Time for Completion: 15 Minutes Time Critical: NO

TASK APPLICABILITY: (Check all that apply) SRO: [x] RO: [x] NLO: [ ]

PREPARED BY: Joe Loesch **DATE:** 2/26/01

APPROVED BY: D Smith **DATE:** 7/20/01

PERFORMANCE RESULTS: **SAT:** [ ] **UNSAT:** [ ]

JPM Review Tool

The following table should be used when reviewing each JPM chosen for the 2001 RO and SRO exam to ensure it meets the requirements of NUREG 1021.

PERFORM CONTROL ROD EXERCISE SURVEILLANCE		
JPM Element:	***Number:***	***Remarks:***
Total number of elements:	13	Includes total of actions taken or directed, operational decisions, and system status verification.
Verifiable actions taken by the candidate	9	
Verifiable actions directed to be taken by the candidate	1	Open lift coil disconnect switches.
System status verification elements requiring no actions	3	
Critical steps	7	
Operational decisions required by candidate	3	
Alternate paths required	0	
Consequences for not performing task correctly		
Failure to perform this task properly could result in imbalanced flux distribution or reactor trip.		

Operator: _____ **(SRO / RO / NLO)**

Evaluator: _____

Date: _____

READ TO THE OPERATOR

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Unit 1 is in a normal 100% at-power lineup with no load change planned.
- No boron concentration change is needed nor planned.
- A pre job briefing for performing SP 1047 has been completed.
- An extra operator is stationed at the lift disconnect cabinet. (Key has been obtained and the disconnect cabinet is open.)
- The Lead will observe other control room parameters during the surveillance.

INITIATING CUES:

- The SS directs you to **perform** "Control Rod Exercise" surveillance for SD Bank A rod E-3 **per SP 1047** starting at step **7.2.2.**

JPM PERFORMANCE INFORMATION

Required Materials: **Copy of SP 1047 signed off up to and including step 7.2.1.**

General References: **SP 1047 rev. 32**

Task Standards: **SD Bank A rod E-3 exercised per SP 1047.**

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e. the examinee looks or asks for the indication).

NOTE: Critical steps are marked with an "X" below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: **Critical** _____	At any convenient ERCS terminal, **use** the ERCS Group Display **"SP1047"** to display the following parameters for the duration of the test: 1Y0701D ROD CTRL POWER CAB 1AC 1Y0702D ROD CTRL POWER CAB 2AC 170703D ROD CTRL POWER CAB 1BD 170704D ROD CONTROL SYSTEM (LOGIC)
Standard:	ERCS Group Display "SP1047" setup at one of the ERCS terminals.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Place** CS-46280, Rod Bank Sel Sw in "MANUAL".
Critical X

Standard: CS-46280 placed in "MANUAL".

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Record** each Group Position and RPI Position in the Initial Steps Column of Table 1.
Critical _____

Standard: Shutdown Bank A rod E-3 RPI position and group 1 step counter recorded in Table 1.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Verify CS-46280**, ROD BANK SEL, is selected to the Bank to be exercised.
Critical X

Standard: CS-46280 placed in "SBA".

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Critical X**	**Open** all of the lift coil disconnect switches for the bank being exercised EXCEPT for the control rod to be exercised in that bank.
Standard:	Directs opening of lift coil disconnect switches for rods I-11, C-9, and K-5.
Evaluator Note:	**The simulator booth operator will open the lift coil disconnect switches at Lift Disconnect Panel behind the C-Panel.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

NOTE:	**Individual control rod movement within banks SA, CA or CC will cause the power cabinet of the accompanying group to generate an urgent alarm. [i.e. Movement of a cabinet 1AC control rod causes cabinet 2AC to generate an urgent alarm].**

Performance Step: **Critical X**	**Insert** the selected control rod 12 ± 1 steps based on the group step counter indication.
Standard:	Rod E-3 inserted 12 ± 1 steps.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	**Record** the group step counter value for the bank and individual rod position indicator for the control rod in the Interim Steps Column of Table 1.
Standard:	Shutdown Bank A rod E-3 position and group 1 step counter recorded in Table 1.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** **X**	For each control rod moved, **verify** ERCS Display "SP1047" agrees with Table 3. **Initial** the Table 3 Alarm Check Column of Table 1.
Standard:	Verifies "SP1047" ERCS display indicates alarms for power cabinet 2AC and Logic alarm per table 3 and initials "Table 3 alarm check" box in Table 1. Power cabinets 1AC and 1BD are NORMAL.
Evaluator Note:	**If candidate did not enter an update rate when setting up this display, the data will not have changed. The candidate will have to redisplay the group.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** __X__	**Withdraw** the control rod to it's original position as indicated by it's group step counter.
Standard:	Shutdown Bank A rod E-3 moved out and then stopped with group 1 step counter indicating 228. Shutdown Bank A rod E-3 position and group 1 step counter recorded in Table 1.
Evaluator Note:	**If 228 is exceeded, the operator should inform the SS and may reset the group step counter to 228.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	**Record** the group step counter and individual rod position indicator values in the Final Steps Column of table 1.
Standard:	Group 1 step counter and control rod E3 recorded as 228 steps in table 1.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	**Verify** initial and final group step counter positions agree.
Standard:	Group 1 step counter verified as 228 steps for initial and final values.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** __X__	**Verify** control rod motion by RPI, Tave and/or power changes. Initial Rod motion column of Table 1
Standard:	Control rod motion verified as indicated by initialing the *Rod Motion section of table 1.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	IF Rod Control System Urgent Failure **47013-0106** alarm is LIT, THEN **reset** the alarm using pushbutton **46252**.
Standard:	Depresses PB-46252, Rod Control Alarm Reset and verifies alarm 47013-0106 clears.
Evaluator Note:	**This alarm is received because individual RCCA movement of one group within Shutdown Bank A causes the power cabinet of the accompanying group to generate an urgent alarm.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Terminating Cues: **When the candidate has completed the reset of the Urgent Failure alarm.**

Stop Time: _____

SIMULATOR SETUP

Instructor Guide:

- **Initialize** the simulator to IC-10.
- **Place** the simulator in "RUN" AND **allow** ERCS to come up and stabilize.
- **Verify** Bank D step counters are at 218 steps AND ALL others are at 228 steps.
- **Verify** CS-46280, Rod Bank Sel Sw is in "AUTO".

NOTE:

DO NOT leave ERCS group display "SP1047" or "RBU" on displayed on screen.

- **Verify** ERCS "RBU" indicates that all groups are at their respective positions.
- **Ensure** that Group Display "SP1047" works AND THEN **cancel** it.
- **Place** ERCS quickplot "LOADFOLL" on the T-bar ERCS display.
- **Place** a copy of SP1047 on the Lead's desk with all Prerequisites and Initial Conditions signed off.
- **Remove** the lower right panel on C-Panel (to communicate to Lift Disconnect Panel).
- **Obtain** the Control Rod Lift Coil Disconnect Cabinet key AND **station** yourself at the cabinet.
- **Ensure** back panel door to C-Panel is open (to communicate to Candidate).
- WHEN JPMs are complete, THEN **lock** cabinet AND **close** all doors opened.

SIMULATOR SETUP

Relative Order	System or Panel Drawing	TYPE	CODE	Severity or Value	Event Trigger	TIMING	DESCRIPTION
NONE							

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 1 is in a normal 100% at-power lineup with no load change planned.
- No boron concentration change is needed nor planned.
- A pre job briefing for performing SP 1047 has been completed.
- An extra operator is stationed at the lift disconnect cabinet. (Key has been obtained and the disconnect cabinet is open.)
- The Lead will observe other control room parameters during the surveillance.

INITIATING CUES:

- The SS directs you to **perform** "Control Rod Exercise" surveillance for SD Bank A rod E-3 **per SP 1047** starting at step **7.2.2.**

JOB PERFORMANCE MEASURE WORKSHEET

TASK TITLE: TRANSFER SI TO RECIRCULATION MODE WITH FAILURE OF ONE SAFEGUARD TRAIN

JPM NUMBER: 2001 NRC EXAM RO B.1.D & SRO B.1.B **REV.** 1

RELATED PRA INFORMATION (SEE PITC 2.3): PRA Identified Task Lineup for Recirc

TASK NUMBERS: 301 ATI 10

K/A NUMBERS: 006 A4.05

APPLICABLE METHOD OF TESTING:

Simulate Performance: [ ] Actual Performance: [x]

Evaluation Location: Turbine Building: [ ] Auxiliary Building: [ ]

Simulator: [x] Control Room: [ ]

Other: [ ]

Time for Completion: 20 Minutes Time Critical: NO

TASK APPLICABILITY: (Check all that apply) SRO: [x] RO: [x] NLO: [ ]

PREPARED BY: Joe Loesch **DATE:** 2/26/01

APPROVED BY: D Smith **DATE:** 7/20/01

PERFORMANCE RESULTS: **SAT:** [ ] **UNSAT:** [ ]

JPM Review Tool

The following table should be used when reviewing each JPM chosen for the 2001 RO and SRO exam to ensure it meets the requirements of NUREG 1021.

TRANSFER SI TO RECIRCULATION MODE WITH FAILURE OF ONE SAFEGUARD TRAIN		
JPM Element:	***Number:***	***Remarks:***
Total number of elements:	25	Includes total of actions taken or directed, operational decisions, and system status verification.
Verifiable actions taken by the candidate	17	
Verifiable actions directed to be taken by the candidate	0	
System status verification elements requiring no actions	8	
Critical steps	16	
Operational decisions required by candidate	numerous	• Many times, the operator must decide which set of components to operate based on available train.
Alternate paths required	1	Transition to 1ES-1.3 when unable to open MV-32075.
Consequences for not performing task correctly		
This is a PRA important operator action. Failure to properly transfer to recirculation could result in a loss of core cooling and eventual fuel damage.		

TRANSFER SI TO RECIRCULATION MODE WITH FAILURE OF ONE SAFEGUARD TRAIN	2001 NRC EXAM RO B.1.D & SRO B.1.B

Operator: _____ **(SRO / RO / NLO)**

Evaluator: _____

Date: _____

READ TO THE OPERATOR

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- A large break LOCA has occurred on Unit 1.
- All actions in 1E-0 performed to TRANSITION.
- All actions in 1E-1 completed through and including Step 5.
- RWST level has decreased to 33%.
- Preparation for switchover per 1ES-1.2, step 2 has been completed. (Attachment K complete)

INITIATING CUES:

- The Unit 1 SS directs you to **continue** with **1ES-1.2** starting at step **3**, AND **place 11 SI Pump** in the recirculation mode via **11 RHR Pump**.

JPM PERFORMANCE INFORMATION

Required Materials: None

General References: 1ES-1.2 and 1ES-1.3

Task Standards: Train B safeguard equipment in recirculation mode.

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e. the examinee looks or asks for the indication).

NOTE: Critical steps are marked with an "X" below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: **Critical X**	1ES-1.2 step 3 Reset SI
Standard:	SI reset as indicated by Annunciator 47014-0504 ON and 47014-0604 OFF.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	1ES-1.2 step 4
Critical _____	Both Trains of Safeguard Pump(s) Available for recirculation.
Standard:	Availability of both trains checked by asking Shift Supervisor.
Evaluator Cue:	IF asked as SS, THEN **report** that both trains of safeguards pumps are available for recirculation.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	1ES-1.2 step 5
Critical X	Stop One Train of Safeguard Pumps: a. Stop one SI pump
Standard:	11 SI pump stopped.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	1ES-1.2 step 5
Critical X	Stop One Train of Safeguard Pumps: b. Stop one RHR pump
Standard:	11 RHR pump stopped.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	1ES-1.2 step 5 Stop One Train of Safeguard Pumps: c. Perform the following: 1) Reset containment spray signal 2) Stop one containment spray pump
Standard:	Containment Spray check to see if it had actuated.
Evaluator Note:	**Containment Spray has not actuated therefore it is not necessary to reset CS signal.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** **X**	1ES-1.2 step 6 Close SI Test Line to RWST Valves: • MV-32202 • MV-32203
Standard:	MV-32202 AND MV-32203 closed using CS-46204 and CS-46205.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	1ES-1.2 step 7 Caution: **Caution** - Venting the bonnets of sump B to RHR MVs per ATTACHMENT K must be completed before opening the following valves.
Standard:	Caution read.
Evaluator Cue:	IF candidate requests the status of Attachment K, THEN **state** "Attachment K is complete"
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	1ES-1.2 step 7 Open Sump B to RHR Isolation Valves for Idle RHR Pump: a. Open one set of valves for idle safeguard train: • MV-32075 and MV-32077
Standard:	MV-32075 opening attempted using CS-46208.
Evaluator Note:	MV-32075 will not open. The Examinee should transition to 1ES-1.3 per step 7 RNO column. This is the beginning of the alternate path.
Evaluator Cue:	IF candidate requests guidance from the SS, THEN **state** "Take actions as directed by procedure"
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	1ES-1.3 step 1
Critical _____	Check RWST Level – LESS THAN 28%
Standard:	Stay in step 1 until RWST level is less than 28%.
Evaluator Note:	**RWST level should be less than 28% by now.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	1ES-1.3 step 2
Critical X	Stop RHR Pump
Standard:	12 RHR pump stopped using CS-46185.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	1ES-1.3 step
Critical X	Close SI Test Line to RWST Valves: • MV-32202 • MV-32203
Standard:	MV-32202 AND MV-32203 closed using CS-46204 and CS-46205.
Evaluator Note:	This step is critical if not previously performed in ES-1.2. Closure of one of the two valves completes the critical step requirement.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 1ES-1.3 step 4
Critical X

Open Sump B to RHR Isolation Valves for Operable RHR Pump:
- MV-32075 and MV-32077
  - OR –
- MV-32076 and MV-32078

Standard: MV-32076 and MV-32078 opened using CS-46209 and CS-46211.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: 1ES-1.3 step 5
Critical X

Close RWST to RHR Isolation Valves for Operable RHR Pump:
- MV-32084
  - OR –
- MV-32085

Standard: MV-32085 opened using CS-46203.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: 1ES-1.3 step 6
Critical _____

Verify RHR to Reactor Vessel Nozzle Valves (MV-32064 And MV-32065) - OPEN

Standard: MV-32064 And MV-32065 verified open by checking red lights on CS-46223 and 46224.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Critical** _____	1ES-1.3 step 7 Verify Sump B Level Adequate to Support RHR Pump Operation: • Narrow Range level – 100% - OR – • Wide Range level – GREATER THAN 1.75 FEET
Standard:	Adequate Sump B level verified by checking 1L1725, 1L1726, 1L1727, or 1L1728.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** **X**	1ES-1.3 step 8 Place Operable RHR Train in Recirculation Operation: a. Verify sump B to RHR isolation valves for operable RHR train are – FULL OPEN • MV-32075 AND MV-32077 - OR – • MV-32076 AND MV-32078
Standard:	MV-32076 And MV-32078 verified open by checking red lights on CS-44209 and 46211.
Evaluator Note:	**Critical step is satisfied as long as the valves are full open before starting the RHR pump in the next step.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	1ES-1.3 step 8
Critical X	Place Operable RHR Train in Recirculation Operation: b. Start operable RHR pump
Standard:	12 RHR Pump started using CS-46185.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	1ES-1.3 step 9
Critical X	Check RCS Pressure – LESS THAN 125 PSIG
Standard:	Pressure checked on 1PI-709, 1PI-710, 1PR-420, or ERCS. Candidate goes to step 12 per RNO.
Evaluator Note:	**Pressure will NOT be less than 125 psig.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	1ES-1.3 step 12
Critical X	Stop SI Pump
Standard:	12 SI Pump stopped using CS-46179.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 1ES-1.3 step 13
Critical X

Close SI Pump Suction Isolation Valve for Operable SI Pump:

- MV-32162

- OR –

- MV-32163

Standard: MV-32163 closed using CS-46193.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: 1ES-1.3 step 14
Critical _____

Check RHR Pump Discharge Pressure – LESS THAN 210 PSIG:

- 1PI-628

- OR –

- 1PI-629

Standard: Candidate checks RHR pressure less than 210 psig on 1PI-628.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: 1ES-1.3 step 15
Critical X

Open RHR Supply to Operable SI Pump Isolation Valve:

- MV-32206

- OR –

- MV-32207

Standard: MV-32207 opened using CS-46207.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: 1ES-1.3 step 16
Critical X
Start SI Pump.

Standard: 12 SI Pump started using CS-46179.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: 1ES-1.3 step 17
Critical _____
Verify SI Flow (1FI-925).

Standard: SI flow verified on 1FI-925.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: 1ES-1.3 step 18
Critical X
Close RHR to Reactor Vessel Nozzle Valve for RHR Pump Supplying SI Pump Suction:

- MV-32064

- OR –

- MV-32065

Standard: MV-32065 closed using CS-46224.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Terminating Cues: 12 SI pump being supplied from 12 RHR pump via sump B, RHR supply to Reactor Vessel valve MV-32065 closed.

Stop Time: _____

SIMULATOR SETUP

Instructor Guide:

- **Initialize** the simulator to IC-10.
- **Insert** relative order 0 items.
- **Insert** malfunction RC07A at 10% severity, cold leg LOCA **(Relative Order 1).**
- **Perform** the following:
  - **Close** MV-32115
  - **Open** Turbine Drains
  - **Place** Steam Dump in Steam Pressure Mode
  - **Stop** RCP's
  - **Place** all FCU's in slow
  - **Stop** SFP Make-up Fans.
  - **Stop** SFP Exhaust Fans.
- **Freeze** simulator when RCS pressure is less than 500 psig and RWST <28%.
- IF desired, THEN **snap** to an available IC.
- **Give** initial conditions.
- **Place** simulator in run just before the first control board manipulation.

SIMULATOR SETUP

Relative Order	System or Panel / Drawing	TYPE	CODE	Severity or Value	Event Trigger	TIMING	DESCRIPTION
0	SIMWD02A	Remote Function	WD104	ANN SMP	Insert		WL-87-1 aligned to annulus
0	SIMWD02A	Remote Function	WD105	ANN SMP	Insert		WL-87-2 aligned to annulus
0		Remote Function	CH127	OFF	Insert		Rad Waste Bldg Vent Stopped
0	SIMCC01C	Remote Function	CC109	50	Insert		11 CCHX setpoint to 50°F
0	SIMCC01C	Remote Function	CC110	50	Insert		12 CCHX setpoint to 50°F
0	SIMCC01C	Remote Function	CC111	REMOVED	Insert		11 CC Travel Stops Removed
0	SIMCC01C	Remote Function	CC112	REMOVED	Insert		12 CC Travel Stops Removed
0	SIMSI02	Remote Function	SI107	NORMAL	Insert		11 SI suction from RHR BKR ON (1K1-E2)
0	SIMSI02	Remote Function	SI108	NORMAL	Insert		12 SI suction from RHR BKR ON (1KA2-D1)
0	SIMSI02	Remote Function	SI115	30	Insert		Puts RWST to 30%
0	B1-B15	Override DI	DI-46208C CLOSE	ON	Insert		Sump B to 11 RHR switch failure
1	SIMRC02A	Malfunction	RC07A	10	1		Cold leg LOCA

TURNOVER SHEET

INITIAL CONDITIONS:

- A large break LOCA has occurred on Unit 1.
- All actions in 1E-0 performed to TRANSITION.
- All actions in 1E-1 completed through and including Step 5.
- RWST level has decreased to 33%.
- Preparation for switchover per 1ES-1.2, step 2 has been completed. (Attachment K complete)

INITIATING CUES:

- The Unit 1 SS directs you to **continue** with **1ES-1.2** starting at step **3**, AND **place 11 SI Pump** in the recirculation mode via **11 RHR Pump**.

JOB PERFORMANCE MEASURE WORKSHEET

TASK TITLE: TAKE CORRECTIVE ACTION FOR A POWER RANGE NIS FAILURE HIGH

JPM NUMBER: 2001 NRC EXAM RO B.1.E **REV.** 7

RELATED PRA INFORMATION (SEE PITC 2.3): None

TASK NUMBERS: 015.ATI.04

K/A NUMBERS: 015 A4.03

APPLICABLE METHOD OF TESTING:

Simulate Performance: [ ] Actual Performance: [x]

Evaluation Location: Turbine Building: [ ] Auxiliary Building: [ ]

Simulator: [x] Control Room: [ ]

Other: [ ]

Time for Completion: 10 Minutes Time Critical: NO

TASK APPLICABILITY: (Check all that apply) SRO: [x] RO: [x] NLO: [ ]

PREPARED BY: Joe Loesch **DATE:** 2/28/01

APPROVED BY: D Smith **DATE:** 7/20/01

PERFORMANCE RESULTS: **SAT:** [ ] **UNSAT:** [ ]

JPM Review Tool

The following table should be used when reviewing each JPM chosen for the 2001 RO and SRO exam to ensure it meets the requirements of NUREG 1021.

TAKE CORRECTIVE ACTION FOR A POWER RANGE NIS FAILURE HIGH		
JPM Element:	***Number:***	***Remarks:***
Total number of elements:	17	Includes total of actions taken or directed, operational decisions, and system status verification.
Verifiable actions taken by the candidate	8	
Verifiable actions directed to be taken by the candidate	1	Direct I&C to trip bistables.
System status verification elements requiring no actions	8	
Critical steps	7	
Operational decisions required by candidate	1	Tave = Tref? Restore Rods to Auto.
Alternate paths required	0	
Consequences for not performing task correctly		
Failure to properly perform this task could result in a reactor trip. This has actually occurred at PI.		

Operator: _____**(SRO / RO / NLO)**

Evaluator: _____

Date: _____

READ TO THE OPERATOR

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Unit 1 is at 100% power.
- NIS yellow channel N-44 has failed high.
- C51 has been started, including:
  - Expected Plant Response/Failure Verification has been completed.
  - Rods were taken to Manual.
  - Tech Specs are being addressed.

INITIATING CUES:

- The SS directs you to **complete** C51 steps 3 through 5 of the Required Corrective Action section.
- **Report** completion to the SS.

JPM PERFORMANCE INFORMATION

Required Materials: None

General References: C51.4

Task Standards: Required corrective actions for NIS power range failure completed.

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e. the examinee looks or asks for the indication).

NOTE: Critical steps are marked with an "X" below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: **Critical** __X__	On the Miscellaneous Control and Indication Panel drawer: **Place** ROD STOP BYPASS switch in "N44" position.
Standard:	Rod stop bypass switch placed in "N44" position.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** __X__	On the Miscellaneous Control and Indication Panel drawer: **Place** POWER MISMATCH BYPASS switch in "N44" position.
Standard:	Power Mismatch Bypass switch placed in "N44" position.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical X**	On the Miscellaneous Control and Indication Panel drawer: **Place** Upper Section Current Comparator Defeat switch in the "N44" position and **verify** the Upper Section Channel Defeat Light is LIT.
Standard:	Upper Section Current Comparator Defeat switch placed in "N44" position and Upper Section Channel Defeat Light verified LIT.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical X**	On the Miscellaneous Control and Indication Panel drawer: **Place** LOWER SECTION CURRENT COMPARATOR DEFEAT switch in the "N44" position and **verify** the Lower Section Channel Defeat Light is LIT.
Standard:	Lower Section Current Comparator Defeat switch placed in "N44" position and Lower Section Channel Defeat Light verified LIT.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical X**	On the COMPARATOR AND RATE drawer, **place** COMPARATOR CHANNEL DEFEAT switch in the "N44" position and **verify** Comparator Defeat Light is LIT.
Standard:	Comparator Channel Defeat switch placed in "N44" position and Comparator Defeat Light verified LIT.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** __X__	At N44 POWER RANGE B drawer, **remove** and **concurrently verify** removal of, the instrument power fuses.
Standard:	Instrument power fuses removed from N44 drawer B.
Evaluator Cue:	WHEN the candidate asks for concurrent verification, THEN simply **state** "Concurrent verification complete".
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** __X__	At N44 POWER RANGE B drawer, **remove** and **concurrently verify** removal of, the control power fuses.
Standard:	Control power fuses removed from N44 drawer A.
Evaluator Cue:	WHEN the candidate asks for concurrent verification, THEN simply **state** "Concurrent verification complete".
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Verify** the following annunciators are received:
Critical _____

1) 47013-0101, NIS POWER RANGE POSITIVE FLUX RATE CHANNEL ALERT
2) 47013-0102, NIS POWER RANGE HI SETPOINT CHANNEL ALERT
3) 47013-0201, NIS POWER RANGE NEGATIVE FLUX RATE CHANNEL ALERT
4) 47013-0202, NIS POWER RANGE LO SETPOINT CHANNEL ALERT (if power below P-10)
5) 47014-0403, N44 NUCLEAR OVERPOWER ROD STOP BYPASSED Aqua Light.

Standard: At C panel, checks the listed annunciators on solid with exception of 47013-0202.

Evaluator Note: **Annunciator 47013-0202 will not be received due to power being above P-10.**

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Verify** the following status lights LIT:
Critical _____

1) 44178-0406, PWR RNG LO Q-HI F NC44P
2) 44178-0407, PWR RNG HI Q-HI F NC44R
3) 44205-0404, PWR RNG HI F RATE NC44U/K

Standard: At C panel, checks listed Yellow Protection Lights LIT.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Critical** _____	**Restore** Tavg equal to Tref using control rods in one or two step increments AND THEN **place** rod control to "AUTO".
Standard:	Rod Control returned to "AUTO" using CS-46280.
Evaluator Note:	**Tave should be equal to Tref at this time.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	**Trip** AND **concurrently verify** the following bistables to remove channel from service:
Standard:	Requests I&C support to trip bistables.
Evaluator Cue:	**When requested, inform the candidate that, "the bistables will be tripped later and within 6 hours."**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Terminating Cues: **The candidate verbalizes bistable tripping.**

Stop Time: _____

SIMULATOR SETUP

Instructor Guide:

- **Initialize** the simulator to IC-10.
- **Place** the simulator in "RUN" AND **allow** ERCS to come up and stabilize.
- **Place** ERCS quick plot "LOADFOLL" on t-bar display.
- **Place** rods in "MANUAL".
- **Enter** malfunction to fail N44 high. ***(Relative Order 0)***
- IF desired, THEN **snap** to an available IC.
- **Place** the simulator in FREEZE.
- **Peer-check** the simulator setup.
- **Conduct** turnover.
- **Place** the simulator in RUN.
- **Administer** JPM.

SIMULATOR SETUP

Relative Order	*System or Panel Drawing*	*TYPE*	*CODE*	*Severity or Value*	*Event Trigger*	*TIMING*	*DESCRIPTION*
0	SIMNI03	MALF	NI06D	100			N44 Fails High

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 1 is at 100% power.
- NIS yellow channel N-44 has failed high.
- C51 has been started, including:
  - Expected Plant Response/Failure Verification has been completed.
  - Rods were taken to Manual.
  - Tech Specs are being addressed.

INITIATING CUES:

- The SS directs you to **complete** C51 steps 3 through 5 of the Required Corrective Action section.
- **Report** completion to the SS.

JOB PERFORMANCE MEASURE WORKSHEET

TASK TITLE: RESPOND TO A LOSS OF INSTRUMENT AIR

JPM NUMBER: 2001 NRC EXAM RO B.1.F / SRO B.1.C **REV.** 0

RELATED PRA INFORMATION (SEE PITC 2.3): None

TASK NUMBERS: CRO 078 ATI 00 00 03 (LOSS OF INSTRUMENT AIR)
CR) 088 ATI 00 00 06 (START UP CONTROL ROOM CHILLER)

K/A NUMBERS: APE065 AK3.04/AA1.02/AA1.03/AA2.08

APPLICABLE METHOD OF TESTING:

Simulate Performance: [ ] Actual Performance: [x]

Evaluation Location: Turbine Building: [ ] Auxiliary Building: [ ]
Simulator: [x] Control Room: [ ]
Other: [ ]

Time for Completion: 20 Minutes Time Critical: NO

TASK APPLICABILITY: (Check all that apply) SRO: [x] RO: [x] NLO: [ ]

PREPARED BY: Joe Loesch **DATE:** 2/20/01

APPROVED BY: D Smith **DATE:** 7/20/01

PERFORMANCE RESULTS: **SAT:** [ ] **UNSAT:** [ ]

JPM Review Tool

The following table should be used when reviewing each JPM chosen for the 2001 RO and SRO exam to ensure it meets the requirements of NUREG 1021.

Respond to a Loss of Instrument Air		
JPM Element:	***Number:***	***Remarks:***
Total number of elements:	29	Includes total of actions taken or directed, operational decisions, and system status verification.
Verifiable actions taken by the candidate	4	1. Make Announcement 2. OPEN MV-32314 and MV-32315 (If desired) 3. Log time 4. Start opposite train chiller
Verifiable actions directed to be taken by the candidate	4	1. Manually isolate purge exhaust 2. Verify compressor operation 3. Open CP-40-7 4. Dispatch operators to search for leaks
System status verification elements requiring no actions	15	High number of verification elements due to nature of the event. (Checks to ensure systems failed to expected condition)
Critical steps	3	1. Dispatch Operators to search for leaks 2. Refer to Attachment A 3. Start opposite train chiller
Operational decisions required by candidate	5	1. Is it desirable to open MV-32314 and MV-32315? 2. Is excessive airflow continuing? 3. Should Attachment A be referenced? 4. Is RHR in service? 5. Has the operating chiller tripped?
Alternate paths required	1	Continuing excessive airflow requires reference to Attachment A.
Consequences for not performing task correctly		
This JPM has particular site significance because of a relatively recent installation of two related plant modifications. 1. Air dryer purge automatic isolation 2. Control room chiller backup air supply Failure to dispatch operators to look for leak will result in leak never being isolated. The loss of instrument air results in a loss of normal RCS pressure control and eventually the PRZR PORVs will auto open. Instrument Air is required to recover the plant from this condition. Failure to start the opposite train CR Chiller will render both trains of RHR inoperable and could lead to exceeding the temperature limit (120 deg.) in the control room resulting in significant instrument error.		

RESPOND TO A LOSS OF INSTRUMENT AIR	2001 NRC EXAM RO B.1.F / SRO B.1.C

Operator: _____ **(SRO / RO / NLO)**

Evaluator: _____

Date: _____

READ TO THE OPERATOR

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- A loss of Instrument Air is in progress.
- Unit 1 has tripped on low SG level and 1E-0 has been initiated.

INITIATING CUES:

- You are a relief shift Reactor Operator
- The Unit One Shift Supervisor has directed you to **complete** the actions of C34 AOP1 (Loss of Instrument Air) beginning with step 2.4.2.

JPM PERFORMANCE INFORMATION

Required Materials: None

General References: C34 AOP1

Task Standards: Complete the actions of C34 AOP1 up to and including starting of 122 Control Room Chiller

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e. the examinee looks or asks for the indication).

NOTE: Critical steps are marked with an "X" below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: (Step 2.4.2)
Critical _____

Verify the appropriate automatic actions have occurred.

Automatic Actions

IF the associated receiver pressure decreases to 90 psig, THEN the compressor in "1st STANDBY" auto/starts.

MV-32318, SERVICE AIR HDR ISOL VLV, CLOSES at 85 psig.

CV-31960 [**CV-31961**], 121 [122] INSTR AIR DRYER PRG EXHT ISOL CV, closes at 82 psig.

IF 121 Air Compressor is running, THEN **MV-32314**, INSTR AIR HDR ISOL VLV A, CLOSES at 80 psig.

IF 123 Air Compressor is running, THEN **MV-32315**, INSTR AIR HDR ISOL VLV B, CLOSES at 80 psig.

IF the associated unit air header pressure decreases to 78 psig, THEN **MV-32362** [**MV-32363**], 121 [122] FILTER DRYER BYPASS, OPENS.

Standard: Candidate verifies all auto actions by checking control board indications.

Evaluator Note: **All auto actions will occur as expected. MV-32315 will remain open since Unit 2 IA header pressure never decreased to less than 80 psig.**

Evaluator Cue: IF asked, THEN **provide** the candidate with the following information:

- CV-31960 is CLOSED
- CV-31961 is OPEN
- MV-32362 is OPEN
- MV-32363 is CLOSED

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Critical** _____	(Step 2.4.3) **Start** the "1st STANDBY" air compressor by placing its selector switch in the "PREFERRED" position: **CS-49010**, 121 AIR COMPRESSOR OR **CS-49011**, 122 AIR COMPRESSOR OR **CS-49012**, 123 AIR COMPRESSOR
Standard:	123 Air Compressor started by placing CS-49010 in "PREFERRED".
Evaluator Note:	**At this point, 123 Air Compressor should have auto started due to low pressure.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: (Step 2.4.4)
Critical _____

Manually **isolate** air dryers purge exhaust line:

A. 121 Air Dryer, **CLOSE** either of the following:

SA-65-1, 121 AIR DRYER PURGE EXHAUST ISOL

OR

CV-31960, 121 INST AIR DRYER PRG EXHT ISOL CV, by placing **CS-7055301** in "MANUAL" AND THEN **CS-7055302** to "CLOSE."

B. 122 Air Dryer, **CLOSE** either of the following:

SA-65-2, 122 AIR DRYER PURGE EXHAUST ISOL

OR

CV-31961, 122 INST AIR DRYER PRG EXHT ISOL CV, by placing **CS-7055401** in "MANUAL" AND THEN **CS-7055402** to "CLOSE."

Standard: Candidate directs Turbine Building Operator to close SA-65-1 and SA-65-2 or CV-31960 and CV-31961.

Evaluator Note: The intent of this step is to isolate the purge exhaust lines even if the dryer is operating properly. This will prevent a loss of ~ 100 CFM even under normal dryer operation.

Evaluator Cue: WHEN candidate directs local actions, THEN **repeat** the order back to the candidate.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Critical** _____	(Step 2.4.5) Locally **verify** proper compressor and air dryer operation.
Standard:	Candidate directs Turbine Building Operator to locally verify proper compressor and air dryer operation.
Evaluator Cue:	WHEN candidate directs local actions, THEN **repeat** the order back to the candidate.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(Steps 2.4.6 and 2.4.7) **Announce** over the plant paging system: "ATTENTION ALL PLANT PERSONNEL. WE ARE EXPERIENCING ABNORMAL INSTRUMENT AIR PRESSURE. PLEASE STOP ALL USE OF STATION AIR UNTIL FURTHER NOTICE." **Repeat** the announcement.
Standard:	Candidate announces the loss of air.
Evaluator Cue:	IF desired, THEN **cue** the candidate that it is not necessary to use the plant paging system for the purposes of this JPM.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(Step 2.4.8) **OPEN CP-40-7**, STATION AIR RECEIVER X-CONN TO INSTRUMENT AIR.
Standard:	Candidate determines CP-40-7 should remain closed.
Evaluator Note:	This step will supply air from 124/125 Air Compressors to the Station Air header between MV-32314 and MV-32315, either of which may have automatically CLOSED. A determination is necessary, depending on existing conditions, whether or not an attempt to REOPEN these valves is appropriate.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(Step 2.4.9) IF desired, THEN **OPEN** or **verify** OPEN **MV-32314** and **MV-32315** using **CS-46129** and **CS-46130**, respectively.
Standard:	Candidate determines MV-32314 should remain closed.
Evaluator Note:	**At this point, MV-32314 will be closed and MV-32315 will be open. It would be desirable to leave the system in this alignment however if the candidate chooses to open MV-32314, the unit 2 Instrument Air header will be maintained by auto closure of MV-32315.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical X**	(Step 2.4.10) IF excessive air flow continues, THEN **perform** the following: A. **Dispatch** operators to search for instrument air leaks.
Standard:	Candidate dispatches operators to search for air leaks.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical X**	(Step 2.4.10) IF excessive air flow continues, THEN **perform** the following: B. WHILE continuing with this procedure, **refer** to Attachment A for guidance in mitigating the consequence of the malfunction.
Standard:	Attachment A referenced.
Evaluator Cue:	**Inform** the candidate: *"Another operator will continue with this procedure while you reference Attachment A"*
Evaluator Note:	**This is the beginning of the alternate path.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

NOTE:	**It is expected that pneumatic components fail in a safe position, and although undesirable effects result from this condition, they can be effectively addressed on a system by system basis.**

Performance Step:
Critical _____

(ATTACHMENT A – COMPLETE LOSS OF INSTRUMENT AIR)

1. CVCS System

A. Normal letdown isolates.
B. Excess letdown isolates.
C. VCT vent isolates.
D. VCT gas sampling isolates.
E. Charging pumps fail to minimum speed.
F. Emergency boration is available.
G. Normal charging flowpath to RCS is NOT available.
H. Seal injection flowpath is available.

Standard: CVCS system checked for expected conditions.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step:
Critical _____

(ATTACHMENT A – COMPLETE LOSS OF INSTRUMENT AIR)

2. Reactor Coolant System Pressure Control

A. PRZR spray valves unavailable.
B. PRZR PORVs available until the accumulators are exhausted.

Standard: Reactor Coolant System Pressure Control checked for expected conditions.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Critical** _____	(ATTACHMENT A – COMPLETE LOSS OF INSTRUMENT AIR) **3. Component Cooling Water** A. Cooling is retained to all essential equipment. B. Normal surge tank makeup is NOT available.
Standard:	Component Cooling Water system checked for expected conditions.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(ATTACHMENT A – COMPLETE LOSS OF INSTRUMENT AIR) **4. Waste Gas System** A. Waste gas compressor suctions isolate. B. Waste gas compressors shutdown. C. Waste gas discharge isolates. D. Gas collection header pressure builds up to relief setpoint.
Standard:	Waste Gas System checked for expected conditions.
Evaluator Note:	**There are no control room indications for this system. The candidate may choose to dispatch the Aux Building Operator to check conditions.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(ATTACHMENT A – COMPLETE LOSS OF INSTRUMENT AIR) **5. Residual Heat Removal System** IF RHR is in service, THEN valves fail to full flow condition. **Refer** to 1C15 AOP3 [2C15 AOP3], RHR Operation Without Control Room Instrumentation or Flow Control.
Standard:	Candidate determines RHR is not in service.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(ATTACHMENT A – COMPLETE LOSS OF INSTRUMENT AIR) **6. Cooling Water System** Automatic start of cooling water pumps may occur due to excessive demand when air operated temperature control valves fail OPEN.
Standard:	Cooling Water system checked for expected conditions.
Evaluator Note:	**An automatic start of cooling water pumps is not expected for this particular condition.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: (ATTACHMENT A – COMPLETE LOSS OF INSTRUMENT AIR)
Critical _____

7. **Containment Fan Coil Units**
   FCU dampers fail to the dome position. Equipment (RCP) temperature rise is dependent upon containment ambient conditions.

Standard: Containment Fan Coil system checked for expected conditions.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: (ATTACHMENT A – COMPLETE LOSS OF INSTRUMENT AIR)
Critical _____

8. **Main Steam**
   MSIVs CLOSE.
   Steam Dump is NOT available.
   Steam Generator PORVs will require local manual operation by handwheel.

Standard: Main Steam system checked for expected conditions.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

9. 121 & 122 Control Room Chiller - Back Up Compressed Air System

The Backup CA System is designed to automatically supply a pneumatic source following a loss of instrument air. The backup system maintains operability of the CR Chillers and prevents the Cooling Water Control Valves, **CV-31769** and **CV-31785** from failing closed on loss of instrument air.

This procedure provides operating instructions for a loss of instrument air event following: (a) Design Basis Accident and (b) Loss of instrument air following an air line break or equipment failure.

Performance Step: **Critical** _____	(ATTACHMENT A – COMPLETE LOSS OF INSTRUMENT AIR) 9.1 Immediately after any loss of instrument air, proceed with the following steps: A. **Log** time, loss of instrument air.
Standard:	Loss of instrument air time logged.
Evaluator Cue:	WHEN candidate states that he/she will log the time, THEN **state** "The SS will log the time for you".
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(ATTACHMENT A – COMPLETE LOSS OF INSTRUMENT AIR) 9.1 Immediately after any loss of instrument air, **proceed** with the following steps: B. From the Control Room, **verify** operating chiller has not tripped.
Standard:	Candidate verifies that the operating chiller HAS tripped.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: (ATTACHMENT A – COMPLETE LOSS OF INSTRUMENT AIR)
Critical _____

9.1 Immediately after any loss of instrument air, **proceed** with the following steps:

C. IF operating chiller has not tripped, THEN immediate operator action is NOT required.

Standard: Candidate determines step is not applicable.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: (ATTACHMENT A – COMPLETE LOSS OF INSTRUMENT AIR)
Critical **X**

9.1 Immediately after any loss of instrument air, **proceed** with the following steps:

D. IF operating chiller has tripped, THEN **start** the opposite train chiller.

Standard: 122 Control Room Chiller is manually started using CS-46076.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Terminating Cues: **122 Control Room Chiller is manually started.**

Stop Time: _____

SIMULATOR SETUP

Instructor Guide:

- **Initialize** simulator to IC-10.
- **Place** the simulator in RUN AND **allow** ERCS to initialize.
- **Start** 122 Control Room Air Supply fan using **CS-46075.**
- **Stop** 121 Control Room Air Supply fan using **CS-46067.**
- **Enter** the Instrument Air Leak malfunction **(Relative order of 1, Trigger 1).**
- WHEN the reactor trips, THEN **input** the trip of 121 CR Chiller **(Relative order of 2, Trigger 2).**
- **Close** BOTH MSIVs using **CS-46158** AND **CS-46159.**
- IF desired, THEN **snap** to an available IC.
- **Place** the simulator in FREEZE.
- **Peer-check** the simulator setup.
- **Conduct** turnover.
- **Place** the simulator in RUN.
- **Administer** JPM.
- WHEN directed, THEN **open** CP-40-7 **(Relative order of 3, Trigger 3).**

SIMULATOR SETUP

Relative Order	System or Panel Drawing	TYPE	CODE	Severity or Value	Event Trigger	TIMING	DESCRIPTION
0	D1-D3	Override DO	LO-4402908 R	OFF			Stm dumps failed closed
0	D1-D3	Override DO	LO-4402912 R	OFF			Stm dumps failed closed
0	D1-D3	Override DO	LO-4402906 R	OFF			Stm dumps failed closed
0	D1-D3	Override DO	LO-4402910 R	OFF			Stm dumps failed closed
0	D1-D3	Override DO	LO-4402904 R	OFF			Stm dumps failed closed
0	D1-D7	Override DO	LO-4403202 R	OFF			"A" PORV failed closed
0	D1-D7	Override DO	LO-4403302 R	OFF			"B" PORV failed closed
1	SIMIA02	Malfunction	IA02	100	1		IA leak in "A" Header
2	SIMCH11	Override DI	DI-46068SP STOP	ON	2		Trip 121 CR chiller
3	SIMIA02	Remote Function	IA101	OPEN	3		Open CP-40-7

TURNOVER SHEET

INITIAL CONDITIONS:

- A loss of Instrument Air is in progress.
- Unit 1 has tripped on low SG level and 1E-0 has been initiated.

INITIATING CUES:

- You are a relief shift Reactor Operator
- The Unit One Shift Supervisor has directed you to **complete** the actions of C34 AOP1 (Loss of Instrument Air) beginning with step 2.4.2.

JOB PERFORMANCE MEASURE WORKSHEET

TASK TITLE: RESPOND TO AN ABNORMAL RADIATION LEVEL DURING WASTE GAS RELEASE

JPM NUMBER: 2001 NRC EXAM RO **REV.** 9
B.1.G

RELATED PRA INFORMATION (SEE PITC 2.3): None

TASK NUMBERS: 0000600501

K/A NUMBERS: 071 A2.02

APPLICABLE METHOD OF TESTING:

Simulate Performance: [ ] Actual Performance: [x]

Evaluation Location: Turbine Building: [ ] Auxiliary Building: [ ]

Simulator: [x] Control Room: [ ]

Other: [ ]

Time for Completion: 10 Minutes Time Critical: NO

TASK APPLICABILITY: SRO: [x] RO: [x] NLO: [ ]
(Check all that apply)

PREPARED BY: Joe Loesch **DATE:** 2/28/01

APPROVED BY: D Sanit **DATE:** 3/2/01

PERFORMANCE RESULTS: **SAT:** [ ] **UNSAT:** [ ]

JPM Review Tool

The following table should be used when reviewing each JPM chosen for the 2001 RO and SRO exam to ensure it meets the requirements of NUREG 1021.

Respond to a Loss of Instrument Air		
JPM Element:	***Number:***	***Remarks:***
Total number of elements:	20	Includes total of actions taken or directed, operational decisions, and system status verification.
Verifiable actions taken by the candidate	1	Start 121 Special Exhaust Fan
Verifiable actions directed to be taken by the candidate	1	Direct closure of CV-31271
System status verification elements requiring no actions	18	
Critical steps	2	• Start 121 Special Exhaust Fan • Direct closure of CV-31271
Operational decisions required by candidate	4	• Determine initiating alarm • Determine whether or not to reset alarm • Decide to start 121 ABSV • Decide to close CV-31271
Alternate paths required	0	
Other Attributes		
Content validity		
Operational validity		
Discrimination validity		
Contribution to the test's overall capacity to differentiate competent operators		
Approximate time to complete		

Operator: _____ **(SRO / RO / NLO)**

Evaluator: _____

Date: _____

READ TO THE OPERATOR

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Waste gas release was just initiated from a gas decay tank via normal release path (#125 low level gas decay tank).
- Release procedure is in progress, C21.3-10.5- Release of 125 Low Level Gas Decay Tank.
- 122 Auxiliary Building Special Exhaust Fan is out of service.

INITIATING CUES:

- High radiation Train A AND B has just alarmed on panel 47022.
- The SS directs you to **respond** to the alarms per the Alarm Response Guide.

JPM PERFORMANCE INFORMATION

Required Materials: None

General References: C47022, C47047, C47048

Task Standards: 121 Aux. Building Special Vent started and Waste Gas Release terminated.

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e. the examinee looks or asks for the indication).

NOTE: Critical steps are marked with an "X" below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

NOTE:	**Since two alarms have been received, the candidate may chose to respond to one or both of the alarms simultaneously. Both alarms are of equal priority, therefore, either approach is correct as long as critical steps are accomplished.**

Performance Step: **Critical** _____	**Reference** Alarm Response Procedure 47022-0108 "HI RADIATION TRAIN B PANEL ALARM" AND/OR 47022-0109 "HI RADIATION TRAIN A PANEL ALARM"
Standard:	Candidate locates and references correct ARP.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: ARP 47022-0108 "HI RADIATION TRAIN B PANEL ALARM" AND/OR 47022-0109 "HI RADIATION TRAIN A PANEL ALARM"

Critical _____

- **Determine** the initiating alarm AND **respond** to the alarm as specified in C47047 OR C47048, TRAIN A / B RADIATION MONITORING SYSTEM ALARM RESPONSE PROCEDURES.

Standard: Candidate determines Hi Rad alarm is **2R-37** on train A Rad Monitor panel and references C47047 2R37.

AND/OR

Candidate determines Hi Rad alarm is **2R-30** on train B Rad Monitor panel and references C47048 2R30.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

NOTE: **The candidate may chose to verify the automatic actions before reading the initial actions section of the ARP. This is acceptable as long as the critical steps of this JPM are satisfied.**

Performance Step: ARP 47047 2R37 AND/OR ARP 47048 2R30 (Initial Actions)

Critical _____

- IF CPM meter deflection is at OR near background level AND there is no ESF Equip Alarm, THEN:

  reset the Hi Radiation Alarm
  AND
  inform the System Engineer of the spike.

Standard: Candidate determines that 2R37 AND/OR 2R30 are reading above background and there is an ESF Equip Alarm for each.

Evaluator Note: **Neither condition is satisfied for this step, therefore step is N/A.**

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step:	ARP 47047 2R37 AND/OR ARP 47048 2R30 (Initial Actions)
Critical _____	• IF meter deflection is above OR near CPM setpoint, OR the Hi Rad Level Alarm cannot be reset in Step 1, THEN **verify** AUTOMATIC ACTIONS have occurred.
Standard:	Candidate references the AUTOMATIC ACTIONS section of the ARP.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	ARP 47047 2R37 AND/OR ARP 47048 2R30 (Automatic Actions)
Critical X	• Starts 121/122 Auxiliary Building Special Exhaust Fan.
Standard:	Candidate determines that 121 Auxiliary Building Special Exhaust Fan has NOT started automatically and manually starts it using **CS-46070**.
Evaluator Note:	**122 Auxiliary Building Special Exhaust Fan was OOS as part of the initial conditions.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: ARP 47047 2R37 AND/OR ARP 47048 2R30 (Automatic Actions)

Critical _____

- When 121/122 Special Exhaust Fan breaker closes, THEN equipment aligns as follows:
  - MD-32236/32237, 121/122 ABSV EHXT MD, OPENS
  - 121/122 ABSV Filter Heater Starts.
  - 11, 12, 21 and 22 Aux Bldg. Makeup Air Fans stop and associated inlet and outlet dampers CLOSE.
  - 11 and 21 Aux Bldg. General Exhaust Fans stop and associated dampers CLOSE.
  - Laundry, Locker and Filter Room Ventilation Exhaust Fans stop and associated dampers CLOSE.
  - On Unit 1 SI Active Panel **44103-A10/B10**, 121/122 ABSV RNNG IL lights.
  - On Unit 2 SI Active Panel **44514-A10/B10**, 121/122 ABSV RNNG IL lights.
  - On **44071**, U1/U2 Ventilation Status Panel, the following indicating lights turn ON:
    - **44071-0105**, 121 FLTR RM EXHT FAN STOPPED
    - **44071-0409/0410**, 121/122 ABSV FLTR HTR ON
    - **44071-0504**, 11 LNDRY RM EXHT FAN STOPPED
    - **44071-0505**, 11 LOCKER RM EXHT FAN STOPPED
  - On **44071**, U1/U2 Ventilation Status Panel, the following indicating lights remain OFF:
    - **44071-0109**, 11 AUX BLDG M-U AIR DMPR IMPROPER
    - **44071-0110**, 21 AUX BLDG M-U AIR DMPR IMPROPER
    - **44071-0111**, 11 AUX BLDG GNL EXHT DMPR IMPROPER
    - **44071-0112**, 12 AUX BLDG GNL EXHT DMPR IMPROPER
    - **44071-0205**, 121 FLTR RM EXHT DMPRS IMPROPER
    - **44071-0209**, 12 AUX BLDG M-U AIR DMPR IMPROPER
    - **44071-0210**, 22 AUX BLDG M-U AIR DMPR IMPROPER
    - **44071-0604**, 11 LNDRY RM ISOL/EXHT CD-34036/34046 IMPROPER
    - **44071-0605**, 11 LOCKER RM ISOL/DISCH DMPR IMPROPER

Standard: Candidate verifies equipment alignment per Automatic actions step 2 of ARP.

Evaluator Note: **All control room indications for "122 Auxiliary Building Special Exhaust Fan running" will NOT be obtained due to it being OOS.**

Evaluator Cue: As the Unit 2 Reactor Operator **provide** the candidate with the following information from the Unit 2 SI Active Panel:

- "44514-A10 is LIT. 44514-B10 is NOT LIT."

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: ARP470047 2R37 AND/OR ARP 47048 2R30 (Automatic Actions)

Critical _____

- **CV-31271**, GAS DCY TNKS TO PLNT VNT CV, CLOSES.

Standard: Candidate calls Aux. Building to determine status of CV-31271.

Evaluator Cue: As Aux. Building Operator **provide** the candidate with the following information:

- "CV-31271 is OPEN"

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: ARP 47047 2R37 AND/OR ARP 47048 2R30 (Automatic Actions)

Critical X

- **Close CV-31271**

Standard: Candidate directs Aux. Building Operator to close CV-31271

Evaluator Cue: As Aux. Building Operator **provide** the candidate with the following information AFTER being directed to close CV-31271:

- "CV-31271 is CLOSED"

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Terminating Cues: Aux. building directed to close CV-31271.

Stop Time: _____

SIMULATOR SETUP

Instructor Guide:

- **Initialize** the simulator to IC-10.
- **Enter** relative order of 0 items.
- **Place** 122 Auxiliary Building Special Fan in pullout and **hang** information card.
- **Freeze** simulator.
- **Give** initial conditions.
- **Unfreeze**.

SIMULATOR SETUP

Relative Order	System or Panel # Drawing	TYPE	CODE	Severity or Value	Event Trigger	TIMING	DESCRIPTION
0	RMU2-11	Override AO	AO-2R37:M1	100	Insert		2R37 Meter 100%
0	RMU2-11	Override LO	LO-2R37:L1	On	Insert		2R37 ESF Alarm Light
0	RMU2-11	Override LO	LO-2R37:L2	On	Insert		2R37 ESF Hi Alarm Light
0	RMU1-04	Override AO	AO-2R30:M1	100	Insert		2R30 Meter 100%
0	RMU1-04	Override LO	LO-2R30:L1	On	Insert		2R30 ESF Alarm Light
0	RMU1-04	Override LO	LO-2R30:L2	On	Insert		2R30 ESF Hi Alarm Light
0	A-A27A	Annun Malf	M47022:0108W	On	Insert		Hi Rad Train B Alarm
0	A-A27A	Annun Malf	M47022:0109W	On	Insert		Hi Rad Train A Alarm

TURNOVER SHEET

INITIAL CONDITIONS:

- Waste gas release was just initiated from a gas decay tank via normal release path (#125 low level gas decay tank).
- Release procedure is in progress, C21.3-10.5- Release of 125 Low Level Gas Decay Tank.
- 122 Auxiliary Building Special Exhaust Fan is out of service.

INITIATING CUES:

- High radiation Train A and Train B Annunciators have just alarmed on panel 47022-0108 and 47022-0109.
- The SS directs you to **complete** the initial actions per the Annunciator response guide.

JOB PERFORMANCE MEASURE WORKSHEET

TASK TITLE: PERFORM UNIT 1 REACTOR OPERATOR ACTIONS DURING A CONTROL ROOM EVACUATION / FIRE

JPM NUMBER: 2001 NRC EXAM RO B.2.A **REV.** 0

RELATED PRA INFORMATION (SEE PITC 2.3): PRA Identified Task

TASK NUMBERS: CRO 000.ATI.006

K/A NUMBERS: APE 068 AA1.15 / 2.1.23 / 2.4.27

APPLICABLE METHOD OF TESTING:

Simulate Performance: [x] Actual Performance: [ ]

Evaluation Location: Turbine Building: [ ] Auxiliary Building: [ ]

Simulator: [ ] Control Room: [ ]

Other: [x]

Time for Completion: 20 Minutes Time Critical: NO

TASK APPLICABILITY: (Check all that apply) SRO: [x] RO: [x] NLO: [ ]

PREPARED BY: Joe Loesch **DATE:** 5/11/01

APPROVED BY: D Smith **DATE:** 7/20/01

PERFORMANCE RESULTS: **SAT:** [ ] **UNSAT:** [ ]

JPM Review Tool

The following table should be used when reviewing each JPM chosen for the 2001 RO and SRO exam to ensure it meets the requirements of NUREG 1021.

PERFORM UNIT 1 REACTOR OPERATOR ACTIONS DURING A CONTROL ROOM EVACUATION / FIRE		
JPM Element:	***Number:***	***Remarks:***
Total number of elements:	15	Includes total of actions taken or directed, operational decisions, and system status verification.
Verifiable actions taken by the candidate	6	
Verifiable actions directed to be taken by the candidate	0	
System status verification elements requiring no actions	9	
Critical steps	6	All verifiable actions taken during this JPM are required to successfully complete this JPM.
Operational decisions required by candidate	1	Determine need to implement Attachment L.
Alternate paths required	1	Perform Attachment L when 122 Fire Pump is found NOT running.
Consequences for not performing task correctly		
Failure to start the diesel driven cooling water pump will result in a loss of cooling to all safeguards components and shutdown heat loads due to the pre-existing OSS cooling water header. Failure to start the diesel driven fire pump could hamper fire-fighting efforts and worsen the event. Inadequate fire protection header pressure contributed to the severity of an actual site fire a number of years ago.		

Operator: _____ **(SRO / RO / NLO)**

Evaluator: _____

Date: _____

READ TO THE OPERATOR

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Both Units were at 100% power.
- The "B" loop Cooling Water Header was isolated in the turbine building for maintenance. (72-hour LCO)
- A fire occurred in the Control Room and thick black smoke made visibility very difficult.
- The Unit 1 SS made the decision to evacuate the Control Room and to implement F5 Appendix B, Control Room Evacuation (Fire).
- You are the Unit 1 RO and have completed steps A through D of F5 Appendix B, Attachment C, such that the:

– Reactor Is **Tripped**

– Turbine Is **Tripped**

– MSIV's Are **Closed**

– Pressurizer PORV Block Valves Are **Closed**

INITIATING CUES:

- You are to **complete** the Unit 1 RO actions for Control Room Evacuation in accordance with **F5 Appendix B, Attachment C,** starting at Step **E.**

JPM PERFORMANCE INFORMATION

Required Materials: **Copy of F5 Appendix B, Attachment C, Attachment L**

General References: **F5 Appendix B**

Task Standards: **F5 Appendix B, Attachment C - Unit 1 Reactor Operator Actions completed.**

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e. the examinee looks or asks for the indication).

NOTE: Critical steps are marked with an "X" below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: **Critical** _____	**Proceed** with radio, flashlight, set of keys, and this Attachment (C) to both turbine front standards and verify turbines are tripped.
Standard:	Candidate goes to both turbine front standards with radio, flashlight, set of keys, and Attachment C and verifies both Units turbines are tripped.
Evaluator Note:	**Candidate should indicate how he/she would determine if the turbines are tripped and then how he/she would trip the turbines if they were running.**
Evaluator Cue:	**As candidate states that he/she would obtain a radio, flashlight, and set of keys, inform candidate that they have obtained said items.** **After candidate demonstrates appropriate methods of determining the status of turbine operation and how to trip the turbines locally, inform candidate that, "both turbines are tripped."**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:
Critical _____

Proceed to the Screenhouse, 675' level, and **check** PI-11021, 11 MD CLWP DSCH PI 75 psig or greater.

Standard: Candidate goes to Screenhouse 675' level and checks PI-11021 75 psig or greater.

Evaluator Cue: **PI-11021 indicates 0 psig.**

Evaluator Note: (Use lighted stairwell, near Records Room, across under turbine pedestal, out through Old Admin Bldg door to Screenhouse east door, then use stairwell on east end of Screenhouse to reach 675' level.)

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step:
Critical X

IF PI-11021 is reading less than 75 psig, THEN **proceed** to 12 DDCLP room and **start** 12 DDCLP as follows:

1. **OPEN** knife switch **SW 7030038**, 12 DD CLWP Cont Pnl Pwr Isol Knife Switch. (Inside Panel 70300)

Standard: Candidate goes to 12 DDCLP room and OPENs knife switch SW 7030038.

Evaluator Cue: **SW 7030038 is "OPEN".**

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Critical X**	IF PI-11021 is reading less than 75 psig, THEN **proceed** to 12 DDCLP room and **start** 12 DDCLP as follows: 2. Manually **override** one of the starting air solenoid valves, by **turning** the small knob at the base of the solenoid, to admit air to the starting motor. **Return** the knob to the "SHUTOFF" position when the engine gets up to full speed.
Standard:	One of the starting air solenoid valves is manually overridden and returned to the "SHUTOFF" position when the engine is up to full speed.
Evaluator Cue:	**When candidate indicates that he/she would turn the override knob to admit air to the starting motor, inform candidate that, "the engine is up to full speed."** **When candidate indicates that he/she would return the knob to the "SHUTOFF" position, inform candidate that, " the knob is in SHUTOFF."**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	IF PI-11021 is reading less than 75 psig, THEN **proceed** to 12 DDCLP room and **start** 12 DDCLP as follows: 3. **Verify** OPEN CV-31423, 12 DD Clg Wtr Jckt Clr Outl CV.
Standard:	CV-31423 verified OPEN.
Evaluator Cue:	**CV-31423 is OPEN.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: IF PI-11021 is reading less than 75 psig, THEN **proceed** to 12 DDCLP room and **start** 12 DDCLP as follows:

Critical _____

4. **Verify** cooling water header is pressurized using PI-11022, 12 DD CLWP Dsch PI.

Standard: PI-11022 used to verify cooling water header pressurized.

Evaluator Cue: **PI-11022 indicates 105 psig.**

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: IF PI-11021 is reading less than 75 psig, THEN **proceed** to 12 DDCLP room and **start** 12 DDCLP as follows:

Critical X

5. **Proceed** to 121 MD Cooling Water Pump Room and **place CS-19058**, 11 Sfgds Scrnhse Roof Exht Fan, in the "ON" position.

Standard: CS-19058 placed in the "ON" position.

Evaluator Cue: **CS-19058 is in "ON".**

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Critical** _____	IF it was necessary to start 12 DDCLP, THEN **proceed** to 22 DDCLP Room and **check** 22 DDCLP running. IF NOT, THEN **start** 22 DDCLP as follows:
Standard:	Candidate goes to 22 DDCLP Room and determines that 22 DDCLP is running.
Evaluator Cue:	**22 DDCLP is running.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	**Proceed** to Screenhouse 695' level, southeast corner, and **check** PI-11082, Scrnhse FP Hdr PI, 90 psig or greater.
Standard:	Candidate goes to Screenhouse 695' level and checks PI-11082 90 psig or greater.
Evaluator Cue:	**PI-11082 indicates 70 psig.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	IF PI-11082 is less than 90 psig, THEN **check** 122 Diesel Fire Pump running. IF NOT, THEN **start** 122 Diesel Fire Pump per Attachment L.
Standard:	Candidate determines that 122 Diesel Fire Pump is not running.
Evaluator Cue:	**122 Diesel Fire Pump is not running.**
Evaluator Note:	**Attachment L is the alternate path associated with this JPM.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	Attachment L - Starting 122 Diesel Fire Pump Manually: 1. At panel 136-2, **verify CS-19081,** 121 DSL FIRE PMP OIL STG TK PUMP LOCAL AUTO/REMOTE/LOCAL control switch in "AUTO".
Standard:	CS-19081 is checked in "AUTO".
Evaluator Cue:	**CS-19081 is in "AUTO".**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: Attachment L - Starting 122 Diesel Fire Pump Manually:

Critical _____ 2. **Ensure** the Battery Charger Control switch is in "ON".

Standard: Battery Charger Control Switch verified in the "ON" position.

Evaluator Cue: **Battery Charger Control Switch is "ON".**

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: Attachment L - Starting 122 Diesel Fire Pump Manually:

Critical X 3. **Depress** and **release** the Reset pushbutton **CS-70394-04** located inside of the diesel control cabinet.

Standard: CS-70394-04 depressed and released.

Evaluator Cue: **CS-70394-04 has been depressed and released.**

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: Attachment L - Starting 122 Diesel Fire Pump Manually:

Critical X 4. **Turn** local 5-position selector switch **CS-70394-01** to "MAN-A" OR "MAN-B".

Standard: CS-70394-01 selected to "MAN-A" or "MAN-B".

Evaluator Cue: **CS-70394-01 is in "MAN-A" ("MAN-B").**

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Critical X**	Attachment L - Starting 122 Diesel Fire Pump Manually: 5. **Depress** Start pushbutton **CS-70394-02** to crank engine. **Release** the pushbutton when the diesel starts.
Standard:	CS-70394-02 depressed and released within 30 seconds.
Evaluator Cue:	**CS-70394-02 is depressed and the engine starts.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Terminating Cues: **When 122 Diesel Fire Pump is started, inform candidate that, "this JPM is complete."**

Stop Time: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- Both Units were at 100% power.
- The "B" loop Cooling Water Header was isolated in the turbine building for maintenance. (72-hour LCO)
- A fire occurred in the Control Room and thick black smoke made visibility very difficult.
- The Unit 1 SS made the decision to evacuate the Control Room and to implement F5 Appendix B, Control Room Evacuation (Fire).
- You are the Unit 1 RO and have completed steps A through D of F5 Appendix B, Attachment C, such that the:
  - Reactor Is **Tripped**
  - Turbine Is **Tripped**
  - MSIV's Are **Closed**
- Pressurizer PORV Block Valves Are **Closed**

INITIATING CUES:

- You are to **complete** the Unit 1 RO actions for Control Room Evacuation in accordance with F5 Appendix B, Attachment C, starting at Step E.

JOB PERFORMANCE MEASURE WORKSHEET

TASK TITLE: ESTABLISH CONTAINMENT INTEGRITY AFTER A CFCU LEAK IN CONTAINMENT

JPM NUMBER: 2001 NRC EXAM RO B.2.B & SRO B.2.A **REV.** 0

RELATED PRA INFORMATION (SEE PITC 2.3): None

TASK NUMBERS: 076.ATI.12

K/A NUMBERS: 022 A2.05

APPLICABLE METHOD OF TESTING:

Simulate Performance: [x] Actual Performance: [ ]

Evaluation Location: Turbine Building: [ ] Auxiliary Building: [x]

Simulator: [ ] Control Room: [ ]

Other: [ ]

Time for Completion: 15 Minutes Time Critical: NO

TASK APPLICABILITY: (Check all that apply) SRO: [x] RO: [x] NLO: [ ]

PREPARED BY: Joe Loesch **DATE:** 3/1/01

APPROVED BY: [signature] **DATE:** 7/20/01

PERFORMANCE RESULTS: **SAT:** [ ] **UNSAT:** [ ]

JPM Review Tool

The following table should be used when reviewing each JPM chosen for the 2001 RO and SRO exam to ensure it meets the requirements of NUREG 1021.

ESTABLISH CONTAINMENT INTEGRITY AFTER A CFCU LEAK IN CONTAINMENT		
JPM Element:	***Number:***	***Remarks:***
Total number of elements:	7	Includes total of actions taken or directed, operational decisions, and system status verification.
Verifiable actions taken by the candidate	5	
Verifiable actions directed to be taken by the candidate	1	Control Room directed to exit the LCO
System status verification elements requiring no actions	1	
Critical steps	5	
Operational decisions required by candidate	1	Determine conditions for exiting LCO are met
Alternate paths required	0	
Consequences for not performing task correctly		
Performing this procedure re-establishes containment integrity following a containment fan coil leak. Failure to perform this task correctly could result in leakage outside of containment during a DBA.		

Establish Containment Integrity After A CFCU Leak In Containment	2001 NRC Exam RO B.1.c

Operator: _____ **(SRO / RO / NLO)**

Evaluator: _____

Date: _____

READ TO THE OPERATOR

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Unit 2 is at 100% power.
- A cooling water leak has developed in containment.
- Engineering has been informed of the leak.
- A containment inspection confirmed the leak on 23 CFCU.
- CRDM fan cooling water is being supplied by Train B.
- T.S. 3.6.A.2.a 1-hour LCO action for loss of containment integrity was entered five (5) minutes ago.
- T.S. 3.6.B.2.a 7-day LCO action for one train of CFCU OOS, was entered five (5) minutes ago.
- 23 CFCU motor valves have been shut and independently verified per C35 AOP4 step 2.4.3.F and G.
- Radio communications with the control room have been established.

INITIATING CUES:

- The SS directs you to **complete** C35 AOP4, "Cooling Water Leakage in Containment" beginning at step 2.4.3 substep H.
- **Report** completion to the SS.

ESTABLISH CONTAINMENT INTEGRITY AFTER A CFCU LEAK IN CONTAINMENT	2001 NRC EXAM RO B.2.B & SRO B.2.A

JPM PERFORMANCE INFORMATION

Required Materials: None

General References: C35 AOP4

Task Standards: Containment Integrity reestablished for a CFCU leak per C35 AOP4.

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e. the examinee looks or asks for the indication).

NOTE: Critical steps are marked with an "X" below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: **Critical** X	(Step 2.4.3.H) **Open** MCC breaker power supplies for the supply and return motor valves closed previously (**refer** to table 1 for MCC breaker listing). • Breaker for MV-32388 at MCC 2L1-C4 (715' level)
Standard:	Breaker Opened.
Evaluator Note:	**It is critical to open these breakers so that on an SI, they do not open and cause a release through the depressurized line.**
Evaluator Cue:	When asked, **inform** the candidate that, *"the breaker is in the OFF position and it has been independently verified per 5AWI 3.10.1."*
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical X**	(Step 2.4.3.H) **Open** MCC breaker power supplies for the supply and return motor valves closed previously (**refer** to table 1 for MCC breaker listing). • Breaker for MV-32153 at MCC 2LA1-B2 (735' level)
Standard:	Breaker Opened.
Evaluator Note:	**It is critical to open these breakers so that on an SI, they do not open and cause a release through the depressurized line.**
Evaluator Cue:	When asked, **inform** the candidate that, *"the breaker is in the OFF position and it has been independently verified per 5AWI 3.10.1."*
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical X**	(Step 2.4.3.H) **Open** MCC breaker power supplies for the supply and return motor valves closed previously (**refer** to table 1 for MCC breaker listing). • Breaker for MV-32154 at MCC 2LA1-B3 (735' level)
Standard:	Breaker Opened.
Evaluator Note:	**It is critical to open these breakers so that on an SI, they do not open and cause a release through the depressurized line.**
Evaluator Cue:	When asked, **inform** the candidate that, *"the breaker is in the OFF position and it has been independently verified per 5AWI 3.10.1."*
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical X**	(Step 2.4.3.J) **Verify** or **place** the affected CFCU cross tie valves(s) in the positions shown below: 23 FCU **2CL-22-1** **Throttle** OPEN to achieve greater than 46 psig on PI-4151104.
Standard:	2CL-22-1 throttled open until greater than 46 psig is indicated on PI-4151104.
Evaluator Note:	**This is a coordinated effort between and operator at the valve and an operator at the indicator in communication via radio.**
Evaluator Cue:	**After 2CL-22-1 (located near containment across from MCC 2L1) has been throttled open, inform the candidate (via simulated radio) that, "pressure is 33 psig on PI-4151104." When the valve is opened further, inform the candidate that, "pressure is 48 psig."**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(Step 2.4.3.K) **Check** the affected CFCU outlet pressure reading is > 46 psig, by Control Board indicator, with the FCU supply from Cooling Water: 23 FCU - **PI-4151104**
Standard:	23 CFCU outlet pressure verified > 46 psig.
Evaluator Cue:	**Inform** the candidate *"PI-4151104 indicates 48 psig."*
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(Step 2.4.3.L) IF the affected CFCU pressure reading in Step 2.4.3.K is > 46 psig, THEN **exit** T.S.3.6.A.2 LCO.
Standard:	Informs the control room that T.S. 3.6.A.2 should be exited and appropriate log entries made.
Evaluator Cue:	**Respond** as control room that, *"T.S. 3.6.A.2 has been logged as exited and the control room will complete steps M & N."*
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** X	(Step 2.4.3.O) **OPEN** the breaker for any CFCU without cooling water to prevent cooling water relief valve actuation in the event of an accident (**refer** to Table 2 for MCC Breaker listing).
Standard:	23 CFCU breaker cell B3 at MCC 2X1 (next to 2L on 715' level) opened.
Evaluator Cue:	• **Inform** the candidate that, *"MCC 2X1 breaker B3 is open."* • IF asked to prepare an isolation, THEN **inform** the candidate that, *"An isolation will be prepared later."*
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Terminating Cues: **When 23 CFCU breaker is opened, inform the candidate that, "this JPM is complete."**

Stop Time: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 2 is at 100% power.
- A cooling water leak has developed in containment.
- Engineering has been informed of the leak.
- A containment inspection confirmed the leak on 23 CFCU.
- CRDM fan cooling water is being supplied by Train B.
- T.S. 3.6.A.2.a 1-hour LCO action for loss of containment integrity was entered five (5) minutes ago.
- T.S. 3.6.B.2.a 7-day LCO action for one train of CFCU OOS, was entered five (5) minutes ago.
- 23 CFCU motor valves have been shut and independently verified per C35 AOP4 step 2.4.3.F and G.
- Radio communications with the control room have been established.

INITIATING CUES:

- The SS directs you to **complete** C35 AOP4, "Cooling Water Leakage in Containment" beginning at step 2.4.3 substep H.
- **Report** completion to the SS.

JOB PERFORMANCE MEASURE WORKSHEET

TASK TITLE: LOCAL SHUTDOWN AND RETURN OF D6 TO AUTO STANDBY

JPM NUMBER: 2001 NRC EXAM RO B.2.C & SRO B.2.B **REV.** 0

RELATED PRA INFORMATION (SEE PITC 2.3): None

TASK NUMBERS: 065.ATI.006

K/A NUMBERS: 064 A4.01

APPLICABLE METHOD OF TESTING:

Simulate Performance: [x] Actual Performance: [ ]

Evaluation Location: Turbine Building: [ ] Auxiliary Building: [ ]

Simulator: [ ] Control Room: [ ]

Other: [x]

Time for Completion: 15 Minutes Time Critical: NO

TASK APPLICABILITY: (Check all that apply) SRO: [x] RO: [x] NLO: [ ]

PREPARED BY: Joe Loesch **DATE:** 2/26/01

APPROVED BY: D Smith **DATE:** 7/20/01

PERFORMANCE RESULTS: **SAT:** [ ] **UNSAT:** [ ]

JPM Review Tool

The following table should be used when reviewing each JPM chosen for the 2001 RO and SRO exam to ensure it meets the requirements of NUREG 1021.

LOCAL SHUTDOWN AND RETURN OF D6 TO AUTO STANDBY		
JPM Element:	***Number:***	***Remarks:***
Total number of elements:	21	Includes total of actions taken or directed, operational decisions, and system status verification.
Verifiable actions taken by the candidate	4	
Verifiable actions directed to be taken by the candidate	0	
System status verification elements requiring no actions	17	
Critical steps	3	
Operational decisions required by candidate	1	
Alternate paths required	0	
Consequences for not performing task correctly		
Failure to perform this task correctly could result in damage to the diesel or failure of it to perform its design function during a loss of power event.		

LOCAL SHUTDOWN AND RETURN OF D6 TO AUTO STANDBY	2001 NRC EXAM RO B.2.C & SRO B.2.B

Operator: _____ **(SRO / RO / NLO)**

Evaluator: _____

Date: _____

READ TO THE OPERATOR

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

INITIAL CONDITIONS:

- Unit 2 is at 100% power.
- Diesel Generator D6 has been started locally per 2C20.7 for testing.
- The testing is complete and D6 has been unloaded and removed from Bus 26.

INITIATING CUES:

- The Shift Supervisor directs you to **perform** a local shutdown and return of D6 to Auto Standby per **2C20.7** section **5.7.2.**

JPM PERFORMANCE INFORMATION

Required Materials: **2C20.7 section 5.7.2**

General References: **2C20.7**

Task Standards: **D6 stopped locally.**

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e. the examinee looks or asks for the indication).

NOTE: Critical steps are marked with an "X" below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

This section provides instructions for local shutdown and return of D6 to auto standby. The assumption is made that D6 was started locally per Section 5.7.1. of 2C20.7.

Performance Step: **Critical** _____	(Step 5.7.2.A) IF D6 was started using the manual emergency start pushbutton and was NOT loaded, THEN **perform** the following steps at Panel G-2 prior to shutting down the diesel generator:
Standard:	Determines that actions at G-2 panel are not applicable.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

NOTE:	**When the next step is performed, the exciter will shutdown immediately and the diesel will stop following a 3 minute time delay.**

Performance Step: **Critical** __X__	(Step 5.7.2.B) **Shutdown** D6 using **CS-60069**, D6 DIESEL GENERATOR.
Standard:	**CS-60069** placed in shutdown.
Evaluator Cue:	**"CS-60069** is in shutdown"
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** _____	(Step 5.7.2.C) **Verify** exciter shutdown by observing the following: • **60047**, D6 DSL GEN VOLTMETER, indicates zero volts.
Standard:	Indicator 60047 verified at zero volts.
Evaluator Cue:	**"60047** indicates zero volts"
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	(Step 5.7.2.C)
Critical _____	**Verify** exciter shutdown by observing the following: • **60202**, D6 DSL GEN EXCITATION VOLTAGE, indicates zero volts.
Standard:	Indicator 60202 verified at zero volts.
Evaluator Cue:	"**60202** indicates zero volts"
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:	(Step 5.7.2.C)
Critical _____	**Verify** exciter shutdown by observing the following: • **60204**, D6 DSL GEN EXCITATION AMPERES, indicates zero amps.
Standard:	Indicator 60204 verified at zero amps.
Evaluator Cue:	"**60204** indicates zero amps"
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: (Step 5.7.2.D)
Critical _____

Verify D6 comes to a stop.

Standard:

D6 verified stopped.

Evaluator Cue:

"D6 is stopped"

Performance:

SATISFACTORY _____ **UNSATISFACTORY** _____

Comments:

_____

Performance Step: (Step 5.7.2.E)
Critical _____

Verify the red indicating light on the following switches is ON:

- **CS-60040**, D6 ENG 1 AC PRELUBE PUMP
- **CS-60042**, D6 ENG 2 AC PRELUBE PUMP
- **CS-60044**, D6 ENG 1 HT CLNT PREHTR CIRC PMP
- **CS-60045**, D6 ENG 2 HT CLNT PREHTR CIRC PMP

Standard:

Each Control Switch red light verified ON.

Evaluator Cue:

"Red light is ON"

Performance:

SATISFACTORY _____ **UNSATISFACTORY** _____

Comments:

_____

Performance Step: (Step 5.7.2.F)
Critical _____

Verify the green indicating light on the following switches is ON:

- **CS-60008**, D6 ENG 1 HT/LT RADIATOR FAN 1
- **CS-60009**, D6 ENG 1 HT/LT RADIATOR FAN 2
- **CS-60010**, D6 ENG 2 HT/LT RADIATOR FAN 1
- **CS-60011**, D6 ENG 2 HT/LT RADIATOR FAN 2
- **CS-60205**, D6 ENG 1 FO BACKUP PUMP
- **CS-60207**, D6 ENG 2 FO BACKUP PUMP

Standard: Each Control Switch green light verified ON.

Evaluator Cue: "Green light is ON"

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: (Step 5.7.2.G)
Critical _____

WHEN the diesel room temperature is less than 100°F, THEN **verify** the green indicating light on **CS-60007**, 22 D6 DSL RM COOLING FAN, is ON.

Standard: CS-60007 green light verified ON.

Evaluator Note: The candidate should Use RTU (SAINCO) Analog Signal No. 23 (TT-6558), ENGINE ROOM TEMPERATURE, to determine D6 Engine Room temperature.

Evaluator Cue:
- "D6 room temperature is 90 deg F"
- "CS-60007 green light is ON"

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: (Step 5.7.2.H)
Critical X

Place CS-60068, D6 DSL GEN CONTROL MODE SEL SW, in "REMOTE."

Standard: CS-60068 placed in "REMOTE"

Evaluator Cue:
- "CS-60068 is in REMOTE"
- "CS-60068 has been INDEPENDANTLY VERIFIED"

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: **Critical** _____	(Step 5.7.2.I) On Panel G-2, **verify** annunciator **47524-1106**, D6 EMERGENCY GENERATOR LOCAL CONTROL, is OFF.
Standard:	Control room called to verify annunciator.
Evaluator Cue:	"Annunciator **47524-1106** is OFF"
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical** **X**	(Step 5.7.2.J) **Place CS-60071**, D6 DSL GEN START SPEED SEL SW, in "FAST."
Standard:	CS-60071 placed in "FAST".
Evaluator Cue:	"CS-60071 is in FAST"
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

LOCAL SHUTDOWN AND RETURN OF D6 TO AUTO STANDBY	2001 NRC EXAM RO B.2.C & SRO B.2.B

Performance Step: **Critical** _____	(Step 5.7.2.K) **Blow** condensate from the starting air receivers.
Standard:	Condensate blown from starting air receivers.
Evaluator Note:	Candidate should demonstrate the location of the blowdown valve on at least one air receiver before terminating JPM.
Evaluator Cue:	• "Blowdown valve has been opened and closed." • "No condensate was observed during the blowdown"
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Terminating Cues: **When the candidate demonstrates the ability to blowdown the condensate from at least one air receiver.**

Stop Time: _____