NRC SIM JPM S1

**NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
(RO/SRO)**

TITLE: **CONTROL ROD EXERCISE (Alternate Path)**

OPERATOR: ____________ **DATE:** ____________

EVALUATOR: ____________ **EVALUATOR SIGNATURE:** ____________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**15**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be told that the plant is at power and that the Weekly Control Rod exercising shall be performed in accordance with PNPS 8.3.2, Control Rod Exercise. The operator will be directed to commence the weekly control rod exercising in accordance with Section 8.1 of PNPS 8.3.2. When a coupling check is performed on a rod being withdrawn, the rod will go into an overtravel condition (**Alternate Path**). The operator will be expected to recouple the rod per off-normal procedure 2.4.11, Control Rod Positioning Malfunctions.

TASK STANDARD: The operator will commence the weekly control rod exercising in accordance with Section 8.1 of PNPS 8.3.2. When a coupling check is performed on a rod being withdrawn, the rod will go into an overtravel condition and the operator will recouple the rod per off-normal procedure 2.4.11, Control Rod Positioning Malfunctions. The system shall be operated in accordance with all applicable precautions and limitations. The procedure shall be followed without failure of critical elements.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

X Simulator

Control Room

Prepared: Mark Santiago **Date:** 12/18/13

Reviewed: ____________ **Date:** ____________

Approved: ____________ **Date:** ____________
Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
1	08/19/10	Revised a control rod movement JPM to reflect new format and different procedure for 2011 LOT NRC Exam
2	09/03/13	Revised JPM to reflect most recent procedures for 2014 LOT NRC Exam.

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
RESPOND TO A DRIFTING CONTROL ROD	201-04-01-010	201002	A4.01 (3.5/3.4)

REFERENCES:

PNPS 8.3.2, Control Rod Exercise, Rev 59

PNPS 2.4.11, Control Rod Positioning Malfunctions, Rev 36

PNPS 2.2.88, Reactor Manual Control System, Rev 31

SIMULATOR CONDITIONS:

1. Initialize the simulator to any at power IC where rods 14-51 and 18-51 are at position 48.
2. Insert RD10, Rod Uncoupled, for rod 18-51 will be uncoupled,
3. Condition RD10 to DELETE when the "right digit" on the 4-rod display for control rod 18-51 is TRUE for position 4.

GENERAL TOOLS AND EQUIPMENT:

1. Handout 1: Printout of the current Control Rod positions (OD-3).
2. Handout 2: Copy of PNPS 8.3.2 with Section 7.0 and 8.0 marked up for place-keeping up to Step 8.1
3. Handout 3: Multiple blank copies of Attachment 1 of PNPS 8.3.2, Control Rod Exercise (Placekeeping Aid)
4. Handout 4: Multiple blank copies of Attachment 2 of PNPS 8.3.2, Control Rod Coupling Test (Placekeeping Aid)
5. Handout 5: Blank copy of Attachment 3 of PNPS 8.3.2, Control Rod Exercise Signoff Sheet
6. Handout 6: Blank copy of Attachment 5 of PNPS 8.3.2, Control Rod Coupling Test Signoff Sheet

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **CONTROL ROD EXCERCISE**

   b) The task conditions are as follows:

      - The reactor is at power.
      - Weekly Control Rod exercising is expected to be performed in accordance with PNPS 8.3.2.
      - Reactor Engineering has directed that single notch exercising is required for this surveillance.
      - Reactor Engineering has determined there are no control rods that have demonstrated excessive movement speeds.
      - Sections 7.0 and 8.0 of 8.3.2 already been completed.
      - A current control rod printout has just been printed.
      - A Reactivity Manager has been stationed and reactivity brief conducted.
      - An operator has been assigned to verify control rod withdraw.

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

- The CRS has directed you to commence the weekly control rod exercising IAW Section 8.1 of PNPS 8.3.2, Control Rod Exercise.
- Start with control rod 14-51, proceeding to 18-51 then working across the top of the core from the left to the right continuing down each subsequent row of control rods.

(Grey shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handouts 1-6.

START TIME: ____________

1.	**Procedure Step:**	**Section 8.1 CONTROL ROD EXERCISE (WEEKLY)** [1] Each fully withdrawn, operable control rod shall be inserted at least one notch once/7 days. [Tech Spec SR4.3.B.1.1]
	Standard	The operator reads the step and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	[2] PRIOR to rod exercise, OBTAIN a control rod printout (Graphics-500 CRD Position button or CRD Log Tab).
	Standard	The operator recognizes that this printout has been provided, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	[3] ENSURE a second licensed Reactor Operator is stationed at Panel C905 to verify proper control rod movement.
	Standard	The operator recognizes that this printout has been provided, and proceeds.
	Cue	State you will act as second operator and perform verifications Role play as verifier, read from the sequence sheet and communicate to the operator the following: • rod number • initial rod position • final rod position
	Notes	These steps are to be repeated prior to each rod withdrawn.
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	[4] ENSURE the Rod Select Power Switch is ON.
	Standard	The operator observes that the Rod Select Power switch is in the ON position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	PROCEDURE NOTE Attachments 1 and 2 are provided as placekeeping aids for Control Room Operators. Use of either Attachments 1 and/or 2 is at the discretion of the CRS. Neither Attachment is required to be maintained with the completed copy of this Procedure. If the selected rod does not withdraw using normal drive water differential pressure, then elevating drive water differential pressure is preferred to "double clutching" the rod. Refer to PNPS 2.4.11.1 Attachment 1. This will lessen the potential for a rod mispositioning. At the discretion of the SM/CRS, control rods may be exercised in any sequence provided that the core conditions and limitations specified by Reactor Engineering are met.
	Standard	The operator reads the Notes and proceeds.
	Cue	
	Notes	Operator may select to use Attachments 1 and 2 during this evolution. The order of control rod selection for testing was stated in the initial conditions.
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	**PROCEDURE CAUTION** For control rods that have previously demonstrated excessive movement speeds and have the potential to "double notch", it is permissible to reduce the CRD System drive water differential pressure setpoint to 200 psid as indicated by dPI-340-4 in order to mitigate the possibility of a mispositioning event. The CRD System drive water differential pressure setpoint shall be returned to 250 psid immediately following the movement of the control rod in question to its intended position. During the control rod exercise, only the control rods specified by Reactor Engineering on Attachment 6 are to be left inserted one notch.
	Standard	The operator reads the Cautions and proceeds.
	Cue	
	Notes	The operator recalls from the initial conditions that there are NO control rods that have demonstrated excessive movement speeds.
	Results	SAT ☐ UNSAT ☐

7.	**Procedure Step:**	[5] EXERCISE the fully withdrawn, operable control rods as follows: (a) VERIFY OR ADJUST MO-302-8 to obtain a CRD drive water differential pressure setpoint as indicated on dPI-340-4 of: 200 psid for control rods that have previously demonstrated excessive movement speeds. OR 250 psid for all other control rods.
	Standard	The operator maintains CRD Drive pressure at 250 psid.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	Procedure Step:	**Insert Rod 14-51** (b) INSERT the rod to be exercised to position 46 or, as evaluated by Reactor Engineering, to position 44 in accordance with Attachment 1 Step [1]. Attachment 1 (Place Keeping Aid): [1] INSERT the control rod to be exercised one notch as follows: (a) VERIFY OR ADJUST MO-302-8 to obtain a CRD drive water differential pressure setpoint as indicated on dPI-340-4 of: • 200 psid for control rods that have previously demonstrated excessive movement speeds. OR • 250 psid for all other control rods. (b) SELECT the control rod to be inserted on the rod select matrix by momentarily depressing the push button switch on Panel C905. (c) MOMENTARILY TURN the ROD CONTROL switch to the "ROD IN" position AND RELEASE the control switch. (d) VERIFY that the control rod has settled in an even-numbered position before the ROD SETTLE light goes off. (e) IF performing two notch exercise ....
	Standard	The operator selects Control Rod 14-51 and inserts the control rod to position 46 and observes the SETTLE light OFF.
	Cue	Action is verified.
	Notes	
	Results	SAT ☐ UNSAT ☐

9.	**Procedure Step:**	**Return to Section 8.1 of the Body of the Procedure, Step [5](c)** (c) VERIFY rod insertion and latching.
	Standard	The operator observes that Control Rod 14-51 is at position 46.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	**Withdraw Rod 14-51** (d) WITHDRAW the rod to position 48 unless otherwise instructed by Reactor Engineering. Rod withdrawal to be in accordance with Attachment 1 Steps [3](a)and [3](b)(1). Attachment 1 (Place Keeping Aid): [3] WITHDRAW the control rod to its original position unless otherwise instructed by Reactor Engineering as follows: (a) SELECT the control rod to be withdrawn on the rod select matrix by momentarily depressing the push button switch on Panel C905. (b) (1) SINGLE NOTCH WITHDRAWAL a. MOMENTARILY TURN the ROD CONTROL switch to the "ROD OUT NOTCH" position AND RELEASE the control switch. b. OBSERVE the control rod is latched in an even-numbered position and that it is in the latched position before the SETTLE light goes off. c. IF performing two notch exercise ..... d. IF the control rod is at position 48, THEN PERFORM a control rod coupling check in accordance with Attachment 2. e. IF performing two notch exercise .....
	Standard	The operator withdraws Control Rod 14-51 to position 48 and observes the SETTLE light OFF.
	Cue	Action is verified.
	Notes	
	Results	SAT ☐ UNSAT ☐

11.	**Procedure Step:**	**Rod 14-51 Coupling Check** Attachment 2 (Place Keeping Aid): [1] PERFORM a control rod coupling check as follows: (a) With a control rod at position 48, PERFORM the following: (1) SELECT/VERIFY SELECTED the control rod for coupling test. (2) ATTEMPT TO NOTCH WITHDRAW OR CONTINUOUSLY WITHDRAW the selected control rod from position 48. OR (b) With the control rod being continuously withdrawn from a position other than 48, ...
	Standard	Attempt to withdraw Control Rod 14-51 past position 48 using ATTEMPT TO NOTCH WITHDRAW OR CONTINUOUSLY WITHDRAW The operator will verify that: • Alarm "ROD OVERTRAVEL" (C905L-B3) does NOT actuate and remain. • Position indication on the four rod display goes "BLACK/BLACK" and then returns. • The FULL OUT red indicating light on the full core display does NOT go off and remain off.
	Cue	Action is verified.
	Notes	
	Results	SAT ☐ UNSAT ☐

12.	**Procedure Step:**	**Return to Section 8.1 of the Body of the Procedure, Step [5](f)** (f) IF the control rod cannot be operated with nominal drive water pressure (250 psid above Reactor pressure),......
	Standard	The operator recognizes that the condition for this step has not been met, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

13.	**Procedure Step:**	PROCEDURE NOTE For the purpose of this test, rod insertion that occurs as part of a Reactor Engineering approved maneuver can be used as the rod exercise for this Procedure
	Standard	The operator reads the Note and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

14.	**Procedure Step:**	[6] INITIAL (two persons' initials required) the appropriate square on the Control Rod Exercise Signoff Sheet (Attachment 3). These initials indicate that the control rod has been placed in its correct position.
	Standard	The operator initials Attachment 3 for Control Rod 14-51, and requests that the verifier initials Attachment 3.
	Cue	Verifier initials Attachment 3.
	Notes	
	Results	SAT ☐ UNSAT ☐

15.	**Procedure Step:**	[7] IF the coupling test was satisfied, INITIAL the appropriate square on the Control Rod Coupling Test Signoff Sheet (Attachment 5). A second person's verification is required if the coupling test will be used to support the implementation of an alternate BPWS sequence for shutdown.
	Standard	The operator initials Attachment 5 for Control Rod 14-51, and requests that the verifier initials Attachment 5.
	Cue	Verifier initials Attachment 5.
	Notes	
	Results	SAT ☐ UNSAT ☐

16.	Procedure Step:	**Insert Rod 18-51** (b) INSERT the rod to be exercised to position 46 or, as evaluated by Reactor Engineering, to position 44 in accordance with Attachment 1 Step [1]. Attachment 1 (Place Keeping Aid): [1] INSERT the control rod to be exercised one notch as follows: (a) VERIFY OR ADJUST MO-302-8 to obtain a CRD drive water differential pressure setpoint as indicated on dPI-340-4 of: • 200 psid for control rods that have previously demonstrated excessive movement speeds. OR • 250 psid for all other control rods. (b) SELECT the control rod to be inserted on the rod select matrix by momentarily depressing the push button switch on Panel C905. (c) MOMENTARILY TURN the ROD CONTROL switch to the "ROD IN" position AND RELEASE the control switch. (d) VERIFY that the control rod has settled in an even-numbered position before the ROD SETTLE light goes off. (e) IF performing two notch exercise ....
	Standard	The operator selects Control Rod 18-51 and inserts the control rod to position 46 and observes the SETTLE light OFF.
	Cue	Action is verified.
	Notes	
	Results	SAT ☐ UNSAT ☐

17.	**Procedure Step:**	**Return to Section 8.1 of the Body of the Procedure, Step [5](c)** (c) VERIFY rod insertion and latching.
	Standard	The operator observes that Control Rod 18-51 is at position 46.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

18.	**Procedure Step:**	**Withdraw Rod 18-51** (d) WITHDRAW the rod to position 48 unless otherwise instructed by Reactor Engineering. Rod withdrawal to be in accordance with Attachment 1 Steps [3](a)and [3](b)(1). Attachment 1 (Place Keeping Aid): [3] WITHDRAW the control rod to its original position unless otherwise instructed by Reactor Engineering as follows: (a) SELECT the control rod to be withdrawn on the rod select matrix by momentarily depressing the push button switch on Panel C905. (b) (1) SINGLE NOTCH WITHDRAWAL a. MOMENTARILY TURN the ROD CONTROL switch to the "ROD OUT NOTCH" position AND RELEASE the control switch. b. OBSERVE the control rod is latched in an even-numbered position and that it is in the latched position before the SETTLE light goes off. c. IF performing two notch exercise ..... d. IF the control rod is at position 48, THEN PERFORM a control rod coupling check in accordance with Attachment 2. e. IF performing two notch exercise .....
	Standard	The operator withdraws Control Rod 18-51 to position 48 and observes the SETTLE light OFF.
	Cue	Action is verified.
	Notes	
	Results	SAT ☐ UNSAT ☐

19.	**Procedure Step:**	**Rod 18-51 Coupling Check** Attachment 2 (Place Keeping Aid): [1] PERFORM a control rod coupling check as follows: (a) With a control rod at position 48, PERFORM the following: (1) SELECT/VERIFY SELECTED the control rod for coupling test. (2) ATTEMPT TO NOTCH WITHDRAW OR CONTINUOUSLY WITHDRAW the selected control rod from position 48. OR (b) With the control rod being continuously withdrawn from a position other than 48, ...
	Standard	Attempt to withdraw Control Rod 18-51 past position 48 using ATTEMPT TO NOTCH WITHDRAW OR CONTINUOUSLY WITHDRAW The operator acknowledges (C905L-B3), ROD OVERTRAVEL alarming and observes blank position indication for Control Rod 18-51, determines coupling check is Unsatisfactory and Control Rod 18-51 is uncoupled **(ALTERNATE PATH)**. The operator announces control rod overtravel and rod drift alarms and refers to ARPs.
	Cue	Action is verified.
	Notes	
	Results	SAT ☐ UNSAT ☐

20.	**Procedure Step:**	[2] IF any control rod coupling test has failed, THEN REFER TO PNPS 2.4.11, *"Control Rod Positioning Malfunctions"*.
	Standard	The operator enters PNPS 2.4.11.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

21.	**Procedure Step:**	**PNPS 2.4.11 Section 3.0 Immediate Operator Actions** [1] DISCONTINUE any control rod movement(s) and/or recirculation flow changes other than those specified in this Procedure. [2] ATTEMPT TO STOP a drifting rod..... [3] IF two or more control rods are drifting (in or out) three or more notches,....
	Standard	The operator recognizes that the Immediate Actions are complete and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

22.	**Procedure Step:**	**PNPS 2.4.11 4.0 Subsequent Actions** [1] IF six or more control rods have Scrammed,.... [2] REFER TO the applicable Attachment: 1, Uncoupled Control Rod
	Standard	The operator proceeds to Attachment 1, Uncoupled Control Rod Subsequent Actions.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

23.	**Procedure Step:**	**PNPS 2.4.11 Attachment 1, UNCOUPLED CONTROL ROD SUBSEQUENT ACTIONS** [1] IF the control rod was discovered uncoupled, THEN, PRIOR to performing the following steps, CONSULT with Reactor Engineering to establish appropriate core conditions. (a) ATTEMPT TO RECOUPLE the drive by inserting it two notches.
	Standard	The operator selects Control Rod 18-51 and inserts the control rod to position 46, waits for settle step then inserts the control rod to position 44.
	Cue	Action is verified.
	Notes	If operator initiates action to contact RE then Role Play as CRS and direct the operator to continue with Attachment 1 actions.
	Results	SAT ☐ UNSAT ☐

24.	**Procedure Step:**	(b) WITHDRAW the rod by notching it out.
	Standard	The operator withdraws Control Rod 18-51 to position 46, waits for settle step then withdraws the control rod to position 48.
	Cue	Action is verified.
	Notes	
	Results	SAT ☐ UNSAT ☐

25.	**Procedure Step:**	(c) WHEN the drive is withdrawn to position 48, THEN PERFORM a rod coupling check in accordance with Attachment 5.
	Standard	The operator proceeds to Attachment 5.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

26.	**Procedure Step:**	**Attachment 5, CONTROL ROD COUPLING TEST** PROCEDURE NOTE This test shall be performed every time a control rod is withdrawn to the full-out position 48. [Tech Spec Section 4.3.B.1.3]
	Standard	The operator reads the Note and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

27.	Procedure Step:	[1] PERFORM a control rod coupling check as follows: (a) With a control rod at position 48, PERFORM the following: (1) SELECT/VERIFY SELECTED the control rod for coupling test. (2) ATTEMPT TO NOTCH WITHDRAW OR CONTINUOUSLY WITHDRAW the selected control rod from position 48. OR (b) With the control rod being continuously withdrawn from a position other than 48 ....
	Standard	The operator may attempts to withdraw Control Rod 18-51 past position 48 using NOTCH WITHDRAW OR CONTINUOUSLY WITHDRAW
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

28.	Procedure Step:	[2] IF the following is observed, THEN the control rod coupling test is satisfactory: (a) Position indication on the four rod display momentarily goes "BLACK/BLACK" and returns to indicate position 48. (b) The FULL OUT red indicating light on the full core display will momentarily go off and then re-illuminate. (c) Alarm "ROD OVERTRAVEL" (C905L-B3) does NOT actuate.
	Standard	The operator determines that the coupling check is satisfactory.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

29.	**Procedure Step:**	[3] IF any of the following is observed, THEN the control rod coupling test has failed: (a) Alarm "ROD OVERTRAVEL" (C905L-B3) will actuate and remain. (b) Position indication on the four rod display goes "BLACK/BLACK" and indication does not return. (c) The FULL OUT red indicating light on the full core display goes off and remains off.
	Standard	The operator recognizes that the coupling check is satisfactory, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

30.	**Procedure Step:**	[4] IF the control rod coupling test is satisfactory, THEN RESET the "ROD DRIFT" (C905L-A3) alarm AND RETURN TO normal operation. (a) DOCUMENT the satisfactory control rod coupling check in the Control Room Log.
	Standard	The operator resets “ROD DRIFT” and verifies Rod Drift Annunciator clears. The operator initiates action to document the uncoupled rod in the Control Room Log.
	Cue	When the operator attempts to document the coupling test in the Control Room Log, indicate that this documentation is complete.
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: ____________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Systems - Control Room JPM S1

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________________ Date: ____________________

INITIAL CONDITIONS:

- The reactor is at 100 % power.
- Weekly Control Rod exercising is expected to be performed in accordance with PNPS 8.3.2.
- Reactor Engineering has directed that single notch exercising is required for this surveillance.
- Reactor Engineering has determined there are no control rods that have demonstrated excessive movement speeds.
- Sections 7.0 and 8.0 of 8.3.2 already been completed.
- A current control rod printout has just been printed.
- A Reactivity Manager has been stationed and reactivity brief conducted.
- An operator has been assigned to verify control rod withdraw.

INITIATING CUE:

- The CRS has directed you to commence the weekly control rod exercising IAW Section 8.1 of PNPS 8.3.2, Control Rod Exercise.
- Start with control rod 14-51, proceeding to 18-51 then working across the top of the core from the left to the right continuing down each subsequent row of control rods.

NRC SIM JPM S2

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **RESTART A TRIPPED RECIRC PUMP AT POWER**

OPERATOR: ______________ **DATE:** ______________

EVALUATOR: ______________ **EVALUATOR SIGNATURE:** ______________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**20**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be told that the "A" Recirc pump tripped two days ago, that the reactor was placed into single loop operation, that the problem has been repaired and post work tested, and that preparations to restart the pump are underway. The operator will be provided with a set of initial plant conditions and a mostly completed OPER-19 (Reactor Recirculation Pump Start Checklist). The operator will be directed to start the "A" Recirc pump IAW section 7.4, of PNPS 2.2.84 (Startup of Reactor Recirculation Pump(s) (Reactor Pressurized and/or at Power Conditions)), and to match speeds with the operating pump. The operator will be expected to start the "A" Recirc pump on the first attempt and then match speeds with the "B" Recirc pump.

TASK STANDARD: The operator will be expected to start the "A" Recirc pump on the first attempt and then match speeds with the "B" Recirc pump.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

X Simulator

Control Room

Prepared: Mark Santiago **Date:** 11/18/13

Reviewed: ______________________ **Date:** ______________

Approved: ______________________ **Date:** ______________
Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
8	10/15/07	Revised JPM to reflect procedure revisions following implementation of the single loop tech spec.
9	11/18/13	Revised JPM to reflect most recent procedures for 2014 LOT NRC Exam.

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
STARTUP AN IDLE RECIRC. PUMP; WITH THE OTHER PUMP RUNNING.	202-01-01-004	202001	A4.08 3.2/3.1

REFERENCES:

PNPS 2.2.84, Reactor Recirculation System, Rev 107

SIMULATOR CONDITIONS:

1. Initialize the simulator to any full power IC. Perform the following:
2. Trip the "A" Recirc pump manually.
3. Insert rods and lower running Recirc pump to establish conditions below the 60% load line and the following approximate conditions:
4. Verify that the running Recirc pump is at a 54% speed
5. Place TLO/SLO switch on APRM "B" FCTR card to SLO.
6. Fully open Recirc pump "A" to maintain the loop warm.
7. Verify that the temperature limits of Oper-19 are satisfied.
8. Mark current location on the power to flow map.

GENERAL TOOLS AND EQUIPMENT:

1. Handout 1: Completed OPER-19 (Attachment 5, Section B) for current plant conditions up through step [3] (d) (next step is verification of pump speed being < 50%).

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **RESTART A TRIPPED RECIRC PUMP AT POWER**

   b) The task conditions are as follows:

      - The "A" Recirc pump tripped two days ago due to a failed protective relay.
      - The reactor was placed into single loop operation.
      - The failed protective relay has been repaired and post work tested.
      - Preparations to restart the pump are underway.
      - The "A" Recirc pump discharge valve is full open to maintain the idle loop warm.
      - All prestart checks outside the control room have been completed.
      - MO-4037B, RBCCW from Reactor Recirc Pump A Cooler Outlet Throttle Valve has been opened on Panel C7.
      - OPER-19 (Reactor Recirculation Pump Start Checklist) has been completed with the exception of verifying operating pump speed is less than 50%.
      - All Tech spec limits for pump restart are satisfied.
      - Both RPS buses are being supplied by their RPS MG sets IAW precaution [19]

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

The CRS has directed you to start the "A" Recirc pump IAW PNPS 2.2.84, section 7.4, commencing at step [9]. When started, match speeds with the operating pump.

This task is not time critical.

(Grey shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

START TIME: ___________

1.	**Procedure Step:**	[9] IF the alternate Recirculation Pump is operating, THEN REDUCE the speed of the operating pump to less than 50% rated.
	Standard	The operator determines that operating pump is > 50% and lowers the running pump speed to less than 50%.
	Cue	
	Notes	Following reduction, pump speed on digital controller (middle bar) is less than 50%.
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	[10] VERIFY Operator setpoint, as indicated on the alphanumeric readout and left bar graph of SIC-262-25A (SIC-262-25B), is set at 26%.
	Standard	The operator selects left bar and determines the operator setpoint is set for 26%.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	[11] PERFORM Section 7.1.2 (Control Room Prestart Checks).
	Standard	The operator transitions to section 7.1.2 for the control room pre-start checks.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	[1] On Panel C7, THROTTLE OPEN MO-4037B (A), RBCCW from Reactor Recirc Pump A (B) Cooler Outlet Throttle Valve, by use of manual potentiometer. This pot may have to be adjusted periodically to maintain desired maximum temperature to less than 105°F.
	Standard	The operator recognizes that this Step has been completed per the Initial Conditions, marks the step NP and continues on to the next step.
	Cue	If questioned, ROLE PLAY that temperature is 90 degrees.
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	[2] IF the Reactor is shutdown,.....
	Standard	The operator determines this step is not applicable, marks the step NP, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	[3] On Panel C904, VERIFY the following: (a) Scoop Tube "A" ("B") lock light is OFF (IF required, RESET). (b) Recirc Pump "A" ("B") Speed Controller SIC-262-25A (SIC-262-25B) is in the MANUAL mode. ("M" is illuminated on controller next to the bar graphs.) (c) Operator setpoint, as indicated on the alphanumeric readout and left bar graph of SIC-262-25A (SIC-262-25B), is set at 26%. (d) Vibration and oil pressure alarms reset. (e) VERIFY that DPI-260-3A (B) Diff Press is reading < 5.0 psid.
	Standard	The operator observes that the red light is off and there are no alarms indicating that the scoop tube is locked, and determines that the scoop tube is not locked. The operator verifies that "M" is illuminated indicating the controller is in Manual. The operator verifies the left bar indicates 26%. The operator verifies that there are no vibration or low oil pressure alarms present. The operator verifies that indicator is reading < 5.0 (reading approximately zero).
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

7.	**Procedure Step:**	[4] On Panel C904, VERIFY OR ALIGN the following valves for Loop "A" ("B"): (a) MO-202-4A (MO-202-4B), Pump Suct Vlv: OPEN.
	Standard	The operator verifies that MO-202-4A is open (green light off, red light on).
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	**Procedure Step:**	[Note prior to Step 4.(b)] Prior to Recirc Pump start, partial opening of MO-202-5A (MO-202-5B) is permissible with Shutdown Cooling in service to allow loop temperatures to equalize. MO-202-5A (MO-202-5B) must be reclosed before starting Recirc Pump.
	Standard	The operator reads the Note and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

9.	**Procedure Step:**	(b) AO-5150A (AO-5150B), Seal Wtr Block Vlv: OPEN.
	Standard	The operator verifies that AO-5150A is open (green light off, red light on).
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

10.	Procedure Step:	(c) MO-202-5A (MO-202-5B), Pump Disch Vlv: CLOSED.	
	Standard	The operator closes MO-202-5A (green light on, red light off). Returns to section 7.4, commencing at step [12]	
	Cue		
	Notes		
	Results	SAT	UNSAT

Evaluator Note: The remaining steps of this JPM are from section 7.4

11.	Procedure Step:	[12] PLACE/VERIFY that the toggle switch (PULL OUT AND REPOSITION) for all six FCTR cards into the "TLO" (Two Recirculation Loop Operation) position as follows: (a) ENTER the appropriate LCO in accordance with Technical Specifications Sections 2.1.2 and 3.6.F and Table 3.1.1. (b) PLACE the toggle switch (PULL OUT AND REPOSITION) for all six FCTR cards into the "TLO" (Two Recirculation Loop Operation) position on Panel C937. (1) SIGN OFF this action in Attachment 5 Section B Step [4].	
	Standard	The operator reports to the CRS the need to enter the Tech Spec LCO for being in single loop with the FCTR cards selected for TLO. The operator locates the SLO/TLO switch and places the switch to the TLO position.	
	Cue	Role Play as the CRS as required and state that the LCO has been entered. After the operator has placed the SLO/TLO switch in the TLO position for APRM "B" CUE that all remaining APRMS have been placed in TLO.	
	Notes	APRM "B" is the only fully simulated APRM. The act of signing off Attachment 5 Section B Step [4] is not a critical element of this critical step.	
	Results	SAT	UNSAT

12.	**Procedure Step:**	(c) INDEPENDENTLY VERIFY that the toggle switch for all six FCTR cards have been placed into the "TLO" (Two Recirculation Loop Operation) position. (1) SIGN OFF this independent verification in Attachment 5 Section B Step [4].
	Standard	The operator requests that this step be independently verified.
	Cue	ROLE PLAY as CRS that this action has been independently verified.
	Notes	
	Results	SAT ☐ UNSAT ☐

13.	**Procedure Step:**	[13] CLOSE/VERIFY CLOSED MO-202-5A (B), Pump Disch Vlv, for the Recirculation Pump about to be started.
	Standard	The operator verifies that MO-202-5A is closed.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

14.	Procedure Step:	[14] START the idle Recirculation Pump. (a) VERIFY speed begins to decrease after the field breaker closes in. (b) SELECT center bar graph for controller actual speed indication.
	Standard	The operator closes the drive motor breaker via the control room switch. Recirc pump starts, speed increases then lowers and steadies out. MG set remains running.
	Cue	
	Notes	The operator is expected to announce the pump start but this is not required to satisfy this critical step. The following expected alarms will occur when the pump starts: • MG A SPEED LIMITER ON, C904RC-B5 • MG A SPEED RATE HI, C904RC-B7 • MG A SPEED DEVIATION HI C904RC-C7
	Results	SAT ☐ UNSAT ☐

15.	Procedure Step:	[15] Within 10 seconds of the pump start, SLOWLY JOG OPEN MO-202-5A (B), Pump Disch Vlv. (a) CONTINUE when the discharge valve [MO-202-5A (B)] is FULLY OPEN.
	Standard	Within 10 seconds, the operator commences to jog open MO-202-5A.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

16.	**Procedure Step:**	[16] MATCH Recirculation Pump speeds to within the limits listed below in less than 24 hours. (a) IF Reactor power is > 80% CTP,..... (b) IF Reactor power is ≤ 80% CTP, MATCH Recirculation Pump speeds to within 13%.
	Standard	The operator raises speed of restarted pump and matches pump speed (within 13%).
	Cue	If questioned, role play as CRS that the just started pump is to be raised to match speeds (vice lowering "B" MG set)
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: ______________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Systems - Control Room JPM S2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________ Date: ______________

INITIAL CONDITIONS:

- The "A" Recirc pump tripped two days ago due to a failed protective relay.
- The reactor was placed into single loop operation.
- The failed protective relay has been repaired and post work tested.
- Preparations to restart the pump are underway.
- The "A" Recirc pump discharge valve is full open to maintain the idle loop warm.
- All prestart checks outside the control room have been completed.
- MO-4037B, RBCCW from Reactor Recirc Pump A Cooler Outlet Throttle Valve has been opened on Panel C7.
- OPER-19 (Reactor Recirculation Pump Start Checklist) has been completed with the exception of verifying operating pump speed is less than 50%.
- All Tech spec limits for pump restart are satisfied.
- Both RPS buses are being supplied by their RPS MG sets IAW precaution [19]

INITIATING CUE:

The CRS has directed you to start the "A" Recirc pump IAW PNPS 2.2.84, section 7.4, commencing at step [9]. When started, match speeds with the operating pump.

This task is not time critical.

NRC SIM JPM S3

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **MANUAL START OF RCIC (Alternate Path)**

OPERATOR: ____________________ **DATE:** ____________________

EVALUATOR: ____________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**7**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be placed in a situation that requires the manual startup of Reactor Core Isolation Cooling System (RCIC). The operator will be directed to place RCIC in the Injection Mode and raise water level in accordance with PNPS 2.2.22.5, RCIC Injection and Pressure Control, Attachment 1, RCIC Injection. The operator will be expected to use Section 1.0, Injection, of Attachment 1 and discover that the RCIC System Injection Mode pushbutton fails to start the system (**Alternate Path**). The operator will be expected to go to Section 2.0, Manual Injection, of Attachment 1 and manually start the RCIC System.

TASK STANDARD: The operator will place RCIC in the Injection Mode and raise water level in accordance with PNPS 2.2.22.5, RCIC Injection and Pressure Control, Attachment 1, RCIC Injection. The operator will discover that the RCIC System Injection Mode pushbutton fails to start the system. The operator will go to Section 2.0, Manual Injection, of Attachment 1 and manually start the RCIC System. The system shall be operated in accordance with all applicable precautions and limitations. The procedure shall be followed without failure of critical elements.

EVALUATION METHOD:

X Perform
Simulate

EVALUATION LOCATION:

Plant
X Simulator
Control Room

Prepared: Mark Santiago **Date:** 010414

Reviewed: ____________________ **Date:** ____________________

Approved: ____________________ **Date:** ____________________

Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
0	09/03/13	Drafted JPM to reflect most recent procedures for 2014 LOT NRC Exam.

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
Perform Tests for RCIC INOP	217-02-01-004	217000	A4.03 (3.4/3.3)

REFERENCES:

PNPS 2.2.22, Reactor Core Isolation Cooling System (RCIC), Rev 72
PNPS 2.2.22.5, RCIC Injection and Pressure Control, Rev 15

SIMULATOR CONDITIONS:

1. Initialize simulator to a full power IC. Perform the following:
2. Trip all reactor feed pumps.
3. Place HPCI in P-T-L.
4. Allow level to lower to between -40 and -30 inches.
5. Override the RCIC System Injection Mode pushbutton (Fail to function).

GENERAL TOOLS AND EQUIPMENT:

1. None

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **MANUAL START OF RCIC**

   b) The task conditions are as follows:

      - The reactor has scrammed.
      - The reactor feed pumps and HPCI are unavailable.
      - Water level is ~ –30 inches.
      - The EOPs are being used to control RPV parameters.

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

The CRS has directed you to start RCIC manually and inject to maintain level +12 to +45 inches, in accordance with Section 1.0 of Attachment 1, RCIC Injection, of PNPS 2.2.22.5, RCIC Injection and Pressure Control.

(Grey shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

START TIME: ____________

1.	**Procedure Step:**	Note prior to 1.0 Steps in each section should be performed in sequence. At the discretion of the Operator, the sections may be performed in the order necessary to control RPV level and/or pressure in the desired bands.
	Standard	The operator reads the Note and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	Caution prior to 1.0 Do not operate RCIC System at less than 100 GPM.
	Standard	The operator reads the Caution and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	1.0 INJECTION [1] MOMENTARILY DEPRESS the RCIC System Injection Mode push button.
	Standard	The operator presses the RCIC System Injection Mode push button, and releases.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	[2] VERIFY the MANUAL START SEQUENCE indicating light is ENERGIZED.
	Standard	The operator observes that MANUAL START SEQUENCE indicating light is OFF **(Alternate Path)**. The operator proceeds to Section 2.0 to attempt a manual start of the system.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	2.0 MANUAL INJECTION Note prior to [1] Steps in each section should be performed in sequence. At the discretion of the Operator, the sections may be performed in the order necessary to control RPV level and/or pressure in the desired bands. Caution prior to [1] Do not operate RCIC System at less than 100 GPM. [1] IF the RCIC System Injection Mode push button does NOT start RCIC, THEN PERFORM the following steps to manually place RCIC into INJECTION mode:
	Standard	The operator reads the Note and proceeds. The operator reads the Caution and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	[1] VERIFY FIC-1340-1, INJECTION FLOW CONTROL, is in AUTO A ND set for 400 GPM.
	Standard	The operator observes that FIC-1340-1 is in AUTO. The operator observes that FIC-1340-1 is set for 400 gpm.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

7.	**Procedure Step:**	[2] OPEN/VERIFY OPEN MO-1301-62, COOLING WTR SUPPLY VLV.
	Standard	The operator momentarily places the control switch for MO-1301-62 to the OPEN position and observes RED light ON, GREEN light OFF.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	**Procedure Step:**	[3] START/VERIFY RUNNING P-222, VACUUM PUMP.
	Standard	The operator rotates the P-222 control switch to START and observes RED light ON, GREEN light OFF.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

9.	**Procedure Step:**	[4] OPEN/VERIFY OPEN MO-1301-60, PUMP MIN FLOW VLV.	
	Standard	The operator momentarily places the control switch for MO-1301-60 to the OPEN position and observes RED light ON, GREEN light OFF.	
	Cue		
	Notes		
	Results	SAT ☐	UNSAT ☐

10.	**Procedure Step:**	[5] SIMULTANEOUSLY OPEN MO-1301-61, TURBINE SUPPLY VLV, AND MO-1301-49, RCIC PUMP DISCHARGE INJECTION VALVE #2.	
	Standard	The operator opens MO-1301-61, and at the same time opens MO-1301-49 by momentarily placing their control switches to the OPEN position. RED lights ON, GREEN lights OFF	
	Cue		
	Notes		
	Results	SAT ☐	UNSAT ☐

11.	**Procedure Step:**	[6] OBSERVE that flow is supplied to Reactor vessel and stabilizes at 400 GPM.	
	Standard	The operator observes ___ to be ≈ 400 gpm.	
	Cue		
	Notes		
	Results	SAT ☐	UNSAT ☐

12.	**Procedure Step:**	[7] VERIFY MO-1301-60, PUMP MIN FLOW VLV, closes as flow increases.
	Standard	The operator verifies that MO-1301-60 closes by observing valve indicating lights.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

13	**Procedure Step:**	[8] MONITOR system operation AND ADJUST FIC-1340-1 as necessary to maintain desired Reactor water level.
	Standard	The operator adjusts FIC-1340-1 as needed to maintain a reactor water level of level +12 to +45 inches.
	Cue	
	Notes	Adjustment is not anticipated
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **This JPM is complete.**

STOP TIME: ____________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Systems - Control Room JPM S3

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________ Date: ______________

INITIAL CONDITIONS:

- The reactor has scrammed.
- The reactor feed pumps and HPCI are unavailable.
- Water level is ~ –30 inches.
- The EOPs are being used to control RPV parameters.

INITIATING CUE:

The CRS has directed you to start RCIC manually and inject to maintain level +12 to +45 inches, in accordance with Section 1.0 of Attachment 1, RCIC Injection, of PNPS 2.2.22.5, RCIC Injection and Pressure Control.

NRC SIM JPM S4

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **ESTABLISH A REACTOR PRESSURE BAND (Alternate Path)**

OPERATOR: ____________________ **DATE:** ____________________

EVALUATOR: ____________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**15**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be told that the plant is shutdown following a manual Reactor scram, that all control rods are inserted, and that the EPR is controlling Reactor pressure at ≈940 psig. The operator will be directed to take control of Reactor pressure with the Bypass Valve Opening Jack (BVOJ) and establish a pressure band between 700 and 950 psig in the lower part of the band in accordance with Section 4.2, RPV Cooldown and Depressurization Under Emergency Conditions, of PNPS 5.3.35.2, Operations Emergency and Transient Response Strategies. When this pressure is established a new pressure band of 500 to the current reactor pressure will be directed. During the establishment of this reactor pressure one Bypass Valve will fail fully open (**Alternate Path**). The operator will be expected to respond to this event using PNPS 2.4.37, Turbine Control System Malfunctions. The use of the BVOJ Control Switch and the Vacuum Trip Monitor (Trip#2) Pushbutton will not close the Bypass Valve, and the operator will be required to close the MSIVs to control the cooldown.

TASK STANDARD: The operator will take control of Reactor pressure with the Bypass Valve Opening Jack (BVOJ) and establish pressure bands as directed by the CRS. The operator must also demonstrate the ability to stabilize pressure within a given band. While lowering pressure to achieve a new pressure band, a bypass valve will fail full open. The operator will respond IAW PNPS 2.4.37 and close the MSIVs to terminate the excessive cooldown rate. The system shall be operated in accordance with all applicable precautions and limitations. The procedure shall be followed without failure of critical elements.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

X Simulator

Control Room

Prepared: Mark Santiago **Date:** 01/0614

Reviewed: ____________ **Date:** ____________

Approved: ____________ **Date:** ____________

Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
1	09/04/13	Revised JPM to reflect most recent procedures for 2014 LOT NRC Exam.
2	01/06/14	Revised following validation

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
RESPOND TO INADVERTENT BYPASS VALVE OPERATION	248-04-01-001	241000	4.1/4.2

REFERENCES:

PNPS 5.3.35.2, Operations Emergency And Transient Response Strategies, Rev 5
PNPS 2.4.37, Turbine Control System Malfunctions, Rev 24

SIMULATOR CONDITIONS:

1. From any full power IC, insert a reactor scram.
2. Stabilize RPV level low in the band of +12 to +45 inches
3. Verify EPR is controlling Reactor pressure at ~940 psig.
4. Insert TC 13 (3) so that the number three bypass valve fails full open conditioned off RPV pressure lowering to 600 psig.
5. Over-ride Vacuum Trip Monitor (Trip #2) Pushbutton to False (fails to function).

GENERAL TOOLS AND EQUIPMENT:

1. An instructor to control RPV Level

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

    a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

    a) The title of this JPM is: **ESTABLISH A REACTOR PRESSURE BAND**

    b) The task conditions are as follows:

    - The plant is shutdown following a manual Reactor scram.
    - All control rods are inserted.
    - The crew is executing the EOPs and PNPS 2.1.6, Reactor Scram.
    - The EPR is controlling Reactor pressure at ~940 psig.
    - Another operator is controlling Reactor water level in the normal band.
    - Manpower resources do not permit the cooldown to be controlled by OPER-7.

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

- Commence a plant cooldown using the main turbine bypass valves.
- Your pressure band is 700 to 950 psig with turbine bypass valves with a benchmark of 750 psig.

(Grey shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

START TIME: ____________

1.	**Procedure Step:**	[1] If manpower constraints do not allow the initiation of an OPER-07, then the cooldown and depressurization bands should be controlled by the establishment of successively lower RPV pressure control bands. Reactor pressure should be lowered in approximately 200 psig increments with the lower end of the bands centered around Reactor pressures of 500, 700, or 900 psig as necessary.
	Standard	The operator adjusts the BVOJ (Bypass Valve Opening Jack) control switch to RAISE, and observes: • RED Pressure Control indicating light energizes for the BVOJ • % Open indication increases • Bypass Valve throttles open. • Reactor pressure lowers. The operator observes pressure lowering and reports when pressure lowers to 750 psig.
	Cue	Stabilize pressure between 700 and 900 psig, low in the band.
	Notes	This guidance is from PNPS 5.3.35.2, OPERATIONS EMERGENCY AND TRANSIENT RESPONSE STRATEGIES, Section 4.2
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	[2] Operator stabilizes pressure between 700 and 900 psig, low in the band.
	Standard	The operator adjusts the BVOJ control switch to LOWER, and observes: • % Open indication decreases • Bypass Valve throttles closed • Reactor pressure stabilizes
	Cue	After the operator has demonstrated the ability to stabilize pressure Cue: Make your pressure band 500 to (current reactor pressure) with a benchmark of 550 psig.
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	[3] Increases bypass valve flow to achieve new pressure band by going to raise on the BVOJ.
	Standard	The operator adjusts the BVOJ control switch to raise, and observes: • % Open indication increases • Bypass Valve throttles open • Reactor pressure lowers Operator observes #3 bypass valve opening when pressure lowers to 650 psig. **(Alternate Path)**. Reports failure to CRS The operator will enters PNPS 2.4.37.
	Cue	As required, Cue the operator to respond IAW plant procedures.
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	**PNPS 2.4.37, 3.0 IMMEDIATE OPERATOR ACTIONS** [1] IF Reactor pressure approaches 1060 psig OR 810 psig during a pressure control malfunction event, THEN SCRAM the Reactor AND ENTER PNPS 2.1.6. [2] IF necessary, REDUCE power in accordance with PNPS 2.1.14 Sections 7.10 and 7.11 to ≤ 90% CTP to mitigate the possibility of an APRM Hi Flux Scram.
	Standard	The operator recognizes that the Immediate Actions are either in progress, or not applicable, and proceeds to Section 4.0, Subsequent Operator Actions.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	**SUBSEQUENT OPERATOR ACTIONS** [3] IF while performing this Procedure a Scram occurs, THEN ENTER PNPS 2.1.6, “Reactor Scram”, AND PERFORM CONCURRENTLY Section 4.3, Bypass Valve(s) Fails Open.
	Standard	The operator recognizes that PNPS 2.1.6 is already in progress and proceeds to Section 4.3, Bypass Valve(s) Fails Open.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	**Section 4.3 BYPASS VALVE(S) FAILS OPEN** [2] Unit Off-Line (a) IF cooldown rate is excessive, THEN STOP cooldown by performing one or all of the following: • CLOSE Bypass Valves using Bypass Valve Opening Jack control switch on Panel C2. • DEPRESS Vacuum Trip Monitor (Trip #2) push button on Panel C2. • CLOSE the MSIVs.
	Standard	The operator will recognize that the Bypass Valve Opening Jack control switch and the Vacuum Trip Monitor (Trip #2) push button will not close the failed valve, and will close the MSIVs.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: ____________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Systems - Control Room JPM S4

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ________________________ Date: ______________

INITIAL CONDITIONS

- The plant is shutdown following a manual Reactor scram.
- All control rods are inserted.
- The crew is executing the EOPs and PNPS 2.1.6, Reactor Scram.
- The EPR is controlling Reactor pressure at ~940 psig.
- Another operator is controlling Reactor water level in the normal band.
- Manpower resources do not permit the cooldown to be controlled by OPER-7.

INITIATING CUE:

- Commence a plant cooldown using the main turbine bypass valves.
- Your pressure band is 700 to 950 psig with turbine bypass valves with a benchmark of 750 psig.

NRC SIM JPM S5

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **PLACE RHR IN TORUS COOLING (Alternate Path)**

OPERATOR: ________________ **DATE:** ____________________

EVALUATOR: ________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**15**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be told that Torus temperature is >80°F, and that RBCCW cooling has been maximized by another operator. The operator will be directed to maximize Torus cooling by placing the RHR loop "A" in torus cooling in accordance with Attachment 14, Maximize Torus Cooling Checklist, of PNPS 5.3.35.1, Transient Response Hardcards for Operating Crews. The operator will be expected to align the RHR System for Torus Cooling. While completing the lineup the operator will observe indications that there is potential blockage of the ECCS Suction Strainers (**Alternate Path**). The operator will be expected to address PNPS 2.2.19.5, RHR Modes of Operation for Transients, Attachment 8, Mitigative Actions for Potential ECCS Suction Strainer Blockage, and determine that the indications are associated with blockage of the ECCS Suction Strainers.

TASK STANDARD: The operator will place the "A" RHR loop in torus cooling in accordance with Attachment 14, Maximize Torus Cooling Checklist, of PNPS 5.3.35.1, Transient Response Hardcards for Operating Crews. The operator will observe indications that there is potential blockage of the ECCS Suction Strainers. The operator will address PNPS 2.2.19.5, RHR Modes of Operation for Transients, Attachment 8, Mitigative Actions for Potential ECCS Suction Strainer Blockage, and determine that the indications are associated with blockage of the ECCS Suction Strainers. The system shall be operated in accordance with all applicable precautions and limitations. The procedure shall be followed without failure of critical elements.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

X Simulator

Control Room

Prepared: Mark Santiago **Date:** 12/28/13

Reviewed: ______ **Date:** ______

Approved: ______ **Date:** ______

Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
1	09/04/13	Revised JPM to reflect most recent procedures for 2014 LOT NRC Exam.
2	12/28/13	Revised following validation

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
PLACE RHR IN TORUS COOLING	205-01-01-016	295013	AA1.01 (3.9/3.9)

REFERENCES:

PNPS 2.2.19, Residual Heat Removal, Rev 107

PNPS 2.2.19.5, RHR Modes of Operation for Transients, Rev 23

PNPS 5.3.35.1, Transient Response Hardcards for Operating Crews, Rev 11

SIMULATOR CONDITIONS:

1. Initialize the simulator to any IC where Torus Cooling can be placed in service without having to override any initiation signals.
2. Condition RH06 (A), RHR/CS Suction Strainer Clogging, at a severity of 85%, ramped over 60 seconds, with a 5 second time delay, off the Red Light for MO-1001-16A extinguishing.
3. Maximize RBCCW Cooling IAW 5.3.35.1, Attachment 12

GENERAL TOOLS AND EQUIPMENT:

1. None

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **PLACE RHR IN TORUS COOLING**

   b) The task conditions are as follows:

      - Torus temperature is >80°F.
      - RBCCW cooling has been maximized by another operator.

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

The CRS has directed you to maximize Torus cooling by placing RHR loop "A" in torus cooling in accordance with PNPS 5.3.35.1, Attachment 14, Maximize Torus Cooling Checklist.

(Grey shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

START TIME: ____________

1.	**Procedure Step:**	**PROCEDURE CAUTION** If erratic fluctuations in discharge pressure, flow, and pump motor current occur, then potential blockage of ECCS suction strainers may exist. Consult PNPS 2.2.19.5 Attachment 8 to recognize and mitigate suction strainer blockage. [NRC Bulletin 93-02]
	Standard	The operator reads the Caution, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	[1] MAXIMIZE RBCCW cooling in accordance with Attachment 12. (This step may be performed at any time during the performance of this Attachment.)
	Standard	The operator recognizes that RBCCW Cooling has already been maximized, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	PROCEDURE NOTE To facilitate the establishment of Torus Cooling/Sprays, MO-4060A, MO-4060B (MO-4010A, MO-4010B) may initially be partially opened to establish RBCCW cooling flow to the RHR heat exchanger. However, in the final system alignment, the selected valves should be full open.
	Standard	The operator reads the Note, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	[2] OPEN/VERIFY OPEN MO-4060A AND/OR MO-4060B (MO-4010A AND/OR MO-4010B), RHR RBCCW HX A (B) Inlet Valves.
	Standard	The operator verifies that cooling water is aligned to the "A" RHR HX by observing that MO-4060A OR MO-4060B is full open.
	Cue	
	Notes	The operator may proceed to the next step without verifying the above, as opening one of these valves is accomplished by Maximizing RBCCW (initial condition).
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	[3] IF it is necessary to override LPCI initiation signals, ……
	Standard	The operator observes that the white LPCI INITIATION SIGNAL light is extinguished and proceeds to the next step.
	Cue	
	Notes	If the operator attempts to override an initiation signal this step is UNSAT.
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	[4] OPEN/VERIFY OPEN MO-1001-34A (B), Torus Cooling/Spray Block Valve.
	Standard	The operator rotates the MO-1001-34A control switch to the OPEN position, and observes RED light is ON, GREEN light is OFF.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

7.	**Procedure Step:**	[5] START/VERIFY STARTED one RHR Pump per loop.
	Standard	The operator rotates the RHR Pump "A" control switch to the START position, and observes RED light is ON, GREEN light is OFF.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	**Procedure Step:**	[6] THROTTLE OPEN/VERIFY OPEN MO-1001-36A (B), Torus Cooling Valve, AND, IF required, RAISE flow to 4500 to 4800 GPM on FI-1040-11A (B) and/or FI-1040-12A (B).
	Standard	The operator adjusts the MO-1001-36A control switch to the OPEN position to raise flow.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

9.	**Procedure Step:**	[7] CLOSE MO-1001-18A (B), Pump Min Flow Valve.
	Standard	The operator rotates the MO-1001-18A control switch to CLOSE. GREEN light is ON, RED light is OFF.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	PROCEDURE NOTES The closure of the RHR HX Bypass Valve (MO-1001-16A/B) may be delayed for any of the following: • For placing the opposite RHR loop in Torus Cooling. • For spraying the Torus. • For spraying the Drywell. • At the discretion of the SM/CRS for expediting execution of the EOPs based on prioritization. If the closure of the RHR HX Bypass Valve is delayed, then be aware that the maximum cooling configuration for the RHR System in the Torus Cooling or Containment Spray mode is not established until the RHR HX Bypass Valve is closed.
	Standard	The operator reads the Notes, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

11.	**Procedure Step:**	**APPLICABLE PROCEDURE CAUTIONS** The closure of the RHR HX Bypass Valve (MO-1001-16A/B) with two RHR Pumps operating in the same RHR loop may cause heat exchanger damage/failure.
	Standard	The operator reads the Caution, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

12.	**Procedure Step:**	[8] CLOSE MO-1001-16A (B), RHR HX A (B) Bypass Valve.
	Standard	The operator rotates the MO-1001-16A control switch to the CLOSE position, and holds the switch in the CLOSE position. Operator recognizes indications of potential ECCS suction strainer clogging and refers to PNPS 2.2.19.5 Att.8.
	Cue	
	Notes	The suction strainer clogging malfunction will occur once the valve is full closed. The operator will observe a fluctuating flow rate and motor current. The operator will refer to PNPS 2.2.19.5 Att.8 as per the CAUTION in JPM Step #1. The next steps are from 2.2.19.5, Att.8
	Results	SAT ☐ UNSAT ☐

13.	**Procedure Step:**	PROCEDURE NOTE Base document Precautions Step 5.2[12] provides possible indications of ECCS strainer blockage. All ECCS Pumps on a safety system (Loop A or Loop B) draw water through a common suction strainer. Changing over pumps will indicate whether the problem is in the suction strainer or with the pump.
	Standard	The operator reads the Notes, and proceeds. The operator may refer to PNPN 2.2.19, Precaution 5.2.[12].
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

14.	**Procedure Step:**	[1] IF only one RHR Pump in the loop is operating, THEN: • OPEN OR VERIFY OPEN the RHR Heat Exchanger Bypass Valve [MO-1001-16A (B)].
	Standard	The operator rotates the MO-1001-16A control switch to the OPEN position and observes RED light is ON, GREEN light is OFF.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

15.	**Procedure Step:**	• START the non-running pump in the loop.
	Standard	The operator rotates the RHR Pump "C" control switch to the START position, and observes RED light is ON, GREEN light is OFF.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

16.	**Procedure Step:**	• SHUT DOWN the initially running pump.
	Standard	The operator rotates the RHR Pump "A" control switch to the STOP position, and observes GREEN light is ON, RED light is OFF.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

17.	**Procedure Step:**	• CLOSE the RHR Heat Exchanger Bypass Valve MO-1001-16A.
	Standard	The operator rotates the MO-1001-16A control switch to the CLOSE position, and observes the GREEN light is ON, RED light is OFF. Operator determines that flow and amps are still fluctuating. Operator concludes that the problem is associated with the strainer and not the originally running RHR pump and reports same to the CRS
	Cue	When the operator has made the determination that the problem is suction strainer clogging and not a problem with the RHR pump, Cue that the JPM is complete.
	Notes	The operator may make this determination prior to the closing MO-1001-16A via the note at the top of the page. The critical element of this step is determining that the problem is associated with the strainer and not the originally running pump.
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **This JPM is complete.**

STOP TIME: ______________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Systems - Control Room JPM S5

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________ Date: ______________

INITIAL CONDITIONS:

- Torus temperature is >80°F.
- RBCCW cooling has been maximized by another operator.

INITIATING CUE:

The CRS has directed you to maximize Torus cooling by placing RHR loop "A" in torus cooling in accordance with PNPS 5.3.35.1, Attachment 14, Maximize Torus Cooling Checklist.

SIM JPM S6

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **EMERGENCY DIESEL GENERATOR MONTHLY SURVEILLANCE ATERNATE PATH**

OPERATOR: ____________________ **DATE:** ____________________

EVALUATOR: ____________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	15	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for UNSAT, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The reactor is at power with all house loads aligned to the Unit Aux Transformer. The monthly operability run of the "A" EDG is in progress. The "A" EDG has already been started and the Operator will commence the EDG run. As KW loading is increased, the EDG governor will become unstable as indicated by KW swings on the engine. The operator is expected to recognize indications of unstable operation and IAW the precautions of procedure 8.9.1 unload the engine and open its output breaker.

TASK STANDARD: The EDG surveillance will be performed IAW procedure 8.9.1. The diesel will be successfully paralleled to the bus and load increased. When the governor becomes unstable the operator will unload the engine and open its output breaker. There shall be no failure of critical elements.

EVALUATION METHOD:		**EVALUATION LOCATION:**	
X	Perform		Plant
	Simulate	X	Simulator
			Control Room

Prepared: ____________________ **Date:** ____________________

Reviewed: ____________________ **Date:** ____________________

Approved: ____________________ **Date:** ____________________
Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
0	10/15/07	New JPM to support the 2007 Annual Operating Exam
1	11/21/13	Updated JPM for 2014 NRC exam. Removed several non-critical steps to both shorten the JPM and which did not add any value to the evaluation of the operator.

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
RESPOND TO A DIESEL GENERATOR SPEED CONTROL GOVERNOR MALFUNCTION.	264-04-01-004	264000	A3.04 3.1/3.1

REFERENCES:

PNPS 8.9.1, EMERGENCY DIESEL GENERATOR SURVEILLANCE

SIMULATOR CONDITIONS:

1. Initialize the simulator to any IC where the UAT is supplying the 4160 VAC distribution system.
2. Place the DIESEL GEN A TEST switch to "TEST" on Panel C3.
3. Place the DIESEL GEN A GOVERNOR MODE SELECTOR switch to "DROOP" on Panel C3.
4. Start the EDG
5. Acknowledge the EDG trouble alarm
6. Create a lesson plan that will perform the following when KW load is > 1300 KW:
   a) Using local controls Increase and then decrease KW loading so that ~ 300 KW oscillations are seen on the EDG.
   b) Be prepared to execute the step repeatedly so that continuous oscillations are evident until the EDG output breaker is opened.
7. An IOS operator is standing by to support the operator in responding to the JPM.

GENERAL TOOLS AND EQUIPMENT:

1. Key for the "A" EDG Test Switch
2. Copy of 8.9.1, completed Section 7.0 Prerequisites and Attachment 1 up through section 1.3, Diesel Start Local. Section 1.3 is to be signed off in its entirety.

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:
   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin".
2. Always state the following two paragraphs:

"The title of this JPM is: **EMERGENCY DIESEL GENERATOR "A" MONTHLY SURVEILLANCE"**

   a) "The task conditions are as follows:
      i) The UAT is supplying all the electrical buses
      ii) The monthly operability run of the "A" EDG is in progress IAW procedure 8.9.1
      iii) The diesel has been started and is running unloaded.
      iv) The procedure has been completed through Attachment 1, Section 1.3 – Diesel Start - Local.
      v) The diesel is ready to be paralleled to the bus.
      vi) An operator is standing by in the diesel room.
      vii) No other testing or surveillances are currently being performed.

3. Allow the operator time to review the prepared copy of 8.9.1 prior to commencing and solicit and answer any questions the operator may have.

INITIATING CUE:
State the following:

"[State the operator's name], continue the operability run of the "A" EDG commencing with Attachment 1, Section 1.4, Diesel Start – Local, commencing at step [1].

This Task is not Time Critical

PERFORMANCE:

Notes This task is covered in procedure 8.9.1.
All controls are located on panel C3.
All critical steps must be performed in order written unless otherwise noted

START TIME: ________

1.	**Procedure Step:**	[1] RECORD start initiation time on Attachment 1C. (a) RECORD diesel VOLTAGE and FREQUENCY as indicated on Panel C3.
	Standard	Records start time on Attachment 1C Records Voltage and frequency in the spaces provided on step [1].
	Cue	If asked, Cue that the EDG was started 5 minutes ago.
	Notes	
	Performance:	**SATISFACTORY** ______ **UNSATISFACTORY** ______
	Comments:	

2.	**Procedure Step:**	(b) Using the DIESEL GEN A VOLTAGE REGULATOR SETPOINT ADJUSTER, ADJUST the diesel generator output voltage to 4200 volts.
	Standard	Operator adjusts the output voltage to 4200 volts
	Cue	None
	Notes	
	Performance:	**SATISFACTORY** ______ **UNSATISFACTORY** ______
	Comments:	

3.	**Procedure Step:**	[2] VERIFY diesel generator voltage and speed vary on demand. (a) Using the DIESEL GEN A VOLTAGE REGULATOR SETPOINT ADJUSTER, RAISE the voltage regulator setpoint until the upper limit white light illuminates.
	Standard	Voltage is raised until the upper limit white light illuminates (light above the switch)
	Cue	None
	Notes	
	Performance:	**SATISFACTORY ______ UNSATISFACTORY ______**
	Comments:	

4.	**Procedure Step:**	(b) LOWER the voltage regulator setpoint until diesel generator output voltage is approximately 4100 volts.
	Standard	Voltage is lowered to 4100 volts
	Cue	None
	Notes	
	Performance:	**SATISFACTORY ______ UNSATISFACTORY ______**
	Comments:	

5.	**Procedure Step:**	[3] SET the DIESEL GEN A TO BUS A5 synchronizing switch to "ON".
	Standard	Switch placed to on. Synchronizing meter will turn on.
	Cue	None
	Notes	
	Performance:	**SATISFACTORY ______ UNSATISFACTORY ______**
	Comments:	

6.	**Procedure Step:**	(a) SET incoming voltage slightly above the running voltage.
	Standard	Using incoming and running meters associated with the Synchronizing meter, incoming voltage is adjusted to be above running voltage
	Cue	None
	Notes	
	Performance:	**SATISFACTORY _____ UNSATISFACTORY _____**
	Comments:	

7.	**Procedure Step:**	(b) Using the DIESEL GEN A GOVERNOR SPEEDCONTROL, RAISE frequency approximately 1 Hz.
	Standard	Frequency is raised ~ 1 Hz as indicated on the frequency meter.
	Cue	None
	Notes	
	Performance:	**SATISFACTORY _____ UNSATISFACTORY _____**
	Comments:	

8.	**Procedure Step:**	(c) LOWER frequency by approximately 2 Hz.
	Standard	Frequency is lowered ~ 2 Hz as indicated on the frequency meter.
	Cue	None
	Notes	
	Performance:	**SATISFACTORY _____ UNSATISFACTORY _____**
	Comments:	

9.	**Procedure Step:**	NOTE If EDG "A" is to be paralleled with the Startup Transformer, then the degraded voltage protection for both A5 and A6 is to be declared inoperable in accordance with Technical Specifications Table 3.2.B.
	Standard	Operator reads the note and proceeds to the next step.
	Cue	None
	Notes	
	Performance:	**SATISFACTORY _____ UNSATISFACTORY _____**
	Comments:	
10.	**Procedure Step:**	[4] PARALLEL Diesel Generator "A" to Bus A5. (a) ADJUST DIESEL GEN A GOVERNOR SPEED CONTROL to produce a slow rotation in the FAST direction.
	Standard	Synchronizing meter is rotating slowly in the fast direction.
	Cue	None
	Notes	
	Performance:	**SATISFACTORY _____ UNSATISFACTORY _____**
	Comments:	

11.	**Procedure Step:**	(b) SLIGHTLY BEFORE an "in phase" indication, CLOSE Breaker A509, DIESEL GEN A TO BUS A5.
	Standard	Breaker A509 is closed and remains closed.
	Cue	None
	Notes	
	Performance:	**SATISFACTORY ______ UNSATISFACTORY ______**
	Comments:	

12.	**Procedure Step:**	(c) IMMEDIATELY INCREASE load to 500kW (450 to 550kW) with the DIESEL GEN A GOVERNOR SPEED CONTROL.
	Standard	KW meter indicates ~ 500 KW
	Cue	None
	Notes	
	Performance:	**SATISFACTORY ______ UNSATISFACTORY ______**
	Comments:	

13.	**Procedure Step:**	[5] SET the DIESEL GEN A TO BUS A5 synchronizing switch to "OFF".
	Standard	Synchronizing meter de-energizes when switch is placed to OFF.
	Cue	None
	Notes	
	Performance:	**SATISFACTORY ______ UNSATISFACTORY ______**
	Comments:	

14.	Procedure Step:	[6] INCREASE reactive load to 250kVAR (200 to 300kVAR) with the DIESEL GEN A VOLTAGE REGULATOR SETPOINT ADJUSTER. (a) RECORD time:
	Standard	KVAR meter indicates ~ 250 KVAR. Operator records time in the space provided
	Cue	None
	Notes	Recording the time is not a critical element of this critical step.
	Performance:	SATISFACTORY _____ UNSATISFACTORY _____
	Comments:	

15.	Procedure Step:	[7] AFTER the diesel has run for at least 8 minutes: (a) INCREASE load to 1000kW (950 to 1050kW) using the DIESEL GEN A GOVERNOR SPEED CONTROL.
	Standard	KW meter indicates ~ 1000 KW
	Cue	Cue the operator that eight minutes has elapsed.
	Notes	
	Performance:	SATISFACTORY _____ UNSATISFACTORY _____
	Comments:	

16.	Procedure Step:	(b) INCREASE reactive load to 500kVAR (450 to 550kVAR) using the DIESEL GEN A VOLTAGE REGULATOR SETPOINT ADJUSTER. (c) RECORD time:
	Standard	KVAR meter indicates ~ 500 KVAR. Operator records time in the space provided
	Cue	None
	Notes	Recording the time is not a critical element of this critical step. KW oscillations will begin in the next step when KW loading exceeds 1300KW.
	Performance:	SATISFACTORY ______ UNSATISFACTORY ______
	Comments:	

17.	Procedure Step:	[8] AFTER the diesel has run for at least 8 minutes: (a) INCREASE load to 1800kW (1750 to 1850kW) using the DIESEL GEN A GOVERNOR SPEED CONTROL.
	Standard	Operator observes and reports KW oscillations
	Cue	Cue the operator that eight minutes has elapsed.
	Notes	The operator may just respond to this indication. This step is to be evaluated based on the operator's actions and not solely on any single report. Precaution 10 of this procedure states: "The surveillance shall be aborted by immediately unloading the EDG and opening diesel generator Circuit Breaker A609 or A509 if any of the following parameters exist: (a) Oscillations in kVAR greater than 200 when at steady state. (b) Oscillations in kW greater than 200 when at steady state."
	Performance:	SATISFACTORY ______ UNSATISFACTORY ______
	Comments:	

18.	Procedure Step:	[9] Operator unloads the diesel
	Standard	Using the Diesel Generator, Governor Control switch, lowers the KW of the diesel.
	Cue	None
	Notes	
	Performance:	SATISFACTORY _____ UNSATISFACTORY _____
	Comments:	

19.	Procedure Step:	[10] Operator opens the Diesel output breaker
	Standard	Breaker 509 is opened
	Cue	None
	Notes	
	Performance:	SATISFACTORY _____ UNSATISFACTORY _____
	Comments:	

Cue: **This completes this JPM.**

STOP TIME: _________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Systems - Control Room JPM S6

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ____________________________ Date: __________________

INITIAL CONDITIONS:

- The UAT is supplying all the electrical buses
- The monthly operability run of the "A" EDG is in progress IAW procedure 8.9.1
- The diesel has been started and is running unloaded.
- The procedure has been completed through Attachment 1, Section 1.3 – Diesel Start - Local.
- The diesel is ready to be paralleled to the bus.
- An operator is standing by in the diesel room.
- No other testing or surveillances are currently being performed.

INITIATING CUE:

Continue the operability run of the "A" EDG commencing with Attachment 1, Section 1.4, Diesel Start – Local, commencing at step [1]].

This Task is not Time Critical

NRC SIM JPM S7

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **RESPOND TO MISC C7L PANEL ALARM (Alternate Path)**

OPERATOR: ____________________ **DATE:** ____________________

EVALUATOR: ____________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**15**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will directed to respond to a C7 Misc Alarm on a Control Room back panel. The operator will discover that the "A" Main Stack Dilution Flow Fan has tripped and diagnose that the "B" Fan failed to start. IAW the ARP, the operator is expected to start the "B" fan. Shortly thereafter the "B" Fan will also trip and the operator is expected to enter PNPS 2.4.45, Loss/Reduction of Main Stack Dilution Flow at Stack Building (**Alternate Path**). The operator will be expected to execute the actions of PNPS 2.4.45, and manually start one train of Standby Gas Treatment in accordance with PNPS 2.2.50, Standby Gas Treatment.

TASK STANDARD: The operator will respond to the C7 Misc Alarm and determine the running Stack Dilution Fan has tripped and the standby fan has failed to start. The operator will start the standby fan. When the second Stack Dilution Fan trips, the SBGT system will be placed in service IAW PNPS 2.4.45 PNPS 2.2.50, Standby Gas Treatment. The system shall be operated in accordance with all applicable precautions and limitations. The procedures shall be followed without failure of critical elements.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

X Simulator

Control Room

Prepared: Mark Santiago **Date:** 12/25/14

Reviewed: ____________ **Date:** ____________

Approved: ____________ **Date:** ____________
Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
0	09/05/13	Drafted JPM to reflect most recent procedures for 2014 LOT NRC Exam.
1	12/02/13	Revised JPM following validation

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
MANUALLY START THE SBGT SYSTEM	261 - 01 - 01 - 003	261000	A4.07 (3.1/3.2)

REFERENCES:

PNPS 2.4.45, Loss/Reduction of Main Stack Dilution Flow at Stack Building

PNPS 2.2.50, Standby Gas Treatment

SIMULATOR CONDITIONS:

1. Initialize the simulator to any IC where the "A" Stack Dilution Fan is running and the "B" fan is in standby.
2. Place the "B" SBGT Fan Control Switch to OFF and danger tag
3. Create a Lesson Plan that Performs the following:
    a. Using the remote function, de-energize MCC B29
    b. Override "B" Stack Dilution Fan Green indicating light to on.
    c. Override "B" Stack Dilution Fan Red indicating light to off
    d. Override "B" Stack Dilution Fan Yellow indicating light to off (Simulation is that a low flow start signal was never generated)
    e. Condition the following off the "B" Stack Dilution Fan Control Switch being placed in Run
        i. Delete the override on the Green indicating light
        ii. Delete the override on the red indicating light
        iii. Close the supply breaker to MCC B29 supply breaker via the remote function
        iv. De-energize the MCC B29 supply breaker using the remote function with a 30 second time delay (simulation is that the "B" Stack Dilution Fan starts manually but then trips 30 seconds later.)
    f. Override the "A" Stack Dilution Control Switch to Off.
4. Verify that the C7 Trouble alarm has annunciated.
5. Acknowledge the alarm on C2 (but not the C7L alarm)

GENERAL TOOLS AND EQUIPMENT:

1. None

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **RESPOND TO MISC C7L PANEL ALARM**

   b) The task conditions are as follows:

      - "B" Standby Gas Treatment Train is inoperable
      - Alarm C2R-A7, MISC C7L PANEL ALARM, has just annunciated

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

- Respond to the C7L alarm
- This task is not time critical

(Grey shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

START TIME: ____________

1.	**Procedure Step:**	Determine that the C7L alarm is due to C7L-A3, MAIN STACK DILUTION FAN TRIP and responds IAW ARP
	Standard	• Determine that the "A" Stack Dilution Fan is in Run and not running • Determine that the "B" Stack Dilution Fan is in Standby and not running • Determine that the "B" Stack Dilution Fan should have started • Places the "B" Stack Dilution Fan Control Switch to RUN
	Cue	
	Notes	• Shortly after the "B" Fan is started, the "B" fan will trip • The operator may proceed directly to PNPS 2.4.45 IAW Corrective Action " a)" of the ARP prior to attempting a manual start of the "B" Fan. • This step is to be marked SAT by whichever path the operator takes to start the "B" Fan
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	Determine that the "B" Stack Dilution Fan has tripped
	Standard	Enter PNPS 2.4.45, Loss of Dilution Fans at Stack Building **(Alternative Path)**
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	PROCEDURE NOTE If standby fan fails to start, Steps [2], [3], and [4] may be performed concurrently
	Standard	The operator reads the Note, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	**PROCEDURE CAUTION** Do not rely solely on any one instrument or indication. A comparison of applicable instrumentation may provide evidence to determine the cause of an event. Frequently monitor instrumentation to determine the trend of various parameters. Verify that appropriate instruments are tracking correctly. [SOER93-01]
	Standard	The operator reads the Caution, and proceeds..
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	[1] IF the loss of flow occurs due to running Main Stack dilution fan tripping, THEN VERIFY STARTED/START standby fan by placing its control switch on Panel C7 to the "RUN" position.
	Standard	Determines that this action was already attempted IAW the ARP and proceeds to the next step
	Cue	
	Notes	
	Results	SAT ☐ N/P ☐ UNSAT ☐

6.	**Procedure Step:**	[2] NOTIFY Chemistry Supervision and System Engineer.
	Standard	The operator calls Chemistry and informs them of the situation. The operator calls System Engineer and informs them of the situation.
	Cue	When the operator initiates action to contact Chemistry and the system engineer, CUE that Chemistry and the System Engineer have been informed.
	Notes	
	Results	SAT ☐ UNSAT ☐

7.	**Procedure Step:**	(a) CONTACT Security for potential tampering.
	Standard	The operator calls Security and informs them of the situation.
	Cue	When the operator initiates action to Security, CUE that Security has been informed.
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	**Procedure Step:**	(b) DISPATCH Operator to the Main Stack to check conditions of the tripped unit or loss of flow condition AND VERIFY proper positioning of dampers.
	Standard	The operator contacts an NLO and directs them to investigate the fan trip(s).
	Cue	As NLO, acknowledge direction and report that MCC B29 has tripped
	Notes	
	Results	SAT ☐ UNSAT ☐

9.	**Procedure Step:**	PROCEDURE NOTES Assuming that greater than 4% by volume hydrogen concentration reaches the stack, a minimum flow of 2250 CFM (if recombiners are not available) is required to reduce hydrogen concentration to less than 4%. With subsequent addition of the hydrogen recombiners, the need for stack dilution flow was diminished. The hydrogen recombiners are designed to reduce hydrogen levels below 4% without dilution flow. The 4000 SCFM with one train of SGT fan flow exceeds the estimated required flow of 2250 CFM. With the Main Stack dilution fans out of service, an SGT fan can provide dilution flow at 4000 SCFM for 50 days out of the year without compromising the annual average flow rate used in the ODCM. (SE 3164)
	Standard	The operator reads the Notes and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	[4] IF both dilution fans fail, THEN MANUALLY START Train A OR B of SGT in accordance with PNPS 2.2.50.
	Standard	The operator enters PNPS 2.2.50, Section 7.4 for Train A
	Cue	
	Notes	Train B is tagged out. The remaining steps of this JPM are derived from PNPS 2.2.50, Section 7.4.
	Results	SAT ☐ UNSAT ☐

11.	**Procedure Step:**	[1] VERIFY operability of RIS-1705-9 (STBY GAS TREAT DISCH) on Panel C910.
	Standard	The operator observes that RIS-1705-9 is OPERABLE by observing any or all of the following: • An on scale reading • The mode switch is in Operate • The Upscale and Downscale indicating lights are extinguished
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

12.	**Procedure Step:**	**PROCEDURE CAUTION** Loss of SGTS charcoal efficiency may occur if SGT fans are started in an area where painting has been done within the last 24 hours and Reactor Building ventilation is secured.
	Standard	The operator reads the Caution, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

13.	Procedure Step:	[2] VERIFY OR ESTABLISH the following lineup at Panel C7:

	COMPONENT	DESCRIPTION	
(a)	AO-N-98	CONTAMINATED EXH PLENUM DMPR	OPEN
(b)	AO-N-99	TRAIN A INLET DMPR	OPEN
(c)	AO-N-100	CLN EXH PLENUM DMPR	OPEN
(d)	AO-N-101	REFUEL FLR EXH PLENUM DMPR	OPEN
(e)	AO-N-108	TRAIN A OUTL DMPR	OPEN
(f)	AO-N-137	CONTAMINATED EXH DIVERT DMPR TO SGTS	OPEN
(g)	AO-N-138	REFUEL FLR EXH DIVERT DMPR	OPEN
(h)	AO-N-139	CONTAM EXH TO SBGT ISOL DAMPER	OPEN
(i)	AO-N-140	CLEAN EXH TO SBGT ISOL DAMPER	OPEN
(j)	VEX-210B	STANDBY GAS FAN B	STANDBY

Standard	The operator completes the Train A System alignment.	
Cue		
Notes	• AO-N-100 is normally open • VEX-210B is in Off and tagged. • Neither of these are critical elements of this critical step	
Results	SAT ☐	UNSAT ☐

14.	Procedure Step:	[3] START VEX-210A (STANDBY GAS FAN A) at Panel C7 by placing the control switch in "RUN".
	Standard	The operator places the VEX-210A in RUN and observes the RED light is ON, GREEN light is OFF.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

15.	**Procedure Step:**	[4] ADJUST MO-N-109 (STANDBY GAS FAN A OUTLET DAMPER) using potentiometer control on Panel C7 such that flow is 3600 to 4000 CFM as read on flow indicators FI-8126 and FI-8127 (STANDBY GAS TREATMENT COMMON OUTLET FLOW) on Panel C7.
	Standard	The operator verifies flow between 3600 to 4000 CFM is indicated on FI-8126 and FI-8127.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: ____________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Systems - Control Room JPM S7

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________ Date: ______________

INITIAL CONDITIONS:

- “B” Standby Gas Treatment Train is inoperable
- Alarm C2R-A7, MISC C7L PANEL ALARM, has just annunciated

INITIATING CUE:

- Respond to the C7L alarm
- This task is not time critical

NRC SIM JPM S8

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
(RO/SRO)

TITLE: **BYPASS A FAILED LPRM**

OPERATOR: ____________ **DATE:** ____________

EVALUATOR: ____________ **EVALUATOR SIGNATURE:** ____________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**15**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be told that with the plant operating at power whenan LPRM failure occurred; and that the crew is implementing PNPS 2.4.38, LPRM Failure. The operator will be directed to bypass LPRM 20-29B by performing Attachment 4, Bypassing an LPRM, of PNPS 2.2.66, Local Power Range Monitoring Systems. The operator will be expected to complete Steps 1-10 of Attachment 4 of PNPS 2.2.66.

TASK STANDARD: The operator will perform steps 1-10 of Attachment 4, Bypassing an LPRM, of PNPS 2.2.66, Local Power Range Monitoring Systems, while bypassing LPRM 20-29B. The system shall be operated in accordance with all applicable precautions and limitations. The procedure shall be followed without failure of critical elements.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

X Simulator

Control Room

Prepared: Mark Santiago **Date:** 01/03/14

Reviewed: ____________ **Date:** ____________

Approved: ____________ **Date:** ____________

Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
0	09/05/13	Drafted JPM to reflect most recent procedures for 2014 LOT NRC Exam.
1	010314	Updated following validation

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
RESPOND TO A LPRM FAILURE	215 - 04 - 01 - 001	215005	A4.04 (3.2/3.2)

REFERENCES:

PNPS 2.4.38, LPRM Failure, Rev 18

PNPS 2.2.66, Local Power Range Monitoring Systems, Rev 25

PNPS 2.1.15, Daily Surveillance Log (Technical Specifications, FSAR, and Regulatory Agencies), Rev 216

Technical Specifications, Rev 293

SIMULATOR CONDITIONS:

1. Initialize the simulator to any IC where power is > 30%. (Power must be high enough for 3D Monicore to run)
2. Perform the following:
3. Fail the following LPRMs associated with APRM "B" and Bypass on the back panel.
    - 44-21C
    - 28-05C
    - Hang Caution Tags on each on the back panel
4. Fail LPRM 20-29B full scale high.
5. Verify that 3D Monicore is available
6. Before commencing the JPM, verify that the AGAF for APRM "B' will remain within allowable limits when the LPRM is bypassed. If not, adjust the gain beforehand so that it will be within limits when the LPRM is bypassed.

GENERAL TOOLS AND EQUIPMENT:

1. Blank copy of PNPS 2.1.15 Attachment 2 Daily Log Test 36
2. Blank copy of PNPS of PNPS 2.2.66, Attachment 4

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **BYPASS A FAILED LPRM**

   b) The task conditions are as follows:

      - The plant is operating at power.
      - LPRM 20-29B has failed HIGH.
      - The crew is responding in accordance with PNPS 2.4.38, LPRM Failure.

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

- IAW PNPS 2.4.38, the CRS has directed you to bypass LPRM 20-29B by performing Attachment 4, Bypassing an LPRM, of PNPS 2.2.66, Local Power Range Monitoring Systems.
- The Shift Manager has granted permission to bypass the failed LPRM.

(Grey shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

START TIME: ____________

1.	**Procedure Step:**	**PNPS 2.2.66, Attachment 4,** [1] RECORD the LPRM to be bypassed: ____________________
	Standard	The operator records 20-29B in the allotted space.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	[2] OBTAIN permission from the SM to bypass the LPRM.
	Standard	The operator recognizes that permission has been granted to Bypass the LPRM.
	Cue	If required, CUE that the operator has permission to bypass the LPRM
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	[3] IF the LPRM inputs to an APRM, THEN VERIFY there are sufficient LPRM inputs to meet Tech Spec Table 3.1.1. (a) REVIEW the appropriate Tech Specs in Sections 3.1 and 3.2 for compliance with regard to LPRM operability. (b) REVIEW the appropriate Tech Specs in Sections 3.1 and 3.2 for compliance with regard to APRM operability. (c) ENSURE any LCOs determined to be required are established.
	Standard	The operator determines that this LPRM inputs into APRM Channel B. Operator determines that there are a sufficient number of total LPRMs inputting to the APRM and that there are at least two inputs per level.
	Cue	
	Notes	The operator may refer to the Daily Oper-9 Daily Log Test # 36 or Technical Specification PNPS Table 3.1.1 to make this determination. The APRM is operable if there are at least 50% of the normal complement of LPRMs operable. 11 of 14 will be available if 20-29B is bypassed. Additionally there must be at least 2 LPRMs per level. This will still be satisfied if 20-29B is bypassed.
	Results	SAT ☐ UNSAT ☐

4.	Procedure Step:	[4] IF applicable, BYPASS the APRM channel in which the LPRM inputs. (IF not applicable, ENTER "N/P".) • VERIFY the APRM channel bypass light is ON at Panels C905 and C937. (IF not applicable, ENTER "N/P".)
	Standard	The operator bypasses APRM "B" using the joystick on C905. The operator observes the WHITE bypass light is ON for APRM Channel B on Panel 905. The operator observes the WHITE bypass light is ON for APRM Channel B on Panel 937.
	Cue	
	Notes	Observing the bypass lights are illuminated are not critical elements of this critical step.
	Results	SAT ☐ UNSAT ☐

5.	Procedure Step:	[5] At Panel C937, BYPASS the LPRM by placing the control or thumb switch (S-1) to the "BY" position. • ENSURE Tech Spec Table 3.1.1 Note 13 is satisfied.
	Standard	The operator places S-1 for LPRM 20-29B in the BY position.
	Cue	
	Notes	Note 13 to Table 3.1.1 states "An APRM will be considered inoperable if there are less than 2 LPRM inputs per level or there is less than 50% of the normal complement of LPRM's to an APRM." This was verified via a previous step.
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	[6] IF the LPRM detector is placed in BYPASS due to a sustained/continuous reading of high flux failure (potential detector shorted or ion chamber power supply output voltage failed high), THEN INITIATE a tagout to remove the fuse from the associated ion chamber power supply located beneath the LPRM. SEE Attachment 6 for LPRM/fuse cross-reference.
	Standard	The operator recognizes that a Tagout must be initiated.
	Cue	Another operator will prepare the Tagout and remove the Fuse, continue with the procedure.
	Notes	
	Results	SAT ☐ UNSAT ☐

7.	**Procedure Step:**	[7] RECORD the number of operable detectors for each APRM and LPRM page using PNPS 2.1.15 Attachment 2 Daily Log Test 36 AND ATTACH it to this Procedure.
	Standard	The operator obtains and completes PNPS 2.1.15 Attachment 2 Daily Log Test 36.
	Cue	Another operator will complete PNPS 2.1.15 Attachment 2 Daily Log Test 36.
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	**Procedure Step:**	[8] DEMAND a 3D Monicore Core Power and Flow Log in accordance with PNPS 2.6.5, *"3D Monicore Operations and Supporting Functions"*. (DEPRESS F8 key.)
	Standard	The operator depresses F8 on the Graphics Workstation Keyboard, and obtains printout.
	Cue	
	Notes	Both the 3D Monicore Core Power and Flow Log obtained in this step and the Official Monitoring Case obtained in the next step provide sufficient information to make the evaluation of the last step of this JPM (step 10 of the procedure.

	Results	SAT ☐	UNSAT ☐

9.	**Procedure Step:**	[9] DEMAND an Official Monitoring Case in accordance with PNPS 2.6.5, *"3D Monicore Operations and Supporting Functions"*. (DEPRESS F6 key.)
	Standard	The operator depresses F6 on the Graphics Workstation Keyboard, and obtains printout.
	Cue	
	Notes	Both the 3D Monicore Core Power and Flow Log obtained in the previous step and the Official Monitoring Case obtained in this step provide sufficient information to make the evaluation of the last step of this JPM (step 10 of the procedure.
	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	[10] REVIEW the 3D Monicore Core Power and Flow Log and the official monitoring case to ensure the following are within acceptable limits: • APRM AGAFs (≥ 0.87 and ≤ 1.00) • MFLPD (< 1.0) • MFLCPR (< 1.0) • MAPRAT (< 1.0)
	Standard	The operator reviews the 3D Monicore Core Power and Flow Log and the official monitoring case and determines that the above requirements are met.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

11.	**Procedure Step:**	[11] IF required, RECALIBRATE the APRM AGAF in accordance with PNPS 9.1, "APRM Calibration". (IF not applicable, ENTER "N/P".)
	Standard	Determines that recalibration is not necessary.
	Cue	
	Notes	Recalibration would be necessary if the AGAF requirement of step [10] was not met.
	Results	SAT ☐ UNSAT ☐

12.	**Procedure Step:**	[12] WHEN the APRM AGAF is within acceptable limits (≥ 0.87 and ≤ 1.00), THEN PLACE the APRM channel back in service.
	Standard	Un-bypasses APRM on C905 Bypass light on C905 for APRM "B" extinguishes.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

13.	**Procedure Step:**	[13] AFTER the APRM is in service, SELECT the control rods around the bypassed LPRM AND VERIFY that the RBM HI/INOP AND the Rod Withdrawal Block lights are NOT illuminated.
	Standard	On C905 Selects control rods around LPRM 20-29B and verifies that the RBM HI/INOP AND the Rod Withdrawal Block lights are NOT illuminated.
	Cue	
	Notes	This step verifies that there are sufficient inputs to the RBM.
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: ______________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Systems - Control Room JPM S8

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________ Date: ______________

INITIAL CONDITIONS:

- The plant is operating at 100% power.
- LPRM 20-29B has failed HIGH.
- The crew is responding in accordance with PNPS 2.4.38, LPRM Failure.

INITIATING CUE:

- IAW PNPS 2.4.38, the CRS has directed you to bypass LPRM 20-29B by performing Attachment 4, Bypassing an LPRM, of PNPS 2.2.66, Local Power Range Monitoring Systems.
- The Shift Manager has granted permission to bypass the failed LPRM.

In-Plant JPM P1

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **CROSSTIE RBCCW COOLING LOOPS**

OPERATOR: ________________ **DATE:** ____________________

EVALUATOR: ________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**10**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be told that the plant was operating at 100% power when bus A5 locked out due to a ground fault and as a result, the RBCCW loop 'A' pumps have been lost. The operator will also be told that Off-Normal procedure 2.4.A5, Loss of Electrical Bus A5, has been entered. The operator will be directed to Cross-tie Reactor Building Closed Cooling Water with the 'B' loop supplying, in accordance with PNPS 2.4.42, Loss of RBCCW, Attachment 5, RBCCW Loop Crosstie. The operator will be expected to cross-tie the 'A' and 'B' Reactor Building Closed Cooling Water loops.

TASK STANDARD: The operator will cross-tie Reactor Building Closed Cooling Water with the 'B' loop supplying, in accordance with PNPS 2.4.42, Loss of RBCCW, Attachment 5, RBCCW Loop Crosstie. The system shall be operated in accordance with all applicable precautions and limitations. The procedure shall be followed without failure of critical elements.

EVALUATION METHOD:

Perform
X Simulate

EVALUATION LOCATION:

X Plant
Simulator
Control Room

Prepared: ______________________ **Date:** ______________

Reviewed: ______________________ **Date:** ______________

Approved: ______________________ **Date:** ______________
Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
1	09/09/13	Revised JPM to reflect most recent procedures for 2014 LOT NRC Exam.

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
Cross-Tie RBCCW Cooling Loops	200-05-04-075	295018	AA1.01 (3.3/3.4)

REFERENCES:

PNPS 2.4.A.5, Loss of Electrical Bus A5, Rev 4
PNPS 2.4.42, Loss of RBCCW, Rev 33

SIMULATOR CONDITIONS:

NA

GENERAL TOOLS AND EQUIPMENT:

1. PPE (Hardhat, Safety Glasses, Hearing Protection, Safety Shoes etc.)
2. Handout 1: Blank copy of Attachment 5, RBCCW Loop Crosstie, of PNPS 2.4.42, Loss of RBCCW.

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **CROSSTIE RBCCW COOLING LOOPS**

   b) The task conditions are as follows:

      - The plant was operating at 100% power when bus A5 locked out due to a ground fault and is unavailable.
      - As a result, the RBCCW loop 'A' pumps have been lost.
      - Off-normal procedure 2.4.A5, Loss of A5, has been entered.

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

The CRS has directed you to Cross-tie Reactor Building Closed Cooling Water with the 'B' loop supplying, in accordance with PNPS 2.4.42, Loss of RBCCW, Attachment 5, RBCCW Loop Crosstie.

(Grey shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

START TIME: ____________

1.	**Procedure Step:**	Note prior to [1] Due to the nature of this Procedure and the required response time, this Procedure is exempt from EN-DC-136, "Temporary Modifications".
	Standard	The operator reads the Note, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	Cautions prior to [1] The RBCCW loops shall not be cross-tied when the Torus temperature is ≥ 130°F and only one loop of containment cooling is operable. If the Drywell temperature is > 250°F and the RBCCW Loop "B" pumps are NOT operating, then go to base document Section 4.2.
	Standard	The operator reads the Cautions, and proceeds.
	Cue	If the operator questions the status of the above two parameters, respond accordingly with: "Torus water is 72 F and steady" "Drywell temperature is 130 F and rising slowly".
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	[1] PLACE/VERIFY two RBCCW Pumps in service in the active loop.
	Standard	The operator contacts the Control Room regarding RBCCW Pump status.
	Cue	Control Room reports that, "RBCCW pumps D and E are in service in RBCCW Loop B."
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	[2] PLACE the remaining RBCCW pump in the active loop to "PULL-TO-LOCK".
	Standard	The operator requests the Control Room place the F RBCCW Pump control switch in PTL.
	Cue	Control Room reports that, "RBCCW pumps F control switch is in PTL."
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	[3] SECURE any running RBCCW Pump(s) in the idle loop from Panel C1.
	Standard	The operator contacts the Control Room and verifies idle loop RBCCW Pumps are secured.
	Cue	Control Room reports that, "There are no pumps running on Loop A."
	Notes	
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	[4] PLACE all three control switches for RBCCW Pumps in the idle loop to "PULL-TO-LOCK" at Panel C1.
	Standard	The operator requests the Control Room place the A, B and C RBCCW Pump control switches in PTL.
	Cue	Control Room reports that, "RBCCW pumps A, B, and C control switches are in PTL."
	Notes	
	Results	SAT ☐ UNSAT ☐

7.	**Procedure Step:**	[5] For the idle RBCCW loop, UNLOCK AND CLOSE the RBCCW Surge Tank T-201A or T-201B Outlet Valve (30-HO-220 for Loop A OR 30-HO-221 for Loop B) to minimize backsurging and overflowing of tanks.
	Standard	The operator unlocks, and closes 'A' loop surge tank outlet, 30-HO-220.
	Cue	When the operator begins transit to the RB 91' Elevation by elevator or stairs, state: "A second operator has been dispatched to close 30-HO-220 and the valve is unlocked and CLOSED"
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	**Procedure Step:**	[6] OPEN manual suction and discharge tie valves on east wall of "A" loop RBCCW area. [6](a) 30-HO-114, RBCCW Loop A & B Suction Crosstie Block Valve
	Standard	The operator locates 30-HO-114 and simulates rotating the valve handle to the open position.
	Cue	"The handwheel is turning in the counterclockwise direction, you see the position indicator is beginning to rotate in the counterclockwise direction. The position indicator is pointing to the word OPEN."
	Notes	
	Results	SAT ☐ UNSAT ☐

9.	**Procedure Step:**	[6](b) 30-HO-115, RBCCW Loop A & B Suction Crosstie Block Valve
	Standard	The operator locates 30-HO-115 and simulates rotating the valve handle to the open position.
	Cue	"The handwheel is turning in the counterclockwise direction, you see the position indicator is beginning to rotate in the counterclockwise direction. The position indicator is pointing to the word OPEN."
	Notes	
	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	[6](c) 30-HO-192, RBCCW Loop A & B Discharge Crosstie Block Valve
	Standard	The operator locates 30-HO-192 and simulates rotating the valve handle to the open position.
	Cue	"The handwheel is turning in the counterclockwise direction, you see the position indicator is beginning to rotate in the counterclockwise direction. The position indicator is pointing to the word OPEN."
	Notes	
	Results	SAT ☐ UNSAT ☐

11.	**Procedure Step:**	[6](d) 30-HO-193, RBCCW Loop A & B Discharge Crosstie Block Valve
	Standard	The operator locates 30-HO-193 and simulates rotating the valve handle to the open position. The operator contacts the Control Room and informs them that the RBCCW loops have been cross-tied.
	Cue	"The handwheel is turning in the counterclockwise direction, you see the position indicator is beginning to rotate in the counterclockwise direction. The position indicator is pointing to the word OPEN."
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: ______________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Systems – In-Plant JPM P1

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________________ Date: __________________

INITIAL CONDITIONS:

- The plant was operating at 100% power when bus A5 locked out due to a ground fault and is unavailable.
- As a result, the RBCCW loop 'A' pumps have been lost.
- Off-normal procedure 2.4.A5, Loss of A5, has been entered.

INITIATING CUE:

The CRS has directed you to Cross-tie Reactor Building Closed Cooling Water with the 'B' loop supplying, in accordance with PNPS 2.4.42, Loss of RBCCW, Attachment 5, RBCCW Loop Crosstie.

NOTE: No plant equipment should be operated during the performance of this JPM. All actions must be SIMULATED.

In-Plant JPM P2

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
(RO/SRO)

TITLE: **TRANSFER OF RPS BUS A FROM ALTERNATE POWER TO THE A RPS MG SET**

OPERATOR: ________________ **DATE:** ____________________

EVALUATOR: ________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**10**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be told that RPS "A" was transferred to its alternate power supply to support repairs to the "A" RPS MG set, that repairs have been completed and the "A" RPS MG set has been restarted, and that RPS "A" needs to be transferred back to its normal supply. The operator will be directed to transfer RPS bus "A" back to "A" RPS MG Set in accordance with PNPS 2.2.79, Reactor Protection System. The operator will be expected to complete Section 7.1.4[1] of PNPS 2.2.79.

TASK STANDARD: The operator will transfer RPS bus "A" back to "A" RPS MG Set in accordance with PNPS 2.2.79, Reactor Protection System. The system shall be operated in accordance with all applicable precautions and limitations. The procedure shall be followed without failure of critical elements.

EVALUATION METHOD:

Perform
X Simulate

EVALUATION LOCATION:

X Plant
Simulator
Control Room

Prepared: ____________________ **Date:** ______________

Reviewed: ____________________ **Date:** ______________

Approved: ____________________ **Date:** ______________
Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
0	05/15/05	New JPM written to support the 2005 Annual Operating Exam.
1	08/28/06	New revision to procedure.
2	09/09/13	Revised JPM to reflect most recent procedures for 2014 LOT NRC Exam.

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
SWAP RPS OVER TO ALTERNATE POWER SUPPLY	212-01-04-003	212000	A2.01 (3.7/3.9)

REFERENCES:

PNPS 2.2.79, Reactor Protection System, Rev 43

SIMULATOR CONDITIONS:

NA

GENERAL TOOLS AND EQUIPMENT:

1. PPE (Hardhat, Safety Glasses, Hearing Protection, Safety Shoes etc.)
2. Handout 1: Blank copy of PNPS 2.2.79, Reactor Protection System.

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **TRANSFER OF RPS BUS A FROM ALTERNATE POWER TO THE A RPS MG SET**

   b) The task conditions are as follows:

      - RPS "A" was transferred to its alternate power supply to support repairs to the "A" RPS MG set.
      - Repairs have been completed and the "A" RPS MG set has been restarted.
      - RPS "A" needs to be transferred back to its normal supply.

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

The CRS has directed you to transfer RPS bus "A" back to "A" RPS MG Set in accordance with PNPS 2.2.79, Reactor Protection System.

(Grey shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

START TIME: ____________

1.	**Procedure Step:**	Cautions prior to [1] This is a dead-bus transfer. Transfer of the RPS power supply will cause a half-Scram, half-PCIS Group 1 isolation, and half-RBIS/SGTS initiation. When more than two breakers are open in Panel C511, the mechanical interlocks become free-floating. Always ensure the correct channel breaker is operated during this bus transfer. Never use the mechanical interlock arms to open or close breakers in Panel C511.
	Standard	The operator reads the Cautions, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	[1] IF it is desired to transfer RPS Bus A to the normal power supply from the backup power supply, THEN PERFORM the following: [1](a) PERFORM Attachment 5 (RPS Reset Verification).
	Standard	The operator contacts the Control Room to verify Attachment 5 has been performed or request that Attachment 5 be performed.
	Cue	The control room has verified that all contacts associated with the backup scram valves are open in accordance with Attachment 5.
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	[1](b) On EPA #1, VERIFY the following: [1](b)(1) Red POWER IN indicating light is ENERGIZED.
	Standard	The operator observes the POWER IN indicating light.
	Cue	The RED light is ON.
	Notes	A figure showing the EPA is included as part of this JPM (Page 14).
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	[1](b)(2) The keylock switch is in the "NORMAL" (CCW) position.
	Standard	The operator observes the Keylock Switch.
	Cue	The Keylock Switch is in NORMAL.
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	[1](b)(3) The OVER-VOLTAGE indicating light is DE-ENERGIZED.
	Standard	The operator observes the Over-Voltage indicating light.
	Cue	The Over-Voltage indicating light is OFF.
	Notes	
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	[1](b)(4) The UNDER-VOLTAGE indicating light is DE-ENERGIZED.	
	Standard	The operator observes the Under-Voltage indicating light.	
	Cue	The Under-Voltage indicating light is OFF.	
	Notes		
	Results	SAT ☐	UNSAT ☐

7.	**Procedure Step:**	[1](b)(5) The UNDER-FREQUENCY indicating light is DE-ENERGIZED.	
	Standard	The operator observes the Under-Frequency indicating light.	
	Cue	The Under-Frequency indicating light is OFF.	
	Notes		
	Results	SAT ☐	UNSAT ☐

8.	**Procedure Step:**	[1](b)(6) Red POWER OUT indicating light is DE-ENERGIZED.	
	Standard	The operator observes the Red POWER OUT indicating light.	
	Cue	The Red POWER OUT indicating light is OFF.	
	Notes		
	Results	SAT ☐	UNSAT ☐

9.	**Procedure Step:**	[1](c) PLACE EPA #1 circuit breakers to the ON position.
	Standard	The operator simulates placing the breaker to the ON position.
	Cue	The switch is moving, a click is heard, and is now at the top
	Notes	
	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	[1](c)(1) VERIFY the red POWER OUT lights are ENERGIZED.
	Standard	The operator observes the Red POWER OUT indicating lights.
	Cue	The Red POWER OUT indicating lights are ON.
	Notes	
	Results	SAT ☐ UNSAT ☐

11.	**Procedure Step:**	[1](d) On EPA #2, VERIFY the following: [1](d)(1) Red POWER IN indicating light is ENERGIZED.
	Standard	The operator observes the Red POWER IN indicating light.
	Cue	The Red POWER IN indicating light is ON.
	Notes	
	Results	SAT ☐ UNSAT ☐

12.	**Procedure Step:**	[1](d)(2) The keylock switch is in the "NORMAL" (CCW) position.
	Standard	The operator observes the Keylock Switch.
	Cue	The Keylock Switch is in NORMAL.
	Notes	
	Results	SAT ☐ UNSAT ☐

13.	**Procedure Step:**	[1](d)(3) The OVER-VOLTAGE indicating light is DE-ENERGIZED.
	Standard	The operator observes the Over-Voltage indicating light.
	Cue	The Over-Voltage indicating light is OFF.
	Notes	
	Results	SAT ☐ UNSAT ☐

14.	**Procedure Step:**	[1](d)(4) The UNDER-VOLTAGE indicating light is DE-ENERGIZED.
	Standard	The operator observes the Under-Voltage indicating light.
	Cue	The Under-Voltage indicating light is OFF.
	Notes	
	Results	SAT ☐ UNSAT ☐

15.	**Procedure Step:**	[1](d)(5) The UNDER-FREQUENCY indicating light is DE-ENERGIZED.
	Standard	The operator observes the Under-Frequency indicating light.
	Cue	The Under-Frequency indicating light is OFF.
	Notes	
	Results	SAT ☐ UNSAT ☐

16.	**Procedure Step:**	[1](d)(6) Red POWER OUT indicating light is DE-ENERGIZED.
	Standard	The operator observes the Red POWER OUT indicating light.
	Cue	The Red POWER OUT indicating light is OFF.
	Notes	
	Results	SAT ☐ UNSAT ☐

17.	**Procedure Step:**	[1](e) PLACE EPA #2 circuit breakers to the ON position.
	Standard	The operator simulates placing the breaker to the ON position.
	Cue	The switch is moving, a click is heard, and is now at the top
	Notes	
	Results	SAT ☐ UNSAT ☐

18.	**Procedure Step:**	[1](e)(1) VERIFY the red POWER OUT indicating lights are ENERGIZED.
	Standard	The operator observes the Red POWER OUT indicating lights.
	Cue	The Red POWER OUT indicating lights are ON.
	Notes	
	Results	SAT ☐ UNSAT ☐

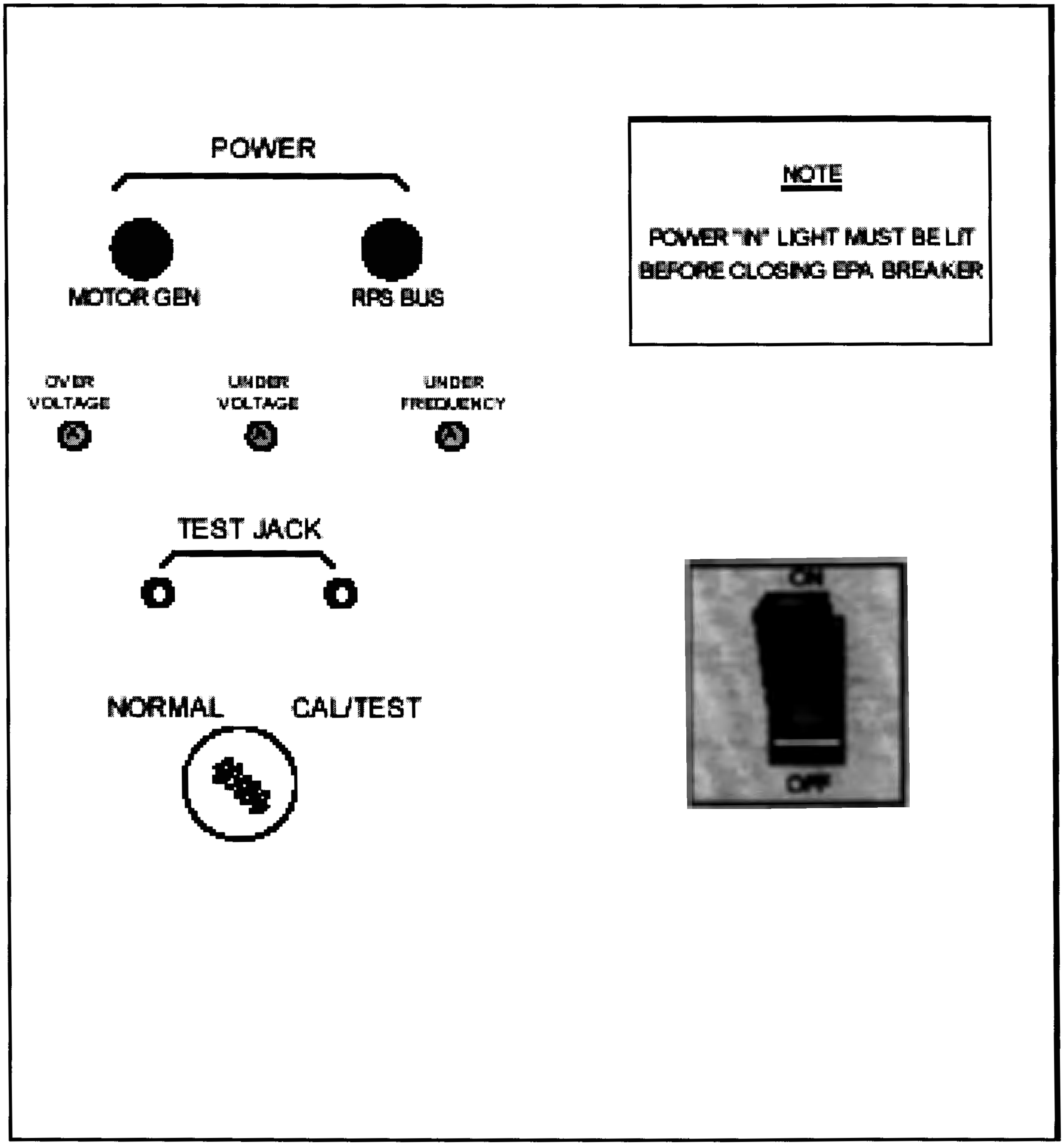
19.	**Procedure Step:**	[1](f) PERFORM the following in Panel C511 (MG Set Room): [1](f)(1) OPEN Breaker A2, ALTERNATE FEED TO BUS A.
	Standard	The operator opens breaker A2.
	Cue	A2 switch and bars are moving and the A2 breaker is open.
	Notes	A figure showing the arrangement of panel C511 is included as part of this JPM (Page 15).
	Results	SAT ☐ UNSAT ☐

20.	**Procedure Step:**	[1](f)(2) AFTER a minimum of 15 seconds has elapsed, CLOSE Breaker A1, GENERATOR A FEED.
	Standard	The operator waits a minimum of 15 seconds and closes Breaker A1.
	Cue	A1 switch and bars are moving and the A1 breaker is closed
	Notes	
	Results	SAT ☐ UNSAT ☐

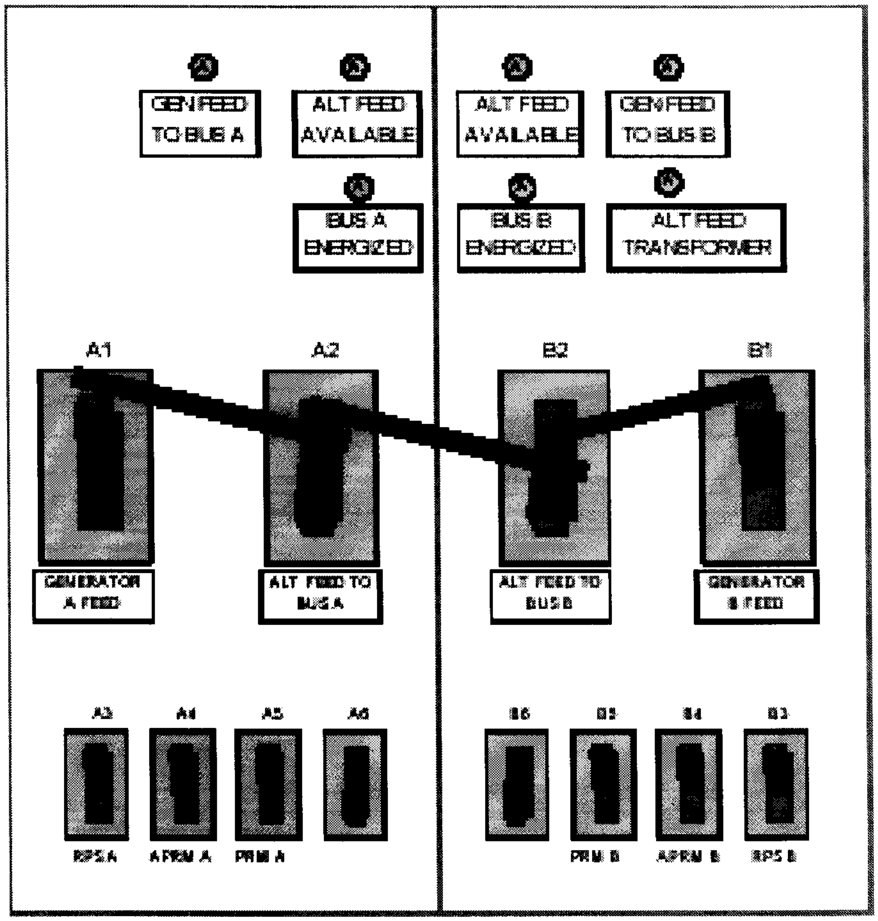
Terminating Cue: **Evaluation on this JPM is complete.**

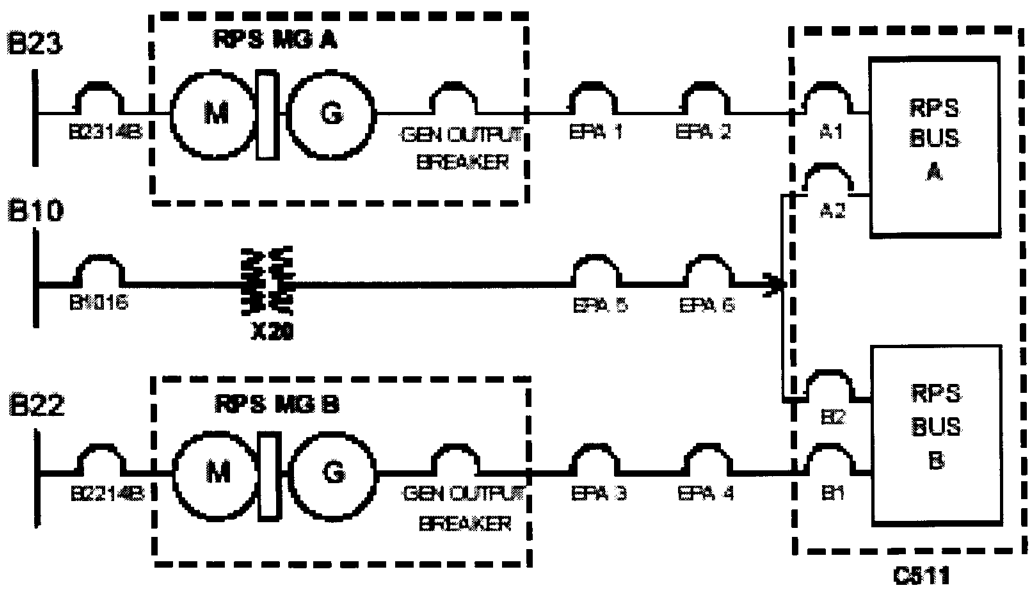
STOP TIME:

TYPICAL EPA


POWER
MOTOR GEN
RPS BUS
NOTE
POWER "IN" LIGHT MUST BE LIT BEFORE CLOSING EPA BREAKER
OVER VOLTAGE
UNDER VOLTAGE
UNDER FREQUENCY
TEST JACK
ON
OFF
NORMAL
CAL/TEST

RPS C511


GEN FEED TO BUS A
ALT FEED AVAILABLE
BUS A ENERGIZED
ALT FEED AVAILABLE
GEN FEED TO BUS B
BUS B ENERGIZED
ALT FEED TRANSFORMER
A1
A2
B2
B1
GENERATOR A FEED
ALT FEED TO BUS A
ALT FEED TO BUS B
GENERATOR B FEED
A3
A4
A5
A6
B6
B5
B4
B3
RPS A
APRM A
PRM A
PRM B
APRM B
RPS B


B23
RPS MG A
M
G
B2314B
GEN OUTPUT BREAKER
EPA 1
EPA 2
A1
RPS BUS A
B10
A2
B1016
X20
EPA 5
EPA 6
B22
RPS MG B
M
G
B2214B
GEN OUTPUT BREAKER
EPA 3
EPA 4
B2
B1
RPS BUS B
C511

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Systems – In-Plant JPM P2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________________ Date: ____________________

INITIAL CONDITIONS:

- RPS “A” was transferred to its alternate power supply to support repairs to the “A” RPS MG set.
- Repairs have been completed and the “A” RPS MG set has been restarted.
- RPS “A” needs to be transferred back to its normal supply.

INITIATING CUE:

The CRS has directed you to transfer RPS bus “A” back to “A” RPS MG Set in accordance with PNPS 2.2.79, Reactor Protection System.

NOTE: No plant equipment should be operated during the performance of this JPM. All actions must be SIMULATED.

In-Plant JPM P3

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **MANUAL TRANSFER OF B-6**

OPERATOR: ____________________ **DATE:** ____________________

EVALUATOR: ____________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**20**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be told that with the plant operating at 100% power, a momentary loss of B1 has occurred, that B-6 failed to transfer to Bus B-2, and that PNPS 2.4.B.6, Loss of Bus B6, has been entered. The operator will be directed to transfer B6 to B1 in accordance with PNPS 2.4.B.6. The operator will be expected to transfer B6 to B1 in accordance with Section 4.2.1 of PNPS 2.4.B.6.

TASK STANDARD: The operator will transfer B6 to B1 in accordance with PNPS 2.4.B.6. The system shall be operated in accordance with all applicable precautions and limitations. The procedure shall be followed without failure of critical elements.

EVALUATION METHOD:

	Perform
X	Simulate

EVALUATION LOCATION:

X	Plant
	Simulator
	Control Room

Prepared: ____________________ **Date:** ____________________

Reviewed: ____________________ **Date:** ____________________

Approved: ____________________ **Date:** ____________________
Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
5	09/02/04	Reformatted JPM.
6	11/02/05	Changed to reflect retirement of PNPS 5.3.32
7	09/11/06	Changed to have both B1 and B2 energized
8	09/09/13	Revised JPM to reflect most recent procedures for 2014 LOT NRC Exam.

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
ENERGIZE-DE-ENERGIZE BUSES (A5; A6; B1; B2; B6)	262-01-01-007	295003	AA1.03 (4.1/4.1)

REFERENCES:

PNPS 2.4.B.6, Loss of Bus B6, Rev 2

SIMULATOR CONDITIONS:

NA

GENERAL TOOLS AND EQUIPMENT:

1. PPE (Hardhat, Safety Glasses, Hearing Protection, Safety Shoes etc.)
2. Handout 1: Blank copy of PNPS 2.4.B.6, Loss of Bus B6.

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **MANUAL TRANSFER OF B-6**

   b) The task conditions are as follows:

      - A momentary loss of B1 has occurred. Bus B-1 is re-energized.
      - B-6 failed to transfer to Bus B-2.
      - Off-normal procedure 2.4.B.6 has been entered.

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

The CRS has directed you to transfer B6 to B1 in accordance with PNPS 2.4.B.6, Loss of Bus B6.

(Grey shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

START TIME: ____________

1.	**Procedure Step:**	Caution prior to [1] At Buses B1, B2, and B6, for normal breaker operation of Breakers 52-102, 52-202, 52-601, and 52-602, use manual control switch located at top of bus. DO NOT use push button on front of transfer breakers except to open the breaker, if necessary. DO NOT use push button to close the breaker in the "TEST" position. It will cause loss of B6.
	Standard	The operator reads the Caution, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	[1] Powering B6 from B1 (B1 is the preferred source) [1](a) At Bus B2, RACK IN OR CHECK Breaker 52-202 racked into "CONN" position. THEN OPEN OR CHECK OPEN the breaker.
	Standard	The operator locates breaker 52-202 and verifies breaker is racked into "CONN" position by observing mechanical indicator.
	Cue	"Mechanical indicator reads "CONN".
	Notes	Bus B2 is located in Turbine Building, 23' in the Lower Switchgear Room.
	Results	SAT ☐ UNSAT ☐
	Standard	The operator checks to see if breaker 52-202 is open.
	Cue	"Red light is off, Green light is on, and OPEN flag is showing."
	Notes	Bus B2 is located in Turbine Building, 23' in the Lower Switchgear Room.
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	[1](b) At Bus B6, RACK IN OR CHECK Breaker 52-602 racked into "CONN" position. THEN OPEN OR CHECK OPEN the breaker.
	Standard	The operator locates breaker 52-602 and verifies breaker is racked into "CONN" position by observing mechanical indicator.
	Cue	"Mechanical indicator reads "CONN".
	Notes	Bus B6 is located in Turbine Building, 23' in the Cable Spreading Room.
	Results	SAT ☐ UNSAT ☐
	Standard	The operator checks to see if breaker 52-602 is open. The operator determines that 52-602 is CLOSED and OPENS 52-602 using the Manual control switch at the top of the bus.
	Cue	Initially CUE, "Red light is on, Green light is off, and Closed flag is showing", when control switch is taken to Open then CUE "Green light is ON and Red light is off"
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	[1](c) At Bus B6, RACK IN OR CHECK Breaker 52-601 racked into "CONN" position. THEN CLOSE OR CHECK CLOSED the breaker.
	Standard	The operator locates breaker 52-601 and verifies breaker is racked into "CONN" position by observing mechanical indicator.
	Cue	"Mechanical indicator reads "CONN".
	Notes	Bus B6 is located in Turbine Building, 23' in the Cable Spreading Room.
	Results	SAT ☐ UNSAT ☐
	Standard	The operator checks to see if breaker 52-601 is Closed. The operator determines that 52-601 is OPEN and CLOSES 52-601 using the Manual control switch at the top of the bus.
	Cue	Initially CUE, "Green light is on, Red light is off, and OPEN flag is showing", when control switch at the top of the bus is taken to Closed then CUE "Red light is ON and Green light is off ".
	Notes	Caution states DO NOT use pushbutton on front of transfer breaker except to open the breaker, if necessary.
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	[1](d) At Bus B1, RACK IN OR CHECK Breaker 52-102 racked into "CONN" position. THEN CLOSE OR CHECK CLOSED the breaker.
	Standard	The operator locates breaker 52-102 and verifies breaker is racked into "CONN" position by observing mechanical indicator.
	Cue	"Mechanical indicator reads "CONN".
	Notes	Bus B1 is located in Turbine Building, 37' in the Upper Switchgear Room.
	Results	SAT ☐ UNSAT ☐
	Standard	The operator checks to see if breaker 52-102 is Closed. Operator determines that 52-102 is CLOSED.
	Cue	"Initially Red light is on, Green light is off, and Closed flag is showing"
	Notes	BUS 6 is indicating voltage.
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: ____________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Systems – In-Plant JPM P3

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ________________________ Date: ______________

• A momentary loss of B1 has occurred. Bus B-1 is re-energized.	• A momentary loss of B1 has occurred. Bus B-1 is re-energized.
• B-6 failed to transfer to Bus B-2.	• B-6 failed to transfer to Bus B-2.
• Off-normal procedure 2.4.B.6 has been entered.	• Off-normal procedure 2.4.B.6 has been entered.

INITIATING CUE:

The CRS has directed you to transfer B6 to B1 in accordance with PNPS 2.4.B.6, Loss of Bus B6.

NOTE: No plant equipment should be operated during the performance of this JPM. All actions must be SIMULATED.

JPM A1a SRO

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **REVIEW A PORTION OF CONTROL ROOM DAILY LOGS**

OPERATOR: ____________________ **DATE:** ____________________

EVALUATOR: ____________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**20**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be told that the plant is at approximately 100% power, and provided with a completed portion of Attachment 1 - OPER-09, PNPS Operations 0700 - 1900 (Day Watch) Surveillance Log, of PNPS 2.1.15, Daily Surveillance Log. The operator will be directed to perform a review of Attachment 1 Test #20 through Test #40, and identify any concerns, if any. The operator will be expected to identify specific parameters on three different Tests (23, 31 and 36) that are not within their required or allowable band, and all additional action that must be taken.

TASK STANDARD: The operator will be directed to perform a review of Attachment 1 Test #20 through Test #40, and identify any concerns, if any. The operator will be expected to identify specific parameters on three different Tests (23, 31 and 36) that are not within their required or allowable band, and all additional action that must be taken. The procedure shall be followed without failure of critical elements.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

Simulator

X Classroom

Prepared: Mark Santiago **Date:** 09/10/13

Reviewed: ____________________ **Date:** ____________

Approved: ____________________ **Date:** ____________

Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
0		Drafted JPM to reflect most recent procedures for 2011 LOT NRC Exam.
1	09/10/13	Drafted JPM to reflect most recent procedures for 2014 LOT NRC Exam.

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
REVIEW OPERATING LOGS FOR TRENDS AND OUT-OF-SPECIFICATION CONDITIONS IAW 1.3.34	341-03-02-010	Generic	2.1.18 (3.6/3.8)

REFERENCES:

1. PNPS 2.1.15, Daily Surveillance Log (Technical Specifications, FSAR, and Regulatory Agencies), Rev 216
2. Technical Specifications, Rev 293
3. PNPS 1.3.6, TECHNICAL SPECIFICATIONS - ADHERENCE AND CLARIFICATIONS

SIMULATOR CONDITIONS:

NA

GENERAL TOOLS AND EQUIPMENT:

1. Handout 1: Partially completed Att.1 of PNPS 2.1.15, Daily Surveillance Log (file embedded to the right)

NRC Admin JPM A1a SRO Handout 1 01011

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **REVIEW A PORTION OF CONTROL ROOM DAILY LOGS**

   b) The task conditions are as follows:

      - The plant is operating at 100% power.
      - Attachment 1, OPER-09, PNPS Operations 0700 - 1900 (Day Watch) Surveillance Log, of PNPS 2.1.15, Daily Surveillance Log, has been completed.
      - Today is Tuesday

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

Perform a review of the Attachment 1 of the Daily Surveillance Log beginning at Daily Log Test #20. When the review is completed through Daily Log Test #40, inform the examiner of findings and any Technical Specification, FSAR and/or procedural required actions, if any, from your review.

(Gray shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

START TIME: ________

1.	**Procedure Step:**	7.0[2] Each test should be initialed by the individual recording the data. A detailed review should then be performed by the Control Room Supervisor (CRS) and the "reviewed by" entry initialed for each in a timely manner.
	Standard	The operator reviews Tests 20 through 22. Determines that the Tests were completed satisfactorily and initials the "Reviewed by" block.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	7.0[2] Each test should be initialed by the individual recording the data. A detailed review should then be performed by the Control Room Supervisor (CRS) and the "reviewed by" entry initialed for each in a timely manner.
	Standard	The operator reviews Test 23 (Page 31 of 68) and determines that there is more than an 8 °F difference between TI-5022-2B and the other torus water temperature indicators.
	Cue	If the operator states that they must initiate a Work Request, state "Another operator will issue the work request." If the operator reports that they are notifying the Shift Manager, as the Shift Manager reply, "I understand. Determine required T.S., FSAR and/or procedural requirements."
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	Operator determines Tech Spec implications of the failed test.
	Standard	Refers to Tech Spec Table 3.2.F and determines that TI-5022-2B is a TS Surveillance instrument. Determine that a total of 4 Torus Water Temperature instruments are available and a minimum of 2 is required. Determine that a Tracking LCO is required to document the inoperable instrument.
	Cue	Once the Tech Specs have been addressed, CUE the operator to continue the review.
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	7.0[2] Each test should be initialed by the individual recording the data. A detailed review should then be performed by the Control Room Supervisor (CRS) and the "reviewed by" entry initialed for each in a timely manner.
	Standard	The operator reviews Tests 24 through 30. Determines that the Tests were completed satisfactorily and initials the "Reviewed by" block.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	7.0[2] Each test should be initialed by the individual recording the data. A detailed review should then be performed by the Control Room Supervisor (CRS) and the "reviewed by" entry initialed for each in a timely manner.
	Standard	The operator reviews Test 31 (Page 43 of 68) and determines that boron concentration is too low (Step 1, 8.4 versus 8.42%).
	Cue	If the operator states that they must initiate a Work Request, state "Another operator will issue the work request." If the operator states that they must notify Chemistry state "The Shift Manager will notify Chemistry. Determine required T.S., FSAR and/or procedural requirements."
	Notes	
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	Operator determines Tech Spec implications of the failed test.
	Standard	The operator determines that TS 3.4.A applies and that the concentration must be restored within limits within 72 hours.
	Cue	Once the Tech Specs have been addressed, CUE the operator to continue the review.
	Notes	The operator may reference TS 3.4.C which refers to T.S. 3.4.A.
	Results	SAT ☐ UNSAT ☐

7.	**Procedure Step:**	7.0[2] Each test should be initialed by the individual recording the data. A detailed review should then be performed by the Control Room Supervisor (CRS) and the "reviewed by" entry initialed for each in a timely manner.
	Standard	The operator reviews Tests 32 through 36. Determines that the Tests were completed satisfactorily and initials the "Reviewed by" block.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	**Procedure Step:**	7.0[2] Each test should be initialed by the individual recording the data. A detailed review should then be performed by the Control Room Supervisor (CRS) and the "reviewed by" entry initialed for each in a timely manner.
	Standard	The operator reviews Test 36 (Page 47 of 68) and identifies that the Spent Fuel Pool level is OOS Low. (must be less than 5 feet below the floor)
	Cue	When the operator has determined that the recorded fuel pool level is too low, Role Play as Shift Manager and CUE that you have talked to the operator that recorded the pool level and determined that there was a transposition error and the actual level is 1.6 feet below the floor) After providing the above Cue, provide another Cue that now they are to assume that actual spent fuel pool level is 6.1 and determine any Tech Spec implications.
	Notes	The 1st CUE above is provided as there are indications available in the control room that would alert the crew to a fuel pool level this low and that log review would not be the mechanism for detecting the low level.
	Results	SAT ☐ UNSAT ☐

9.	**Procedure Step:**	Operator determines Tech Spec implications of the failed test.
	Standard	The operator determines that TS 3.10.C applies. Determines that there is no compensatory action associated with this LCO. Refers to PNPS 1.3.6, TECHNICAL SPECIFICATIONS - ADHERENCE AND CLARIFICATIONS Section 5.1. [1](c). Determines that a 24-hour shutdown shall be initiated.
	Cue	
	Notes	The required action to take is also discussed in the Discussion section of this procedure on page 5.
	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	7.0[2] Each test should be initialed by the individual recording the data. A detailed review should then be performed by the Control Room Supervisor (CRS) and the "reviewed by" entry initialed for each in a timely manner.
	Standard	The operator reviews Tests 37 through 40. Determines that the Tests were completed satisfactorily and initials the "Reviewed by" block.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: ______________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Admin – JPM A1a SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________ Date: ______________

Initial Conditions:

- The plant is operating at 100% power.
- Attachment 1, OPER-09, PNPS Operations 0700 - 1900 (Day Watch) Surveillance Log, of PNPS 2.1.15, Daily Surveillance Log, has been completed.
- Today is Tuesday

INITIATING CUE:

Perform a review of the Attachment 1 of the Daily Surveillance Log beginning at Daily Log Test #20. When the review is completed through Daily Log Test #40, inform the examiner of findings and any Technical Specification, FSAR and/or procedural required actions, if any, from your review.

NRC JPM A1b SRO

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
(RO/SRO)

TITLE: **Determine Reportability & Actions Associated with a Tech Spec Required Shutdown**

OPERATOR: ____________________ **DATE:** ____________________

EVALUATOR: ____________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**20**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be told that the plant is at rated power, that an RHR pump was declared inoperable 5 days ago. The operator will also be informed that an Emergency Diesel was just declared inoperable and that it will take at least 36 hours to repair. The operator will be directed to determine what actions are required. After the operator has determined that a 24 hour plant shutdown is required, the operator will be asked the following questions associated with the plant shutdown and to justify their responses using station procedures:

- When the Shutdown must be commenced
- What constitutes "Initiation of a Plant Shutdown"
- Any NRC reportability requirements

TASK STANDARD: The operator will determine that Cold S/D must be achieved within 24 hours and a reactor shutdown must commence within 12 hours; and that the event is a 4-Hour reportable event under 50.72(b)(2)(i). The operator will also determine when the shutdown must commence and what constitutes an initiation of a plant shutdown. The procedure shall be followed without failure of critical elements.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

X Simulator

Classroom

Prepared: Mark Santiago **Date:** 01/09/14

Reviewed: ______________ **Date:** ______________

Approved: ______________ **Date:** ______________
Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
0	09/10/13	Drafted JPM to reflect most recent procedures for 2014 LOT NRC Exam.
1	01/09/14	Revised following validation

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
PERFORM REQUIRED NOTIFICATIONS OF ON-SITE AND OFF-SITE PERSONNEL FOR ABNORMAL EVENTS; AND-OR EMERGENCIES IAW 1.3.12.	344-03-02-003	Generic	2.1.2 (4.1/4.4)

REFERENCES:

1. PNPS 1.3.3, Authority to Shut Down and Start Up the Station
2. PNPS 1.3.12, Notification and Recall of Personnel
3. PNPS 1.3.6, Technical Specifications – Adherence and Clarifications
4. Technical Specifications
5. NUREG 1022

SIMULATOR CONDITIONS:

NA

GENERAL TOOLS AND EQUIPMENT:

NA

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **Determine Reportability & Actions Associated with a Tech Spec Required Shutdown**

   b) The task conditions are as follows:

   - The plant is at rated power.
   - RHR Pump "A" was declared inoperable 5 days ago. The pump is expected to be returned to service in 36 hours.
   - The "B" EDG has just now also been declared inoperable.
   - Troubleshooting activities have commenced but it is unknown when the EDG will be returned to service.
   - All other equipment is operable.

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

Determine any Technical Specification actions and NRC notifications are required due to the EDG issue.

(Gray shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM).

START TIME: ____________

1.	**Procedure Step:**	Assess the EDG inoperability with respect to Technical Specifications.
	Standard	The operator addresses Technical Specification 3.9.B.3 and determines that: *From and after the date that one of the diesel generators or associated emergency bus is made or found to be inoperable for any reason, continued reactor operation is permissible in accordance with Specifications 3.4.B.1, 3.5.F.1, 3.7.B.1.c, 3.7.B.1.e, 3.7.B.2.c, and 3.7.B.2.e if Specification 3.9.A.1 and 3.9.A.2.a are satisfied.* The operator addresses Technical Specification 3.5.F.1 and determines that: *During any period when one emergency diesel generator (EDG) is inoperable, continued reactor operation is permissible only during the succeeding 72 hours unless such EDG is sooner made operable, provided that all of the low pressure core and containment cooling systems shall be operable, and the remaining EDG shall be operable in accordance with 4.5.F.1. If this requirement cannot be met, an orderly shutdown shall be initiated and the reactor shall be placed in the Cold Shutdown Condition within 24 hours.* Determines that LPCI is inoperable due to the RHR Pump being inoperable. Determines that TS 3.5.f is not met due to LPCI being Inoperable and that an orderly shutdown shall be initiated and the reactor shall be placed in the Cold Shutdown Condition within 24 hours.
	Cue	**AFTER the candidate determines that a reactor shutdown must be initiated, ask them when the reactor shutdown must be started and to justify their answer using plant procedures.**
	Notes	Per the TS bases, "The LPCI system consists of four LPCI pumps and associated piping and valves with all active components required to be operable." Although TS 3.9.B.3 addresses several LCOs the most limiting is TS 3.5.F.1.
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	Refers to PNPS 1.3.6, Technical Specifications – Adherence and Clarifications IAW section 5.1, step [1][10], determines the following: In order to establish a consistent response to a Shutdown LCO, PNPS has established the following timeline for LCO resolution (CR-PNP-2011-3554 CA9). Upon entering a 24-hour cold shutdown action statement, with "T" being the time cold shutdown conditions are required to be established: a. T-16 .... b. T-14 .... c. T-12, commence a plant shutdown in accordance with PNPS 2.1.5.
	Standard	The operator determines that the reactor shutdown must start **no later** than 12 hours from now.
	Cue	**After the operator has determined when the shutdown must be commenced ask the operator what constitutes "Initiation Of Plant Shutdown". The operator is to justify their answer.**
	Notes	The operator may also refer to Refers to PNPS 1.3.3, AUTHORITY TO SHUT DOWN AND START UP THE STATION and the example contained within Step 5.0[3]. In the example provided, the shutdown is commenced no later than 12 hours prior to the expiration of the 24 hour clock.
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	Determine what action satisfies the TS requirement of initiation of a plant shutdown.
	Standard	Refers to PNPS 1.3.3, AUTHORITY TO SHUT DOWN AND START UP THE STATION. Determines that IAW section 3, definition [3], initiation of a plant shutdown is defined as: *Commencement of the insertion of negative reactivity into the Reactor core for the purpose of Reactor shutdown. This negative reactivity insertion is usually accomplished by means of recirculation flow reduction and/or control rod insertion (other than by an automatic Scram signal).*
	Cue	

	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	Determine any NRC reportability requirements
	Standard	The operator refers to PNPS 1.3.12 – Notification and Recall of Personnel. The operator determines that the event is reportable when the shutdown is initiated under PNPS 1.3.12 Attachment 2, Step 4, The initiation of any plant shutdown required by the Technical Specifications, within 4 hours required by 50.72(b)(2)(i)
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: ______________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Admin – JPM A1b SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________________ Date: ____________________

INITIAL CONDITIONS:

- The plant is at rated power.
- RHR Pump “A” was declared inoperable 5 days ago. The pump is expected to be returned to service in 36 hours.
- The “B” EDG has just now also been declared inoperable.
- Troubleshooting activities have commenced but it is unknown when the EDG will be returned to service.
- All other equipment is operable.

INITIATING CUE:

Determine any Technical Specification actions and NRC notifications are required due to the EDG issue.

NRC JPM A2 SRO

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **REVIEW EDG FUEL OIL SURVEILLANCE**

OPERATOR: ____________________ **DATE:** ____________________

EVALUATOR: ____________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**15**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be provided with an initial set of plant conditions, and a completed Attachment 3, Emergency Diesel Generators On-Site Fuel Oil Quantity, of PNPS 8.9.1, Emergency Diesel Generator and Associated Emergency Bus Surveillance. The operator will be directed to perform the Acceptance Verification Signoff in accordance with Step 4.1 of PNPS 8.9.1 The operator will be expected to discover that the surveillance has been incorrectly completed, and for the given plant conditions Technical Specification 3.5.F.1, Minimum Low Pressure Cooling and Diesel Generator Availability is NOT met.

TASK STANDARD: The operator will perform the Acceptance Verification Signoff of PNPS 8.9.1. The operator must determine that the surveillance has been incorrectly completed; and for the given plant conditions Technical Specification 3.5.F.1, Minimum Low Pressure Cooling and Diesel Generator Availability is NOT met. The operator will be required to complete Attachment 9 of PNPS 1.3.34 in accordance with the attached KEY. The procedure shall be followed without failure of critical elements.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

Simulator

X Classroom

Prepared: Mark Santiago **Date:** 01/07/14

Reviewed: ____________ **Date:** ____________

Approved: ____________ **Date:** ____________

Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
0	09/10/13	Drafted JPM to reflect most recent procedures for 2014 LOT NRC Exam.
1	01/07/14	Revised JPM following validation

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
REVIEW SURVEILLANCE TEST RESULTS TO ENSURE COMPLIANCE WITH TECH. SPECS. AND IST REQUIREMENTS AS DIRECTED BY THE CRS	299-03-05-008	Generic	2.2.12 (3.7/4.1)

REFERENCES:

1. PNPS 8.9.1, Emergency Diesel Generator and Associated Emergency Bus Surveillance, Rev 126
2. Technical Specifications, Rev 293

SIMULATOR CONDITIONS:

NA

GENERAL TOOLS AND EQUIPMENT:

1. Handout 1: Marked up Copy of Attachment 3 of PNPS 8.9.1, Emergency Diesel Generator and Associated Emergency Bus Surveillance.
2. Place keep pages 1 through 4 of Handout before administering.

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **REVIEW EDG FUEL OIL SURVEILLANCE**

   b) The task conditions are as follows:

      - The plant is operating at 100% power.
      - The SBO DG Fuel Oil Storage Tank Level indication panel has been de-energized for maintenance.
      - The SBO DG is inoperable.
      - No other Technical Specification equipment is out of service.
      - The monthly Diesel Generator Fuel Oil Quantity Check is in progress in accordance with Attachment 3 of PNPS 8.9.1, Emergency Diesel Generator and Associated Emergency Bus Surveillance.
      - Attachment 3 has just been completed.

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

Perform the Acceptance Verification Signoff in accordance with Step 4.1 of PNPS 8.9.1 and determine any discrepancies.

(Gray shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handouts 1-2.

START TIME: ___________

1.	**Procedure Step:**	**Shift Manager Surveillance Review** [1] Reviews Page 1 of Attachment 3
	Standard	Determines that the fuel oil in EDG "B" Storage Tank is below the level requiring ordering additional fuel oil for the tank. Determines that the fuel oil in EDG "B" Storage Tank is below the Administrative limit.
	Cue	As required direct the operator to continue his/her review.
	Notes	Note 2 at the top of page 1, list the following requirements: The EDG diesel fuel oil storage tanks have the following administrative and Technical Specifications related requirements: • Diesel fuel reorder notification at ≤ 22,800 gallons per tank • Administrative Limit ≥ 22,400 gallons per tank • Technical Specifications minimum indicated level ≥ 22,263 gallons
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	[2] Reviews Page 2 of Attachment 3
	Standard	Discovers no discrepancies.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	[3] Reviews Page 3 of Attachment 3
	Standard	Determines that for Station Blackout Diesel Generator tank T-160B the number of gallons for a measured tank level of 91 3/8 inches is incorrect by referring to the conversion chart. Determines that the level should be 16,637 gallons.
	Cue	As required direct the operator to continue his/her review.
	Notes	The operator may initially note that T-106B has a lower measured level than T-106A but a higher number of gallons.
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	[4] Reviews Page 4 of Attachment 3
	Standard	Determines that the error made in determining the number of gallons in SBODG tank T-160B results in an incorrect calculation for the total amount of fuel oil on site. Determines that if the correct value is used there is an insufficient amount of fuel oil on site to support operability of both diesel generators IAW step [1] (a) of Section 2.0
	Cue	After the operator has met that determination there is insufficient fuel oil on site to support operability of both EDGs, direct the operator to the required actions.
	Notes	If the correct value of 16,637 gallons is used the total amount of fuel oil on site is only 79,208 gallons. The minimum requirement to support operability of both diesels is 79,228 gallons.
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	Determine the require actions for insufficient fuel oil on site to support operability of both EDGs.
	Standard	Determine that there is sufficient fuel on site to support operability of either EDG. Determine that one EDG should be declared inoperability (preferably EDG "B") Refers to LCO 3.9.B.3 and then to 3.5.F.1 and enter a 72 hour LCO. Determine that fuel oil should be ordered.
	Cue	
	Notes	Using steps [1] (b) and (c) on page 4 the operator can determine that there is sufficient fuel oil on site to support operability of either generator but not both. The operator should recognize that it is preferable to enter the LCO for the "B" EDG since it has the lower amount of fuel oil available but that is not a critical element of this critical step.

	Results	SAT ☐	UNSAT ☐

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: ________________

Job Performance Measure No.: 2014 Admin – JPM A2 SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________________ Date: __________________

Initial Conditions:	• The plant is operating at 100% power. • The SBO DG Fuel Oil Storage Tank Level indication panel has been de-energized for maintenance. • The SBO DG is inoperable. • No other Technical Specification equipment is out of service. • The monthly Diesel Generator Fuel Oil Quantity Check is in progress in accordance with Attachment 3 of PNPS 8.9.1, Emergency Diesel Generator and Associated Emergency Bus Surveillance. • Attachment 3 has just been completed.
INITIATING CUE:	Perform the Acceptance Verification Signoff in accordance with Step 4.1 of PNPS 8.9.1 and determine any discrepancies.

EMERGENCY DIESEL GENERATORS ON-SITE FUEL OIL QUANTITY

1.0 OBTAIN FUEL OIL TANK LEVELS

NOTES

1. In accordance with Technical Specifications Section 4.9.A.1.d, the quantity of diesel fuel available on-site shall be logged once per month. If either EDG diesel fuel storage tank contains less than 19,800 gallons of fuel oil, then the respective EDG is declared inoperable in accordance with Technical Specifications Section 3.5.F.1.
2. The EDG diesel fuel oil storage tanks have the following administrative and Technical Specifications related requirements:
   - Diesel fuel reorder notification at ≤ 22,800 gallons per tank
   - Administrative Limit ≥ 22,400 gallons per tank
   - Technical Specifications minimum indicated level ≥ 22,263 gallons (19,800 gallons, plus 1535 gallons unusable due to suction pipe configuration, plus 728 gallons to mitigate potential vortexing and air ingestion, plus 200 gallons instrument uncertainty) (IN1-238)
3. The SBO diesel fuel oil storage tanks have the following administrative requirements:
   - Diesel fuel reorder notification at ≤ 17,600 gallons per tank
   - Administrative Limit ≥ 17,351 gallons per tank (using measuring stick)
   - Administrative Limit ≥ 17,598 gallons per tank (using C212C indication)

Initials

[1] **RECORD** current EDG "A" fuel oil storage tank level reading (Monitor C212A):

T-126A 22,850 gallons — DR

[2] **RECORD** current EDG "B" fuel oil storage tank level reading (Monitor C212A):

T-126B 22,300 gallons — DR

NOTE
If possible, the removal of the manhole covers is to be coordinated with Chemistry's monthly SBODG fuel oil storage tank sampling.

Initials

[3] The SBODG fuel oil storage tank levels may be determined by performing method in Step (a) **OR** (b). **ENTER** "N/P" for steps of method not utilized:

(a) Measurement of SBODG fuel oil storage tanks

(1) **DETERMINE** the current SBODG fuel oil storage tanks' level reading (Panel C212C).

a. **PRESS** "Function" button. N/P

b. **PRESS** "STEP" button, **READ**, **AND** **RECORD** T-160A.

T-160A ________gallons N/P

c. **PRESS** "TANK" button, **READ**, **AND** **RECORD** T-160B.

T-160B ________gallons N/P

d. **PRESS** "BACK" button twice. N/P

NOTE

The manhole cover removal tool can be obtained from the Tool Depot. During off normal hours, the on-shift Chemistry Technician is to be contacted. Chemistry maintains a tool in the Fuel Oil Lab. (PR01.3637)

CAUTION

Ensure area surrounding the manhole covers of the SBODG fuel oil storage tanks is reasonably clean and dry so that water and/or debris will not enter the tanks during measurement.

Initials

(b) **IF** SBODG fuel oil tank instrumentation is NOT available, **THEN PERFORM** the following (**IF** not performed, **ENTER** "N/P"):

(1) **REMOVE** the manhole covers on the SBODG fuel oil storage tanks, as required, to obtain tank level measurement. DM

(2) **MANUALLY MEASURE** (using dipstick or sounding tape) each SBO fuel oil storage tank level. Using the attached conversion chart, **CONVERT** the measured level to gallons **AND RECORD** the level and gallons below.

T-160A Level 95 7/8" = 17,421 gallons DM

T-160B Level 91 3/8" = 17,987 gallons DM

(3) **REINSTALL** the manhole covers on the SBODG fuel oil storage tanks. DM

2.0 DETERMINING EMERGENCY DIESEL GENERATORS ON-SITE FUEL OIL QUANTITY

[1] **COMPLETE** applicable step **AND ENTER** "N/P" for those steps not required to be performed.

(a) BOTH EDGS OPERABLE, **ADD** the following tank volumes:

- T-126A 22,850 gallons (indicated ≥ 22,263 gallons)
- T-126B 22,300 gallons (indicated ≥ 22,263 gallons)
- T-160A 17,421 gallons (≥ 17,351 gallons)*
- T-160B 17,987 gallons (≥ 17,351 gallons)*

TOTAL: 80,558 gallons (≥ 79,228 gallons) DM Initials

* Using measuring stick

(b) EDG A OPERABLE [EDG B INOPERABLE], **ADD** the following tank volumes:

- T-126A ________ gallons (indicated ≥ 22,263 gallons)
- T-160A ________ gallons
- T-160B ________ gallons
- TOTAL: ________ gallons (≥ 39,965 gallons) N/P Initials

(c) EDG B OPERABLE [EDG A INOPERABLE], **ADD** the following tank volumes:

- T-126B ________ gallons (indicated ≥ 22,263 gallons)
- T-160A ________ gallons
- T-160B ________ gallons
- TOTAL: ________ gallons (≥ 39,965 gallons) N/P Initials

3.0 ACCEPTANCE CRITERIA

[1] For both EDGs to be operable, all of the following must be met:

(a) T-126A contains ≥ 22,263 gallons of fuel oil indicated.

(b) T-126B contains ≥ 22,263 gallons of fuel oil indicated.

(c) The total volume of available fuel oil on-site ≥ 79,228 gallons [Step 2.0[1](a)].

[2] For "A" EDG only to be operable, all of the following must be met:

(a) T-126A contains ≥ 22,263 gallons of fuel oil indicated.

(b) The total volume of available fuel oil on-site is ≥ 39,965 gallons [Step 2.0[1](b)].

[3] For "B" EDG only to be operable, all of the following must be met:

(a) T-126B contains ≥ 22,263 gallons of fuel oil indicated.

(b) The total volume of available fuel on-site is ≥ 39,965 gallons [Step 2.0[1](c)].

[4] If the diesel fuel oil level in any tank is below its reorder point, then actions have been initiated to order additional fuel oil.

- EDG fuel reorder point at ≤ 22,800 gallons
- SBO fuel reorder point at ≤ 17,600 gallons

4.0 ACCEPTANCE VERIFICATION AND SIGNOFF

4.1 ACCEPTANCE SIGNOFF FOR: ☐ Both EDGs ☐ EDG "A" only ☐ EDG "B" only

[1] Acceptance Criteria: ☐ Met ☐ Not Met

Shift Manager ______________________________ ____________
Signature Date

(a) Corrective action (if required)

WR/WO # ________________ CR # ________________

WR/WO # ________________ CR # ________________

LCO # ________________

Other ____

____

____

		Initials
[2]	If applicable, perform Surveillance Test Review in accordance with PNPS 1.3.34.	________
[3]	Record the performance of this surveillance in the Control Room Log.	________
[4]	If applicable, a Pre-Evolution Brief has been attached to the completed surveillance.	________ OA
[5]	Prepare the completed Procedure for scanning and record retention.	________ OA

4.2 PM DATABASE DOCUMENTATION

NOTE

"N/P" is to be entered for those PMRQs not required to be performed.

		Initials
[1]	If Acceptance Criteria were met for both EDGs, update PMRQ 50078454-01.	______
[2]	If Acceptance Criteria were met for EDG "A" only, update PMRQ 50078452-01.	______
[3]	If Acceptance Criteria were met for EDG "B" only, update PMRQ 50078453-01.	______

SBODG FUEL OIL TANK CONVERSION CHART

XERXES CORPORATION

Dipstick/Calibration Chart for 20,000 Gallon - 10' Diameter **S.W., DWT-I** Tank

DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS	DIPSTICK READING	GAL
0-1/8"	4	8-5/8"	601	17-1/8"	1672	25-5/8"	3041	34-1/8"	4620	42-5/8"	6349	51-1/8"	8172
0-1/4"	6	8-3/4"	614	17-1/4"	1690	25-3/4"	3062	34-1/4"	4645	42-3/4"	6375	51-1/4"	8199
0-3/8"	9	8-7/8"	627	17-3/8"	1709	25-7/8"	3084	34-3/8"	4669	42-7/8"	6401	51-3/8"	8226
0-1/2"	13	9"	640	17-1/2"	1727	26"	3106	34-1/2"	4694	43"	6427	51-1/2"	8254
0-5/8"	16	9-1/8"	654	17-5/8"	1745	26-1/8"	3128	34-5/8"	4719	43-1/8"	6454	51-5/8"	8281
0-3/4"	20	9-1/4"	667	17-3/4"	1764	26-1/4"	3150	34-3/4"	4743	43-1/4"	6480	51-3/4"	8308
0-7/8"	24	9-3/8"	681	17-7/8"	1782	26-3/8"	3172	34-7/8"	4768	43-3/8"	6506	51-7/8"	8336
1"	29	9-1/2"	694	18"	1801	26-1/2"	3195	35"	4792	43-1/2"	6533	52"	8363
1-1/8"	33	9-5/8"	708	18-1/8"	1820	26-5/8"	3217	35-1/8"	4817	43-5/8"	6559	52-1/8"	8390
1-1/4"	38	9-3/4"	721	18-1/4"	1838	26-3/4"	3239	35-1/4"	4842	43-3/4"	6586	52-1/4"	841[illegible]
1-3/8"	44	9-7/8"	735	18-3/8"	1857	26-7/8"	3261	35-3/8"	4867	43-7/8"	6612	52-3/8"	8445
1-1/2"	49	10"	749	18-1/2"	1876	27"	3284	35-1/2"	4891	44"	6638	52-1/2"	8472
1-5/8"	54	10-1/8"	763	18-5/8"	1895	27-1/8"	3306	35-5/8"	4916	44-1/8"	6665	52-5/8"	8500
1-3/4"	60	10-1/4"	777	18-3/4"	1914	27-1/4"	3328	35-3/4"	4941	44-1/4"	6691	52-3/4"	8527
1-7/8"	66	10-3/8"	791	18-7/8"	1933	27-3/8"	3351	35-7/8"	4966	44-3/8"	6718	52-7/8"	8554
2"	72	10-1/2"	806	19"	1952	27-1/2"	3373	36"	4991	44-1/2"	6744	53"	8582
2-1/8"	79	10-5/8"	820	19-1/8"	1971	27-5/8"	3396	36-1/8"	5016	44-5/8"	6771	53-1/8"	8609
2-1/4"	85	10-3/4"	835	19-1/4"	1990	27-3/4"	3418	36-1/4"	5041	44-3/4"	6798	53-1/4"	8637
2-3/8"	92	10-7/8"	849	19-3/8"	2010	27-7/8"	3441	36-3/8"	5066	44-7/8"	6824	53-3/8"	8664
2-1/2"	99	11"	864	19-1/2"	2029	28"	3464	36-1/2"	5091	45"	6851	53-1/2"	8692
2-5/8"	106	11-1/8"	878	19-5/8"	2048	28-1/8"	3486	36-5/8"	5116	45-1/8"	6877	53-5/8"	8719
2-3/4"	113	11-1/4"	893	19-3/4"	2068	28-1/4"	3509	36-3/4"	5141	45-1/4"	6904	53-3/4"	8746
2-7/8"	121	11-3/8"	908	19-7/8"	2087	28-3/8"	3532	36-7/8"	5166	45-3/8"	6931	53-7/8"	8774
3"	128	11-1/2"	923	20"	2107	28-1/2"	3555	37"	5191	45-1/2"	6957	54"	8801
3-1/8"	136	11-5/8"	938	20-1/8"	2126	28-5/8"	3578	37-1/8"	5216	45-5/8"	6984	54-1/8"	8829
3-1/4"	144	11-3/4"	953	20-1/4"	2146	28-3/4"	3600	37-1/4"	5242	45-3/4"	7011	54-1/4"	8856
3-3/8"	152	11-7/8"	968	20-3/8"	2166	28-7/8"	3623	37-3/8"	5267	45-7/8"	7037	54-3/8"	8884
3-1/2"	160	12"	983	20-1/2"	2185	29"	3646	37-1/2"	5292	46"	7064	54-1/2"	8911
3-5/8"	168	12-1/8"	999	20-5/8"	2205	29-1/8"	3669	37-5/8"	5317	46-1/8"	7091	54-5/8"	8939
3-3/4"	177	12-1/4"	1014	20-3/4"	2225	29-1/4"	3692	37-3/4"	5343	46-1/4"	7117	54-3/4"	8966
3-7/8"	185	12-3/8"	1030	20-7/8"	2245	29-3/8"	3716	37-7/8"	5368	46-3/8"	7144	54-7/8"	8994
4"	194	12-1/2"	1045	21"	2265	29-1/2"	3739	38"	5393	46-1/2"	7171	55"	9021
4-1/8"	203	12-5/8"	1061	21-1/8"	2285	29-5/8"	3762	38-1/8"	5419	46-5/8"	7198	55-1/8"	9049
4-1/4"	212	12-3/4"	1077	21-1/4"	2305	29-3/4"	3785	38-1/4"	5444	46-3/4"	7225	55-1/4"	9076
4-3/8"	221	12-7/8"	1092	21-3/8"	2325	29-7/8"	3808	38-3/8"	5470	46-7/8"	7251	55-3/8"	9104
4-1/2"	230	13"	1108	21-1/2"	2346	30"	3832	38-1/2"	5495	47"	7278	55-1/2"	9131
4-5/8"	240	13-1/8"	1124	21-5/8"	2366	30-1/8"	3855	38-5/8"	5520	47-1/8"	7305	55-5/8"	9159
4-3/4"	249	13-1/4"	1140	21-3/4"	2386	30-1/4"	3878	38-3/4"	5546	47-1/4"	7332	55-3/4"	9186
4-7/8"	259	13-3/8"	1156	21-7/8"	2406	30-3/8"	3902	38-7/8"	5572	47-3/8"	7359	55-7/8"	9214
5"	269	13-1/2"	1173	22"	2427	30-1/2"	3925	39"	5597	47-1/2"	7386	56"	9241
5-1/8"	278	13-5/8"	1189	22-1/8"	2447	30-5/8"	3949	39-1/8"	5623	47-5/8"	7413	56-1/8"	9269
5-1/4"	288	13-3/4"	1205	22-1/4"	2468	30-3/4"	3972	39-1/4"	5648	47-3/4"	7440	56-1/4"	9296
5-3/8"	299	13-7/8"	1221	22-3/8"	2488	30-7/8"	3996	39-3/8"	5674	47-7/8"	7467	56-3/8"	9324
5-1/2"	309	14"	1238	22-1/2"	2509	31"	4019	39-1/2"	6700	48"	7494	56-1/2"	9352
5-5/8"	319	14-1/8"	1255	22-5/8"	2530	31-1/8"	4043	39-5/8"	5725	48-1/8"	7521	56-5/8"	9379
5-3/4"	330	14-1/4"	1271	22-3/4"	2550	31-1/4"	4067	39-3/4"	5751	48-1/4"	7548	56-3/4"	9407
5-7/8"	340	14-3/8"	1288	22-7/8"	2571	31-3/8"	4090	39-7/8"	5777	48-3/8"	7575	56-7/8"	9434
6"	351	14-1/2"	1305	23"	2592	31-1/2"	4114	40"	5802	48-1/2"	7602	57"	9462
6-1/8"	362	14-5/8"	1321	23-1/8"	2613	31-5/8"	4138	40-1/8"	5828	48-5/8"	7629	57-1/8"	9489
6-1/4"	373	14-3/4"	1338	23-1/4"	2634	31-3/4"	4162	40-1/4"	5854	48-3/4"	7656	57-1/4"	9517
6-3/8"	384	14-7/8"	1355	23-3/8"	2655	31-7/8"	4185	40-3/8"	5880	48-7/8"	7683	57-3/8"	9545
6-1/2"	395	15"	1372	23-1/2"	2676	32"	4209	40-1/2"	5906	49"	7710	57-1/2"	9572
6-5/8"	406	15-1/8"	1389	23-5/8"	2697	32-1/8"	4233	40-5/8"	5932	49-1/8"	7737	57-5/8"	9600
6-3/4"	418	15-1/4"	1407	23-3/4"	2718	32-1/4"	4257	40-3/4"	5958	49-1/4"	7764	57-3/4"	9627
6-7/8"	429	15-3/8"	1424	23-7/8"	2739	32-3/8"	4281	40-7/8"	5983	49-3/8"	7791	57-7/8"	9655
7"	441	15-1/2"	1441	24"	2760	32-1/2"	4305	41"	6009	49-1/2"	7818	58"	9683
7-1/8"	453	15-5/8"	1458	24-1/8"	2782	32-5/8"	4329	41-1/8"	6035	49-5/8"	7845	58-1/8"	9710
7-1/4"	464	15-3/4"	1476	24-1/4"	2803	32-3/4"	4353	41-1/4"	6061	49-3/4"	7873	58-1/4"	9738
7-3/8"	476	15-7/8"	1493	24-3/8"	2824	32-7/8"	4377	41-3/8"	6087	49-7/8"	7900	58-3/8"	9765
7-1/2"	488	16"	1511	24-1/2"	2846	33"	4402	41-1/2"	6113	50"	7927	58-1/2"	9793
7-5/8"	501	16-1/8"	1529	24-5/8"	2867	33-1/8"	4426	41-5/8"	6139	50-1/8"	7954	58-5/8"	9821
7-3/4"	513	16-1/4"	1546	24-3/4"	2889	33-1/4"	4450	41-3/4"	6166	50-1/4"	7991	58-3/4"	9848
7-7/8"	525	16-3/8"	1564	24-7/8"	2910	33-3/8"	4474	41-7/8"	6192	50-3/8"	8008	58-7/8"	9876
8"	537	16-1/2"	1582	25"	2932	33-1/2"	4499	42"	6218	50-1/2"	8036	59"	9903
8-1/8"	550	16-5/8"	1600	25-1/8"	2954	33-5/8"	4523	42-1/8"	6244	50-5/8"	8063	59-1/8"	9931
8-1/4"	563	16-3/4"	1618	25-1/4"	2975	33-3/4"	4547	42-1/4"	6270	50-3/4"	8090	59-1/4"	9959
8-3/8"	575	16-7/8"	1636	25-3/8"	2997	33-7/8"	4572	42-3/8"	6296	50-7/8"	8117	59-3/8"	9986
8-1/2"	588	17"	1654	25-1/2"	3019	34"	4596	42-1/2"	6322	51-0"	8145	59-1/2"	10014

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ATTACHMENT 3
Sheet 9 of 9

SBODG FUEL OIL TANK CONVERSION CHART

XERXES CORPORATION Dipstick/Calibration Chart for 20,000 Gallon 10' Diameter S.W., DWT-I Tank

DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS	DIPSTICK READING	GALLONS
59-5/8"	10041	68-1/2"	11992	77-3/8"	13890	86-1/4"	15678	95-1/8"	17295	104"	18666	112-7/8"	19682
59-3/4"	10069	68-5/8"	12019	77-1/2"	13916	86-3/8"	15702	95-1/4"	17316	104-1/8"	18683	113"	19693
59-7/8"	10097	68-3/4"	12047	77-5/8"	13942	86-1/2"	15726	95-3/8"	17337	104-1/4"	18700	113-1/8"	19704
60"	10124	68-7/8"	12074	77-3/4"	13968	86-5/8"	15750	95-1/2"	17358	104-3/8"	18717	113-1/4"	19715
60-1/8"	10152	69"	12101	77-7/8"	13994	86-3/4"	15774	95-5/8"	17379	104-1/2"	18734	113-3/8"	19725
60-1/4"	10179	69-1/8"	12128	78"	14020	86-7/8"	15798	95-3/4"	17400	104-5/8"	18750	113-1/2"	19736
60-3/8"	10207	69-1/4"	12155	78-1/8"	14046	87"	15822	95-7/8"	17421	104-3/4"	18767	113-5/8"	19746
60-1/2"	10235	69-3/8"	12183	78-1/4"	14072	87-1/8"	15846	96"	17442	104-7/8"	18784	113-3/4"	19756
60-5/8"	10262	69-1/2"	12210	78-3/8"	14098	87-1/4"	15870	96-1/8"	17463	105"	18801	113-7/8"	19767
60-3/4"	10290	69-5/8"	12237	78-1/2"	14123	87-3/8"	15893	96-1/4"	17484	105-1/8"	18817	114"	19777
60-7/8"	10317	69-3/4"	12264	78-5/8"	14149	87-1/2"	15917	96-3/8"	17505	105-1/4"	18834	114-1/8"	19786
61"	10345	69-7/8"	12291	78-3/4"	14175	87-5/8"	15941	96-1/2"	17525	105-3/8"	18850	114-1/4"	19796
61-1/8"	10373	70"	12318	78-7/8"	14201	87-3/4"	15965	96-5/8"	17546	105-1/2"	18866	114-3/8"	19806
61-1/4"	10400	70-1/8"	12345	79"	14227	87-7/8"	15988	96-3/4"	17567	105-5/8"	18883	114-1/2"	19815
61-3/8"	10428	70-1/4"	12372	79-1/8"	14253	88"	16012	96-7/8"	17587	105-3/4"	18899	114-5/8"	19825
61-1/2"	10455	70-3/8"	12399	79-1/4"	14278	88-1/8"	16036	97"	17608	105-7/8"	18915	114-3/4"	19834
61-5/8"	10483	70-1/2"	12426	79-3/8"	14304	88-1/4"	16059	97-1/8"	17628	106"	18931	114-7/8"	19843
61-3/4"	10510	70-5/8"	12453	79-1/2"	14330	88-3/8"	16083	97-1/4"	17649	106-1/8"	18947	115"	19852
61-7/8"	10538	70-3/4"	12480	79-5/8"	14355	88-1/2"	16106	97-3/8"	17669	106-1/4"	18963	115-1/8"	19861
62"	10566	70-7/8"	12507	79-3/4"	14381	88-5/8"	16130	97-1/2"	17689	106-3/8"	18978	115-1/4"	19870
62-1/8"	10593	71"	12534	79-7/8"	14407	88-3/4"	16153	97-5/8"	17709	106-1/2"	18994	115-3/8"	19878
62-1/4"	10621	71-1/8"	12561	80"	14432	88-7/8"	16177	97-3/4"	17730	106-5/8"	19010	115-1/2"	19887
62-3/8"	10648	71-1/4"	12588	80-1/8"	14458	89"	16200	97-7/8"	17750	106-3/4"	19025	115-5/8"	19895
62-1/2"	10676	71-3/8"	12615	80-1/4"	14484	89-1/8"	16223	98"	17770	106-7/8"	19041	115-3/4"	19903
62-5/8"	10703	71-1/2"	12642	80-3/8"	14509	89-1/4"	16247	98-1/8"	17790	107"	19056	115-7/8"	19911
62-3/4"	10731	71-5/8"	12669	80-1/2"	14535	89-3/8"	16270	98-1/4"	17810	107-1/8"	19072	116"	19919
62-7/8"	10759	71-3/4"	12696	80-5/8"	14560	89-1/2"	16293	98-3/8"	17830	107-1/4"	19087	116-1/8"	19927
63"	10786	71-7/8"	12723	80-3/4"	14586	89-5/8"	16316	98-1/2"	17850	107-3/8"	19102	116-1/4"	19934
63-1/8"	10814	72"	12750	80-7/8"	14611	89-3/4"	16339	98-5/8"	17870	107-1/2"	19117	116-3/8"	19942
63-1/4"	10841	72-1/8"	12777	81"	14636	89-7/8"	16363	98-3/4"	17889	107-5/8"	19132	116-1/2"	19949
63-3/8"	10869	72-1/4"	12804	81-1/8"	14662	90"	16386	98-7/8"	17909	107-3/4"	19147	116-5/8"	19956
63-1/2"	10896	72-3/8"	12830	81-1/4"	14687	90-1/8"	16409	99"	17929	107-7/8"	19162	116-3/4"	19963
63-5/8"	10924	72-1/2"	12857	81-3/8"	14712	90-1/4"	16432	99-1/8"	17948	108"	19177	116-7/8"	19970
63-3/4"	10951	72-5/8"	12884	81-1/2"	14738	90-3/8"	16455	99-1/4"	17968	108-1/8"	19191	117"	19976
63-7/8"	10979	72-3/4"	12911	81-5/8"	14763	90-1/2"	16477	99-3/8"	17987	108-1/4"	19206	117-1/8"	19983
64"	11000	72-7/8"	12938	81-3/4"	14788	90-5/8"	16500	99-1/2"	18007	108-3/8"	19221	117-1/4"	19969
64-1/8"	11034	73"	12964	81-7/8"	14813	90-3/4"	16523	99-5/8"	18026	108-1/2"	19235	117-3/8"	19995
64-1/4"	11061	73-1/8"	12991	82"	14839	90-7/8"	16546	99-3/4"	18045	108-5/8"	19249	117-1/2"	20001
64-3/8"	11089	73-1/4"	13018	82-1/8"	14864	91"	16569	99-7/8"	18065	108-3/4"	19264	117-5/8"	20006
64-1/2"	11116	73-3/8"	13044	82-1/4"	14889	91-1/8"	16591	100"	18084	108-7/8"	19278	117-3/4"	20012
64-5/8"	11144	73-1/2"	13071	82-3/8"	14914	91-1/4"	16614	100-1/8"	18103	109"	19292	117-7/8"	20017
64-3/4"	11171	73-5/8"	13098	82-1/2"	14939	91-3/8"	16637	100-1/4"	18122	109-1/8"	19306	118"	20022
64-7/8"	11199	73-3/4"	13124	82-5/8"	14964	91-1/2"	16659	100-3/8"	18141	109-1/4"	19320	118-1/8"	20026
65"	11226	73-7/8"	13151	82-3/4"	14989	91-5/8"	16682	100-1/2"	18160	109-3/8"	19334	118-1/4"	20031
65-1/8"	11254	74"	13178	82-7/8"	15014	91-3/4"	16704	100-5/8"	18179	109-1/2"	19347	118-3/8"	20035
65-1/4"	11281	74-1/8"	13204	83"	15039	91-7/8"	16727	100-3/4"	18198	109-5/8"	19361	118-1/2"	20039
65-3/8"	11309	74-1/4"	13231	83-1/8"	15064	92"	16749	100-7/8"	18217	109-3/4"	19375	118-5/8"	20042
65-1/2"	11336	74-3/8"	13258	83-1/4"	15089	92-1/8"	16771	101"	18235	109-7/8"	19388	118-3/4"	20046
65-5/8"	11363	74-1/2"	13284	83-3/8"	15114	92-1/4"	16794	101-1/8"	18254	110"	19401	118-7/8"	20049
65-3/4"	11391	74-5/8"	13311	83-1/2"	15139	92-3/8"	16816	101-1/4"	18273	110-1/8"	19415	119"	20051
65-7/8"	11418	74-3/4"	13337	83-5/8"	15164	92-1/2"	16838	101-3/8"	18291	110-1/4"	19428	119-1/8"	20053
66"	11446	74-7/8"	13364	83-3/4"	15188	92-5/8"	16860	101-1/2"	18310	110-3/8"	19441	119-1/4"	20055
66-1/8"	11473	75"	13390	83-7/8"	15213	92-3/4"	16883	101-5/8"	18328	110-1/2"	19454	119-3/8"	20055
66-1/4"	11501	75-1/8"	13417	84"	15238	92-7/8"	16905	101-3/4"	18346	110-5/8"	19567	119-1/2"	20055
66-3/8"	11528	75-1/4"	13443	84-1/8"	15263	93"	16927	101-7/8"	18365	110-3/4"	19480	119-5/8"	20055
66-1/2"	11555	75-3/8"	13469	84-1/4"	15287	93-1/8"	16949	102"	18383	110-7/8"	19492	119-3/4"	20055
66-5/8"	11583	75-1/2"	13496	84-3/8"	15312	93-1/4"	16971	102-1/8"	18401	111"	19505	119-7/8"	20055
66-3/4"	11610	75-5/8"	13522	84-1/2"	15336	93-3/8"	16993	102-1/4"	18419	111-1/8"	19518	120"	20055
66-7/8"	11637	75-3/4"	13549	84-5/8"	15361	93-1/2"	17014	102-3/8"	18437	111-1/4"	19530		
67"	11665	75-7/8"	13575	84-3/4"	15386	93-5/8"	17036	102-1/2"	18455	111-3/8"	19542		
67-1/8"	11692	76"	13601	84-7/8"	15410	93-3/4"	17058	102-5/8"	18473	111-1/2"	19555		
67-1/4"	11719	76-1/8"	13628	85"	15435	93-7/8"	17080	102-3/4"	18491	111-5/8"	19567		
67-3/8"	11747	76-1/4"	13654	85-1/8"	15459	94"	17101	102-7/8"	18509	111-3/4"	19579		
67-1/2"	11774	76-3/8"	13680	85-1/4"	15483	94-1/8"	17123	103"	18526	111-7/8"	19591		
67-5/8"	11801	76-1/2"	13706	85-3/8"	15508	94-1/4"	17145	103-1/8"	18544	112"	19602		
67-3/4"	11829	76-5/8"	13733	85-1/2"	15532	94-3/8"	17166	103-1/4"	18562	112-1/8"	19614		
67-7/8"	11856	76-3/4"	13759	85-5/8"	15556	94-1/2"	17188	103-3/8"	18579	112-1/4"	19626		
68"	11883	76-7/8"	13785	85-3/4"	15581	94-5/8"	17209	103-1/2"	18597	112-3/8"	19637		
68-1/8"	11910	77"	13811	85-7/8"	15605	94-3/4"	17231	103-5/8"	18614	112-1/2"	19649		
68-1/4"	11938	77-1/8"	13837	86"	15629	94-7/8"	17252	103-3/4"	18631	112-5/8"	19660		
68-3/8"	11965	77-1/4"	13863	86-1/8"	15653	95"	17273	103-7/8"	18648	112-3/4"	19671		

NRC JPM A3 SRO

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
(RO/SRO)

TITLE: **EVALUATE A LIQUID RAD RELEASE**

OPERATOR: ____________ **DATE:** ____________

EVALUATOR: ____________ **EVALUATOR SIGNATURE:** ____________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**15**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be placed in the simulator with a specific set of plant conditions and given RETDAS-generated Waste Liquid Release Permit for a planned release. The operator will be directed to review Attachment 1, Liquid Radwaste Verification and Discharge, of PNPS 7.9.12, Liquid Effluent Releases with RETDAS, and approve the liquid release; or identify any issues that may prevent its authorization. The operator will be expected to identify that three issues currently exist on the Discharge Permit that will prevent its authorization.

TASK STANDARD: The operator will review a rad liquid release permit and identify the discharge lineup and two issues on the Discharge Permit that will prevent its authorization. The procedure shall be followed without failure of critical elements.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

X Simulator

Classroom

Prepared: ____________ **Date:** ____________

Reviewed: ____________ **Date:** ____________

Approved: ____________ **Date:** ____________
Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
0	09/10/13	Drafted JPM to reflect most recent procedures for 2014 LOT NRC Exam.

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
EVALUATE FOR APPROVAL RADIOACTIVE WASTE DISCHARGE-RELEASE PERMITS IAW 7.9.12	341-03-02-012	Generic	2.3.6 (2.0/3.8)

REFERENCES:

1. PNPS 2.5.2.17, Processing Liquid Radioactive Discharges, Rev 20
2. PNPS 7.9.12, Liquid Effluent Releases with RETDAS, Rev 8

SIMULATOR CONDITIONS:

1. Initialize the simulator to any IC. Perform the following:
2. Ensure that only A and D Salt Service Water Pumps are operating.

GENERAL TOOLS AND EQUIPMENT:

1. Handout 1: Marked up copy of Attachment 1 of PNPS 7.9.12.
2. Handout 2: Liquid Pre-Release Permit Report for 2011023
3. Handout 3: Discharge Sample Comparison and Release Rate Verification Form
4. PNPS 2.5.2.17, PROCESSING LIQUID RADIOACTIVE DISCHARGES

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **EVALUATE A LIQUID RAD RELEASE**

   b) The task conditions are as follows:

      - You are the Shift Manager
      - Treated Water Tank T-304D is about to be discharged IAW PNPS 2.5.2.17, Processing Liquid Radioactive Discharges
      - Liquid Release Permit 2011023 has been delivered to the Control Room for review and approval.
      - The Liquid Radwaste Release PRM is inoperable.
      - The evaluator will serve as the Chemistry Technician or Radwaste operator as required.

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

Review Section C, Operations Verifications, of PNPS 7.9.12, Liquid Effluent Releases with RETDAS Attachment 1, Liquid Radwaste Verification and Discharge and approve the liquid release; or identify any issues that may prevent its authorization.

(Gray shaded denotes Critical Steps)

Provide Candidate Cue Sheet #1 (Last Page of this JPM), and Handouts 1 and 2.

START TIME: ____________

1.	**Procedure Step:**	Attachment 1, C, Operations Verifications Verify each of the requirements has been met by entering a check mark in the "Verified" block. Monitor instrument check completed in accordance with PNPS 2.5.2.17 Attachment 6.
	Standard	The operator recognizes that the PRM is NOT operable, and places an NA in the Verified Block.
	Cue	If asked, Role Play as required and report that the PRM is inoperable.
	Notes	PNPS 2.5.2.17 Attachment 6 is the instrument check performed for the Liquid Radwaste Release PRM. Per the initial conditions, this PRM is inoperable.
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	Attachment 1, C, Operations Verifications Monitor alarm settings verified to be at calculated value or default value (whichever is lower) ("N/A" if PRM inoperable).
	Standard	The operator recognizes that the PRM is NOT operable, and places an NA in the Verified Block.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	Attachment 1, C, Operations Verifications Independent sample and calculations completed for inoperable PRM ("N/A" if PRM operable or Waste Neut. Sump discharge).
	Standard	The operator concludes that independent samples and calculations have been completed and initials in the space provided.
	Cue	Cue as Chemistry Technician, that an independent sample and calculations have been completed. If required, show the operator the completed, Discharge Sample Comparison and Release Rate Verification Form, Handout # 3
	Notes	
	Results	SAT ☐ UNSAT ☐

Evaluator Note: When the operator addresses the next item in the check list, provide the operator with Cue Sheet #2.

4.	**Procedure Step:**	<u>Attachment 1, C. Operations Verifications</u> Checked valve lineup for this discharge.
	Standard	IAW PNPS 2.5.2.17 Section 7.1, the Shift manager is responsible for: Personally supervises the lineup of valves for the tank to be discharged and checks off such verification on permit. In addition, he signs off OPER-28A, OPER-28B, OPER-28C, or OPER-28D (in this case, OPER-28A). Refers to 2.5.2.17, Attachment 1, OPER-28A TREATED WATER TANK RECIRC AND DISCHARGE VALVE LINEUP, Section C. and determines the following valves should be positioned as follows: o 20-HO-255D, Treated Water Holdup Tank T-304D Outlet Valve, is OPEN. o 20-HO-255A, Treated Water Holdup Tank T-304A Outlet Valve, is CLOSED. o 20-HO-255B, Treated Water Holdup Tank T-304B Outlet Valve, is CLOSED. o 20-HO-255C, Treated Water Holdup Tank T-304C Outlet Valve, is CLOSED o 20-HO-265, Treated Water Transfer Pumps P-316A/B Discharge X-Tie Valve, is OPEN. o 20-HO-315, Monitor Tank Pumps P-312A/B to Discharge Canal Block Valve, is LOCKED CLOSED. o 20-HO-266, Treated Water Transfer Pumps to Radwaste Disch Hdr Blk Vlv, is OPEN. o 20-HO-316, Overboard Discharge Block Valve, is OPEN. o AO-7216A, 2-inch Overboard Discharge Block Valve, is OPEN. o FIC-7214A, 2-inch Radwaste Overboard Discharge, is set to maintain 200 gpm.
	Cue	When the lineup has been determined, CUE the operator that he or she has supervised the Radwaste Operator in performing the lineup described. When the above determinations have been made direct the candidate to continue with the Operations Verifications of PNPS 7.9.12, Attachment 1.
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	Attachment 1, C, Operations Verifications Tag is affixed to Panel C1 stating "Discharge in Progress."
	Standard	The operator observes Panel C1 and notes that the "Discharge in Progress" Tag has Not been affixed to Panel C1 stating that the Discharge is in progress. Direct that "Discharge in Progress" sign be affixed to panel C-1 Initials in the space provided.
	Cue	Cue the operator that the sign has been placed and they are to continue.
	Notes	
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	Attachment 1, C, Operations Verifications Dilution pump combination is same as on the Prerelease report.
	Standard	The operator observes the status of the Circulating Water and Salt Service Water Pumps, and determines that one additional Salt Service Water Pump must be started.
	Cue	
	Notes	The 1st page of the Pre-Release Permit states that the calculations were based on 3 SSW pumps.
	Results	SAT ☐ UNSAT ☐

7.	**Procedure Step:**	Attachment 1, C, Operations Verifications Doses in Section A are less than limits.
	Standard	The operator reviews Section A of Attachment 1 and observes that the Annual Tech Spec Organ Dose and Total Whole Body Dose have not been verified within limits, and contacts Chemistry.

	Cue	As Chemistry Acknowledge and report that it appears at this time to be an oversight and that the doses have not been verified to be within limits.
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	**Procedure Step:**	Attachment 1, D. Authorization This tank is authorized for release.
	Standard	The operator determines that Section D cannot be signed until the following two issues are resolved: • A third Salt Service Water Pump be started. • Chemistry must verify that the Annual Tech Spec Organ Dose and Total Whole Body Dose limits are within specified limits.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: ______________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Admin – JPM A3 SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________ Date: ______________

Cue Sheet # 1

INITIAL CONDITIONS

- You are the Shift Manager
- Treated Water Tank T-304D is about to be discharged IAW PNPS 2.5.2.17, Processing Liquid Radioactive Discharges
- Liquid Release Permit 2011023 has been delivered to the Control Room for review and approval.
- The Liquid Radwaste Release PRM is inoperable.
- The evaluator will serve as the Chemistry Technician or Radwaste operator as required.

INITIATING CUE:

Review Section C, Operations Verifications, of PNPS 7.9.12, Liquid Effluent Releases with RETDAS Attachment 1, Liquid Radwaste Verification and Discharge and approve the liquid release; or identify any issues that may prevent its authorization.

Cue Sheet # 2

Determine the following. Justify your response.

- As Shift Manager, what are your responsibilities pertaining to the "discharge valve lineup"?

- Identify the specific valve lineup for a discharge of Treated Water Tank T-304D?

JPM A4 SRO

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
(RO/SRO)

TITLE: **PERFORM DOSE ASSESSMENT USING DAPAR SOFTWARE**

OPERATOR: ____________________ **DATE:** ____________________

EVALUATOR: ____________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**15**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be provided with access to a computer with DAPAR software installed (Simulator or Classroom), and a listing of pertinent plant parameters. The operator will be directed to perform an offsite dose assessment using the DAPAR computer software in accordance with Section 5.2 of EP-IP-300, Offsite Radiological Dose Assessment. The operator will be expected to determine the Protective Action Recommendation from the DAPAR Quick Assessment option.

TASK STANDARD: The operator will perform an offsite dose assessment using the DAPAR computer software in accordance with Section 5.2 of EP-IP-300, Offsite Radiological Dose Assessment. The operator will determine the Protective Action Recommendation from the DAPAR Quick Assessment option. The procedure shall be followed without failure of critical elements.

EVALUATION METHOD:		**EVALUATION LOCATION:**	
X	Perform		Plant
	Simulate	X	Simulator
		X	Classroom

Prepared: ____________________ **Date:** ____________________

Reviewed: ____________________ **Date:** ____________________

Approved: ____________________ **Date:** ____________________
Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
0		Drafted JPM to reflect most recent procedures for 2007 LOT NRC Exam.
1	09/10/13	Revised JPM to reflect most recent procedures for 2014 LOT NRC Exam.

TASK Title:	**Task Number**	**K&A SYSTEM:**	**K&A RATING:**
PERFORM PRELIMINARY DOSE ASSESSMENT CALCULATIONS IAW EP-IP-300	015-05-05-003	Generic	2.4.44 (2.4/4.4)

REFERENCES:

1. EP-IP-300, Offsite Radiological Dose Assessment, Rev 10

SIMULATOR CONDITIONS:

NA

NOTE: If the Simulator setting is used to maintain the operator located within the environment that the task would normally be performed. The Simulator requires no specific set up for this JPM.

GENERAL TOOLS AND EQUIPMENT:

1. Computer with Access to DAPAR.

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin."

2. Always state the following two paragraphs:

   a) The title of this JPM is: **PERFORM DOSE ASSESSMENT USING DAPAR SOFTWARE**

   b) The task conditions are as follows:

      - A LOCA has occurred with an on-going offsite radioactive release.
      - The Emergency Plan has been activated, but the Emergency Response Facilities are still in the process of being activated.
      - It is 0930 on Saturday, February 8th.
      - The weather is overcast, cold with periods of snow/rain mix.
      - A Dose Assessment is required, and pertinent plant parameters have been gathered on the attached Data Sheet.

3. Solicit and answer any questions the operator may have.

INITIATING CUE:

The Shift Manager/Emergency Director has directed you to perform an offsite dose assessment using the DAPAR computer software in accordance with EP-IP-300, Offsite Radiological Dose Assessment. Inform the Shift Manager/Emergency Director when you are complete.

(Gray shaded denotes Critical Steps)

Provide Candidate with Initial Conditions/Cue and the Data Sheet (Last Two Pages of this JPM), and Handout 1.

START TIME: ____________

1.	**Procedure Step:**	5.2.1 Application Startup
	Standard	The operator locates a computer that has DAPAR loaded onto it, and ensures that the computer is operating. The operator starts DAPAR by double-clicking the mouse on the DAPAR v2.1 icon, and observes the Title Screen (DAPAR Version 2.1).
	Cue	
	Notes	Section 5.2.1 provides the operator with an eight-step instruction for starting the computer and opening the DAPAR Computer program. The operator is expected to perform any or all steps as needed to open the program.
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	5.2.2 Title Screen
	Standard	The operator uses the mouse to depress the QUICK ASSESSMENT button.
	Cue	
	Notes	The narrative provided in Section 5.2.2 states that "The Quick Assessment option is designed for use in the Control Room." If the operator inadvertently depresses the FULL ASSESSMENT button, or intentionally selects the FULL ASSESSMENT button, and recognizes that this is incorrect, the Step is successfully performed, if the operator presses the EXIT button, restarts the program, and selects the QUICK ASSESSMENT button.
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	5.2.3 Quick Assessment Enter Release Information
	Standard	On the Release Information side of the screen (Left Side), the operator: • Selects MAIN STACK as the Monitor. • Selects HIGH as the Range. • Enters 675R/hr as the Monitor Reading. • Observes the Vent Flow Rate automatically sets to 4000 SCFM. • Enters 00:45 for the Hours After S/D.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	5.2.3 Attachment 9.2 provides aid in acquiring meteorological data based on release type and meteorological tower instrumentation.
	Standard	The operator reads the Note, and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	Procedure Step:	5.2.3 Quick Assessment Enter Meteorological Data
	Standard	On the Meteorological Data side of the screen (Right Side), the operator: • Verifies 220' as the Tower Used. • Enters 8.0 MPH as the Wind Speed. • Enters 320°as the Wind Direction. • Enters -1.5°F as the Delta T. • Observes the Stability Class automatically sets to C.
	Cue	
	Notes	Bulleted information may be input in any order. Stability Class information is not immediately available following entry of temperature in the Delta T field. The operator can select another field or depress SET EVACUATION CONDITIONS which will provide Delta T information. Observation of the Stability Class may therefore occur in JPM step 5 or 6. If SET EVACUATION CONDITIONS button is depressed prior to selecting another data field, a second click on the button will be required to continue to the next screen. If the operator enters"unknown or TB" in the Release Duration field, a Pop-Up window will state that the data was entered incorrectly. Depressing the OK button will allow the operator to proceed to the next screen. Release Duration is automatically provided by the program based on pre-set values following input of evacuation conditions on the following screen.
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	5.2.3 Quick Assessment Set Evacuation Conditions
	Standard	The operator uses the mouse to depress the SET EVACUATION CONDITIONS button. On the pop-up window, the operator: • Selects OFF SEASON as the Time of Year. • Selects WEEKEND as the Time of Week. • Selects MIDDAY as the Time of DAY. • Selects RAIN or SNOW as the Conditions. The operator observes the OK button appears and uses the mouse to depress.
	Cue	
	Notes	Bulleted information may be input in any order. If WEEKEND is selected prior to Time of DAY, the Time of DAY will default to ALL DAY. Selecting MIDDAY is therefore not a Critical Element for completion of this step
	Results	SAT ☐ UNSAT ☐

7.	**Procedure Step:**	5.2.3 Quick Assessment Complete entering Meteorological Data
	Standard	On the Meteorological Data side of the screen (Right Side), the operator: • Observes that the Release Duration is automatically filled in. The operator observes that the PARs button darkens (i.e. is now enabled).
	Cue	
	Notes	Release Duration is automatically provided by the program based on pre-set values.
	Results	SAT ☐ UNSAT ☐

8.	**Procedure Step:**	5.2.3 Obtain PARs
	Standard	The operator uses the mouse to depress the PARs button, and observes that the Protective Action Recommendation screen appears and informs the SM/ED that they have completed the PARs. The operator determines subareas 1, 2, 5 and 12 require evacuation. All others require shelter.
	Cue	As the SM/ED, "Report the PARs".
	Notes	
	Results	SAT ☐ UNSAT ☐

9.	**Procedure Step:**	5.2.6 Protective Action Recommendations
	Standard	The operator reports "Subareas 1, 2, 5 and 12 require evacuation. All others require shelter."
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: ____________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Admin – JPM A4 SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________ Date: ______________

LIQUID RADWASTE VERIFICATION AND DISCHARGE

Sampled at 1035 (Time) on 5/10/11 (Date)

Permit Number 2011023

Release Source DTWT

A. Chemistry Technician Verifications

Verify each of the requirements has been met by entering a check mark in the "✓" block. If the requirement is not applicable to the discharge pathway, enter a check mark in the "N/A" block. If any of the requirements are not met, stop and notify Chemistry Supervision prior to continuing with the discharge. Record all results (including duplicates) in WinCDMS. Save initial sample for compositing.

Requirement	✓	N/A
Boron Concentration ≤ 1 ppm in canal **[NPDES]** (Att. 2)	✓	
pH is between 6.1 to 8.4 (WNS only) **[NPDES]**		✓
Monthly Avg. TSS Concentration ≤ 30 ppm (WNS only) **[NPDES]**		✓
TTA Concentration ≤ 0.03 ppm in canal (WNS only) **[NPDES]** (Att. 2) See base document Step 6.0[2](a)(3) if no CW for dilution.		✓
Sodium Nitrite (Nitrite ppm x 1.5) ≤ 2 ppm in canal **[NPDES]** (Att. 2)	✓	
Duplicates analyzed **[NPDES]**	✓	
Isotopic Analysis Independent Sample (inoperable monitor or WNS)	✓	
1000 mL saved for Composite	✓	
Total Noble Gas Activity < 2E-4 μCi/mL (sum of all Xe and Kr)	✓	
Quarterly Tech Spec Organ Dose < 100%	✓	
Quarterly Tech Spec Total Body Dose < 100%	✓	
Annual Tech Spec Organ Dose < 100%		
Annual Tech Spec Total Body Dose < 100%		
31-Day Tech Spec Organ Dose < 100%	✓	
31-Day Tech Spec Total Body Dose < 100%	✓	

B. Discharge Flow Rate and Alarm Settings

Maximum Waste Discharge Flow Rate	500	GPM	
Hi Alarm Setpoint (1)	N/A	cps	(Default 5000 cps)
Hi-Hi Alarm Setpoint (1)	N/A	cps	(Default 10000 cps)

Note (1): This is the lower of the calculated or default setpoints. (Not applicable when discharging Waste Neutralizing Sump or if PRM is OOS and compensatory actions of ODCM Table 3.1-1 are taken.)

[signature] 5/10/11
Chemistry Technician signature Date

Fred B Kuk 5/10/11
Chemistry Supervisor signature Date

Permit Number 2011023

Release Source DTWT

C. Operations Verifications

Verify each of the requirements has been met by entering a check mark in the "Verified" block.

Requirement	Verified
Monitor instrument check completed in accordance with PNPS 2.5.2.17 Attachment 6	
Monitor alarm settings verified to be at calculated value or default value (whichever is lower) ("N/A" if PRM inoperable)	
Independent sample and calculations completed for inoperable PRM ("N/A" if PRM operable or Waste Neut. Sump discharge)	
Checked valve lineup for this discharge	
Tag is affixed to Panel C1 stating "Discharge in Progress"	
Dilution pump combination is same as on the Prerelease report	
Doses in Section A are less than limits	

D. Authorization

This tank is authorized for release.

Ops Shift Manager signature ____________ Date ____________

E. Radwaste

Verify flow rate measurement devices meet the requirements of the Offsite Dose Calculation Manual Table 3.1-1 by recording the readout from the appropriate flow rate integrator. If the flow rate integrators are inoperable, use Attachment 5 of PNPS 2.5.2.17.

	Date	Time	1-inch Integrator	2-inch Integrator	Dilution Flow (GPM)	Tank Level (%)	Actual Disch Rate (GPM)
Start							
Finish							

Volume Discharged:
- Miscellaneous Tank: 5 gal x Change (%) = ________ gal
- Treated Water Tank: 200 gal x Change (%) = ________ gal
- Neutralizing Sump: 167 gal x Change (inches) = ________ gal

I have notified Chemistry that discharge has commenced.

RW Operator Name ____________ RW Operator Signature ____________

LIQUID PRE-RELEASE PERMIT REPORT

```
   Permit Number: 2011023
   Release Point: 2  Treated Water Tank
    Release Mode: 2  Batch
          Status: P  Pre-Release

Comments:

=== PRE-RELEASE DATA ==========================================================
Estimated start date/time.................................... 05/10/2011 11:59
Estimated end date/time...................................... 05/10/2011 12:39
Estimated release duration (minutes)................................ 4.00E+01

Number of Salt Service Water pumps operating........................ 3
Salt Service Water flowrate (gpm)................................... 4.50E+03
Number of Circulating Water pumps operating......................... 2
Circulating Water flowrate (gpm).................................... 3.10E+05
Total dilution flowrate (gpm)....................................... 3.15E+05

Release volume (gal)................................................ 2.00E+04
Specified Waste Discharge Flowrate(gpm)............................. 5.00E+02
WNSM Level (inches).................................................     NA

=== CHEMISTRY DATA ============================================================
Boron concentration (ppm)...........................................     0.00
Nitrite concentration (ppm).........................................     0.00
pH..................................................................     0.00

=== RELEASE LIMITATIONS =======================================================
TSA: Total Specific Activity( uCi/ml)............................... 7.94E-03
TDR: Total Dilution Ratio........................................... 8.34E-01
EC Limit in Discharge Canal (TSA/TDR)............................... 9.53E-03
Maximum Waste Discharge Flowrate(gpm)............................... 5.00E+02

PRM Operable?....................................................... NO
Monitor Background(cps)............................................. NA
Calculated Monitor Hi Alarm(cps).................................... NA
Calculated Monitor Hi Hi Alarm/Trip(cps)............................ NA
```

LIQUID PRE-RELEASE PERMIT REPORT

Permit Number: 2011023
Release Point: 2 Treated Water Tank
Release Mode: 2 Batch
Status: P Pre-Release

=== NUCLIDE DATA ===

Nuclide	Undiluted uCi/ml	EC	Percent of EC	Diluted uCi/ml	Percent of EC
MN-54	6.76E-07	3.00E-04	2.25E-01	1.07E-09	3.58E-04
FE-59	1.16E-07	1.00E-04	1.16E-01	1.84E-10	1.84E-04
CO-60	3.63E-07	3.00E-05	1.21E+00	5.76E-10	1.92E-03
ZN-65	3.21E-07	5.00E-05	6.42E-01	5.10E-10	1.02E-03
NB-97	8.26E-08	3.00E-03	2.75E-03	1.31E-10	4.37E-06
Gamma	1.56E-06			2.47E-09	
H-3	7.92E-03	1.00E-02	7.92E+01	1.26E-05	1.26E-01
FE-55	1.91E-05	1.00E-03	1.91E+00	3.03E-08	3.03E-03
SR-89	4.61E-08	8.00E-05	5.76E-02	7.32E-11	9.15E-05
Beta	7.94E-03			1.26E-05	
Total	7.94E-03			1.26E-05	

Prepared By: [signature] Date: 5/10/11

Reviewed By: [signature] Date: 10 May 2011

Discharge Sample Comparison and Release Rate Verification

Date	5/10/2011	Maximum Discharge Rate	500	gpm
Tank ID	D TWT	Number of CW Pumps Available	2	pumps
Permit No.	2011023	Number of SSW Pumps Available	3	pumps

Isotope	10CFR20 Appx. B EC uCi/mL	Primary Sample Activity	Primary Sample % Error	IV Sample Activity	IV Sample % Error	Sample Dilution Ratio	NRC Resolution Comparison
Na-24	5.0E-05						
Cr-51	5.0E-04	5.89E-07	29.00%			1.18E-03	N/A
Mn-54	3.0E-05	5.66E-07	10.55%	6.76E-07	8.62%	2.25E-02	Pass
Fe-59	1.0E-05			1.16E-07	30.15%	1.16E-02	N/A
Co-58	2.0E-05						
Co-60	3.0E-06	2.91E-07	12.75%	3.63E-07	9.92%	1.21E-01	Pass
Zn-65	5.0E-06	3.51E-07	20.85%	3.21E-07	19.24%	7.02E-02	Pass
Y-92	4.0E-05						
Zr-95	2.0E-05						
Nb-95	3.0E-05						
Mo-99	2.0E-05						
Tc-99m	1.0E-03						
Ru-103	3.0E-05						
Ag-110m	6.0E-06						
Sb-124	7.0E-06						
I-131	1.0E-06						
I-133	7.0E-06						
Cs-134	9.0E-07						
Cs-137	1.0E-06						
Ba-140	8.0E-06						
La-140	9.0E-06						
Np-239	2.0E-05						
Xe-133	2.0E-04						
Xe-135	2.0E-04						
NB-97	3.0E-04	1.32E-07	21.69%	8.26E-08	30.06%	4.40E-04	Pass
Total Activity	--	***1.93E-06***	***44.94%***	***1.56E-06***	***48.53%***	***2.27E-01***	***N/A***
H-3	1.0E-03	7.92E-03				7.92E+00	
Fe-55	1.0E-04	1.91E-05				1.91E-01	
Sr-89	8.0E-06	4.61E-08				5.76E-03	
Sr-90	5.0E-07						

Required Dilution Ratio	8.34
Available Dilution Ratio	630.00
Sufficient Dilution Flow Available	
Samples Representative	

******Use IV Sample for Discharge Permit******

Performer [signature] Date 5/10/11

Independent Verifier [signature] Date 5-10-11

Test for sample comparability based on the NRC Resolution Test as described in ASTM STP 698 (1980), the basis for NRC Inspection Procedure IP84525

Data Sheet

• RR-1001-608, Main Stack Effluent Recorder (C170)	675 R/hr
• RI-1001-608, Main Stack Effluent Indicator (C170)	675 R/hr
• #Vent Flow Rate	4000 scfm
• Hours After S/D	00:45
• Tower Used	220"
• Wind Speed	8 MPH
• Wind Direction From	320°
• MT1 Temp Recorder Point 1 (Delta "T")	-1.5°F
• Release Duration	TBD

Initial Conditions:

- A LOCA has occurred with an on-going offsite radioactive release.
- The Emergency Plan has been activated, but the Emergency Response Facilities are still in the process of being activated.
- It is 0930 on Saturday, February 8th.
- The weather is overcast, cold with periods of snow/rain mix.
- A Dose Assessment is required, and pertinent plant parameters have been gathered on the attached Data Sheet.

INITIATING CUE:

The Shift Manager/Emergency Director has directed you to perform an offsite dose assessment using the DAPAR computer software in accordance with EP-IP-300, Offsite Radiological Dose Assessment. Inform the Shift Manager/Emergency Director when you are complete.

NRC JPM A1a RO

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **Evaluate Temperature Data following Receipt of a Relief /Safety Leaking Alarm**

OPERATOR: ______________ **DATE:** ______________

EVALUATOR: ______________ **EVALUATOR SIGNATURE:** ______________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**10**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The candidate will be told that the plant is at full power and that a "Relief/Safety Valve Leaking" Alarm has just been received. The candidate will be told to respond IAW the ARP. The candidate is expected to determine that SRV-203-3B is leaking by evaluating SRV tailpipe temperature data and enter PNPS 2.2.23, Automatic Depressurization System, Attachment 6. The candidate will then evaluate the SRV 1st and 2nd stage temperature data from the Kaye Computer against SRV baseline data and determine that the 1st stage (Pilot) is leaking. The candidate will then compare the results to trigger points contained in PNPS 2.2.23, Attachment 6, and recommend to the CRS the required action.

TASK STANDARD: The candidate will determine that "B" SRV is leaking. The candidate will further determine that the 1st Stage of the SRV is leaking and the required actions IAW PNPS 2.2.23, Attachment 6.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

Simulator

X Classroom

Prepared: Mark Santiago **Date:** 01/06/14

Reviewed: ____________ **Date:** ____________

Approved: ____________ **Date:** ____________
Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
0	11/13/13	New JPM developed for the 2014 LOT NRC Exam.
1	01/06/14	Updated JPM due to Rev in the procedure.

TASK Title:	RESPOND TO INADVERTENT SRV OPENING	**Task Number:**	200-05-01-026
K&A SYSTEM:	Generic	**K&A ID / Rating:**	2.1.7 (4.4/4.7)

K&A DESCRIPTION: Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.

REFERENCES:

1. PNPS ARP-C903L-A2, Relief /SFTY Valve Leaking
2. PNPS 2.2.23, Automatic Depressurization System, Rev 36

SIMULATOR CONDITIONS:

NA

GENERAL TOOLS AND EQUIPMENT:

1. PNPS ARP-C903L-A2, Relief /SFTY Valve Leaking
2. PNPS 2.2.23, Automatic Depressurization System
3. Note do not provide these handouts until the operator determines that each is required.
   a. Handout of Temperature Indications on TR260-20, Panel C921 (Handout # 1 to this JPM)
   b. Handout of Kaye Temperature Indications (Handout # 2 to this JPM)
   c. Handout of Current Baseline Temperatures for Pilot and Second Stages as Determined by the SRV Program Values Engineer (Handout # 3 to this JPM).

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin".

2. Provide Candidate with Initial Conditions/Cue (Last Page of this JPM).

3. Always state the following two paragraphs:

   a) "The title of this JPM is: **Evaluate Temperature Data following Receipt of a Relief /Safety Leaking Alarm.**

   b) "The task conditions are as follows:

      i) The plant has been operating at power for 100 days and is currently at full power.

      ii) Annunciator C903L-A2, "Relief/Sfty Valve Leaking" has just been received.

      iii) No other alarms have been received.

4. Solicit and answer any questions the operator may have.

INITIATING CUE:

State the following:

- Respond IAW ARP C903L-A2, "Relief/Sfty Valve Leaking (Evaluator to provide the candidate with a copy of the ARP at this time).
- Other plant indications will be provided when requested.
- This Task is not time critical.
- Inform the evaluator when you have completed the task

(Gray shaded denotes Critical Steps)

START TIME: ________

Evaluator Note: The first four JPM steps are derived from ARP C903L-A2, "Relief/Sfty Valve Leaking.

1.	**Procedure Step:**	[1] Confirm Alarm (a) Check recorder 260-20 to determine which valve is leaking
	Standard	Determine that RV-3B is leaking.
	Cue	When candidate determines that TR 260-20 is to be checked, provide the candidate HANDOUT #1,Temperature Indications on TR260-20, Panel C921
	Notes	For the Safety/ Relief Valves, RV-203-3A, B, C, and D, the setpoint for the alarm is 180°F. For the Code Safety Valves, SRV 203-4A and B, the alarm setpoint is 230°F.
	Performance:	**SATISFACTORY ____UNSATISFACTORY ____**
	Comments:	

2.	**Procedure Step:**	(b) Check Drywell parameters for indications of leak in Drywell (TRU-9044 and TI-9019 on Panel C903)
	Standard	Determine that there are no indications of leak in the drywell.
	Cue	When candidate asks for indications on TRU-9044 and TI-9019, report that both indications are 135°F, steady. If candidate asks for additional indications, report that all other containment parameters are normal for full power operations.
	Performance:	**SATISFACTORY ____UNSATISFACTORY ____**

	Comments:	______

3.	**Procedure Step:**	[2] Perform Corrective Actions (a) **IF** a relief valve is leaking, **THEN** monitor tailpipe temperature indications onTR-260-20 (Panel C921)
	Standard	Determine that additional tail pipe temperature monitoring is required.
	Cue	Role Play as CRS and CUE that the SCRE will monitor the tail pipe temperatures.
	Performance:	**SATISFACTORY ____UNSATISFACTORY ____**
	Comments:	______

4.	**Procedure Step:**	(b) Enter PNPS 2.2.23, "Automatic Depressurization System", Attachment 6 (Flow Chart for SRV Indications)
	Standard	Enter PNPS 2.2.23, Attachment 6
	Cue	When candidate determines that PNPS 2.2.23, Attachment 6 entry is required, provide the candidate with a copy of the procedure
	Performance:	**SATISFACTORY ____UNSATISFACTORY ____**
	Comments:	______

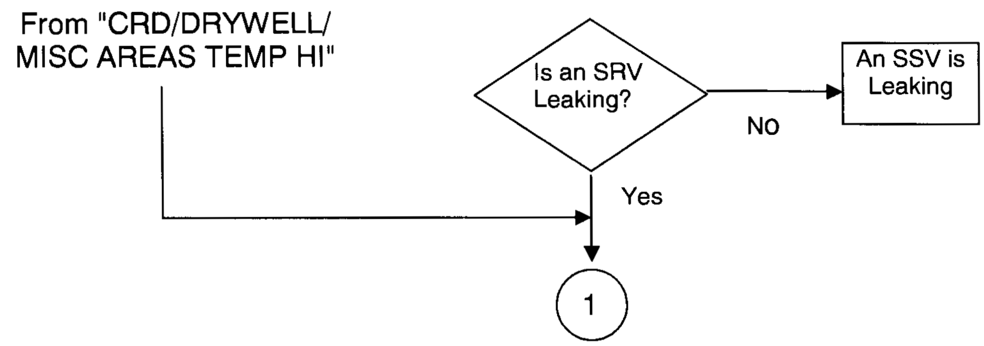
Evaluator Note: The remaining steps of this JPM are from PNPS 2.2.23, Attachment 6

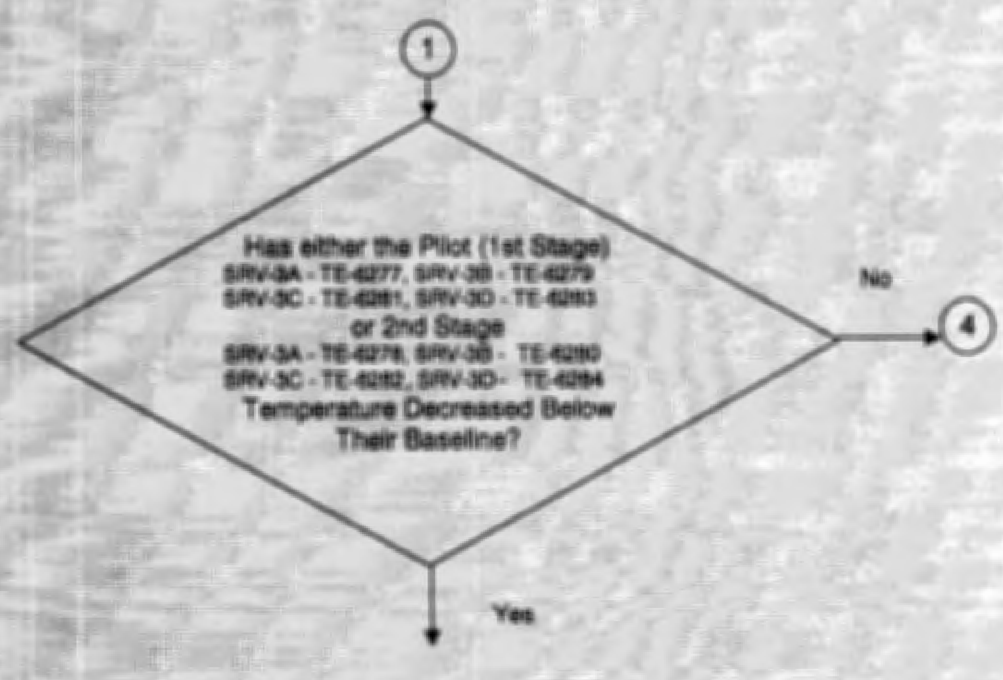
5.	**Procedure Step:**	**Attachment 6, Sheet 1, Figure 1 Flow Chart "Bellows Leakage"** "RELIEF VALVE BELLOWS LEAKING" Alarm at C903L-C2 is received
	Standard	Determine that this flow chart is not applicable and progress to sheet 2
	Cue	None
	Notes	This flow chart is not applicable because this alarm was not received.
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	____

6.	**Procedure Step:**	**Attachment 6, Sheet 2, Figure 2 Flow Chart "Pilot Stage, 2nd stage and Main Stage Leakage"** **"CRD/DRYWELL/MISC AREAS TEMP HI"** (C903R-A1) with Kaye digital alarm DA_6277B, DA_6271B, DA_6281B, DA_6283B "SRV3A (B, C or D) 1st Stage Pilot 3 Deg < 15 M AVE" or indication of leak from pilot, 2nd stage, or tailpipe thermocouples "RELIEF/SFTY VALVE LEAKING" Alarm at C903L-A2 is received
	Standard	Determine that this flow chart is applicable and continues to next flow chart element.

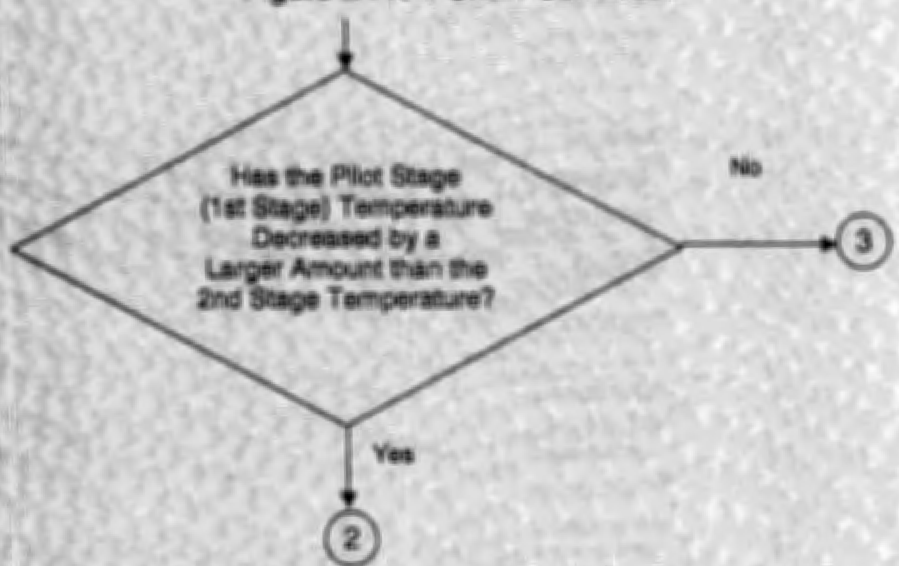
	Cue	If asked if there are any Kaye alarms, report that Kaye alarm "SRV 3B, 1st Stage Pilot 3 Deg < 15 M Ave" has just alarmed.
	Notes	The box to the left provides additional indications that the valve is leaking and as to possible causes of the leak.
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	____

7.	**Procedure Step:**	Figure 2 Flow chart Continued From "CRD/DRYWELL/ MISC AREAS TEMP HI" Determine Source of Leakage at TR-260-20 SRV 3A - TE-6285 SRV 3B - TE-6286 SRV 3C - TE-6287 SRV 3D - TE-6288 SSV 4A - TE-6274 SSV 4B - TE-6275
	Standard	Determine that this step has been accomplished via the ARP actions and progress to the next flow chart element.
	Cue	None
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	____

8.	**Procedure Step:**	Figure 2 Flow Chart Continued 
	Standard	Determine that the SRV is leaking and progress to 1 on next page
	Cue	
	Notes	
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	____

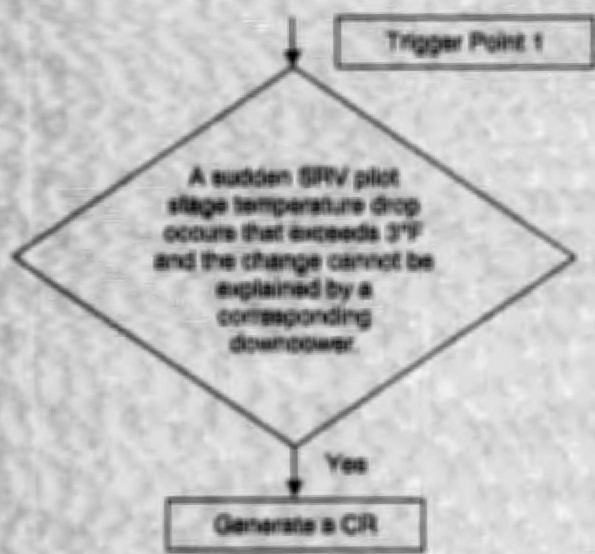
9.	**Procedure Step:**	Figure 2 Flow Chart Continued 

	Standard	Determine that both the 1st Stage AND 2nd Stage have decreased below their Baseline for SRV 3B. Operator proceeds to the next element in the Figure 2 Flowchart.
	Cue	When candidate determines that Kaye SRV temperature data and SRV baseline data is required, provide the candidate with Handouts 2 and 3 of this JPM.
	Notes	1st stage Base Line temp for SRV 3B is 470°F (Baseline Handout) Current 1st stage temp for SRV 3B is 431°F (Kaye Handout) All other 1st stage temps are above their baseline data 2nd stage Base Line temp for SRV 3B is 552°F (Baseline Handout) Current 2nd stage temp for SRV 3B is 528°F (Kaye Handout) All other 2nd stage temps are above their baseline data
	Performance:	SATISFACTORY ____ UNSATISFACTORY ____
	Comments:	____________________

10.	Procedure Step:	Figure 2 Flow Chart Continued 
	Standard	Determine that 1st Stage temperature has decreased more than the 2nd Stage temperature and progress to point 2 on page 4 of the attachment.

	Cue	None
	Notes	1st stage temp has lowered by 39 degrees (470 – 431 = 39). 2nd stage temp has lowered by 24 degrees (552 – 528 = 24)
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	

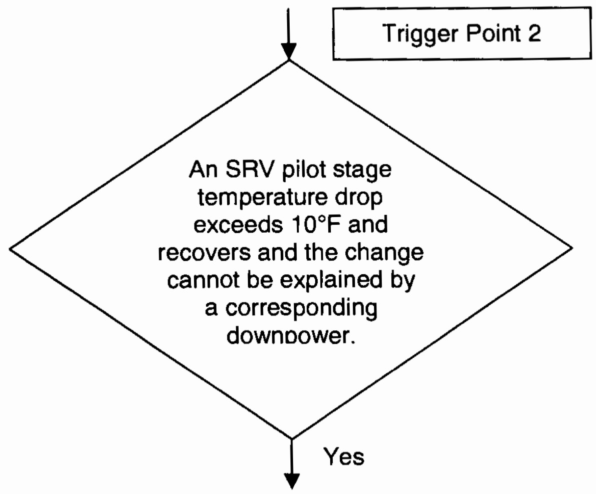
11.	**Procedure Step:**	Attachment 6, Sheet 4 Flow Chart "An SRV Pilot Stage is Leaking" Evaluate Trigger Point 1



	Standard	Determine that Trigger Point 1 has been met and that a CR is required. Progress to Trigger Point 2.
	Cue	None
	Notes	
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	

12. **Procedure Step:** Attachment 6, Sheet 4 Flow Chart "An SRV Pilot Stage is Leaking" Continued

Evaluate Trigger Point 2



Standard: Determine that Trigger Point 2 has not been met and progress to Trigger Point 3.

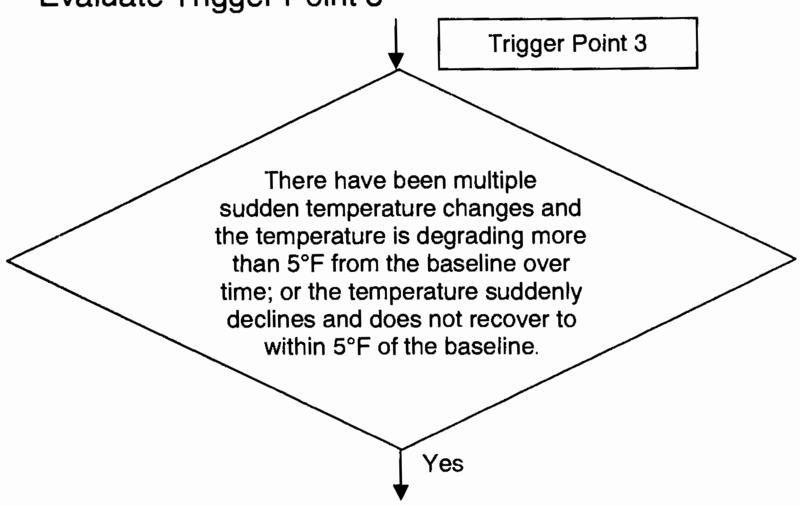
Cue: If asked whether temperatures are recovering, Cue that all temperatures are stable at the values provided.

Performance: **SATISFACTORY** ____ **UNSATISFACTORY** ____

Comments: ________________________________

13. **Procedure Step:** Attachment 6, Sheet 4 Flow Chart "An SRV Pilot Stage is Leaking" Continued

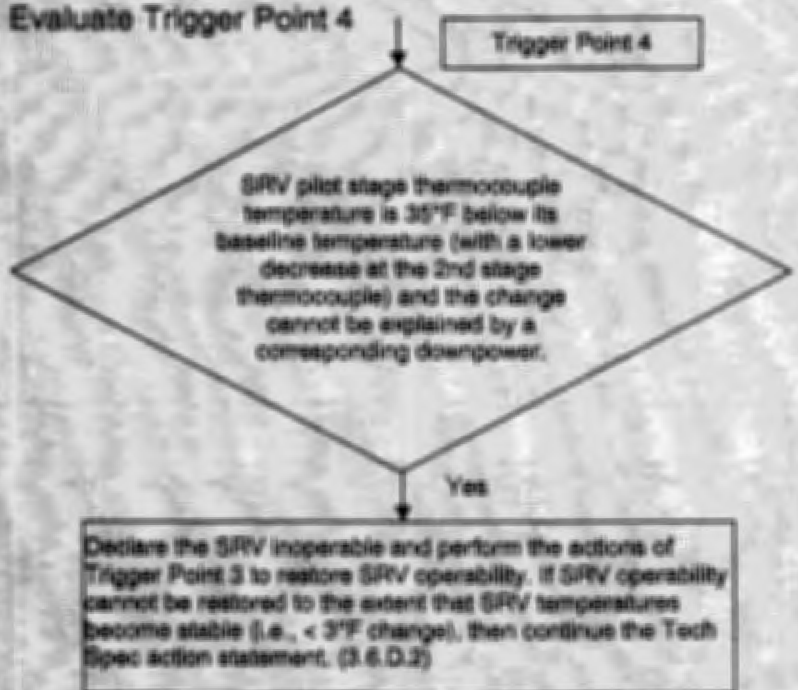
Evaluate Trigger Point 3



	Standard	Determine that this step does not apply and progress to Trigger Point 4.
	Cue	If asked if there have been any past sudden changes associated with this SRV, inform the candidate that this is the 1st instance involving sudden temperature changes.
	Performance:	**SATISFACTORY ____UNSATISFACTORY ____**
	Comments:	

14.	**Procedure Step:**	**Attachment 6, Sheet 4 Flow Chart "An SRV Pilot Stage is Leaking" Continued**

[3] **Evaluate Trigger Point 4**



	Standard	Determine that Trigger Point 4 has been exceeded.
	Cue	None
	Notes	1st Stage (Pilot) has dropped 39 degrees. The 2nd stage temperature only dropped 24 degrees. Per the initial conditions there have been no recent downpowers.
	Performance:	**SATISFACTORY ____UNSATISFACTORY ____**

	Comments:	

15.	**Procedure Step:**	Recommend to the CRS required actions for satisfying Trigger Point 4.
	Standard	Determine the following is required: • Declare the SRV inoperable • Perform the actions of Trigger Point 3 to restore SRV operability.
	Cue	None
	Notes	The addition items contained in the actions for Trigger points 3 and 4 may be provided but are not required for full credit.
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	

Cue: **When the required actions have been determined, CUE that completes this JPM.**

STOP TIME: ________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Admin – JPM A1a RO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT _____ UNSAT _____

Examiner's Signature: ____________________ Date: ____________

HANDOUT # 3
(For Training Only)

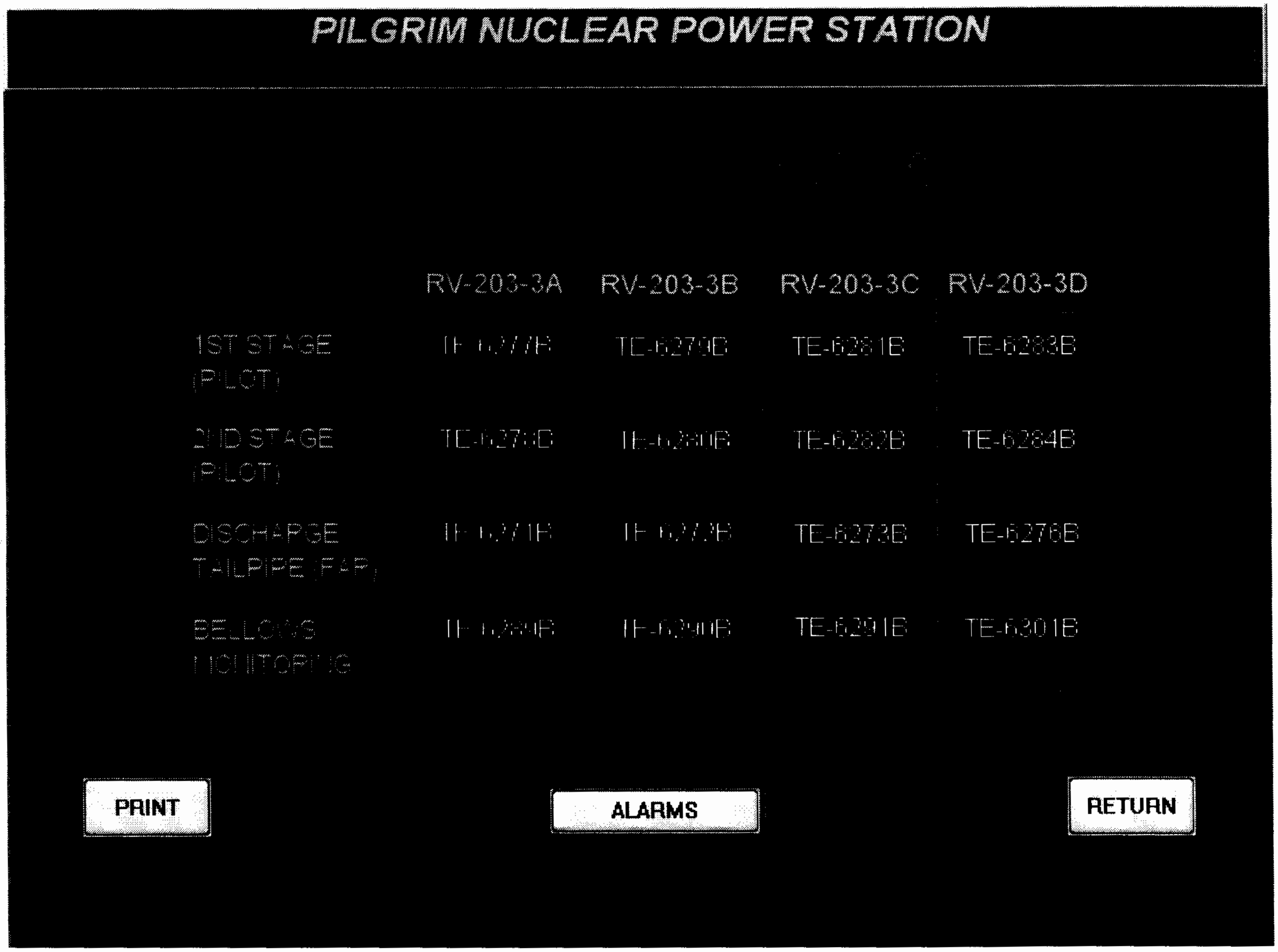
Current Baseline Temperatures for Pilot and Second Stages as Determined by the SRV Program Values Engineer

Safety Relief Valve	Pilot Stage Baseline Temperatures	Second Stage Baseline Temperatures
SRV-203-3A	459°F	531°F
SRV-203-3B	470°F	552°F
SRV-203-3C	464°F	522°F
SRV-203-3D	458°F	528°F

HANDOUT #2

Kaye Temperature Indications

(For Training Only)



vince2028

HANDOUT #1
Temperature Indications on TR260-20, Panel C921
(For Training Only)

RV-203-3A, TE-6285	170 °F
RV-203-3B, TE-6286	205 °F
RV-203-3C, TE-6287	138 °F
RV-203-3D, TE-6288	160 °F
SRV 203-4A,TE-6274	195 °F
SRV 203-4B,TE-6275	186 °F

INITIAL CONDITIONS:

- The plant has been operating at power for 100 days and is currently at full power.
- Annunciator C903L-A2, "Relief/Sfty Valve Leaking" has just been received.
- No other alarms have been received.

INITIATING CUE:

- Respond IAW ARP C903L-A2, "Relief/Sfty Valve Leaking.
- Other plant indications will be provided when requested.
- This Task is not time critical.
- Inform the evaluator when you have completed the task

NRC JPM A1b RO

**NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
(RO/SRO)**

TITLE: **Conduct a Shift Turnover Panel Walkdown**

OPERATOR: ____________________ **DATE:** ____________________

EVALUATOR: ____________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**10**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be told that the plant is operating at power, that they are the on-coming BOP, and that a Shift Turnover is in progress in accordance with PNPS 1.3.34, Operations Administrative Policies and Processes. As part of the turnover the operator will be told that the off-going shift successfully completed a HPCI Pump and Valve Operability Surveillance and a Monthly Diesel Operability Surveillance. The operator will be directed to conduct a Control Room panel walkdown beginning with panel C903 in accordance with of PNPS 1.3.34, Section 6.7.3.5, Step 7. The operator will be expected to identify that three system alignments are not aligned properly and report these to the CRS.

TASK STANDARD: The operator will determine that HPCI is still running, that the HPCI flow Controller Setpoint Tape is incorrectly set and that MO-2301-9, INJ VLV #1 is closed.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

X Simulator

Classroom

Prepared: Mark Santiago **Date:** 01/0714

Reviewed: ______ **Date:** ______

Approved: ______
Superintendent, Operations Training (or Designee) **Date:** ______

REVISION LOG

Revision Number	Date	Description
0	11/13/13	New JPM developed for the 2014 LOT NRC Exam.
1	01/01/14	Revised JPM following validation.

TASK Title:	CONDUCT SHIFT AND RELIEF TURNOVER	**Task Number:**	299-03-01-003
K&A SYSTEM:	Generic	**K&A ID / Rating:**	2.1.31 (4.6/4.3)

K&A DESCRIPTION: Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup .

REFERENCES:

1. PNPS 2.2.21, High Pressure Coolant Injection
2. PNPS 1.3.34, Operations Administrative Policies and Processes

SIMULATOR CONDITIONS:

1. Initialize the simulator to any at power IC
2. Set the HPCI set point tape adjust to 3000 gpm.
3. Close HPCI Valve MO-2301-9, INJ VLV #1.
4. Start the HPCI Aux oil pump

GENERAL TOOLS AND EQUIPMENT:

1. None

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin".

2. Provide Candidate with Initial Conditions/Cue (Last Page of this JPM).

3. Always state the following two paragraphs:

   a) "The title of this JPM is: **Conduct a Shift Turnover Panel Walkdown.**

   b) "The task conditions are as follows:

      i) The plant is operating at power.

      ii) You are the on-coming Balance-of-Plant Operator

      iii) A Shift Turnover is in progress in accordance with PNPS 1.3.34, Operations Administrative Policies and Processes.

      iv) During the shift turnover briefing, the off-going shift reported that they successfully completed the following surveillances:

         - PNPS 8.9.1, EMERGENCY DIESEL GENERATOR AND ASSOCIATED EMERGENCY BUS SURVEILLANCE

         - PNPS 8.5.4.1, HPCI SYSTEM PUMP AND VALVE QUARTERLY SURVEILLANCE"

4. Solicit and answer any questions the operator may have.

INITIATING CUE:

State the following:

- Conduct a Control Room panel walkdown commencing at Panel C903 in accordance with PNPS 1.3.34, Section 6.7.3.5, Step 7.

- Your evaluator will serve as the off-going BOP.

- Report any abnormalities to the CRS.

- This Task is not time critical.

- Inform the evaluator when you have completed the task.

(Gray shaded denotes Critical Steps)

START TIME: ________

Evaluator Note: The below steps can be performed in any order.

If the operator incorrectly identifies other components then listed below as being misaligned then that determination becomes critical and should be evaluated as UNSATISFACTORY.

1.	**Procedure Step:**	[7] The detailed Control Room panel walkdown should include: • System lineups (including correct safety system lineups and in-service systems) • Off-normal system configurations (including off-normal system lineups, tagouts, and temporary Modifications) [8] Individuals (SM, CRS, Third SRO, C905, BOP, or spare licensed NPRO) assuming the watch will complete the Control Room panel walkdown and individual turnover review prior to assuming the watch position.
	Standard	Determine that the HPCI Flow control is incorrectly set to 3000 GPM Report the misalignment to the CRS
	Cue	ROLE PLAY as the CRS, acknowledge the report, and direct that the operator continue with the walkdown.
	Notes	PNPS 2.2.21, HPCI, Section 7.1, Standby Status specifies that the controller is to be set for 4250 gpm IAW step [2] (bb).
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	

2.	**Procedure Step:**	[7] The detailed Control Room panel walkdown should include: • System lineups (including correct safety system lineups and in-service systems) • Off-normal system configurations (including off-normal system lineups, tagouts, and temporary Modifications) [8] Individuals (SM, CRS, Third SRO, C905, BOP, or spare licensed NPRO) assuming the watch will complete the Control Room panel walkdown and individual turnover review prior to assuming the watch position.
	Standard	Determine that HPCI Valve MO-2301-9, INJ VLV #1, is closed and should be open. Report the misalignment to the CRS
	Cue	ROLE PLAY as the CRS, acknowledge the report, and direct that the operator continue with the walkdown.
	Notes	PNPS 2.2.21, HPCI, Section 7.1, Standby Status specifies that Valve MO-2301-9, INJ VLV #1, should be open IAW step [2] (g). A caution prior to step [2] (g) also states that: "MO-2301-9 has been reclassified as a passive safety related valve. Its function is to be open for HPCI injection and is positioned as normally open. The IST Program revision stroke tests its in-series valve, MO-2301-8, in the cold shutdown condition only. MO-2301-9 must remain open for the HPCI System to be considered operable."
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	

3.	Procedure Step:	[7] The detailed Control Room panel walkdown should include: • System lineups (including correct safety system lineups and in-service systems) • Off-normal system configurations (including off-normal system lineups, tagouts, and temporary Modifications) [8] Individuals (SM, CRS, Third SRO, C905, BOP, or spare licensed NPRO) assuming the watch will complete the Control Room panel walkdown and individual turnover review prior to assuming the watch position.
	Standard	Determine that the HPCI Aux Oil Pump is still running. Report the misalignment to the CRS
	Cue	ROLE PLAY as the CRS, acknowledge the report.
	Notes	PNPS 2.2.21, HPCI, Section 7.1, Standby Status specifies P-229, HPCI AUX OIL PUMP control switch be in AUTO with the pump "off".
	Performance:	SATISFACTORY ____ UNSATISFACTORY ____
	Comments:	

Cue: **When the operator has identified the above three misalignments CUE, That completes this JPM.**

STOP TIME: ________

Job Performance Measure No.: 2014 Admin – JPM A1b RO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________________ Date: ____________________

INITIAL CONDITIONS:

- The plant is operating at power.
- You are the on-coming Balance-of-Plant Operator
- A Shift Turnover is in progress in accordance with PNPS 1.3.34, Operations Administrative Policies and Processes.
- During the shift turnover briefing, the off-going shift reported that they successfully completed the following surveillances:
    - PNPS 8.9.1, EMERGENCY DIESEL GENERATOR AND ASSOCIATED EMERGENCY BUS SURVEILLANCE
    - PNPS 8.5.4.1, HPCI SYSTEM PUMP AND VALVE QUARTERLY SURVEILLANCE"

INITIATING CUE:

- Conduct a Control Room panel walkdown walkdown commencing at Panel C903 in accordance with PNPS 1.3.34, Section 6.7.3.5, Step 7.
- Your evaluator will serve as the off-going BOP.
- Report any abnormalities to the CRS.
- This Task is not time critical.
- Inform the evaluator when you have completed the task.

NRC JPM A2 RO

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **Use mechanical drawings to determine the isolation boundaries for a leak on the RHR system.**

OPERATOR: ____________ **DATE:** ____________

EVALUATOR: ____________ **EVALUATOR SIGNATURE:** ____________

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**15**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The initial condition for this JPM is that RHR is in its normal standby lineup. The operator will be told that RHR Loop B Heat Exchanger Bypass Valve, MO-1001-16B, is leaking into the "B" RHR quad. The operator will be directed to determine the valves that must be closed to stop the leak using station P&IDs. The operator will also be told to stop the leak while maintaining the "A" loop of RHR Containment Cooling and Sprays operational. A minimum of 4 valves must be identified as needing to be closed. The operator may identify other valves that should be verified closed but with RHR in its normal standby lineup these potential flow paths are normally isolated.

TASK STANDARD: A minimum of 4 valves must be identified as needing to be closed.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

Simulator

X Classroom

Prepared: Mark Santiago **Date:** 11/13/13

Reviewed: ____________ **Date:** ____________

Approved: ____________ **Date:** ____________

Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
0	11/13/13	New JPM developed for the 2014 LOT NRC Exam.

TASK Title: EFFECTIVELY READ AND UTILIZE P&IDS TO DETERMINE SYSTEM CONFIGURATIONS AND DIAGNOSE PROBLEMS

Task Number: 299-03-04-029

K&A SYSTEM: Generic

K&A ID / Rating: 2.2.41 (3.5/3.9)

K&A DESCRIPTION: Ability to obtain and interpret station electrical and mechanical drawings.

REFERENCES:

1. RHR P&ID M241, Sheets 1 and 2

SIMULATOR CONDITIONS:

NA

GENERAL TOOLS AND EQUIPMENT:

1. A set of Controlled Drawings must be available to the operator.
2. Printout of the Evaluator Aids associated with M241 sheet 1, and 2 embedded to the right.

RHR Sheet 1.pdf

RHR Sheet 2 Rev 1.pdf

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin".

2. Provide Candidate with Initial Conditions/Cue (Last Page of this JPM).

3. Always state the following two paragraphs:

   a) "The title of this JPM is: **Use mechanical drawings determine the isolation boundaries for a leak on the RHR system.**

   b) The task conditions are as follows:

      i) RHR is in its normal standby lineup.

      ii) An operator reports that that RHR Loop B Heat Exchanger Bypass Valve, MO-1001-16B, is leaking into the "B" RHR quad."

4. Solicit and answer any questions the operator may have.

INITIATING CUE:

State the following:

- Using station P &IDs determine the valves that must be closed to stop the leak on MO-1001-16B.
- Maintain the "A" Loop of RHR Containment Cooling and Sprays operable. *(Evaluator Note: This direction helps to limit the number of options the operator can take to isolate the leak)*
- Another operator will develop the tagout after the leak has been stopped.
- This Task is not time critical.
- Inform the evaluator when you have completed the task.

(Gray shaded denotes Critical Steps)

Notes

START TIME: ________

Evaluator Note: *The attached evaluator aids indicate a suggested method for isolating the leak. Other methods may also be acceptable, provided that the piping on both sides of MO-1001-16B is depressurized.*

The below steps can be performed in any order.

1.	**Procedure Step:**	[1] Obtain the required P&IDs
	Standard	Using the P&ID index determine that P&ID M241, sheets 1 and 2 are associated with RHR.
	Cue	None
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	

2.	**Procedure Step:**	[2] Locate RHR Pump Discharge Valve, MO-1001-16B on P & ID.
	Standard	Determine that the valve is located on M241, sheet 2, grid location, E3.
	Cue	None
	Notes	See the Evaluator Aid
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	

3.	**Procedure Step:**	[3] Isolate MO-1001-16B from the torus via the RHR Pump D discharge line
	Standard	Determine that HO-1001-66D, RHR Pump D Discharge valve should be closed.
	Cue	None
	Notes	MO-1001-16B can also be isolated from the torus by shutting MO-1001-7D, RHR Pump D Suction valve. If the operator makes this choice, the operator may also determine that the pump minimum flow line must also be isolated. However the min flow line discharges above the torus water line and therefore would not keep the line pressurized. Additionally the min flow line is already isolated by check valve 1001-2D. This step is to be marked as satisfactory as long as the flow path from the torus thru RHR Pump D is isolated.
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	

4.	**Procedure Step:**	[4] Isolate MO-1001-16B from the torus via the RHR Pump B discharge line
	Standard	Determine that HO-1001-66B, RHR Pump B Discharge valve should be closed.
	Cue	None
	Notes	MO-1001-16B can also be isolated from the torus by shutting MO-1001-7B, RHR Pump B Suction valve. If the operator makes this choice, the operator may also determine that the pump minimum flow line must also be isolated. However the min flow line discharges above the torus water line and therefore would not keep the line pressurized. Additionally the min flow line is already isolated by check valve 1001-2B. This step is to be marked as satisfactory as long as the flow path from the torus thru RHR Pump B is isolated.

	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	

5.	**Procedure Step:**	[5] Isolate MO-1001-16B from the "B" Loop Keep Fill supply.
	Standard	Determine that 10-HO-57B, RHR Loop B Keep Fill Line Block Valve should be closed.
	Cue	None
	Notes	Upstream keep fill valves may be isolated in lieu of 10-HO-57B (example, 26-HO-1B, RHR Loop B Keep Fill Supply Block Valve). This is acceptable as long as the "B" loop of RHR is isolated from Keep Fill AND the "A" loop is not impacted.
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**
	Comments:	

6.	**Procedure Step:**	[6] Isolate MO-1001-16B from the "A" Loop Keep Fill supply.
	Standard	Determine that Manual Valve 1001-53, RHR Manual Loop Cross-Tie Block Valve should be closed.
	Cue	None
	Notes	Manual Valve 1001-53, is located on M241, Sheet 1. In lieu of closing Manual Valve 1001-53, the operator may decide to close MO-1001-19, RHR Loops A&B Cross-Tie Valve. This valve can be closed from the control room which would be faster than closing the manual valve locally. This is acceptable provided the operator can explain the impact of closing MO-1001-19 vice Manual Valve 1001-53. Closing MO-1001-19 vice Manual Valve 1001-53 would prevent letting down the torus water to Radwaste.
	Performance:	**SATISFACTORY ____ UNSATISFACTORY ____**

	Comments:	

7.	**Procedure Step:**	[7] Evaluate other flow paths that may impact leak isolation
	Standard	Determine the following: The torus cooling line is already isolated from the leak by normally closed valves MO-1001-36B and MO-1001-34B. The torus spray line is already isolated from the leak by normally closed valves MO-1001-37B and MO-1001-34B. The LPCI injection flow path is already isolated from the leak by normally closed valve MO-1001-29B. The drywell spray line is already isolated from the leak by normally closed valves MO-1001-26B and MO-1001-23B.
	Cue	None
	Performance:	**SATISFACTORY ____UNSATISFACTORY ____**
	Comments:	

8.	**Procedure Step:**	[8] Determine leak isolation has been accomplished
	Standard	Report that the leak has been isolated.
	Cue	None
	Performance:	**SATISFACTORY ____UNSATISFACTORY ____**
	Comments:	

Cue: **That completes this JPM.**

STOP TIME: ________

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2014 Admin – JPM A2 RO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT ______ UNSAT ______

Examiner's Signature: ______________________ Date: ______________

INITIAL CONDITIONS:

- RHR is in its normal standby lineup.
- An operator reports that RHR Loop B Heat Exchanger Bypass Valve, MO-1001-16B, is leaking into the "B" RHR quad.

INITIATING CUE:

- Using station P &IDs determine the valves that must be closed to stop the leak on MO-1001-16B.
- Maintain the "A" Loop of RHR Containment Cooling and Sprays operable.
- Another operator will develop the tagout after the leak has been stopped.
- This Task is not time critical.
- Inform the evaluator when you have completed the task

NRC ADMIN JPM A4 RO

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **Emergency Plan Notifications**

OPERATOR: ____________________ **DATE:** ____________________

EVALUATOR: ____________________ **EVALUATOR SIGNATURE:** ____________________

CRITICAL TIME FRAME:	Required Time (min):	**15**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	**10**	Actual Time (min):	

JPM RESULTS*: SAT UNSAT NEEDS IMPROVEMENT
(Circle one) *Refer to Grading Instructions at end of JPM

COMMENT SHEET ATTACHED: Yes / No (circle one) (Required for Unsat, Needs Improvement or Follow-Up Questions)

SYNOPSIS: The operator will be told that the Shift Manger has just declared an Alert. The operator will also be told that he/she is the designated shift communicator. Using the PNPS Operator Aid 13-01 provided, the operator will notify the ERO of the event and complete the DNN notification of the surrounding towns and local agencies.

TASK STANDARD: There shall be no failure of critical elements and the DNN notification shall be completed within 15 minutes of the start of the JPM.

EVALUATION METHOD:

X Perform

Simulate

EVALUATION LOCATION:

Plant

X Simulator

Classroom

Prepared: Mark Santiago **Date:** 01/07/14

Reviewed: ______________ **Date:** ______________

Approved: ______________ **Date:** ______________

Superintendent, Operations Training (or Designee)

REVISION LOG

Revision Number	Date	Description
0	11/13/13	New JPM developed for the 2014 LOT NRC Exam.

TASK Title:	Activate the emergency response organization using Everbridge or backup methodology	**Task Number:**	015-05-02-005
	Complete and transmit notification forms (initial and follow up) using DNN		015-05-02-003
K&A SYSTEM:	Generic	**K&A ID / Rating:**	2.4.39 (3.9/3.8)
K&A DESCRIPTION:	Knowledge of RO responsibilities in emergency plan implementation.		

REFERENCES:

1. EPIP-100

SIMULATOR CONDITIONS:

1. Simulator PNPS Operator Aid 13-01 filled out as described in the embedded file below under the General Tools and Equipment.

GENERAL TOOLS AND EQUIPMENT:

2. Access to the Shift Manager laptop computer
3. Printout of completed PNPS Operator Aid 13-01 (file embedded to the right)

E Plan Operator Aid.doc

CRITICAL ELEMENTS:

Critical elements are shaded in gray within the body of this document.

OPERATOR BRIEF:

1. State the following paragraph IF this is the first performance in this setting:

   a) "All actions associated with this job performance measure are to be performed. You will be provided access to any tools or equipment you determine necessary to perform the task. When a second checker is called for, the evaluator will perform the role of second checker and will always be in agreement with your actions. Before you start, the evaluator will state the task conditions and answer any questions, then provide a cue to begin".

2. Provide Candidate with Initial Conditions/Cue (Last Page of this JPM).

3. Always state the following two paragraphs:

   a) "The title of this JPM is: **Emergency Plan Notifications.**

   b) "The task conditions are as follows:

      i) The Shift Manager has just declared an Alert Classification due to a plant emergency.

      ii) You are the designated Shift Communicator.

      iii) The SCRE has filled out PNPS Operator Aid 13-01with pertinent information regarding the emergency. (*Evaluator to provide the operator with the completed PNPS Operator Aid 13-01, associated with this JPM at this time*).

4. Solicit and answer any questions the operator may have.

INITIATING CUE:

State the following:

- IAW with EPIP 100, Emergency Classification And Notification, Attachment 9.2, and the information provided:

  - Notify Onsite Station Personnel of the event

    AND

  - Notify the Offsite Emergency Response Organization (ERO) of the emergency

    AND

  - Complete the initial notifications to the Commonwealth and local authorities using the Digital Notification Network (DNN)

- This Task IS TIME CRITICAL.

- Inform the evaluator when you have completed the task.

(Gray shaded denotes Critical Steps)

JPM START TIME: ________

CRITICAL START TIME: ________

Evaluator Note: The start times above should be the same.

1.	**Procedure Step:**	**NOTIFICATION OF STATION PERSONNEL** **PROCEDURE CAUTIONS** During a security threat, it may be advisable **NOT** to sound an alarm. During security-related events, all plant announcements will be made in accordance with PNPS 5.3.14 (Security Incidents) and PNPS 5.3.14.1 (Airborne Threat). Ensure appropriate message content is prepared before announcement.
	Standard	Operator determines that this is not a security event and proceeds.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	Sound/have the Control Room sound the Operator Recall Alarm and make the following announcement over the public-address system TWICE: "Attention all personnel, attention all personnel: An Alert has been declared due to *(brief description of initiating event)*. Members of the Emergency Response Organization .... "All visitors, all nonessential contractor personnel, all declared pregnant females, and all persons with disabilities ...."

	Standard	Using the information on the Operator Aid, the operator determines that the announcement should be: "Attention all personnel, attention all personnel: An Alert has been declared due to a *loss or potential loss of either fuel clad or reactor coolant system barrier.* Members of the Emergency Response Organization *Report to your assigned Emergency Response Facility*." All visitors, all nonessential contractor personnel, all declared pregnant females, and all persons with disabilities, *Please leave the site at this time*" Sounds the Operator Recall Makes the announcement twice.
	Cue	
	Notes	The Operator Aid provides a description of the event. The description provided in the announcement does not have to exactly match the wording on the Operator Aid but should be similar. There are three choices to make as to what direction is to be provided to the Onsite Personnel as to where to report. The one to choose is provided on the operator aid. There are two choices to make as to the direction that is to be provided to all nonessential contractor personnel, all declared pregnant females, and all persons with disabilities. The one to choose is provided on the operator aid.
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	IF there is a localized emergency (for example: high radiation, fire), THEN announce its type and location and instruct personnel to stand clear of this area.
	Standard	Using the information on the Operator Aid determines that there is no localized emergency.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

4.	**Procedure Step:**	IF there is a potential for an airborne radiological release, THEN consider announcing that there will be no eating, drinking, or smoking until further notice. Time Completed: ___________
	Standard	Using the information on the Operator Aid determines that there is no potential for an airborne radiological release. Records the time the announcements were completed in the space provided.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	**NOTIFICATION OF THE ERO - EMERGENCY FACILITY ACTIVATION** PROCEDURE NOTES IF at any time Everbridge cannot be contacted or does not respond as expected, THEN go to Attachment 9.10 for alternate Everbridge and backup methods for ERO activation. IF all emergency response facilities have been activated and staffed, THEN subsequent Everbridge activation is not required unless directed by the Emergency Director. (Example: a change in the desired ERO response due to a security event.) IF the event is a security incident, THEN the Shift Manager or Emergency Director and Security Shift Supervisor should consult to determine appropriate onsite public-address message to be used over Gaitronics (e.g., ERO should remain in place if onsite, ERO should find shelter if onsite, ERO should report to their assigned Emergency Response Facilities (including onsite TSC/OSC), or ERO should report to their alternate facilities (assigned JIC and EOF locations and TSC/OSC staging location). IF the Everbridge system is activated with erroneous information, THEN the erroneous original message is to be corrected and a new message initiated.
	Standard	Operator reads the notes above and proceeds to the next step.
	Cue	
	Notes	

	Results	SAT	UNSAT

6.	**Procedure Step:**	A. IF initiating an initial Everbridge message, THEN: 1. Open the Everbridge ERO Notification System on the Shift Manager computer by clicking: Start → All Programs → Nuclear Corporate Applications (ESM) → Nuclear Emergency Response (ESM) → ERON
	Standard	The operator logs into the ERO Notification on the laptop computer and enters ERON as described above.
	Cue	
	Notes	A desktop shortcut icon that opens ERON will also satisfy this step.
	Results	SAT UNSAT

7.	**Procedure Step:**	2. Obtain access code (XXXXX) and pass code (XXXXX) from the designated location and enter codes when requested, then click the submit code button to have the program auto-populate the User Message title/subject line with the type of message (Drill, Emergency, Test, Training) and Emergency Response Facility (CR or EOF) in the message header.
	Standard	The operator enters access code "**pnpstrg**" and pass code "**sim746**" and then clicks on "SUBMIT".
	Cue	
	Notes	
	Results	SAT UNSAT

8.	**Procedure Step:**	3. Select appropriate Emergency Classification Level or Termination by clicking on the indicated radio button to populate the User Message with the ECL or Termination selected.
	Standard	The operator selects the radio button "**ALERT**".
	Cue	
	Notes	

	Results	SAT ☐	UNSAT ☐

9.	**Procedure Step:**	4. Answer "YES" or "NO" to Security EAL question "Was this Emergency declared based on a Security EAL?" a. IF "NO" is selected, THEN select desired ERO response Action by clicking on correct radial button to populate the User Message with directions to ERO: • Activate All ERFs • Alternate Reporting Location (EOF and JIC are manned, TSC/OSC report to Chiltonville staging area) b. b. IF "YES" is selected ....
	Standard	Operator selects "NO" to Security EAL question and clicks on radio button to "**Activate ALL ERFs**"
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	5. Review the message that was generated in the User Message box at the bottom of the screen for correctness. IF necessary, THEN add to User Message by clicking and then typing in the User Message box, avoiding use of acronyms.
	Standard	Operator reviews the message and continues without making any additional changes.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

11.	**Procedure Step:**	6. Click "Send Notification" button when message is complete.
	Standard	Operator clicks "**Send Notification**" button.
	Cue	
	Notes	

	Results	SAT ☐	UNSAT ☐

12.	**Procedure Step:**	7. Click "Yes" button to send verification question in response to "Are you CERTAIN you want to send this message?" if message is complete and correct as written.
	Standard	Operator clicks "**Yes**" button.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

13.	**Procedure Step:**	PROCEDURE NOTE The Return button in the SUCCESS message dialog box below returns the user to the Main screen under Item 3 above allowing for a subsequent message to be developed if needed. 8. Confirm message was sucessfully sent by viewing dialog box stating "Message was SUCCESSFULLY Sent - [Confirmation Broacast ID: XXXXXXX]"
	Standard	Operator verifies message was successfully sent and selects the "RETURN" button.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

14.	**Procedure Step:**	9. Go to Attachment 9.10 for alternate Everbridge and backup ERO notification system activation instructions if Success message is not received.
	Standard	Operator does NOT enter attachment 9.10
	Cue	

	Notes	
	Results	SAT ☐ UNSAT ☐

15.	**Procedure Step:**	**INITIAL NOTIFICATIONS (COMMONWEALTH AND LOCAL AUTHORITIES)** PROCEDURE NOTE All initial notifications to the Commonwealth and local authorities must be transmitted within 15 minutes of the event classification. A. Within 15 minutes of the event classification, transmit an Initial Notification Form to the Commonwealth and local authorities. B. In the event the classification changes before the initial notification is transmitted …….
	Standard	Operator reads the above Note and steps and proceeds to the next step.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

16.	**Procedure Step:**	APPLICABLE PROCEDURE NOTES DNN operating instructions are contained in Attachment 9.11, if needed. C. Initiate DNN Initial Notification instructions as follows: 1. Record EAL number and time declared in space provided.
	Standard	Using the information provided on the Operator Aid, records the EAL number **FA1.1** and Time Declared as **12:00**
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

17.	**Procedure Step:**	2. Open the "DNN" program (icon available on "DNN" computer desktop) to fill out and transmit the Initial Notification Form. If the automated DNN system is not available, then go to Attachment 9.7 and implement backup notification instructions.
	Standard	Operator enters the "DNN" program to complete the Initial Notification Form and does NOT enter attachment 9.7
	Cue	
	Notes	The Operator may reference/use PNPS Operator Aid 13-01 Page 2 of 4 to assist with notifications.
	Results	SAT ☐ UNSAT ☐

18.	**Procedure Step:**	3. Verify Blocks 1 - 7 are complete and obtain ED approval. Hard copy for ED signature should be printed. For guidance on individual block descriptions, refer to base document Section 5.2.6.
	Standard	Using the Operator Aid, the operator inputs data as required and verifies blocks 1-7 are complete and enters approval as the ED.
	Cue	IF the Operator requests a peer check, as the CRS respond, "**I agree with the information you have input**". If requested to input initials for Notification Approval in block 7, state, "**I concur with your notification, Input initials "_ _" (Evaluators initials)**.
	Notes	**Refer to the following page to determine grading criteria for this step. All blocks must match the grading criteria for this step to be evaluated as satisfactory.** The Operator may reference/use PNPS Operator Aid 13-01 Page 2 of 4 to assist with notifications.
	Results	SAT ☐ UNSAT ☐

1.	☒ **TRAINING** ☐ DRILL ☐ AN ACTUAL EMERGENCY	4.	**EMERGENCY RADIOACTIVE RELEASE DETERMINATION POP-UP QUESTIONS** ☒ NO ARE ANY SERIES A-1 EAL'S MET ☒ NO ANY EVIDENCE OF RELEASE FROM TURBINE BLDG ☒ NO IS AN UNMONITORED RELEASE SUSPECTED EMERGENCY RADIOACTIVE RELEASE *IS NOT* IN PROGRESS EMERGENCY RADIOACTIVE RELEASE *IS BELOW* PROTECTION ACTION GUIDELINES
2.	**DECLARATION OF EVENT** TIME (24 hr time) <u>*12:00*</u> DATE (mm/dd/yyyy) <u>*Today's date*</u> **PILGRIM NUCLEAR POWER STATION HAS:** ☒ ENTERED **ALERT**	5.	**METEOROLOGICAL DATA AS OF:** TIME (24 hr time) <u>*12:00/Today's Date*</u> DATE (mm/dd/yyyy) *Today's Date* WIND SPEED <u>*20*</u> MPH WIND DIRECTION FROM <u>*90*</u> DEG ***NOTE: SINCE A RELEASE IS NOT IN PROGRESS, WIND DIRECTION AND SPEED ARE NOT CRITICAL FOR JPM STEP 25***
3.	**EAL No** *FA1.1* DESCRIPTION OF EVENT: *Any loss or potential loss of either fuel clad or reactor coolant system.*	6.	**PNPS PROTECTIVE ACTION RECOMMENDATION** ☒ **NO PROTECTIVE ACTION RECOMMENDATIONS** ***NOTE: THIS BLOCK POPULATES AUTOMATICALLY BASED ON BLOCK 4 RESPONSES.***
		7.	**NOTIFICATION INIATED BY:** <u>*Operator's initials*</u> **NOTIFICATION APPROVED BY:** <u>*Operator's initials*</u> ***NOTE: Notification approval may be evaluator acting as the CRS.***

19.	**Procedure Step:**	4. Press the onscreen "Send" button.
	Standard	Operator presses the "**SEND**" button
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

20.	**Procedure Step:**	5. Pop-up screen reads "Final chance to cancel notification" pop-up.
	Standard	Operator presses the "**SEND**" button.
	Cue	
	Notes	**Refer to the following page to determine grading criteria for this step. Enter time critical element elapsed time below.**
	Results	SAT ☐ UNSAT ☐

[redacted]

PILGRIM NUCLEAR POWER STATION
INITIAL EMERGENCY NOTIFICATION

This is a Training Event

Notification Number: 1

As of <u>12:00</u> on <u>(TODAY'S DATE),</u> Pilgrim Station has Entered an <u>ALERT</u>.

EAL Number: <u>F A 1.1.</u>

Description of Event:

<u>Any loss or potential loss of either Fuel Clad or reactor coolant system.</u>

Emergency Radioactive Release <u>IS NOT</u> in progress.

Emergency Radioactive Release <u>IS BELOW</u> Protective Action Guides.

Meteorological Data as of (TIME ENTERED) on (TODAY'S DATE):
Wind Direction FROM 90 degrees TO 270 degrees AT 20 miles per hour.

PNPS's Protective Action Recommendations:
<u>NO Protective Actions Necessary.</u>

Notification initiated by (OPERATOR'S INITIALS) at <u>(NOTIFICATION TIME)</u> on <u>(TODAY'S DATE).</u>
ENTERGY.COM\(PERSON LOGGED INTO COMPUTER) from NPI-D946GLH1 at the Simulator

This is a Training Event

Cue: **When the notification has been "Sent" CUE that completes this JPM.**

JPM STOP TIME: ________

CRITICA STOP TIME: ________

CRITICAL ELEMENT ELAPSED TIME ______________ - ______________ = ______________

CRITICAL START TIME **CRITICA STOP TIME** **CRITICAL ELEMENT ELAPSED TIME**

INITIAL CONDITIONS:

- The Shift Manager has just declared an Alert Classification due to a plant emergency.
- You are the designated Shift Communicator.
- The SCRE has filled out PNPS Operator Aid 13-01with pertinent information regarding the emergency.

INITIATING CUE:

- IAW with EPIP 100, Emergency Classification And Notification, Attachment 9.2, and the information provided:
    - Notify Onsite Station Personnel of the event

      AND
    - Notify the Offsite Emergency Response Organization (ERO) of the emergency
    - AND
    - Complete the initial notifications to the Commonwealth and local authorities using the Digital Notification Network (DNN)
- This Task IS TIME CRITICAL.
- Inform the evaluator when you have completed the task.

Facility: PILGRIM Scenario No.: 1 Op Test No.: 2014 NRC

Examiners: ______ Operators: SRO -
______ RO -
______ BOP -

Initial Conditions:
- IC-6 Reactor Approach to Run, Mode Switch in Startup.
- Open LP NRC Scenario 1
- Execute LP Steps labeled "Initial Condition 1" **AND** "Initial Condition 2"
- Place RBCCW Pump "A" in PTL and hang Danger Tag on CS
- Adjust Startup FRV output to 30%
- Place RPV Level Recorder on C905 to Fast Speed

Turnover:
- A Rx Startup is in progress IAW PNPS 2.1.1
- The Reactor Mode Switch is in Startup
- Rx power is approximately 4% with the IRMs on Range 9.
- Reactor Pressure is 940 psig, with ½ bypass valves open. RPV pressure control is on the EPR.
- RPV level control is via the Startup FRV
- Current Rod position is TBD
- Procedure 2.1.1 is complete through step [92]
- RBCCW Pump "A" is OOS and is not available. All other RBCCW pumps are operable and a Tracking LCO has been initiated.
- The running Steam Packing Exhaust Blower is vibrating excessively.
- Directions to the shift are to shift Blowers IAW 2.2.93, section 7.1.3 and continue the startup.

Critical Tasks:
1. When a primary system is discharging into the secondary containment through an un-isolable break, scram the reactor per EOP-04 and EOP-01 prior to commencing Emergency Depressurization.
2. During failure to scram conditions, insert control rods using one or more methods contained within 5.3.23 and / or EOP-02 to achieve Rx. Shutdown under all conditions
3. When a primary system is discharging into the secondary containment through an un-isolable break, execute Emergency Depressurization per EOP-17/27 when max safe operating values are exceeded in two or more areas.

Event No.	Malf. No.	Event Type*	Event Description
1.	N/A	N - BOP N - SRO	Shift Steam Packing Exhaust Blowers IAW 2.2.93, section 7.1.3.
2.	N/A	R – RO R - SRO	Power ascension per Plant Startup Procedure 2.1.1, using control rod withdraw.

3.	RD09	C – RO C - SRO	During initial rod withdraw, Stuck Rod. Crew responds IAW PNPS 2.4.11.1. Rod un-sticks when drive pressure is raised 150 pounds.
4.	MT09	C – BOP C - SRO	Steam Seal Pressure Regulator fails closed. BOP responds IAW ARP C2C-A7 and establishes manual control using the bypass valve and unloading valve as required.
5.	RP09 (A) NM20"C"	I/C – ALL TS - SRO	RPS MG set "A" trip. Crew shifts RPS "A" to the backup power supply IAW PNPS 2.2.79. APRM "C" fails upscale when the bus is re-energized. RO diagnoses APRM failure bypasses APRM, and resets RPS as directed by the SRO. BOP resets Rad Monitors. SRO consults T.S. Table 3.1.1 and FSAR Appendix B, Table 3.2.C.1.,for the APRM failure (Tracking LCO).
6.	ED05	TS - SRO	Loss of 23 KV line. TS 3.9.B.1
7.	PC02 (25% initially, 100% post scram) PC13 Overrides to prevent manual closure of RWCU 2 5 & 80 valves	M - All	Un-isolable RWCU leak that leads to high area temperatures requires a manual scram and eventual emergency depressurization. EOP-01, EOP-04 and EOP-17.
8.	RD12 at 100% for 4 withdrawn rods	C – RO C - SRO	Incomplete scram. 4 control rods fail to insert but can be inserted manually IAW PNPS 5.3.23, Alternate Rod Insertion. Transition to EOP-02 required.
*	(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor		

Scenario Summary:

The plant is at approximately 4% power with a reactor plant startup in progress following a two day outage. Procedure 2.1.1, Startup from Shutdown is complete up through step [92]. RBCCW pump "A" is out of service. The running Steam Packing Exhaust Blower has been reported as vibrating excessively. The directions to the shift are to shift Steam Packing Exhaust Blowers IAW PNPS 2.2.93, Main Condenser Vacuum System and then continue the plant startup IAW PNPS 2.1.1.

After assuming the watch, the BOP will shift Steam Packing Exhaust Blowers as directed. The RO will commence control rod withdraw and raise power in preparation for transferring the Reactor Mode Switch to Run. While raising power, the RO will encounter a control rod that cannot be moved with normal drive pressure. The crew is expected to respond IAW PNPS 2.4.11.1, CRD System Malfunctions. The RO is expected to increase drive water pressure in 50 pound increments and attempt to move the rod at each increment. The rod will move when drive pressure has been increased by 150 pounds.

Then the Steam Seal Pressure Regulator will fail closed. The BOP is expected to diagnose the failure and respond IAW ARP C2C-A7, Steam Seal Header Press LO and take manual control of header pressure via the regulator bypass valve and steam seal unloading valve. The crew may also refer to PNPS 2.4.36, Lowering Condenser Vacuum.

Next the crew will be informed that a bearing problem is indicated on the "A" RPS MG set. As the crew prepares to secure the MG set, the MG set will trip causing a ½ scram and loss of power to various Nuclear Instruments and Radiation Monitors. The crew is expected to diagnose the failure and direct the field operator to place RPS "A" on the backup power supply IAW PNPS 2.2.79, Reactor Protection System. When the bus is re-energized, APRM "C" will fail upscale. The RO is expected to diagnose the failure, bypass the APRM as directed and reset the ½ scram. The SRO is expected to consult T.S. Table 3.1.1 and FSAR Appendix B, Table 3.2.C.1., conclude that the minimum number of operable APRMs is met and enter a Tracking LCO. The BOP is expected to reset the rad monitors that were impacted by the power loss.

Then the 23KV Circuit Switcher supplying the Shutdown Transformer will trip. The SRO is expected to declare the Shutdown Transformer Inop, refer to TS 3.9.B.1 and declare a 7 day LCO.

The scenario ending event begins when a primary system leak occurs in the secondary containment from the RWCU system. The leak will result in rising area temperatures. The crew is expected to enter EOP-04, Secondary Containment Control, when area temperatures exceed EOP-04 entry conditions. The automatic PCIS isolation will fail and various valve failures will prevent manual isolation. Before any area temperature reaches its max safe operating value, the crew is expected to enter EOP-01 RPV Control and insert a manual scram (**Critical Task #1**). Four control rods will fail to insert following the scram. The SRO is expected to transition to EOP-02, RPV Control, Failure to Scram. Boron injection is not expected. The RO is expected to manually insert the control rods IAW PNPS 5.3.23, Alternate Rod Insertion and achieve reactor shutdown status under all conditions (**Critical Task #2**).

The crew is expected to perform an aggressive cooldown IAW PNPS 5.3.35.2, Operations Emergency and Transient Response Strategies and rapidly lower pressure to 450 to 550 psig in order to reduce the effects of the leak. However area temperatures will continue to rise. The crew may anticipate an Emergency Depressurization IAW EOP-01 and open all turbine bypass valves. Regardless of any mitigating action, area temperatures will exceed their max safe operating values in two or more areas of the secondary containment. The crew is then expected to enter EOP-17, Emergency RPV Depressurization, open all SRVs and depressurize the reactor (**Critical Task #3**).

The scenario will be terminated when all SRVs have been opened, and RPV water level has been stabilized.

Op Test No.: 2014	Scenario # 1	Event # 1	Page 5 of 22
Event Description:	Shift Steam Packing Exhaust Blowers IAW 2.2.93		

Time	Position	Applicant's Actions or Behavior

IOS Note:
1. Step "Initial Condition 1" of this LP, already executed, performed the following:
   a. Removed RBCCW Pump "A" from service
   b. Defeated the Group 6 Isolation
   c. Failed 4 rods to insert on any subsequent scram
   d. Failed the RWCU isolation valves
2. Step "Initial Condition 2" of this LP, already executed performed the following:
   a. Sticks control rod 26-51 at position 08
   b. Unsticks the rod after drive pressure has been raised to > 400 psig.

Evaluator Note:	*The critical elements of each critical task are highlighted in grey.*	
	SRO	1) Direct BOP to shift Steam Packing Exhaust Blowers
	RO	2) Monitor reactor parameters
	BOP	3) Shift Blowers as follows: a) START idle exhauster K-106B by placing the control switch in "RUN" at Panel C2. b) OPEN respective EXH VLV MO-D2 until 20 to 24" H_2O is obtained on gland seal vac indicator PI-3716 (Panel C2). c) SLOWLY CLOSE EXH VLV MO-D1. d) STOP/VERIFY STOPPED operating exhauster by placing C/S in "STOP" on Panel C2. e) ADJUST EXH VLV for running exhauster to obtain 10 to 12" H2O as indicated on PI-3716 (Panel C2).

IOS Operator: When directed by Lead Examiner, proceed to next event.

Op Test No.: 2014	Scenario # 1	Event # 2		Page 6 of 22
Event Description:	Power ascension per Plant Startup Procedure 2.1.1, using control rod withdraw			

Time	Position	Applicant's Actions or Behavior
IOS Instructions: None		
	SRO	1) Direct the RO to commence the power ascension via control rod withdraw
Evaluator Note:	*Startup procedure 2.1.1 directs that the Reactor Mode Switch be transferred to Run at Approximately 7% power. The crew may decide to transfer the mode switch to Run before they encounter the stuck rod. Those steps are included should that occur.*	
	RO	2) Withdraw control rods while making regular checks of APRM channel indications. For each rod, notch withdraw the rod as follows: a) Determine the next rod in the sequence b) SELECT the particular rod to be withdrawn by momentarily depressing the push button switch on Panel C905. c) Verify that the rod is selected by observing the Rod Worth Minimizer display, the Four Rod Display, and the Full Core Display d) MOMENTARILY TURN the ROD CONTROL switch to the "OUT NOTCH" position AND RELEASE (spring return to "OFF"). e) OBSERVE that rod is latched in an even-numbered position and that it is in the latched position before the ROD SETTLE amber light extinguishes. f) Repeat the above until the rod is withdrawn to its withdraw limit as indicated on the Control Rod Sequence 3) Select the next rod in the sequence **Actions for Transferring the Reactor Mode Switch:** 4) VERIFY the following indications: a) Reactor power is approximately 7% (CR-PNP-2013-0462). b) APRM Downscale annunciator is CLEAR. c) All APRM Downscale indicators are CLEAR. d) Low main steam pressure annunciators are CLEAR.

Op Test No.: 2014	Scenario # 1 Event # 2	Page 7 of 22
Event Description:	Power ascension per Plant Startup Procedure 2.1.1, using control rod withdraw	

Time	Position	Applicant's Actions or Behavior
		5) TRANSFER the REACTOR MODE switch to the "RUN" position. a) LOG the time and date in the procedure AND in the Control Room Log: b) NOTIFY Chemistry that the mode switch has been placed in "RUN". 6) Continue Rod withdrawal to 10% power.
	BOP	7) Monitors BOP
IOS Operator: When directed by Lead Examiner, proceed to next event.		

Op Test No.: 2014 Scenario # 1 Event # 3	Page 8 of 22
Event Description: Stuck Control Rod	

Time	Position	Applicant's Actions or Behavior
IOS Instructions: None		
	RO	1) Report that rod 26-51 cannot be moved with normal drive pressure.
	SRO	2) Enter Off-Normal Procedure 2.4.11.1, CRD SYSTEM MALFUNCTIONS *(Evaluator Note: There are no Immediate Actions to this procedure)*
	RO	3) Determine that Attachment 1, Degraded Control Rod Motion is applicable **Applicable Attachment 1 Actions:** 4) ATTEMPT TO MOVE the control rod one notch in the direction specified by the Procedure in use when the degraded control rod motion was identified. a) ATTEMPT TO DETERMINE the condition of the drive by observing the drive water flow for normal indications (normal flow is 4 to 6 GPM insert and 2 to 3 GPM withdrawal). **APPLICABLE PROCEDURE CAUTIONS** 1. It is preferable to withdraw a control rod using elevated drive water pressure than to use the "double clutch" method for withdrawing a control rod. This will lessen the potential for a control rod mispositioning event. 2. Drive water pressure adjustments shall only be made with the directional control valves de-energized (i.e., no rod motion in progress). Drive water pressure fluctuations are expected while a rod is in motion. 3. Exceeding 400 psid drive water pressure for extended periods may cause damage to the CRD seals or hydraulic control unit seating material. (NED92-498) 4. During normal plant conditions, startups, and shutdowns, DO NOT exceed 600 psid drive water pressure above Reactor pressure or 1650 psig total. (NED92-498)
	RO	5) IF drive motion is assumed to be degraded due to excessive

Op Test No.: 2014	Scenario # 1	Event # 3	Page 9 of 22
Event Description:	Stuck Control Rod		

Time	Position	Applicant's Actions or Behavior
		friction, THEN PERFORM the following: a) INCREASE drive water pressure in approximately 50 psi increments attempting to move the drive after each increment. The maximum allowable drive water pressure is 600 psid above Reactor pressure when the Reactor is operating and 800 psid when the Reactor is shutdown and depressurized. DO NOT exceed a system pressure of 1650 psig. (NED92-498) 6) Report that rod moves when drive pressure is increased to ≥ 400 Psid. 7) Return CRD drive water pressure to approximately 250 psid 8) Initiate action to document the event by initiating a Control Rod Deficiency Report.
	BOP	9) Monitor BOP

IOS Operator: When directed by Lead Examiner, proceed to next event.

Op Test No.: 2014 Scenario # 1 Event # 4		Page 10 of 22
Event Description: Steam Seal Pressure Regulator Fails Closed		
Time	Position	Applicant's Actions or Behavior

IOS Instructions: 1. Execute LP Step labeled "Gland Seal Regulator Failure". This step fails the Gland Seal Regulator closed.		
	BOP	1) Report and respond to alarm C2C-A7, Steam Seal Header Press Lo **ARP Actions:** 2) Confirm Alarm a) Check STM SEAL PRESS Indicator, PI-3160 (Panel C2) b) Check Main Condenser vacuum and report lowering main condenser vacuum 3) Perform Corrective Actions a) Investigate and correct cause of steam seal header low pressure b) Determine that the steam seal regulator is not maintaining steam seal pressure c) Re-establish steam seal header pressure by opening BYP VLV (MO-S2) d) As required, open STM SEAL HDR UNLOADING VLV (MO-B)
	ANY	4) Report Lowering Condenser Vacuum
	SRO	5) Enter procedure 2.4.36, Decreasing Condenser Vacuum **Immediate Operator Actions:** 6) IF, at any time during this Procedure, Main Condenser vacuum is approaching the Turbine trip setpoint (20" Hg) with no indication of recovering, THEN PERFORM the following: a) IF Turbine First Stage Pressure is at or below the Turbine Valve Closure Scram interlock setpoint (C905R-E1 and C905R-E4 IN alarm), THEN PERFORM the following: (1) IF time permits, VERIFY the following relays are ENERGIZED: • 5A-K9A on Panel C915

Op Test No.: 2014	Scenario # 1	Event # 4	Page 11 of 22
Event Description:	Steam Seal Pressure Regulator Fails Closed		

Time	Position	Applicant's Actions or Behavior
		• 5A-K9C on Panel C915 • 5A-K9B on Panel C917 • 5A-K9D on Panel C917 (2) TRIP the Main Turbine.
	SRO	**Subsequent Operator Actions:** **<u>APPLICABLE PROCEDURE CAUTION</u>** PR-3392 (Panel C2) indicates approximately 0.5" lower vacuum or 0.5" higher backpressure than actual Main Condenser conditions. Example: An indicated value of 26" vacuum on PR-3392 is equivalent to approximately 26.5" actual Main Condenser vacuum. The PI computer system monitoring points PT3651A, B, C, and D may be utilized to obtain more accurate values if time permits. This is the result of eroded instrument sensing lines within the Main Condenser 7) CHECK that the Turbine steam seal header pressure is approximately 3 to 8 psig. a) IF necessary, RE-ESTABLISH seals in accordance with PNPS 2.2.93. *(Evaluator Note: It is expected that Steam Seals will have been re-established via the ARP actions)*
	RO	8) Monitor Reactor parameters.
IOS Operator: When directed by Lead Examiner, proceed to next event.		

Op Test No.: 2014	Scenario # 1	Event # 5	Page 12 of 22
Event Description:	RPS MG Set “A” Trip		

Time	Position	Applicant’s Actions or Behavior
IOS Instructions: 1. Role Play as a System Engineer and report that there is a significant amount of “bearing” noise coming from the RPS MG set “A”.		
	SRO	1) Determine that RPS MG set “A” should be secured 2) Refer to PNPS 2.2.79 section 7.1.5 3) Direct BOP to perform Attachment 5 (RPS Reset Verification) of PNPS 2.2.79.
	BOP	**PNPS 2.2.79 Attachment 5 Actions** 4) VERIFY that the backup Scram valve relays are reset as follows: APPLICABLE PROCEDURE NOTE Steps (a) through (e) verify that all RPS "A" and "B" contacts associated with the backup Scram valves are open prior to initiating a half-Scram. The normal indication is approximately 62V DC on the four backup Scram voltmeters. (Reference Drawing M1N22-8.) a) VERIFY voltage indicator EI-302-19AA on Panel C915 reads approximately 62 volts DC. b) VERIFY voltage indicator EI-302-19AB on Panel C915 reads approximately 62 volts DC. c) VERIFY voltage indicator EI-302-19BB on Panel C917 reads approximately 62 volts DC. d) VERIFY voltage indicator EI-302-19BA on Panel C917 reads approximately 62 volts DC. **APPLICABLE PROCEDURE CAUTIONS** If any of the voltages verified in Steps (a) through (d) are approximately 125V DC or 0V DC, then IMMEDIATELY STOP PERFORMANCE of this Procedure and report to the Shift Manager. Continuation of this Procedure could result in a full Reactor Scram. e) Determine that voltages are acceptable and notify CRS
IOS Instructions: 2. When Attachment 5 has been completed, execute LP Step labeled “RPS MG Set A Trip”.		

Op Test No.: 2014	Scenario # 1 Event # 5	Page 13 of 22
Event Description:	RPS MG Set "A" Trip	

Time	Position	Applicant's Actions or Behavior
This step trips the "A" RPS MG set AND Fails the "C" APRM upscale when the RPS bus is re-energized.		
	RO	5) Diagnose and report RPS MG Set trip and ½ scram
	SRO	6) Direct NLO to investigate 7) Direct NLO/RO to place RPS "A" on the backup power supply IAW PNPS 2.2.79 section 7.1.5
IOS Instructions: 3. When directed to investigate report that the RPS MG set supply breaker has tripped. 4. When directed to place RPS "A" on the Backup Power Supply, wait 3 minutes and then execute LP Step labeled "RPS A on Backup". This step completes the required field actions to energize the bus.		
	RO	**Scram Reset Attempt Following RPS Transfer** 8) WHEN alarm "SDIV LEVEL HI" (C905R-D3) is CLEAR, THEN RESET the Reactor half-Scram. 9) Report that scram will not reset 10) Determine and report that APRM "C" has failed upscale
	SRO	11) Refer to Tech Specs 3.1 and associated Table 3.1 and determine that RPS "A" remains operable for the APRM functions. 12) Refer to FSAR Appendix B, Table 3.2.C.1 and determine the Rod Block requirements are still met. *(Evaluator Note: TS Table 3.1 requires that a minimum of 2 of the 3 available APRM instruments per trip system be operable for the APRM scram functions. FSAR Appendix B, Table 3.2.C.1 requires that a minimum of 4 of the 6 available APRM instruments be operable for the APRM rod block function.)* 13) Determine that a Tracking LCO is required 14) Direct RO to bypass APRM "C" and reset the ½ scram
	RO	15) Bypass APRM "C" 16) Reset ½ scram
	BOP	**RPS Bus Transfer Follow-up Actions**

Op Test No.: 2014 Scenario # 1 Event # 5	Page 14 of 22
Event Description: RPS MG Set "A" Trip	

Time	Position	Applicant's Actions or Behavior
		17) PERFORM the following: • RESET OR VERIFY RESET Main Steam Line CH A, B, C, and D Radiation Monitors (LRM-1705-2A, LRM-1705-2B, LRM-1705-2C, and LRM-1705-2D) on Panel C910. • RESET OR VERIFY RESET Air Ejector Offgas CH 1 and CH 2 Radiation Monitors (LRM-1705-3A and LRM-1705-3B) on Panel C910. <u>APPLICABLE PROCEDURE NOTE</u> Refuel Floor Radiation Monitors 1705-8C and 1705-8D are powered off Y2, not RPS. • RESET OR VERIFY RESET Refuel Flr Vent EXH CH A and CH B Radiation Monitors (1705-8A and 1705-8B) on Panel C910. • RESET OR VERIFY RESET Carbon Bed Vault Radiation Monitor (RIS-1705-60) on Panel C910. • RESET ATS alarms, Panel C2228A1, A2 (C2229B1, B2 in Cable Spreading Room). • RESET flow comparator alarms. • RESET all APRM FCTR and PBDS trips that have occurred due to power transfer. • RESET APRMs A, C, and E (B, D, and F) HI AND HI-HI lights n Panel C937. • RESET LPRM A (B) HI AND HI-HI lights on Panel C937. • IF necessary, RESET all RBM A AND B alarms by deselecting AND reselecting a control rod. 18) To verify RPS is properly reset, PERFORM Attachment 5 (RPS Reset Verification). *(Evaluator Note: The BOP will repeat steps of previously performed Attachment 5 as described in step 4) of this event).*
IOS Operator: When directed by Lead Examiner, proceed to next event.		

Op Test No.: 2014 Scenario # 1 Event # 6

Event Description: Loss of 23 KV line

Time	Position	Applicant's Actions or Behavior
IOS Instructions: 1. Execute LP step labeled "Loss of 23 KV Line". This step inserts a loss of the Shutdown Transformer.		
	BOP	1) Report and respond to alarm C3L-C5, Shutdown XFMR Trouble **ARP Actions** 2) Perform Corrective Actions a) Identify initiating device at Shutdown Transformer (local panel) b) Refer to PNPS 2.4.A.23 (Loss of 23kV Line) c) Ensure Tech Spec 3.9.A and Tech Spec 3.9.B satisfied d) IF necessary, record relay targets on Buses A5 and A6 e) Initiate appropriate corrective action
	RO	3) Monitor reactor parameters.
IOS Instructions: 2. If asked to investigate the SDT local panel, report after an appropriate time delay that the undervoltage relay is tripped.		
	SRO/BOP	4) Refer to PNPS 2.4.A.23 (Loss of 23kV Line) and determine that the station has not suffered a loss of the 23 KV line and exit the procedure. 5) Review Technical Specifications Section 3.9.B.1.b. for loss of the Shutdown Transformer. 6) Declare a 7 Day LCO based on the loss of the Shutdown Transformer.
IOS Operator: When directed by Lead Examiner, proceed to next event.		

Op Test No.: 2014 Scenario # 1 Event # 7, 8		Page 16 of 22
Event Description: Un-isolable RWCU Leak, Incomplete Scram		
Time	Position	Applicant's Actions or Behavior

IOS Instructions:

1. Execute LP step labeled "RWCU Leak". This step inserts the RWCU leak. Previous steps defeated the RWCU isolation and prevents manual closure of the isolation valves.

Evaluator Note:	*The first Steam Leakage Area High Temperature alarm will be Cleanup HX Area, 51'. This is a non-EOP monitored area and does not require EOP-04 entry. The Steam Leakage alarm will reflash when "RWCU Heat Exchanger – 51 ft" goes into alarm. This is an area that is monitored for EOP-04 purposes.* *The setpoints associated with the Steam Leakage Area High Temperature alarms are at the EOP-04 Max Normal Operating Values which are entry conditions to EOP-04.* *The Reactor BLDG Vent Rad Hi alarm also constitutes and entry condition.*	
	BOP	1) Respond to alarm C904L-A6, Steam Leakage Area Temp Hi **ARP C904L-A6 Actions** 2) Perform Corrective Actions a) Check EOP-04 entry conditions to determine EOP actions b) Read temperature of alarming module at Panel C921 c) IF temperature is high, THEN investigate d) IF Reactor Water Cleanup Isolation occurs concurrently with an RWCU Heat Exchanger Room high area temperature, THEN close AO-220-44 AND AO-220-45 3) Respond to Alarm C904LC-B5, Reactor BLDG Vent Rad Hi **ARP C904L-B5 Actions** 4) Perform Corrective Actions a) Notify Chemistry to perform actions of PNPS 7.4.64 b) Attempt to determine source of high radiation and isolate c) Review entry conditions for EOP-04 (Secondary Containment Control) 5) Report that entry conditions to EOP-04 have been exceeded.
	SRO	6) Enter EOP-04, Secondary Containment Control 7) Direct BOP to isolate RWCU

Op Test No.: 2014	Scenario # 1	Event # 7, 8	Page 17 of 22
Event Description:	Un-isolable RWCU Leak, Incomplete Scram		

Time	Position	Applicant's Actions or Behavior
	BOP	8) Trip running RWCU pump 9) Attempt to close RWCU Isolation Valves MO-1201-2, 5 and 80 10) Report that valves failed to close
IOS Instructions: 2. When asked to investigate, report a large steam leak in the RWCU HX area 3. Role Play as necessary to support isolation attempts but do not isolate the leak		
		EOP-04, Secondary Containment Control Actions
	SRO	11) Announce to the plant that there is a steam leak in the RWCU area 12) Dispatch a field operator to start all area coolers 13) Direct RP to perform surveys per PNPS 5.3.33. 14) Direct operator to monitor area temperatures on Steam Leak Detection 15) Dispatch operators to check area water levels 16) Determine that a primary system is discharging into the secondary 17) Enter EOP-01, RPV Control before any secondary containment parameter reaches its Max Safe Operating Value, Table L
IOS Instructions: 4. Role Play as required to support starting all area coolers. 5. After an appropriate delay report that there is no water in any of the quads.		
Critical Task #1		**When a primary system is discharging into the secondary containment through an un-isolable break, scram the reactor per EOP-04 and EOP-01 prior to commencing Emergency Depressurization.**
	SRO	18) Direct that a reactor scram be inserted.
	RO	**PNPS 2.1.6, Scram, Immediate Actions** 19) At Panel C905, DEPRESS both manual Reactor Scram push buttons.

Op Test No.: 2014 Scenario # 1 Event # 7, 8 Page 18 of 22

Event Description: Un-isolable RWCU Leak, Incomplete Scram

Time	Position	Applicant's Actions or Behavior
		20) PLACE Reactor Mode switch in "SHUTDOWN".
	RO	21) VERIFY AND ANNOUNCE that APRMs are downscale. 22) Report that all rods have NOT inserted *(Evaluator Note: rods 34-47, 18-23, 50-23, and 14-27 did not insert)* 23) IF any control rod is NOT fully inserted, THEN INSERT control rods using methods detailed in PNPS 5.3.23, "Alternate Rod Insertion" 24) Report when EOP-01, RPV Control low RPV Level entry condition (< +12 inches) is exceeded.
EOP-02 RPV Control, Failure to Scram Entry		
	SRO Initial EOP-02 Actions	25) Exit EOP-01 and enter EOP-02, RPV Control, Failure to Scram 26) VERIFY reactor Mode Switch in "Shutdown" 27) Direct both divisions of ARI be actuated 28) Direct pressure be controlled 900 – 1050 psig 29) Direct RPV level be controlled +12 to +45 inches *(Evaluator Note: The control bands above are specified in procedure 5.3.35.2)* 30) Direct verification of Isolations, ECCS initiations EDG initiation 31) Direct ADS be inhibited 32) Direct bypassing MSIV low water level isolation
IOS Instructions: 6. When directed to bypass the MSIV Low level isolation, wait an appropriate amount of time and bypass the isolation using remote functions.		
	BOP	33) Report Group 2, RBIS isolations, and Standby Gas Treatment Start. Report that Group 6 (RWCU) did not isolate 34) Inhibit ADS
Applicable Actions of PNPS 5.3.23, Alternate Rod Insertion		

Op Test No.: 2014	Scenario # 1 Event # 7, 8	Page 19 of 22
Event Description:	Un-isolable RWCU Leak, Incomplete Scram	

Time	Position	Applicant's Actions or Behavior
Critical Task #2	**During failure to scram conditions, insert control rods using one or more methods contained within 5.3.23 and / or EOP-02 to achieve Rx. Shutdown under all conditions**	
	RO	35) INITIATE both divisions of ARI by depressing the four ATWS push buttons 36) As soon as practical, NOTIFY Reactor Engineering of the failure to Scram.
IOS Instructions: 7. When directed to close the CRD 25 valve, wait 3 minutes and then execute LP step labeled "Close CRD 25".		
	RO	37) VERIFY RUNNING OR START one CRD Pump. 38) CLOSE 301-25, CRD Charging Water Supply Valve (CRD Mezzanine) 39) BYPASS the Rod Worth Minimizer. **APPLICABLE PROCEDURE CAUTION** The combination of Reactor pressure and Drive Water Differential Pressure should not be allowed to exceed 1750 psig. 40) INCREASE Drive Water Differential Pressure to 400 psid by throttling closed MO-302-8, DRIVE WTR PCV (Panel C905). 41) Drive Water Differential Pressure may be increased in 50 psi increments up to a maximum of 600 psid as needed to facilitate rod insertion. 42) INSERT all rods using the EMERG. IN switch. Limit the duration of the insert signal for each rod to ≤ 2 minutes. 43) Report when all rods are inserted
	RO	44) Direct CRD-25 valve be reopened
	SRO	45) Exit EOP-02 and re-enter EOP-01 46) Determine that an aggressive cool down is required IAW PNPS 5.3.25.2, OPERATIONS EMERGENCY AND TRANSIENT RESPONSE STRATEGIES, Attachment 2

Op Test No.: 2014	Scenario # 1	Event # 7, 8	Page 20 of 22
Event Description:	Un-isolable RWCU Leak, Incomplete Scram		

Time	Position	Applicant's Actions or Behavior
		47) Direct a new reactor pressure band of 500 to 1050 psig 48) Expand the water level control band to -20 to +45" band.
	BOP	49) Fully open one main turbine bypass valve 50) Stabilize pressure between 450 to 550 psig
Evaluator Note:	*The crew may Anticipate the Emergency Depressurization and open all may turbine bypass valves. However temperatures will still reach their Max Safe Operating Values requiring an Emergency Depressurization.* *The Max Safe Operating Temperature (MSOT)values associated with the RWCU areas are:* *Same Area — RWCU Holding Pump Area - 74 ft El. — 120* *RWCU Filter Area - 74 ft El. — 120* *Same Area — RWCU Backwash Tank Area - 51 ft El. — 214* *RWCU Pump "A" Room - 51 ft El. — 213* *Same Area — RWCU Pump "B" Room - 51 ft El. — 213* *RWCU Heat Exchanger Room - 51 ft El. — 215*	
EOP-17, Emergency RPV Depressurization		
	ANY	51) Report when temperatures exceed their MSOT values
	SRO	52) When two **different** areas exceed their MSOT, determine that Emergency RPV Depressurization is required.
Critical Task # 3	**When a primary system is discharging into the secondary containment through an un-isolable break, execute Emergency Depressurization per EOP-17/27 when max safe operating values are exceeded in two or more areas.**	
	SRO	53) Enter and execute EOP-17 Procedure Caution RPV pressure below 300 psig with a high drywell pressure ECCS initiation may cause rapid injection from Core Spray and RHR pumps 54) Verify torus level is > 50 inches 55) Direct that all SRVs be opened

Op Test No.: 2014	Scenario # 1	Event # 7, 8	Page 21 of 22
Event Description:	Un-isolable RWCU Leak, Incomplete Scram		

Time	Position	Applicant's Actions or Behavior
	BOP	56) Open all SRVs 57) Report that all SRVs have opened
		Follow-up Actions
	RO	58) Restore RPV level to normal band using condensate and feed
	BOP	59) Report when EOP-03 entry condition on high torus water temperature is received. 60) If not already in service, place RHR in torus cooling

The scenario may be terminated at the discretion of the Lead Examiner OR when the RPV has been depressurized, and the RPV level stabilized.

SHIFT TURNOVER SHEET

- A Rx Startup is in progress IAW PNPS 2.1.1
- The Reactor Mode Switch is in Startup
- Rx power is approximately 4% with the IRMs on Range 9
- Reactor Pressure is 940 psig, with ½ bypass valves open. RPV pressure control is on the EPR.
- RPV level control is via the Startup FRV
- Current Rod position is TBD
- Procedure 2.1.1 is complete through step [92]
- RBCCW Pump "A" is OOS and is not available. All other RBCCW pumps are operable and a Tracking LCO has been initiated.
- The running Steam Packing Exhaust Blower is vibrating excessively.
- Directions to the shift are to shift Blowers IAW 2.2.93, section 7.1.3 and continue the startup.

Facility:	PILGRIM	Scenario No.:	2	Op Test No.:	2014 NRC
Examiners:	______________	Operators:	SRO -		
	______________		RO -		
	______________		BOP -		

Initial Conditions:

- Initialize to IC-13, 50% Power
- Increase power to ~ 55%
- Manually isolate RWCU
- Verify both RWCU filters are on hold
- Place "B" CS pump in PTL and danger tag CS pump control switch
- Open LP NRC Scenario 2 and execute LP step labeled "Initial Conditions"
- Bypass APRM "C" and reset the ½ scram
- Hang Caution Tag on APRM Joystick
- Place an additional Cond Demin in service

Turnover:

- RX power is approximately 55% following a power reduction for a main condenser backwash.
- The backwash has been completed and the seawater system has been returned to a normal lineup IAW PNPS 2.2.94.5.
- "B" CS pump is OOS to allow for replacement of the pump's breaker charging motor.
- The plant is on day 2 of a 7 day LCO IAW TS 3.5.A.2 due to the CS breaker repair.
- APRM "C" has failed upscale and is bypassed. All other APRMs are operable and a Tracking LCO has been initiated.
- RWCU is isolated following an equipment failure during a surveillance last shift. The equipment failure has been repaired.
- Directions to the shift are to:
  - Restore RWCU to service IAW PNPS 2.2.83, Reactor Cleanup System, section 7.2 commencing at step [6].
  - Place "A" RWCU Filter Demin in service. "B" Filter Demin will be backwashed later in the shift.
  - Restore power to 100% IAW PNPS 2.1.14, Station Power Changes, Section 7.3, Step [8]. Raise flow to 63 Mlbm/hr and then commence rod withdrawal as directed by RE.

Critical Tasks:

1. Initiate drywell sprays when torus bottom pressure exceeds 16 psig.
2. When RPV level cannot be restored and maintained >-150 inches, Emergency Depressurize the reactor.
3. When systems required to maintain core cooling do not automatically start or inject, manually align the systems for injection.

Event No.	Malf. No.	Event Type*	Event Description
1.	N/A	N - BOP N - SRO	BOP restores RWCU to service IAW PNPS 2.2.83, Reactor Cleanup System, section 7.2 commencing at step [6].
2.	N/A	R – RO R - SRO	RO commences power ascension using Recirc flow control IAW PNPS 2.1.14, Station Power Changes, section 7.3.
3.	Ovrd for HPCI Manual Initiation PB Ovrd for HPCI AOP	C – BOP C – SRO TS - SRO	HPCI inadvertent initiation. BOP secures HPCI IAW 2.4.35, Inadvertent Initiation of CSCS. SRO refers to TS 3.5.C.3 and declares a 24 hour Cold S/D LCO. Note: After the BOP places the HPCI AOP in PTL, the switch is to be overridden in the PTL position.
4.	RD05 (A) RD08 for rod 10-39	C – RO C – SRO TS - SRO	CRD Pump trip. RO starts standby pump IAW 2.4.4, Loss of CRD Pumps. Control Rod Accumulator Trouble alarm annunciates prior to pump start. Alarm does not clear after the pump start. After investigation the crew determines that the accumulator cannot be recharged. SRO declares the accumulator Inop, refers to TS 3.3.D and declares the associated control rod "Slow".
5.	CW03 (A) Ovrd for "B" pump control switch in STOP	C – All	Running TBCCW trips. Standby pump fails to auto start and cannot be started manually. Crew responds IAW PNPS 2.4.41, Loss of TBCCW. RO manually scrams and performs scram actions. BOP trips all feed and condensate pumps, closes MSIVs and injects with RCIC.
6.	PC01 ramped to ~ 2200 gpm over 15 min.	M – All	Small break LOCA that requires entry into EOP-01 and EOP-03. Break overcomes ability of CRD and RCIC to maintain level. Emergency Depressurization required to allow low pressure ECCS injection. Drywell sprays will be required.
7.	CS01 (A) RH04 (B)	C – BOP	CS pump "A" trips when pump starts to inject following opening of CS injection valve. LPCI injection valve fails to auto open when RPV pressure lowers to < 400 psig. Operator action required to manually open the valve and inject with RHR to establish adequate core cooling.
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Scenario Summary:

RX power is approximately 55% following a power reduction for a main condenser backwash. The backwash has been completed and the seawater system has been returned to a normal lineup IAW PNPS 2.2.94.5.

The "B" CS pump is OOS to allow for replacement of the pump's breaker charger motor. The plant is on day 2 of a 7 day LCO IAW TS 3.5.A.2 due to the CS breaker repair. APRM "C" has failed upscale and is bypassed. All other APRMs are operable. RWCU is isolated following an equipment failure during a surveillance last shift. The equipment failure has been repaired.

The directions to the shift are to restore RWCU service IAW PNPS 2.2.83, Reactor Cleanup System, section 7.2 commencing at step [6] and then restore power to 100% IAW PNPS 2.1.14, Station Power Changes.

After assuming the watch, the BOP will restore RWCU to service IAW PNPS 2.2.83. After RWCU is in service the RO will commence a power ascension by raising Recirc Flow IAW PNPS 2.1.14 section 7.5.

During the power ascension, HPCI will inadvertently start and inject. The crew is expected to respond IAW 2.4.35, Inadvertent Initiation of CSCS. The BOP will be required to secure HPCI and complete subsequent actions such as assisting in determining whether any fuel damage has occurred. The RO may be directed to reduce power during the transient. After stabilizing the plant the SRO is expected to refer to Tech Spec TS 3.5.C.3 and declare a 24 hour Cold S/D LCO due to HPCI being OOS in conjunction with CS "B" being OOS.

Next, the running CRD Pump trips. The RO is expected to enter PNPS 2.4.4, Loss of CRD Pumps and start the standby pump. A Control Rod Accumulator Trouble alarm annunciates prior to the pump start. The alarm does not clear after restoring charging water pressure. Following investigation the crew will determine that the accumulator cannot be recharged. The SRO is expected to declare the accumulator Inop, refer to TS 3.3.D and declare the associated control rod "Slow". Alternatively the SRO may declare the associated control rod Inop and initiate action to fully insert the rod and disarm the rod but this is not expected.

The scenario ending event begins with a trip of the running TBCCW pump. The standby pump fails to auto start and cannot be started manually. The crew is expected to respond IAW PNPS 2.4.41, Loss of TBCCW. The RO is expected to manually scram the reactor and perform required scram actions. The BOP is expected to trip all feed and condensate pumps, close the MSIVs, and inject with RCIC. RPV pressure will be controlled using SRVs. Entry conditions for EOP-01, RPV Control will be exceeded.

The transient results in a reactor coolant leak that progresses in size over time. Drywell pressure will exceed the entry conditions of EOP-01 and EOP-03, Primary Containment Control. EOP-03 will direct the use of Torus and Drywell sprays (**Critical Task #1**).

IAW PNPS 5.3.35.2, Operations Emergency and Transient Response Strategies, the crew is expected to rapidly lower pressure to 450 to 550 psig in order to reduce the effects of the leak. Regardless of any mitigating action, RPV level will continue to lower and drop below the Top of the Active Fuel (TAF). The crew is then expected to enter EOP-17, Emergency RPV

Depressurization, open all SRVs and depressurize the reactor in order to allow the Low Pressure ECCS to restore vessel level (**Critical Task #2**).

When RPV pressure lowers below 400 psig one of the LPCI injection valves will fail to auto open. The "A" CS pump will trip when it starts to inject. Operator action will be required to manually open the LPCI injection valve to allow the RHR system to recover RPV level and adequate core cooling (**Critical Task #3**).

The scenario will be terminated when all SRVs have been opened, water level has been restored to the normal range and primary containment parameters are stabilized or lowering.

Op Test No.: 2014	Scenario # 2 Event # 1	
Event Description:	BOP restores RWCU to service IAW PNPS 2.2.83	

Time	Position	Applicant's Actions or Behavior

IOS Instructions:

1. The previously executed LP step labeled "Initial Conditions" performed the following:
    a. Failed APRM "C" upscale
    b. Failed the "B" TBCCW pump so that it would not start in auto or manual
    c. Opened the DC knife blade for the "B" CS pump
    d. Inserted a trip on the "A" CS pump conditioned off the CS injection valve opening
2. Role play as NLO to support restoring RWCU as required per 2.2.83

Evaluator Note:	*The critical elements of each critical task are highlighted in grey.*	
	SRO	1) Direct the BOP to restore RWCU to service
	RO	2) Monitor Reactor parameters
	BOP	**Cleanup Restoration Actions** 3) OPEN/VERIFY OPEN MO-1201-5, Outbd Isol Vlv. 4) THROTTLE SLIGHTLY OPEN MO-1201-80, Return Isol Vlv. **APPLICABLE PROCEDURE CAUTION** Do not leave MO-1201-2 in a throttled position. 5) SLOWLY JOG OPEN MO-1201-2, Inbd Isol Vlv, to repressurize the RWCU System. a) WHEN pressure, as indicated on PI-1290-9, SYSTEM PRESS (Panel C904), reaches Reactor pressure OR stops increasing, THEN SLOWLY JOG OPEN MO-1201-2, Inbd Isol Vlv, until fully open. *(Evaluator Note: The RWCU system was kept pressurized via the Mitigation Monitoring System)* b) Direct NLO to LOWER FC-1279-15A control switch to the minimum setting AND VERIFY FV-1279-15A , RWCU Filter/Demin T-216A Effluent Valve, is CLOSED. 6) START a Cleanup Recirculation Pump (P-204A/P-204B). 7) Direct NLO to VERIFY/PLACE the "HOLD/FILTER" switch in the

Op Test No.: 2014 Scenario # 2 Event # 1	Page 6 of 25
Event Description: BOP restores RWCU to service IAW PNPS 2.2.83	

Time	Position	Applicant's Actions or Behavior
		"FILTER" position. 8) COORDINATE activities with NLO to perform simultaneously: SLOWLY JOG OPEN MO-1201-80; SLOWLY PLACE FC-1279-15A control switch in service to achieve 111 GPM. a) CHECK FI-1290-30A for filter flow increase and determine that Filter flow is increasing as expected. 9) CONTINUE OPENING MO-1201-80 AND direct NLO to ADJUST flow controls as necessary to maintain 111 GPM flow. 10) OPEN MO-1201-80 to FULL OPEN and the system is back in service. 11) Direct NLO to verify position of local valves at the Reactor Water Cleanup Sampling Rack No. 1 12) Determine that Reactor Coolant Sample Valves AO-220-44 and AO-220-45 are already open 13) Determine that it is not necessary, to ADJUST the position of valve MO-1201-85.
IOS Operator: When directed by Lead Examiner, proceed to next event.		

Op Test No.: 2014	Scenario # 2	Event # 2	Page 7 of 25
Event Description:	RO restores power to 100% using Recirc flow control		

Time	Position	Applicant's Actions or Behavior
IOS Instructions: 1. None		
	SRO	1) Direct RO to restore power to 100% IAW PNPS 2.1.14 Station Power changes section 7.3 2) Direct RO to increase core flow to 63 Mlbm/hr not to exceed a rate of power change equal to 5% rated power per minute.
	RO	3) To raise Reactor power, PERFORM the following on the selected Recirc Speed Controller SIC-262-025A OR SIC-262-025B: a) ENSURE the selected Recirc Speed Controller is in MANUAL by observing that an "M" is illuminated to the right of the bar graphs. b) ENSURE the RIGHT BAR (Speed Demand) is selected by observing that the dot above the RIGHT BAR is illuminated. c) MOMENTARILY DEPRESS the up (▲) push button on the left side of the control pad. d) OBSERVE the RIGHT BAR (Speed Demand) indication increases. e) CONTINUE TO REPERFORM Steps above until the desired Reactor power or core flow is obtained. 4) Maintain pump speed mismatch within the Admin Limits of within 8% of each other when power level is > 80% and within 13% of each other when power level is ≤ 80% 5) INCREASE core flow so that the rate of power change is less than or equal to 5% rated power per minute until a core flow of 63 Mlbm/hr is reached.
	BOP	6) Monitor BOP parameters
IOS Operator: When a sufficient reactivity change has been evaluated and as directed by the Lead Examiner, proceed to the next event.		

Op Test No.: 2014	Scenario # 2	Event # 3	Page 8 of 25
Event Description:	HPCI inadvertent initiation		

Time	Position	Applicant's Actions or Behavior
IOS Instructions: 1. Execute LP step labeled "Inadvertent HPCI Start". This step: a. Overrides the Manual HPCI initiation PB b. Overrides the HPCI Aux Oil Pump to the PTL position after the operator places the control switch in the PTL position.		
	RO	1) Report rising reactor power
	ANY	2) Report that HPCI is injecting
	SRO	3) Direct entry into Off Normal Procedure 2.4.35, Inadvertent Initiation of CSCS.
PNPS 2.4.35 Immediate Actions		
	BOP	4) Verify that RPV water level is > -46.3 inches and drywell pressure is < 2.22psig on two independent instruments 5) Secure HPCI as follows: a) DEPRESS AND HOLD the HPCI Turbine Trip push button. b) AFTER turbine comes to a complete stop, PLACE P-229, Aux Oil Pump, control switch to the "PULL TO LOCK" position. c) RELEASE the Turbine Trip push button.
PNPS 2.4.35 Subsequent Actions		
	RO	6) ASSESS operating conditions by plotting power versus core flow on the Pilgrim Power/Flow Map.
	SRO	7) Determine that reactor power and core flow are below the MELLA line of the Power to Flow Map 8) CHECK Process Radiation Monitors for indications of fuel damage due to the power excursion. 9) VERIFY that peak power AND pressure did NOT exceed any limits during the event. 10) DETERMINE the cause of the initiation signals AND INITIATE corrective action(s).

Op Test No.: 2014	Scenario # 2	Event # 3	Page 9 of 25
Event Description:	HPCI inadvertent initiation		

Time	Position	Applicant's Actions or Behavior
		11) Verify that the Shift Manager is reviewing EP-IP-100, "Emergency Classification and Notification", to determine whether an Emergency Action Level (EAL) has been exceeded. 12) Refer to TS 3.5.C.3 and declares a 24 hour Cold S/D LCO. *(Evaluator Note: A 24 hr LCO is required because "B" CS pump is also out of service)*
	BOP	13) If directed CHECK Process Radiation Monitors for indications of fuel damage due to the power excursion.
IOS Operator: When directed by Lead Examiner, proceed to next event.		

Op Test No.: 2014	Scenario # 2	Event # 4	Page 10 of 25
Event Description:	CRD Pump trip		

Time	Position	Applicant's Actions or Behavior
IOS Instructions: 1. Execute LP step labeled "CRD Pump Trip and HCU alarm".		
	RO	1) Report CRD Pump "A" Trip alarm and refer to ARP C905R-A5.
	SRO	2) Direct entry into Off Normal Procedure 2.4.4, CRD Pump Trip
Evaluator Note:	*There are no applicable immediate actions for the current plant conditions.*	
	RO	**Actions for Starting the Standby Pump** 3) TRANSFER CRD flow controller (FIC-340-1) to MANUAL AND CLOSE the Flow Control Valve by rotating the controller manual potentiometer fully counterclockwise. 4) VERIFY that the in-service Flow Control Valve is closed by observing the green C905 valve position light for FLOW CONTROL VLV A FCV-302-6A. 5) START the standby CRD pump. 6) IF the standby pump starts, THEN PERFORM the following: a) WHEN the CRD pump discharge pressure (C905 CHG HDR PRESS, PI-340-3) AND pump amps (C905 3B-MIB) stabilize, THEN BALANCE the deviation meter on the CRD flow controller by slowly rotating the manual potentiometer clockwise while observing system flow. b) WHEN the deviation meter indicator is in the "green band" on the CRD flow controller, THEN TRANSFER the CRD flow controller to "AUTO". 7) Report Accumulator Trouble alarm and refer to ARP C905R-F-6 **ARP Actions** 8) Check full core display on Panel C905 for amber ACCUM status light and determine accumulator alarm on rod 10-39 APPLICABLE PROCEDURE NOTE If one or more control rod Scram accumulators are inoperable, concurrent with Reactor pressure < 950 psig and charging water header pressure < 940 psig, then all control rods associated with

Op Test No.: 2014	Scenario # 2 Event # 4	Page 11 of 25
Event Description:	CRD Pump trip	

Time	Position	Applicant's Actions or Behavior
		inoperable accumulators are to be verified as fully inserted or the MODE switch is to be immediately placed in "SHUTDOWN" (Tech Spec 3.3.D, Actions C and D). 9) Report that the Accumulator Trouble alarm did not clear as expected following the CRD pump start. 10) Verify charging water header pressure on PI-340-3 is ≥ 940 psig 11) Ensure compliance with Tech Spec 3.3.D, Control Rod Scram Accumulators 12) Refer to PNPS 2.2.87 (CRD System)
	RO/SRO	13) Dispatch NLO to determine type of accumulator alarm.
IOS Instructions: 2. When asked to investigate the HCU alarm report that the alarm is low gas pressure and that the accumulator pressure is 850 psig and slowly lowering.		
	RO/SRO	14) Direct the NLO to recharge the accumulator
IOS Instructions: 3. When asked to charge the accumulator, report after a brief time delay, that the cap for the P6 connection cannot be removed and you are unable to connect the gas charging rig. 4. If asked, Role Play as RE and report that there are no previously declared "Slow" rods in the core.		
	SRO	15) Declare the accumulator for rod 10-19 inoperable when report received of inability to recharge the accumulator. 16) Refer to TS 3.3.D.A.1. and declare the rod "Slow" *(Evaluator Note: Alternatively, the SRO can declare the control rod inop. However this would require that the rod be fully inserted and disarmed per TS 3.3.C).*
	BOP	17) Monitor BOP parameters
IOS Operator: When directed by Lead Examiner, proceed to next event.		

Op Test No.: 2014	Scenario # 2	Event # 5	

Event Description: Running TBCCW trips. Standby pump fails to auto start and cannot be started manually. Loss of TBCCW

Time	Position	Applicant's Actions or Behavior
IOS Instructions: 1. Execute LP step labeled "TBCCW Pump A Trip"		
Evaluator Note:	*A Recirc leak (Event 6) will occur 3 minutes after the reactor is scrammed. The leak will initially be small but will progress in size.*	
	BOP	1) Report and respond to alarm C1R-A7,"TBCCW PUMP A TRIP" 2) Attempt to start standby pump and report that standby pump failed to start. *(Evaluator Note: This is an immediate action of PNPS 2.4.41, Loss of TBCCW)*
		PNPS 2.4.41, Loss of TBCCW Actions
	SRO	3) Enter PNPS 2.4.41, Loss of TBCCW 4) Determine that TBCCW Flow cannot be restored and direct a reactor scram
	RO	**Immediate Scram Actions** <u>APPLICABLE PROCEDURE NOTE</u> While it is the intent of the Procedure to outline the many steps required following a Scram, the sequence suggested for steps may be altered to suit existing plant conditions. 5) At Panel C905, DEPRESS both manual Reactor Scram push buttons. 6) PLACE Reactor Mode switch in "SHUTDOWN". 7) VERIFY AND ANNOUNCE the status of APRM downscales. 8) VERIFY all control rods are fully inserted. *(Evaluator Note: The simulator randomly selects a few control rods to go "beyond full-in" resulting in a loss of position indication. The Plant Process computer may take up to 3 minutes before an "ALL RODS In" indication is received.)* 9) IF any control rod position cannot be determined AND the Reactor is shutdown, THEN SELECT each control rod not at position "00" AND ATTEMPT TO NOTCH INSERT the control rod to determine

Op Test No.: 2014	Scenario # 2 Event # 5	Page 13 of 25
Event Description:	Running TBCCW trips. Standby pump fails to auto start and cannot be started manually. Loss of TBCCW	

Time	Position	Applicant's Actions or Behavior
		whether the control rod will settle at position "00". 10) In order to maintain availability of the Main Condenser, HPCI, and RCIC, PERFORM the following: a) CLOSE the Feedwater Regulating Valves and the Feedwater HP Block Valves (Panel C905): b) FC-642A, FLOW CONTROL VLV A c) FC-642B, FLOW CONTROL VLV B d) MO-3479, 1ST PT HTR OUTLET BLOCK VALVE e) MO-3480, 1ST PT HTR OUTLET BLOCK VALVE 11) Report when EOP-01, RPV Control, low RPV Level entry condition (< +12 inches) is exceeded.
	BOP Loss of TBCCW Actions	12) TRIP all Feedwater Pumps AND all but one Condensate Pump. 13) PLACE the HPCI turbine in the Pressure Control mode in accordance with PNPS 2.2.21.5. *(Evaluator Note: Due to the type of failure associated with HPCI, this step cannot be accomplished. SRVs will be required for pressure control)* 14) USE the RCIC turbine in the Injection mode for level control a) MOMENTARILY DEPRESS the RCIC System Injection Mode push button. b) VERIFY the MANUAL START SEQUENCE indicating light is ENERGIZED. c) Verify RCIC flow levels off and stays at 400 GPM, indicating that FIC-1340-1, INJECTION FLOW CONTROL, has control of turbine speed. 15) WHEN the Main Turbine trips, THEN CLOSE the MSIVs AND TRIP the remaining Condensate Pump. 16) SECURE both Auxiliary Oil Pumps by placing their control switches in "PULL-TO-LOCK".
	BOP	**Loss of TBCCW Follow-up Actions** 17) Verify house loads have transferred.

Op Test No.: 2014	Scenario # 2 Event # 5	Page 14 of 25
Event Description:	Running TBCCW trips. Standby pump fails to auto start and cannot be started manually. Loss of TBCCW	

Time	Position	Applicant's Actions or Behavior
		18) IF Turbine lube oil temperature exceeds 140°F, as read on TRU-3097 pt. 18 THEN PERFORM the following: a) BREAK Condenser vacuum. b) SECURE the steam seal system. c) PREVENT start of Turbine Lift Pumps. d) PREVENT turning gear engagement.
		EOP-01, RPV Control Entry
	SRO EOP-01 Initial Actions	19) Enter EOP-01, RPV Control when informed of EOP-01 entry condition and 20) Direct entry into scram procedure. 21) Direct pressure be controlled using SRVs between 900 and 1050 psig 22) Direct that isolations and initiations be verified. 23) Direct level be controlled using RCIC and CRD between +12 and +45 inches.
	BOP	24) Report Group 2, 6, RBIS isolations, and Standby Gas Treatment start. Group 1 was manually initiated IAW PNPS 2.4.41. 25) Cycle SRVs as required to maintain RPV pressure in the directed band.

IOS Operator: The next event will be automatically triggered 3 minutes after the scram.

Op Test No.: 2014	Scenario # 2	Event # 6, 7	Page 15 of 25

Event Description: Small break LOCA that requires entry into EOP-01 and EOP-03. Break overcomes ability of CRD and RCIC to maintain level. CS pump "A" trip upon auto start. LPCI injection valve fails to auto open when RPV pressure lowers to < 400 psig.

Time	Position	Applicant's Actions or Behavior
IOS Instructions: 1. LP step labeled "LOCA" automatically initiated 3 minutes after the scram. This step: a. Inserted an initial Recirc leak at 500 GPM b. Ramped the leak to 2200 gpm over the next 10 minutes.		
	ANY	1) Report rising drywell temperature and pressure 2) Report when drywell temperature exceeds 150 degrees and drywell pressure exceeds 2.2 psig
	SRO	3) Re-enter EOP-01 and enter EOP-03, Primary Containment Control
		EOP-03, Primary Containment Control, Entry
	SRO	4) Direct that isolations and initiations be re-verified 5) Direct that drywell cooling be maximized 6) Before torus bottom pressure exceeds 16 psig, direct that torus sprays be initiated. 7) When operators become available direct that H2/O2 analyzers be placed in service. 8) Before RPV level lowers to -45 inches, direct ADS be inhibited
	BOP	9) Report that all RHR pumps, CS "A" and both diesels started. 10) Inhibit ADS when directed
	SRO	11) Determine that an aggressive cool down is required IAW PNPS 5.3.25.2, OPERATIONS EMERGENCY AND TRANSIENT RESPONSE STRATEGIES, Attachment 2 12) Direct a new reactor pressure band of 500 to 1050 psig 13) Expand the water level control band to -20 to +45" band.
	BOP	14) Open one relief valve to augment pressure reduction 15) Stabilize pressure between 450 to 550 psig

Op Test No.: 2014 Scenario # 2 Event # 6, 7

Event Description: Small break LOCA that requires entry into EOP-01 and EOP-03. Break overcomes ability of CRD and RCIC to maintain level. CS pump "A" trip upon auto start. LPCI injection valve fails to auto open when RPV pressure lowers to < 400 psig.

Time	Position	Applicant's Actions or Behavior
	BOP	**Torus Spray Actions** APPLICABLE PROCEDURE NOTES Torus Spray may be initiated before closing MO-1001-16A (B), RHR HX A (B) Bypass Valve. 5000 GPM on FI-1040-11A (B) and/or FI-1040-12A (B) is the maximum RHR loop flow in Torus Spray mode to allow for sufficient spray header pressure and flow. Torus Spray is established with only one loop of RHR. 16) IF it is necessary to override LPCI initiation signals, THEN PERFORM the following: a) IF only the LPCI initiation signal is present, THEN PLACE the LPCI OVERRIDE switch to "MANUAL OVERRIDE". OR b) IF RPV level interlock (2/3 core coverage) is present, THEN… *(Evaluator Note: Initially it will only be necessary to override the LPCI Initiation signal)* 17) OPEN MO-1001-34A (B), Torus Cooling/Spray Block Vlv, in the RHR loop selected for operation. 18) START/VERIFY STARTED one RHR Pump. a) IF no pump discharge flow path exists, THEN OPEN MO-1001-18A (B), RHR Pumps Loop A (B) Minimum Flow Valve, for the selected loop. 19) OPEN MO-1001-37A (B), Torus Spray Valve, in the RHR loop with the operating pump. 20) SLOWLY OPEN MO-1001-36A (B), Torus Cooling Valve, AND INCREASE flow to 4800 to 5000 GPM on FI-1040-11A (B) and/or FI-1040-12A (B). 21) CLOSE MO-1001-18A (B), Pump Min Flow Valve. a) WHEN time permits, VERIFY/ALIGN the RHR System in the

Op Test No.: 2014	Scenario # 2	Event # 6, 7	Page 17 of 25

Event Description: Small break LOCA that requires entry into EOP-01 and EOP-03. Break overcomes ability of CRD and RCIC to maintain level. CS pump "A" trip upon auto start. LPCI injection valve fails to auto open when RPV pressure lowers to < 400 psig.

Time	Position	Applicant's Actions or Behavior
		Maximize Torus Cooling Mode (REFER TO Attachment 14).
	BOP	**Maximize Torus Cooling Actions** **<u>APPLICABLE PROCEDURE CAUTION</u>** If erratic fluctuations in discharge pressure, flow, and pump motor current occur, then potential blockage of ECCS suction strainers may exist. Consult PNPS 2.2.19.5 Attachment 8 to recognize and mitigate suction strainer blockage. **[NRC Bulletin 93-02]** 22) MAXIMIZE RBCCW cooling in accordance with Attachment 12. (This step may be performed at any time during the performance of this Attachment.) APPLICABLE PROCEDURE NOTE To facilitate the establishment of Torus Cooling/Sprays, MO-4060A, MO-4060B (MO-4010A, MO-4010B) may initially be partially opened to establish RBCCW cooling flow to the RHR heat exchanger. However, in the final system alignment, the selected valves should be full open. 23) OPEN/VERIFY OPEN MO-4060A AND/OR MO-4060B (MO-4010A AND/OR MO-4010B), RHR RBCCW HX A (B) Inlet Valves. 24) IF it is necessary to override LPCI initiation signals, THEN PERFORM the following: a) IF only the LPCI initiation signal is present, THEN PLACE the LPCI OVERRIDE switch to "MANUAL OVERRIDE". OR b) IF RPV level interlock (2/3 core coverage) is present, THEN … *(Evaluator Note: Initially it will only be necessary to override the LPCI Initiation signal)* 25) OPEN/VERIFY OPEN MO-1001-34A (B), Torus Cooling/Spray Block Valve. 26) START/VERIFY STARTED one RHR Pump per loop.

Op Test No.: 2014 Scenario # 2 Event # 6, 7

Event Description: Small break LOCA that requires entry into EOP-01 and EOP-03. Break overcomes ability of CRD and RCIC to maintain level. CS pump "A" trip upon auto start. LPCI injection valve fails to auto open when RPV pressure lowers to < 400 psig.

Time	Position	Applicant's Actions or Behavior
		27) THROTTLE OPEN/VERIFY OPEN MO-1001-36A (B), Torus Cooling Valve, AND, IF required, RAISE flow to 4500 to 4800 GPM on FI-1040-11A (B) and/or FI-1040-12A (B). 28) CLOSE MO-1001-18A (B), Pump Min Flow Valve. APPLICABLE PROCEDURE NOTES The closure of the RHR HX Bypass Valve (MO-1001-16A/B) may be delayed for any of the following: • For placing the opposite RHR loop in Torus Cooling. • For spraying the Torus. • For spraying the Drywell. • At the discretion of the SM/CRS for expediting execution of the EOPs based on prioritization. If the closure of the RHR HX Bypass Valve is delayed, then be aware that the maximum cooling configuration for the RHR System in the Torus Cooling or Containment Spray mode **APPLICABLE PROCEDURE CAUTION** The closure of the RHR HX Bypass Valve (MO-1001-16A/B) with two RHR Pumps operating in the same RHR loop may cause heat exchanger damage/failure. 29) CLOSE MO-1001-16A (B), RHR HX A (B) Bypass Valve. [9] THROTTLE MO-1001-36A (B), Torus Cooling 30) Valve, as required to establish loop flow on FI-1040-11A (B) and/or FI-1040-12A (B) at approximately 4800 to 5000 GPM.
	BOP	**Maximize Drywell Cooling Actions** APPLICABLE PROCEDURE NOTES • The following three steps may be performed in any order.

Op Test No.: 2014	Scenario # 2	Event # 6, 7	
Event Description:	Small break LOCA that requires entry into EOP-01 and EOP-03. Break overcomes ability of CRD and RCIC to maintain level. CS pump "A" trip upon auto start. LPCI injection valve fails to auto open when RPV pressure lowers to < 400 psig.		

Time	Position	Applicant's Actions or Behavior
		31) Direct the NLO to START/VERIFY STARTED all available Drywell cooling fans on Panel C61. 32) FULLY OPEN all Drywell cooler RBCCW valves by rotating all pots on Panel C7 to the full clockwise position. 33) MAXIMIZE RBCCW cooling in accordance with Attachment 1 of 5.3.35.1, Attachment 12
	BOP	**Maximize RBCCW Cooling Actions** 34) START/VERIFY STARTED two RBCCW Pumps in RBCCW Loop "A" ("B"). 35) PLACE the remaining RBCCW Pump in the affected loop(s) in "PULL-TO-LOCK". 36) START/VERIFY STARTED two SSW Pumps in SSW Loop "A" ("B"). 37) FULLY OPEN MO-3800 for Loop "A" AND/OR MO-3806 for Loop "B", RBCCW Heat Exchanger SSW Outlet Valves. 38) LOWER RBCCW loop temperature controller setpoint to less than 50°F AND/OR CLOSE the following: • Loop A; MO-4084, RBCCW Heat Exchanger A Bypass Valve • Loop B; MO-4083, RBCCW Heat Exchanger B Bypass Valve 39) FULLY OPEN/VERIFY OPEN the following valves to provide cooling water to the appropriate RHR heat exchanger: • Loop A; MO-4060A OR MO-4060B, RHR RBCCW HX A Inlet Valve • Loop B; MO-4010A OR MO-4010B, RHR RBCCW HX B Inlet Valve
	SRO	40) Monitor rising Torus bottom pressure and Drywell Temperature
Critical Task #1	**Initiate drywell sprays when torus bottom pressure exceeds 16 psig.**	

Op Test No.: 2014	Scenario # 2	Event # 6, 7	Page 20 of 25

Event Description: Small break LOCA that requires entry into EOP-01 and EOP-03. Break overcomes ability of CRD and RCIC to maintain level. CS pump "A" trip upon auto start. LPCI injection valve fails to auto open when RPV pressure lowers to < 400 psig.

Time	Position	Applicant's Actions or Behavior
	ANY	41) Report when torus bottom pressure exceeds 16 psig.
	SRO	42) Verify that Torus Level is < 180 inches 43) Verify that drywell temperature and pressure are within the Drywell Spray Initiation Limit 44) Direct that Recirc pumps be tripped 45) Direct that Drywell Sprays be initiated
	BOP	*(Evaluator Note: Because both loops of DW sprays are available, the expectation is that both loops will be used per the note below. However only one loop is required to satisfy the critical task)* **Drywell Spray Actions** APPLICABLE PROCEDURE NOTES • Drywell Spray may be initiated before closing MO-1001-16A (B), RHR HX A (B) Bypass Valve. • 5000 GPM on FI-1040-11A (B) and FI-1040-12A (B) is the maximum RHR loop flow in Drywell Spray mode to allow for sufficient spray header pressure and flow. • If available, the Drywell is to be sprayed with both loops of RHR. 46) IF running, THEN TRIP the Reactor Recirc Pump(s) by opening the associated pump drive motor breaker control switch(es) at Panel C904. 47) IF it is necessary to override LPCI initiation signals, THEN PERFORM the following: a) IF only the LPCI initiation signal is present, THEN PLACE the LPCI OVERRIDE switch to "MANUAL OVERRIDE". OR b) IF RPV level interlock (2/3 core coverage) is present, THEN... *(Evaluator Note: Initially it will only be necessary to override the LPCI Initiation signal)*

Op Test No.: 2014	Scenario # 2	Event # 6, 7	Page 21 of 25

Event Description: Small break LOCA that requires entry into EOP-01 and EOP-03. Break overcomes ability of CRD and RCIC to maintain level. CS pump "A" trip upon auto start. LPCI injection valve fails to auto open when RPV pressure lowers to < 400 psig.

Time	Position	Applicant's Actions or Behavior
		48) OPEN/VERIFY OPEN MO-1001-34A (B), Torus Cooling/Spray Block Vlv. 49) START/VERIFY STARTED one RHR Pump in each loop. a) IF no pump discharge flow path exists, THEN OPEN MO-1001-18A (B), RHR Pumps Loop A (B) Minimum Flow Valve. 50) IF available, FULLY OPEN both Drywell Spray valves in each RHR loop: a) MO-1001-23A, RHR Loop A Upper Drywell Spray Valve #1 AND MO-1001-26A, RHR Loop A Upper Drywell Spray Valve #2 b) MO-1001-23B, RHR Loop B Upper Drywell Spray Valve #1 AND MO-1001-26B, RHR Loop B Upper Drywell Spray Valve #2 51) IF Torus Cooling has NOT been previously established, THEN ESTABLISH a loop flow of 4800 to 5000 GPM on FI-1040-11A (B) and/or FI-1040-12A (B) by slowly opening MO-1001-36A (B), Torus Cooling Valve. 52) CLOSE MO-1001-18A (B), Pump Min Flow Valve. 53) WHEN time permits, VERIFY/ALIGN the RHR System in the Maximize Torus Cooling Mode (REFER TO Attachment 14).
RPV Level Continues to Lower		
	ANY	54) Report that level continues to lower with RCIC and CRD injection
Evaluator Note:	*If the crew attempts to take the HPCI Aux Oil pump out of Pull To Lock and inject, the Aux Oil pump will fail to start.*	
IOS Instructions: 2. If directed to investigate the Aux Oil pump role play as required but take no corrective		

Op Test No.: 2014	Scenario # 2	Event # 6, 7	Page 22 of 25

Event Description: Small break LOCA that requires entry into EOP-01 and EOP-03. Break overcomes ability of CRD and RCIC to maintain level. CS pump "A" trip upon auto start. LPCI injection valve fails to auto open when RPV pressure lowers to < 400 psig.

Time	Position	Applicant's Actions or Behavior
action.		
	SRO	55) Establish successively lower level bands of control as level continues to fall 56) Shift level control to the fuel zone level instruments *(Evaluator Note: The PNPS Fuel Zone Instruments are calibrated for accident conditions and read significantly lower than actual level with the RPV at pressure. Conversion charts are used to correlate indicated level to actual level)* 57) Direct that "B" CRD be aligned for emergency makeup 58) Direct that a SBLC pump be started
IOS Instructions: 3. Role Play as NLO and coordinate aligning the "B" CRD pump for Emergency Makeup2.2.87, Section 8.1		
	RO	59) Inject with SBLC **CRD Emergency Makeup Actions** 60) Direct NLO to perform local valve alignments IAW PNPS 2.2.87, Section 8.1 61) Open MO-302-8, Drive Wtr PCV; 62) FULLY OPEN FCV-302-6A OR FCV-302-6B, FLOW CONTROL VLV A or B, using FIC-340-1, CRD FLOW CONTROL, on Panel C905. THROTTLE as necessary.
	SRO	63) As level continues to lower direct that available low pressure ECCS be aligned for injection.
	BOP	64) Align available low pressure ECCS for injection
Critical Task # 2	**When RPV level cannot be restored and maintained >-150 inches, Emergency Depressurize the reactor.** *(Evaluator Note: At a pressure band of 450 to 550 psig, TAF will be reached when the Fuel Zone Level Indicators indicate -155 inches. Minimum Steam*	

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Event Description: Small break LOCA that requires entry into EOP-01 and EOP-03. Break overcomes ability of CRD and RCIC to maintain level. CS pump "A" trip upon auto start. LPCI injection valve fails to auto open when RPV pressure lowers to < 400 psig.

Time	Position	Applicant's Actions or Behavior
	Cooling Water Level will be reached when indicators read -176 inches.)	
	Any	65) Report when level drops below TAF.
	SRO	66) When level cannot be restored and maintained >-150 inches (actual) enter EOP-17, Emergency RPV Depressurization
	SRO	67) Verify torus level is > 50 inches 68) Direct that all SRVs be opened
	BOP	69) Open all SRVs 70) Report that all SRVs have opened
	RO/BOP	71) Report that CS "A" pump tripped when RPV pressure lowered below 400 psig.
Critical Task # 3	**When systems required to maintain core cooling do not automatically start or inject, manually align the systems for injection.**	
	RO/BOP	72) Monitor for low pressure injection *(Evaluator Note: Low pressure ECCS injection valves start to open at 400 psig. However the shutoff head of the pumps is ~ 300 psig)* 73) Diagnose that LPCI Injection Valve MO-29 failed to open when pressure dropped below 400 psig. 74) Manually open LPCI injection Valve.
	SRO	75) Direct that level be restored to the normal range 76) Direct that Containment cooling (Torus spray, drywell spray) be re-established as required. *(Evaluator Note: The containment cooling valves may have closed if level dropped below the 2/3rds core coverage interlock unless the interlock was previously over ridden)*
	BOP/RO	77) Restore level to the normal range 78) Re-establish containment cooling

Op Test No.: 2014	Scenario # 2	Event # 6, 7	Page 24 of 25

Event Description: Small break LOCA that requires entry into EOP-01 and EOP-03. Break overcomes ability of CRD and RCIC to maintain level. CS pump "A" trip upon auto start. LPCI injection valve fails to auto open when RPV pressure lowers to < 400 psig.

Time	Position	Applicant's Actions or Behavior
		79) Place H2O2 analyzers in service as time permits

The scenario may be terminated at the discretion of the Lead Examiner OR when the RPV has been depressurized, RPV level stabilized and Containment Parameters are lowering.

SHIFT TURNOVER

- RX power is approximately 55% following a power reduction for a main condenser backwash.
- The backwash has been completed and the seawater system has been returned to a normal lineup IAW PNPS 2.2.94.5.
- "B" CS pump is OOS to allow for replacement of the pump's breaker charging motor.
- The plant is on day 2 of a 7 day LCO IAW TS 3.5.A.2 due to the CS breaker repair.
- APRM "C" has failed upscale and is bypassed. All other APRMs are operable and a Tracking LCO has been initiated.
- RWCU is isolated following an equipment failure during a surveillance last shift. The equipment failure has been repaired.
- Directions to the shift are to:
    - Restore RWCU to service IAW PNPS 2.2.83, Reactor Cleanup System, section 7.2 commencing at step [6].
    - Place "A" RWCU Filter Demin in service. "B" Filter Demin will be backwashed later in the shift.
    - Restore power to 100% IAW PNPS 2.1.14, Station Power Changes, Section 7.3, Step [8]. Raise flow to 63 Mlbm/hr and then commence rod withdrawal as directed by RE.

Facility: PILGRIM		Scenario No.: 3	Op Test No.: 2014 NRC
Examiners:	________________	Operators:	SRO -
	________________		RO -
	________________		BOP -

Initial Conditions:

- Initialize to IC-15 Full Power Operations
- Open LP NRC Scenario 3
- Execute LP step labeled "Initial Conditions"
- Place "B" CS pump in PTL
- Hang danger tag on CS pump control switch
- Bypass APRM "C" and reset the ½ scram
- Caution tag the APRM Joystick

Turnover:

- RX power is 100%.
- A plant shutdown has been directed by plant management due to rising drywell leakage. Unidentified leakage has risen by 1.6 gpm over the last 24 hours. Unidentified leakage is currently 3.8 gpm.
- "B" CS pump is OOS to allow for replacement of the pump's breaker charger motor. The plant is on day 2 of a 7 day LCO IAW TS 3.5.A.2 due to the CS breaker repair.
- APRM "C" has failed upscale and is bypassed. All other APRMs are operable and a Tracking LCO has been initiated.
- PNPS 2.1.5, Controlled Shutdown From Power, Section F has been initiated. Preliminary de-inerting activities have commenced but actual de-inertion has not yet started
- I&C has just completed the IRM and SRM calibrations IAW PNPS 2.1.5, Section F, steps [2](b) and (c).
- The directions to the shift are to:
  - Commence de-inerting the containment beginning at step [6] of PNPS 2.2.70, Attachment 11, section 4.1. Use the "B" SBGT Train only.
  - When de-inerting has commenced, begin the power reduction. ISO NE has been notified of the power reduction.
  - The Shift Manager has determined that it is not necessary to place a FRV in manual.

Critical Tasks:

1. Inject SBLC before torus water temperature exceeds the BIIT or in response to core oscillations.
2. During failure to scram conditions, insert control rods using one or more methods contained within 5.3.23 and / or EOP-02 to achieve Rx. Shutdown under all conditions
3. During failure to scram conditions terminate and prevent injection from all sources (except CRD, RCIC, and SBLC) and lower level to < -25 inches prior to recommencing injection.

Event No.	Malf. No.	Event Type*	Event Description
1.	N/A	N - BOP N - SRO	The BOP will lineup the PCAC system and commence de-inerting the primary containment IAW PNPS 2.2.70, Attachment 11, Section 4.1
2.	N/A	R – RO R - SRO	The RO will commence a power reduction using Recirc Flow Control IAW PNPS 2.1.5, step [3] and PNPS 2.1.14, Station Power Changes.
3.	RD01	C – RO C - SRO	In-service CRD Flow Control Valve (FCV) fails open. The RO responds IAW PNPS 2.4.11.1, CRD System Malfunctions, Attachment 5, and places the standby CRD FCV in service.
4.	TC06	C – BOP C – SRO TS - SRO	In-service Pressure Regulator (EPR) oscillates. The BOP determines that the EPR is oscillating and responds IAW PNPS 2.4.37, Turbine Control System Malfunctions and removes the EPR from service. The SRO determines that the MCPR LCO is not satisfied due to loss of backup pressure regulation and enters TS LCO 3.11.C.1.
5.	CW16A 10% severity	C – BOP C – SRO TS - SRO	SSW Loop "A" Leak. The crew responds IAW PNPS 2.4.43, Loss of One Salt Service Water Loop. BOP Cross Connects RBCCW and isolates Loop "A" SSW. SRO declares Loop "A" SSW inoperable and a 24 Hr Cold S/D LCO due to RBCCW Cross Tie valves being Open. T.S. 3.5.B.3.C.1
6.	MS14 (A)	C – All	SRV "A" fails open. The crew will respond IAW PNPS 2.4.29, Stuck Open SRV. When all efforts to close the valve are unsuccessful, the crew will insert a manual scram before 5 minutes have elapsed. The SRV will reclose when RPV pressure lowers to 850 psig.
7.	Remote functions for both SDIV levels at 98.5% severity	M- All	Large Hydraulic Lock ATWS following manual scram. Rx, Power will remain above 3%. The Crew will respond IAW EOP-02, RPV Control Failure to scram. All injection will be terminated and prevented to lower level below the feedwater spargers. SBLC injection will be required.
8.	LP01	C – RO C – SRO	The squib valve will fail to fire when the 1st SBLC Train is started. The RO will be required diagnose the failure and initiate the standby train.
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Scenario Summary:

The plant is at approximately 100% power with a plant shutdown in progress due to increased drywell leakage. "B" CS pump is OOS to allow for replacement of the pump's breaker charger motor. The plant is on day 2 of a 7 day LCO IAW TS 3.5.A.2 due to the CS breaker repair. APRM "C" has failed upscale and is bypassed. All other APRMs are operable.

The directions to the shift are to commence de-inerting the primary containment and commence the power reduction IAW PNPS2.1.5, Controlled Shutdown From Power, Section F.

After assuming the watch the BOP will align the PCAC system, start Standby Gas and commence de-inerting the primary Containment. The RO will then commence the power reduction by lowering Recirc Flow to 43 Mlbm/hr as required.

After a sufficient power reduction has occurred the in-service CRD Flow Control Valve (FCV) fails open. The RO is expected to respond IAW PNPS 2.4.11.1, CRD System Malfunctions, Attachment 5 and place the standby CRD FCV in service.

The in-service Pressure Regulator (EPR) then begins to oscillate. The BOP is expected to determine that the EPR is oscillating and respond IAW PNPS 2.4.37, Turbine Control System Malfunctions and remove the EPR from service. The SRO is expected to determine that the MCPR LCO is not met due to loss of backup pressure regulation and enter TS LCO 3.11.C.1.

Next an air leak results in one SDIV drain valve failing partially closed. The SRO is expected to refer to TS 3.3.G and declare a 7 day LCO to isolate the drain line.

Then a leak on Salt Service Water (SSW) loop "A" will occur. The crew is expected to respond IAW PNPS 2.4.43, Loss of One Salt Service Water Loop. The BOP will cross connect RBCCW loops and isolate SSW loop "A" to stop the leak. The SRO is expected to declare Loop "A" SSW inoperable and a 24 Hr Cold S/D LCO due to the RBCCW Cross Tie valves being open (T.S. 3.5.B.3.C.1).

The scenario ending event begins when a SRV fails open following the previous pressure oscillations. The crew is expected to respond IAW PNPs 2.4.29, Stuck Open SRV. All efforts to close the valve will be unsuccessful. The crew is expected to insert a manual scram before 5 minutes have elapsed. Water in the Scram Discharge Volumes will cause a hydraulic lock on the control rods and most will fail to insert.

The crew is expected to respond IAW EOP-02, RPV Control, Failure to Scram. The RO is expected to reduce both Recirc pumps to minimum speed and trip the pumps to lower power. The crew is expected to inject SBLC before the BIIT curve is exceeded (**Critical Task #1**). The Standby Liquid SQUIB valve will fail to fire. The RO is expected to recognize the failure and start the standby SBLC Train. Other actions will include inhibiting ADS and defeating the MSIV low RPV level isolation. Torus water temperature will exceed the EOP-03, Primary Containment Control, entry condition.

EOP-02 will require that injection be terminated and prevented and RPV level lowered to below -25 inches to mitigate /prevent core oscillations (**Critical Task # 2**). The RO is expected to insert control rods utilizing PNPS 5.3.23 Alternate Rod Insertion and complete control rod

insertion (**Critical Task #3**). In addition to manually driving rods, repeated manual scrams are expected.

The scenario will end when all rods are inserted, EOP-02 is exited, RPV level is in progress of being restored to the normal band and actions are in progress to lower Torus Water temperature.

Op Test No.: 2014	Scenario # 3	Event # 1	Page 5 of 28
Event Description:	Commence De-inerting the Primary Containment IAW PNPS 2.2.70, PRIMARY CONTAINMENT ATMOSPHERIC CONTROL SYSTEM		

Time	Position	Applicant's Actions or Behavior

IOS Instructions:

1. The previously executed LP labeled "Initial Conditions" performed the following:
   a. Opened the DC knife blade for the "B" Core Spray pump
   b. Failed APRM "C" upscale
   c. Inserted conditionals to block the SDIV instrument volumes to achieve ATWAS conditions

Evaluator Note:	*The critical elements of each critical task are highlighted in grey.*	
	SRO	1) Direct the BOP to commence de-inerting the containment IAW PNPS 2.2.70, Attachment 11, section 4.1, commencing at step [6]
	RO	2) Monitor Reactor parameters
	BOP	**Actions for de-inerting the Drywell** 3) COMMENCE the Drywell purge as follows: a) VERIFY the control switch for AO-5035A, DRYWELL PURGE SUPPLY ISOL VLV, is in the "AUTO" position at Panel C904. b) OPEN AO-5043A, DRYWELL NORMAL EXHAUST ISOL VLV (Panel C7). c) OPEN AO-5043B, DRYWELL NORMAL EXHAUST ISOL VLV (Panel C7). d) IF using the "B" Standby Gas Treatment (SGTS) train, VERIFY OR ESTABLISH the lineup at Panel C7 as follows: (1) AO-N-112, TRAIN B OUTL DMPR, is OPEN. (2) VEX-210A, STANDBY GAS FAN A, is in "AUTO". (3) OPEN AO-N-106, TRAIN B INLET DMPR, at Panel C7. (4) VERIFY that VEX-210B, STANDBY GAS FAN B, starts at Panel C7. (5) RECORD the start time in the CRS Log. **PROCEDURE CAUTION** Closely monitor Drywell pressure. If Drywell pressure is allowed to go less than Torus pressure (by 10" water column or 0.36 psi), the

Op Test No.: 2014	Scenario # 3 Event # 1	Page 6 of 28
Event Description:	Commence De-inerting the Primary Containment IAW PNPS 2.2.70, PRIMARY CONTAINMENT ATMOSPHERIC CONTROL SYSTEM	

Time	Position	Applicant's Actions or Behavior
		Drywell-to-Torus Vacuum Breakers will open and actuate alarm "RX BLDG/TORUS ΔP HI" (C904LC-D1). If this occurs, opening a Drywell-to-Torus Vacuum Breaker as part of a planned evolution is NOT a valid ESF. Refer to PNPS 1.3.12.
		e) WHEN one Standby Gas Treatment train is aligned to filter the Primary Containment effluent, THEN OPEN the following valves (Panel C7):
		(1) AO-5044A, DRYWELL PURGE EXHAUST ISOL VLV
		(2) AO-5044B, DRYWELL PURGE EXHAUST ISOL VLV
		b) WHEN Drywell pressure is atmospheric, THEN START one OR both Containment Purge Fan(s) by placing the control switch to "RUN" on Panel C7:
		• VSF-205A, Containment Purge Fan A
		• VSF-205B, Containment Purge Fan B
		c) OPEN the Drywell purge valves from Panel C7:
		• AO-5035A, DRYWELL PURGE SUPPLY ISOL VLV
		• AO-5035B, DRYWELL PURGE SUPPLY ISOL VLV

IOS Operator: When directed by Lead Examiner, proceed to next event.

Op Test No.: 2014	Scenario # 3 Event # 2	Page 7 of 28
Event Description:	Power Reduction using Recirc Flow Control	

Time	Position	Applicant's Actions or Behavior
IOS Instructions: 1. None		
	SRO	1) Direct the RO to commence the power reduction IAW PNPS 2.1.14 Station Power changes
	RO	**Power Reduction** 2) To lower Reactor power, PERFORM the following on the selected Recirc Speed Controller SIC-262-025A OR SIC-262-025B: a) ENSURE the selected Recirc Speed Controller is in MANUAL by observing that an "M" is illuminated to the right of the bar graphs. b) ENSURE the RIGHT BAR (Speed Demand) is selected by observing that the dot above the RIGHT BAR is illuminated. c) MOMENTARILY DEPRESS the down (▼) push button on the left side of the control pad. d) OBSERVE the RIGHT BAR (Speed Demand) indication lowers. e) CONTINUE TO REPERFORM Steps [3](a) through [3](e) until the desired Reactor power or core flow is obtained. 3) Maintain pump speed mismatch within the Admin Limits of within 8% of each other when power level is > 80% and within 13% of each other when power level is ≤ 80% 4) WHEN at a core flow of approximately 43 Mlb/hr, STOP REDUCING core flow AND BEGIN INSERTING control rods.
	BOP	5) Monitor BOP parameters
IOS Operator: When a sufficient reactivity change has been evaluated and as directed by the Lead Examiner, proceed to the next event.		

Op Test No.: 2014	Scenario # 3	Event # 3		
Event Description:	CRD Flow Control Valve (FCV) fails open			

Time	Position	Applicant's Actions or Behavior
IOS Instructions: 1) Execute LP step labeled "CRD FCV Failure". This step fails the in-service FCV full open.		
	RO	1) Report alarm Drive Filter ΔP Hi, C905R-F5, and refers to ARP **ARP Actions** 2) Check DPIS-302-52 in the CRD quadrant 3) Verify CRD System flow is normal. IF NOT, THEN adjust CRD System flow to approximately 50 GPM in accordance with PNPS 2.2.87 (CRD System). a) Diagnose that the CRD Flow Control valve has failed open. *(Evaluator Note: The RO should be able to distinguish a controller failure from a valve failure by observing the output of the CRD flow Controller. Since the output is low, the controller is responding properly to the increased flow.)*
IOS Instructions: 2) If asked to report the Dp across the drive filter, report that the Dp is 21psid.		
	SRO	4) Enter off-normal procedure PNPS 2.4.11.1, CRD SYSTEM MALFUNCTIONS *(Evaluator Note: There are no immediate actions associated with this procedure)*
PNPS 2.4.11.1, CRD SYSTEM MALFUNCTIONS		
	RO	5) Determine that Attachment 5, CRD FCV Failure, is applicable **Actions for Shifting CRD FCV** 6) For a failure of in-service flow control valve (A or B) or E/P positioner a) PLACE the CRD FLOW CONTROL controller on Panel C905 to "MANUAL" AND, using the potentiometer, POSITION the controller to full "CLOSED". 7) Contact a NLO operator and direct the operator to proceed to the Flow Control Valve Station and: *(Evaluator Note: The RO may just tell the NLO to complete step*

Op Test No.: 2014	Scenario # 3	Event # 3	Page 9 of 28
Event Description:	CRD Flow Control Valve (FCV) fails open		

Time	Position	Applicant's Actions or Behavior
		Attachment 5 step[2]). a) SLOWLY OPEN standby flow control valve inlet valve 301-40A (B). b) SLOWLY OPEN outlet valve 301-41A (B) from standby flow control valve. c) CLOSE outlet valve 301-41A (B) from in-service flow control valve. d) CLOSE inlet valve 301-40A (B) for the previously in-service flow control valve. e) On the local valve control panel, PERFORM the following: (1) SWAP selector switch 3B-S1, for electrical signal to E/P unit, from valve in-service to standby valve position. (2) SWAP valve 3-HO-301-29 from valve in-service position to that of standby valve FCV-302-6A, Position 1 (FCV-302-6B, Position 2).

IOS Instructions:

3) When directed to perform the local actions associated with shifting FCVs, wait an appropriate amount of time and then execute LP step labeled "Swap CRD FCV".

Time	Position	Applicant's Actions or Behavior
	RO	8) When informed that local operations have been completed, at Panel C905, SLOWLY RAISE CRD flow controller to a setpoint of 50 GPM; VERIFY the flow increase. a) At Panel C905, CHECK DRIVE WTR and COOLING WTR DIFF PRESS Indicators, dPI-340-4 and dPI-340-5, AND, IF needed, ADJUST pressures. b) RETURN flow controller (FIC-340-1) on Panel C905 to "AUTO". 9) At Panel C905, CHECK DRIVE WTR and COOLING WTR DIFF PRESS Indicators, dPI-340-4 and dPI-340-5, AND ADJUST pressures by adjusting MO-302-8, DRIVE WTR PCV.

IOS Instructions:

4) If asked to verify normal Dp after the FCV changeover, report that the Dp has lowered to 10 psid.

Op Test No.: 2014 Scenario # 3 Event # 3	Page 10 of 28
Event Description: CRD Flow Control Valve (FCV) fails open	

Time	Position	Applicant's Actions or Behavior

IOS Operator: When directed by Lead Examiner, proceed to next event.

Op Test No.: 2014	Scenario # 3	Event # 4	Page 11 of 28
Event Description:	In-service Pressure Regulator (EPR) oscillates		

Time	Position	Applicant's Actions or Behavior
IOS Instructions: 1. Execute LP step labeled "EPR Malfunction". This step oscillates the EPR.		
	RO/BOP	1) Report RPV pressure oscillations
	SRO	2) Enter off-normal procedure 2.4.37, Turbine Control System Malfunctions 3) Direct / Verify Immediate Operator Actions
PNPS 2.4.37 Turbine Control System Malfunctions Actions		
	SRO / RO	**Immediate Operator Actions** 4) IF Reactor pressure approaches 1060 psig OR 810 psig during a pressure control malfunction event, THEN SCRAM the Reactor AND ENTER PNPS 2.1.6. 5) IF necessary, REDUCE power in accordance with PNPS 2.1.14 Sections 7.10 and 7.11 to ≤ 90% CTP to mitigate the possibility of an APRM Hi Flux Scram. *(Evaluator Note: Neither of these two immediate actions are anticipated due to the earlier power reduction)*
	BOP	**Subsequent Actions** 6) Determine that Section 4.2, PRESSURE INCREASE OR OSCILLATIONS, is applicable 7) ATTEMPT TO TAKE CONTROL of Reactor pressure with the MPR by holding the MPR SET PT control switch in the "LOWER" position. a) PLACE the EPR POWER control switch to the "OFF" position when the MPR takes control. *(Evaluator Note: The MPR red "in control" light will illuminate when the MPR takes control from the EPR. The EPR red "in control" light will extinguish and the green indicating light will illuminate.)* 8) CLOSELY MONITOR Reactor pressure and control valve operation while MPR is controlling pressure.

Op Test No.: 2014 Scenario # 3 Event # 4		Page 12 of 28
Event Description:	In-service Pressure Regulator (EPR) oscillates	

Time	Position	Applicant's Actions or Behavior
	SRO	9) ASSESS operating conditions by plotting power versus core flow on the Pilgrim Power/Flow Map. THEN PERFORM the actions required in accordance with PNPS 2.1.14 Section 7.10. [NRC GL94-02 (BWROG-94078)] 10) DEMAND a SOLOMON case from 3D Monicore AND VERIFY the following: a) Core Decay Ratio (DR) is < 0.70. b) Hot Channel Decay Ratio is < 0.55.
	BOP	11) CHECK PRMs on Panel C910 and PRM recorders on Panel C902 to ensure fuel integrity 12) When pressure is under control, THEN RETURN Reactor pressure to a setpoint appropriate for the current power level (REFER TO Attachment 2, Vessel Dome Pressure versus Core Power): 13) MONITOR Reactor pressure; PR-640-28, Narrow Range Reactor Pressure Recorded, is preferred. 14) ADJUST Reactor pressure as required using the MPR Pressure Regulator Setpoint control switch.
	SRO	15) Determine that backup pressure regulation has been lost and entry into Technical Specifications LCO 3.11.C.1 is required 16) Determine that Tech Spec 3.11.C.1 requires that action shall be initiated within 15 minutes to restore operation to within the prescribed limits. If the steady state MCPR is not returned to within the prescribed limits within two (2) hours, reduce thermal power to < 25% within four (4) hours. *(Evaluator Note: The Station Transient Analysis assumes operable backup pressure regulation. Upon the loss of backup pressure regulation (i.e., MPR or EPR), Technical Specifications surveillance requirement 4.11.C.1 for MCPR cannot be considered satisfied and an entry into Technical Specifications LCO 3.11.C.1 is required.)*
IOS Operator: When directed by Lead Examiner, proceed to next event.		

Op Test No.: 2014 Scenario # 3 Event # 5		Page 13 of 28
Event Description: Loss of Loop "A" Salt Service Water Leak -		
Time	Position	Applicant's Actions or Behavior

IOS Instructions:

1. Execute LP step labeled "Loss of SSW Loop A". This step causes a leak on the SSW Loop "A" upstream of the "A" RBCCW Heat Exchanger.

Evaluator Note:	*Alarm below will not occur for ~ 1 minute after the malfunction is activated.* *The SSW leak location cannot be isolated locally. The "A" SSW loop must be secured.*	
	BOP	1) Report and respond to alarm "RBCCW PUMP AREA LEAKAGE" C904L-F6. a) Investigate RBCCW pump areas for signs of excessive leakage
	SRO	2) Dispatch operator to investigate
	BOP	3) Report and respond to alarm "TORUS ROOM TROUGH HI/LO", C904L-A7 a) IF Torus trough level is high, THEN perform the following: i) Investigate RBCCW/TBCCW pump and heat exchanger areas for signs of leakage

IOS Instructions:

2. When requested to investigate the SSW leak, wait two minutes then report, a SSW pipe leak immediately upstream of valve 29-HO-3827 ('A' TBCCW Heat Exch. SSW Inlet valve)
3. If asked for an assessment of the leak size, report as the NLO that the water level is rising very slowly and is not spraying on any electrical equipment.
4. If asked to investigate the status of the Torus Trough, report that the level is high due to water flowing into the trough from the SSW leak.

	SRO	4) When report received or based on control room indications, enters 2.4.43

PNPS 2.4.43, Loss of One SSW Loop Actions

(Evaluator Note: There are no applicable Immediate Actions)

	SRO	5) REDUCE Reactor power as necessary in accordance with PNPS 2.1.14 Sections 7.10 and 7.11 to maintain equipment temperatures

Op Test No.:	2014	Scenario #	3	Event #	5	Page 14 of 28
Event Description:	Loss of Loop "A" Salt Service Water Leak -					

Time	Position	Applicant's Actions or Behavior
		within operating limits *(Evaluator Note: A power reduction is not anticipated)* 6) Direct BOP to perform control room actions for cross-tying the RBCCW Loops IAW 2.2.30, "B" loop supplying. 7) Direct NLOs to perform local actions for cross-tying the RBCCW Loops
IOS Instructions: 5. When directed, and after appropriate time delays, cross tie RBCCW using remote functions.		
	BOP	**Control Room RBCCW Cross Connect Actions** 8) PLACE/VERIFY two RBCCW Pumps in service in the "B" loop. 9) PLACE the remaining RBCCW Pump in the "B" loop to "PULL-TO-LOCK". 10) SECURE any running pumps in the "A" loop from Panel C1. 11) PLACE control switches for pumps in the "A" loop to "PULL-TO-LOCK" at Panel C1. 12) OPEN/VERIFY OPEN MO-4084 HX A RBCCW BYP VLV. 13) PLACE TIC-3836, LOOP A TEMP CONT, to "MANUAL" at Panel C1. 14) FULLY OPEN the HEAT EXCH. OUTLET TEMP. CONTROL valve for the "A" loop. **SSW Leak Isolation** 15) Isolate the affected SSW loop and secure the associated SSW pumps *(Evaluator Note: The following steps are from PNPS 2.2.32, SSW section 7.3)* a) Verify that the SSW LOOP SELECTOR switch is positioned to "B" b) Close MO-3808, P-208C Discharge/Loop Crossover Block Valve c) Place "A" and "B" SSW Pumps in PTL 16) MAINTAIN the SSW Pump discharge pressure equal to or greater

Op Test No.: 2014	Scenario # 3	Event # 5	Page 15 of 28
Event Description:	Loss of Loop "A" Salt Service Water Leak -		

Time	Position	Applicant's Actions or Behavior
		than 14 psi by operating MO-3801, HX B OUTL VLV MO-3805, HX B SSW OUTL FCV MO-3806 on the RBCCW and TBCCW heat exchangers. 17) Closely monitor equipment temperatures for RBCCW and TBCCW cooled equipment.
	SRO	18) Notify the Radwaste Control Room to put the Reactor Building floor and equipment sump pumps on hand, and not to pump any salt water to a tank unless equipment is in danger of being flooded on the quadrants. 19) Refer to Tech Specs. Declares both RBCCW loops are inoperable. 20) *(Evaluator Note: Both loops are inoperable because the cross connect vales are open. This is discussed in the bases of the LCO. The "A" SSW loop is also inoperable IAW TS 3.5.B.4 but the RBCCW LCO is more limited.)* 21) Determines that a 24 hr. cold S/D is required IAW T.S. 3.5.B.3.C.1
	RO	22) Monitor reactor parameters
IOS Operator: When directed by Lead Examiner, proceed to next event.		

Op Test No.: 2014	Scenario # 3 Event # 6	Page 16 of 28
Event Description:	SRV Fails Open. PNPS 2.4.29, Stuck Open SRV	

Time	Position	Applicant's Actions or Behavior
IOS Instructions: 1. Execute LP step labeled SRV fails open. This step causes SRV 3A to fail open. The valve will reclose when RPV pressure lowers below 850 psig.		
	BOP	1) Report alarm RELIEF/SFTY VALVE OPEN, C903L-B2 and refer to ARP a) Determine that SRV 3A has failed open by observing Acoustic Monitor indication and other control room indications.
	SRO	2) Enter PNPS 2.4.29, Stuck Open SRV.
PNPS 2.4.29, Stuck Open SRV Actions		
	SRO	**Immediate Operator Actions** 3) IF ANY of the following conditions occur, THEN MANUALLY SCRAM the Reactor AND CONCURRENTLY PERFORM PNPS 2.1.6, "Reactor Scram". a) Torus bulk temperature reaches 110°F. OR b) The safety relief valve remains open for longer than 5 minutes. OR c) It has been determined that the safety relief valve cannot be closed.
	SRO	**Subsequent Operator Actions** 4) Direct a power reduction be commenced IAW PNPS 2.1.14 Section 7.11.
	BOP	5) Report Torus Bulk Temp Hi alarm, C904LC-B2 a) Report torus bulk temperature is 78°F and rising
IOS Instructions: 2. If /when directed to take local Control of SRV from ASP, role play as required and utilize remote functions to complete directed ASP actions.		

Op Test No.: 2014	Scenario # 3 Event # 6	
Event Description:	SRV Fails Open. PNPS 2.4.29, Stuck Open SRV	

Time	Position	Applicant's Actions or Behavior
	BOP	**PROCEDURE NOTE** Steps below may be performed as necessary and in any order based on the type of malfunction that has occurred. 6) Malfunction of SRV: a) ATTEMPT TO CLOSE the affected SRV(s) from its Alternate Shutdown Panel (ASP) by directing NLO to place the ASP control switch in the CLOSE position. **PROCEDURE CAUTION** SRV position indication will indicate closed (green light illuminated) on Panel C903 even when the SRV is open. Alternate indications such as SRV tailpipe temperature, Torus water temperature, or the acoustic monitors should be used to verify SRV closure. b) Determine that the valve did not close. c) Direct the NLO to return the ASP control switch to the REMOTE position. d) CHECK "Drywell Equipment Supply Pressure" indication on Panel C7 and determine pressure is normal 7) Report EOP-03 entry condition when Torus Temperature exceeds 80 degrees.
	RO	**Power Reduction IAW PNPS 2.1.14 Section 7.11.** **APPLICABLE PROCEDURE CAUTIONS** During manual run back of Recirculation Pump flow with Reactor power above the 60% load line, closely monitor the PNPS Power to Flow Map and exercise care to avoid entry into the Buffer Zone. 8) If the reactor is above the 60% load line reduce power by reducing core flow to the power level directed. a) Does not lower flow to <43 Mlb/hr 9) If additional power reduction is directed commence inserting the RPR array IAW the RPR array instruction sheet until the desired

Op Test No.: 2014 Scenario # 3 Event # 6			Page 18 of 28
Event Description: SRV Fails Open. PNPS 2.4.29, Stuck Open SRV			
Time	Position	Applicant's Actions or Behavior	
		power reduction is achieved.	
	SRO	10) Direct that the reactor be manually scrammed when it has been determined that the SRV cannot be closed	
	RO	11) Insert a manual scram signal	
Evaluator Note:	*A high power ATWS will result when the operator scrams the reactor*		

Op Test No.: 2014 Scenario # 3 Event # 7, 8	Page 19 of 28
Event Description: Hydraulic Lock ATWS following manual scram SBLC Pump Squib Valve Failure	

Time	Position	Applicant's Actions or Behavior
IOS Instructions: 1. None. Malfunctions for the ATWS were pre-inserted via the Initial Condition Steps.		
	RO	1) Report that APRMs are not downscale and that many rods did not insert.
	SRO	2) Enter EOP-01 initially, then exit and Enter EOP-02
EOP-02, RPV Control Failure to Scram, Initial Actions		
	RO	3) Place mode switch to shutdown 4) Initiate ARI 5) Reduce Recirc Pump speed to minimum 6) Trip or verify tripped both Recirc pumps 7) Report reactor power level to SRO *(Evaluator Note: The above actions are Immediate Actions from PNPS 5.3.23, Alternate Rod Insertion and also the initial actions of EOP-02, Power Leg)*
	SRO	8) Verify initial actions of EOP-02 power leg 9) Direct pressure be controlled 900 – 1050 psig 10) Direct RPV level be controlled -20 to + 10 inches *(Examiner Note: The control bands above are specified in procedure 5.3.35.2)* 11) Direct verification of Isolations, ECCS initiations EDG initiation 12) Direct ADS be inhibited 13) Contact I&C or other operations personnel and direct bypassing MSIV low water level isolation
IOS Instructions: 2. When directed to bypass the MSIV Lo-Lo level isolation, wait 3 minutes and then defeat the isolation using remote functions.		
	RO	14) Set FWLC Master Controller to +5 to control water level in

Op Test No.: 2014 Scenario # 3 Event # 7, 8

Event Description: Hydraulic Lock ATWS following manual scram
SBLC Pump Squib Valve Failure

Time	Position	Applicant's Actions or Behavior
		specified band.
	BOP	15) Report Group 2, 6 isolations, RBIS and Standby Gas Treatment Start 16) Inhibit ADS
Critical Task #1	**Inject SBLC before torus water temperature exceeds the BIIT or in response to core oscillations.**	
	SRO	17) Direct that Standby Liquid Control be injected
	RO	18) START one SLC System by placing the SLC ACTUATE switch to "SYS A" OR "SYS B" position at Panel C905. 19) VERIFY the following: a) Alarm "SQUIB VLV CONTINUITY FAILURE" (C905R-A9) is ON. b) SQUIB VALVE CONTINUITY light for the selected system is OFF. c) Red STANDBY LIQUID CONTROL PUMP A or PUMP B motor running light for the selected system is ON. d) Reactor Cleanup System isolation
	RO	e) Determine that the pump discharge pressure rises to significantly greater than RPV pressure (>1400 psig) f) Diagnose that the Squib valve has failed to fire and the pump is discharging through the relief valve. g) Start the remaining train by placing the control switch to the other System.
		h) Verify Reactor power decreasing. i) Verify Decreasing level on Storage Tank Level indicator [LI-1140-2 (STOR TK LVL) on Panel C905]. j) Verify "STORAGE TANK LEVEL HI/LO" (C905R-C9) alarm is ON after a time delay

Op Test No.: 2014	Scenario # 3	Event # 7, 8	Page 21 of 28
Event Description:	Hydraulic Lock ATWS following manual scram SBLC Pump Squib Valve Failure		

Time	Position	Applicant's Actions or Behavior
Critical Task #2	**During failure to scram conditions terminate and prevent injection from all sources (except CRD, RCIC, and SBLC) and lower level to < -25 inches prior to recommencing injection.**	
	SRO	20) Direct all injections to the RPV be stopped and prevented except boron, RCIC and CRD: 21) Direct that level be lowered to less than –25"
	RO	22) Terminate Feedwater as follows: a) CLOSE the Feedwater Regulating Valves AND CLOSE the Startup Feedwater Regulating Valve. (It IS NOT necessary to secure feed and condensate pumps at this time.) b) FV-642A, Feedwater Regulating Valve "A" c) FV-642B, Feedwater Regulating Valve "B" d) HIC-640-20, Startup Reg Flow Control e) 1st Point Heater Outlet Block Valve MO-3479 f) 1st Point Heater Outlet Block Valve MO-3480 23) Report when level is less than –25"
	BOP	24) Terminate ECCS as follows: a) IF HPCI IS NOT running, THEN PLACE the Aux Oil Pump (P-229) in the PULL-TO-LOCK position. b) PLACE RHR Pumps and Core Spray pumps in the PULL-TO-LOCK position. *(Examiner Note: Procedure 5.3.35.1 allows leaving RHR pumps in containment control modes provided that they are secured before RPV pressure lowers to the injection pressure – 300 psig)*
	SRO	25) Direct injection be re-established to maintain level < -25 inches using outside the shroud injection systems *(Evaluator Note: Use of the Feed system is expected)*
	BOP/RO	26) Recommence injection as directed

Op Test No.: 2014	Scenario # 3 Event # 7, 8	
Event Description:	Hydraulic Lock ATWS following manual scram SBLC Pump Squib Valve Failure	

Time	Position	Applicant's Actions or Behavior
	SRO	27) May expand the water level control band to -100 inches to -150 inches using the Fuel Zone Level indicators following defeat of the MSIV Lo-Lo isolation. *(Examiner Note: The above action is recommended in procedure 5.3.35.2)*
Critical Task #3	**During failure to scram conditions, insert control rods using one or more methods contained within 5.3.23 and / or EOP-02 to achieve Rx. Shutdown under all conditions** *(Evaluator Note: All of the grey items below are expected. However this critical task should be evaluated as satisfactory if the Reactor is Shutdown under all conditions via the existing control rod pattern when the scenario is terminated)*	
	RO	28) Notify Reactor Engineering of the event.
IOS Instructions: 3. When directed to close the CRD 25 valve via the next step, role play as a NLO, wait ~ 3 minutes and then close the valve using the remote function.		
	RO	**Actions to Manually Drive Rods Via Reactor Manual Control** 29) Insert control rods as follows: a) VERIFY RUNNING OR START one CRD Pump. b) CLOSE 301-25, CRD Charging Water Supply Valve (CRD Mezzanine). c) BYPASS the Rod Worth Minimizer. (Panel C904, spare key CR-10) **PROCEDURE CAUTION** The combination of Reactor pressure and Drive Water Differential Pressure should not be allowed to exceed 1750 psig. d) INCREASE Drive Water Differential Pressure to 400 psid by throttling closed MO-302-8, DRIVE WTR PCV (Panel C905). e) Drive Water Differential Pressure may be increased in 50 psi increments up to a maximum of 600 psid as needed to facilitate rod insertion.

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Event Description:	Hydraulic Lock ATWS following manual scram SBLC Pump Squib Valve Failure	

Time	Position	Applicant's Actions or Behavior
		f) RAPIDLY INSERT all steps of the RPR Array using the EMERG. IN switch i) LIMIT the duration of the insert signal for each rod to ≤ 2 minutes. g) WHEN all control rods of the RPR Array have been inserted/attempted inserted, THEN INSERT the remaining control rods as follows: i) SELECT control rods not fully inserted. ii) INSERT control rods to form a checkerboard in a spiral pattern from the outside to the center. 30) AFTER the checkerboard pattern is formed, THEN INSERT the remaining control rods in a spiral pattern from the outside to the center.
IOS Instructions: 4. When directed to defeat the RPS and ARI via the following operator actions, wait 5minutes and then report that RPS and ARI have been defeated.		
		Actions to Perform Repeated Scrams
	RO	31) PERFORM repeated manual Scrams as follows: a) Direct I&C or other operations personnel to DEFEAT RPS and ARI logic trips in accordance with Attachments 1 and 2. b) IF Reactor pressure is less than 800 psig, THEN: i) VERIFY RUNNING OR START one CRD Pump. AND ii) OPEN 301-25, CRD Charging Water Supply Valve (CRD Mezzanine). *(Evaluator Note: Pressure is not expected to lower below 800 psig.)* c) When notified that RPS is defeated RESET the Scram. d) VERIFY the Scram is reset: e) PLACE the AIR DUMP SYSTEM TEST SWITCH to "ISOLATE" (Panel C905).

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Event Description:	Hydraulic Lock ATWS following manual scram SBLC Pump Squib Valve Failure	

Time	Position	Applicant's Actions or Behavior
		f) VERIFY alarm "SPVAH PRESSURE LO" (C905R-F1) clears. g) PLACE the AIR DUMP SYSTEM TEST SWITCH to "NORM". *(Examiner Note: It will take ~ 1 minute for this alarm to clear)* h) VERIFY that one of the following conditions exists: i) "SDIV LEVEL HI" (C905R-D3) is CLEAR. OR ii) "SDIV EAST NOT DRAINED" (C905R-G4) AND "SDIV WEST NOT DRAINED" (C905R-G1) are CLEAR. *(Evaluator Note: This will be the 1st condition satisfied)* OR iii) Five minutes have elapsed since the SDIV vent and drain valves were opened. i) INITIATE a manual Scram. j) IF control rods move inward, THEN REPEAT Steps until all rods are fully inserted control rods do not move inward.
	Follow-up Actions	
	BOP	32) Report when "A" SRV closes *(Evaluator Note: The SRV closes when RPV pressure lowers to 850 psig)* 33) Report when Torus Water Temperature exceeds the EOP-03 entry condition of 80 °F.
	RO	34) Report when all control rods are inserted.
	SRO	35) Direct an alternate means of pressure control when the SRV closes 36) Enter EOP-03 based on Torus Water Temperature 37) Direct that Torus cooling be maximized 38) When informed that all rods are inserted, a) Direct that SBLC be secured Exit EOP-02 and enter EOP-01

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Event Description: Hydraulic Lock ATWS following manual scram SBLC Pump Squib Valve Failure	

Time	Position	Applicant's Actions or Behavior
		b) Direct that level be restored to normal range c) Direct that a plant cooldown be commenced
	RO	39) Restore RPV level to +12 to +45 inches using Condensate and Feed
Evaluator Note:		*The RBCCW loops are cross-tied. The crew may decide to place only the "B" Loop of RHR in Torus Cooling, as they may be unable to maintain adequate RBCCW loop pressures if cooling water is applied to both RHR heat exchangers.* *Additionally PNPS 5.3.35.2, Attachment 12 prohibits cross-tying RBCCW if Torus water temperature is ≥ 130°F. However Torus water temperature is not expected to get this high due to the availability of the main condenser.*
	BOP	**Maximize Torus Cooling Action** **APPLICABLE PROCEDURE CAUTION** If erratic fluctuations in discharge pressure, flow, and pump motor current occur, then potential blockage of ECCS suction strainers may exist. Consult PNPS 2.2.19.5 Attachment 8 to recognize and mitigate suction strainer blockage. **[NRC Bulletin 93-02]** 40) MAXIMIZE RBCCW cooling in accordance with Attachment 12. (This step may be performed at any time during the performance of this Attachment.) APPLICABLE PROCEDURE NOTE To facilitate the establishment of Torus Cooling/Sprays, MO-4060A, MO-4060B (MO-4010A, MO-4010B) may initially be partially opened to establish RBCCW cooling flow to the RHR heat exchanger. However, in the final system alignment, the selected valves should be full open. 41) OPEN/VERIFY OPEN MO-4060A AND/OR MO-4060B (MO-4010A AND/OR MO-4010B), RHR RBCCW HX A (B) Inlet Valves. 42) IF it is necessary to override LPCI initiation signals, THEN .... *(Evaluator Note: LPCI initiation signals are not expected)* 43) OPEN/VERIFY OPEN MO-1001-34A (B), Torus Cooling/Spray

Op Test No.: 2014	Scenario # 3	Event # 7, 8	
Event Description:	Hydraulic Lock ATWS following manual scram SBLC Pump Squib Valve Failure		

Time	Position	Applicant's Actions or Behavior

Block Valve.

44) START/VERIFY STARTED one RHR Pump per loop.

45) THROTTLE OPEN/VERIFY OPEN MO-1001-36A (B), Torus Cooling Valve, AND, IF required, RAISE flow to 4500 to 4800 GPM on FI-1040-11A (B) and/or FI-1040-12A (B).

46) CLOSE MO-1001-18A (B), Pump Min Flow Valve.

PROCEDURE NOTES

The closure of the RHR HX Bypass Valve (MO-1001-16A/B) may be delayed for any of the following:

- For placing the opposite RHR loop in Torus Cooling.
- For spraying the Torus.
- For spraying the Drywell.
- At the discretion of the SM/CRS for expediting execution of the EOPs based on prioritization.

If the closure of the RHR HX Bypass Valve is delayed, then be aware that the maximum cooling configuration for the RHR System in the Torus Cooling or Containment Spray mode

PROCEDURE CAUTION

The closure of the RHR HX Bypass Valve (MO-1001-16A/B) with two RHR Pumps operating in the same RHR loop may cause heat exchanger damage/failure.

47) CLOSE MO-1001-16A (B), RHR HX A (B) Bypass Valve. [9]
THROTTLE MO-1001-36A (B), Torus Cooling

48) Valve, as required to establish loop flow on FI-1040-11A (B) and/or FI-1040-12A (B) at approximately 4800 to 5000 GPM.

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Event Description:	Hydraulic Lock ATWS following manual scram SBLC Pump Squib Valve Failure	

Time	Position	Applicant's Actions or Behavior
	BOP	**Maximize RBCCW Cooling Actions** APPLICABLE PROCEDURE NOTE If only one loop of RHR and/or RBCCW is available, then RBCCW flow is to be maximized only for the available loop. 49) START/VERIFY STARTED two RBCCW Pumps in RBCCW Loop "B" 50) PLACE the remaining RBCCW Pump in the affected loop(s) in "PULL-TO-LOCK". 51) START/VERIFY STARTED two SSW Pumps in SSW Loop "B" 52) FULLY OPEN MO-3806 for Loop "B", RBCCW Heat Exchanger SSW Outlet Valves. 53) LOWER RBCCW loop temperature controller setpoint to less than 50°F AND/OR CLOSE the following: • Loop B; MO-4083, RBCCW Heat Exchanger B Bypass Valve 54) FULLY OPEN/VERIFY OPEN the following valves to provide cooling water to the appropriate RHR heat exchanger: • Loop B; MO-4010A **OR** MO-4010B, RHR RBCCW HX B Inlet Valve

The scenario may be terminated at the discretion of the Lead Examiner OR when RPV level has been restored to between +12 and +45 and a cooldown has been initiated.

SHIFT TURNOVER SHEET

- RX power is 100%.
- A plant shutdown has been directed by plant management due to rising drywell leakage. Unidentified leakage has risen by 1.6 gpm over the last 24 hours. Unidentified leakage is currently 3.8 gpm.
- "B" CS pump is OOS to allow for replacement of the pump's breaker charger motor. The plant is on day 2 of a 7 day LCO IAW TS 3.5.A.2 due to the CS breaker repair.
- APRM "C" has failed upscale and is bypassed. All other APRMs are operable and a Tracking LCO has been initiated.
- PNPS 2.1.5, Controlled Shutdown From Power, Section F has been initiated. Preliminary de-inerting activities have commenced but actual de-inertion has not yet started
- I&C has just completed the IRM and SRM calibrations IAW PNPS 2.1.5, Section F, steps [2](b) and (c).
- The directions to the shift are to:
    - Commence de-inerting the containment beginning at step [6] of PNPS 2.2.70, Attachment 11, section 4.1. Use the "B" SBGT Train only.
    - When de-inerting has commenced, begin the power reduction. ISO NE has been notified of the power reduction.
    - The Shift Manager has determined that it is not necessary to place a FRV in manual.