Facility: PILGRIM Task No.:

Task Title: Perform Section of Control Room Readings PNPS 2.1.35 ATT.2 JPM No.: 2009 NRC RO JPM COO2

K/A Reference: 2.1.18 3.6

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is operating at 100% power.

Task Standard: Determines that 5 readings are OOS

Required Materials: N/A

General References: PNPS 2.1.35 Att.2

Initiating Cue: You are directed to complete the 0800 – 1200 control room readings IAW PNPS 2.1.35 Att.2.

Time Critical Task: NO

Validation Time: 15 minutes

SIMULATOR SETUP

1. Initialize simulator to IC14.

2. Using Instructor Overrides set the following control room indications to the values below
   - C905: CRD MTR CURRENT PUMP A – 39 amps
   - C904: RWCU NON-REGEN OUTLET TEMP (PT #3) TI-1290-21 - 130 degrees
   - C2: CONTROL OIL PRESS (PI-4405) – 205 PSI (Adjust Control Room Indication until it reads 205)
   - CST Tank level “A” LI-3503 – 28.5, “B” LI-3508 – 29
   - Execute LP #5, Control Room Log Readings (NRC09 Config.)

(Critical Steps denoted with a check (√) mark)

START TIME: _____

Performance Step: 1 Reviews PNPS 2.1.35, Att.2

Standard: Obtains PNPS 2.1.35, Att.2

Comment: **Provide candidate with 2.1.35 Att.2**

√ **Performance Step: 2** Records Control Room readings

Standard: Determines that CST TANK A LI-3503 is OOS low (28.5 Ft)

Comment:

√ **Performance Step: 3** Records Control Room readings

Standard: Determines that CST TANK A LI-3508 is OOS low (29 Ft)

Comment:

√ **Performance Step: 4** Records Control Room readings

Standard: Determines that C2: CONTROL OIL PRESS (PI-4405) – 205 PSI, is OOS Low

Comment:

√ **Performance Step: 5** Records Control Room readings

Standard: Determines that C905: CRD MTR CURRENT PUMP A – 39 amps, is OOS High

Comment:

√ **Performance Step: 6** Records Control Room readings

Standard: Determines that C904: RWCU NON-REGEN OUTLET TEMP (PT #3) TI-1290-2 – 130 Degrees F, is OOS Low

Comment:

√ **Performance Step: 7** Reads Step on page 14 to perform a back panel walkdown

Standard: Walks to back panel for a walkdown.

CUE: **Another operator will complete that task**

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

STOP TIME: _____ _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 NRC JPM RO COO2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: The plant is operating at 100% power.

INITIATING CUE: You are directed to complete the 0800 – 1200 control room readings IAW PNPS 2.1.35 Att.2.

Facility:	PILGRIM	Task No.:	
Task Title:	Recirc Pump Speed & Jet Pump Operability Surveillance Check	JPM No.:	2009 NRC RO JPM EC
K/A Reference:	2.2.12 3.7		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is operating at 90% power following a reactor plant startup 2 days ago. Daily Log Tests 17 & 17A have not yet been completed.

Task Standard:	Determines that
Required Materials:	N/A
General References:	PNPS 2.1.15 Daily Log Test 17 & 17A
Initiating Cue:	You are directed to perform PNPS 2.1.15 Daily Log Test 17 & 17A for Recirc Pump Speed and Jet Pump Operability and determine if acceptance criteria is met.
Time Critical Task:	NO
Validation Time:	15 minutes

SIMULATOR SETUP

1. Initialize simulator to IC14
2. Insert Malfunction RR19, Jet Pump Riser Failure
3. Allow Simulator to stabilize
4. Verify Epic is operating

(Critical Steps denoted with a check (√) mark)

START TIME: _____

Performance Step: 1 Obtains PNPS 2.1.15 Daily Log Test 17 & 17A

Standard: Reviews PNPS 2.1.15 Daily Log Test 17 & 17A

Comment: **Provide candidate with BLANK copy of PNPS 2.1.15 Daily Log Test 17 & 17A**

√ **Performance Step: 2** IAW Daily test #17- Log Pump speeds

Standard: Determines acceptance criteria is met and no corrective action is required

Comment: **Refer To Key for Actual Values**

Performance Step: 3 IAW Daily Test #17A – logs recirc pump speeds

Standard: Records readings on Attachment 1

Comment: **Refer to Key for Actual Values**

√ **Performance Step: 4** IAW Daily Test #17A – records recirc loop flows. Determines if Recirc Pump Loop Flows are within predicted limits of Table 17A.

Standard: Records readings and, using tables, determines that recirc pump loop flow is within the predicted limits for the current recirc pump speed.

Comment: **Refer to Key for Actual Values**

√ **Performance Step: 5** IAW Daily Test #17A – records actual Jet Pump loop flows. Determines if Jet Pump Loop Flows are within predicted limits of Table 17A.

Standard: Records readings and, using tables, determines that Jet Pump loop flow is outside the predicted limits for the current recirc pump speed.

Comment: **Refer to Key for Actual Values**

√ **Performance Step: 6** Reviews previous steps to determine overall status of test.

Standard: Determines that the Jet Pump Loop Flow too Speed Ratio differs by >5% and marks Step #7(b) as FAILED

Reports results to CRS (evaluator)

Comment: **Refer to Key for Actual Values**

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

STOP TIME: _____ _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 NRC JPM RO EC

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: The plant is operating at 90% power following a reactor plant startup 2 days ago. Daily Log Tests 17 & 17A have not yet been completed.

INITIATING CUE: You are directed to perform PNPS 2.1.15 Daily Log Test 17 & 17A for Recirc Pump Speed and Jet Pump Operability and determine if acceptance criteria is met.

Facility:	PILGRIM	Task No.:	NEW
Task Title:	Determine Offsite Release Rate IAW PNPS 2.1.15 Daily Log Test #34.	JPM No.:	2009 NRC JPM RO RC
K/A Reference:	K/A: 2.3.11 (3.8) Ability to control radiation releases.		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: ____ Actual Performance: X

Classroom ____ Simulator X Plant ____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: Plant conditions are as follows:

- The plant is at power with indications of as fuel element failure present.
- A plant shutdown is in progress.

Task Standard:

Completes daily Log Test #34 and determines that an ODCM limit has been exceeded and informs CRS.

Note:

Required Materials: PNPS 2.1.15 Att.2 Page 109 of 150

General References: PNPS 2.1.15 Att.2

Initiating Cue: You are directed to determine Offsite Release Rate IAW PNPS 2.1.15 Daily Log Test #34

Time Critical Task: NO

Validation Time: 15 minutes

SIMULATOR SETUP

1. Using detector failure malfunctions:

    a. Set Rx Bld Vent Rad Monitor 32A to 608
    b. Set Rx Bld Vent Rad Monitor 32B to 589
    c. Set Main Stack Rad Monitor 18A to 6095
    d. Set Main Stack Rad Monitor 18B to 5988

2. Verify EPIC is operating and that:

    a. Main Stack release rate is ~ 36,000 uCI/sec
    b. Reactor Building release rate is ~ 4000 uCi/sec

3. Note: it will take ~ 2 minutes for EPIC readings to stabilize.

(Denote Critical Steps with a check mark)

START TIME: _____

Performance Step: 1	Obtain and review PNPS 2.1.15 , Att.2 Daily Log Test #34
Standard:	Obtains and reviews PNPS 2.1.15 , Att.2 Daily Log Test #34
Comment:	

Performance Step: 2	Obtain & Record Main Stack Monitor readings from RM-1705-18A & RM-1705-18B from Panel C910
Standard:	Obtains & Records Main Stack Monitor readings from RM-1705-18A & RM-1705-18B from Panel C910
Comment:	**SEE KEY for correct values**

Performance Step: 3	Obtain & Record Reactor Building Vent Monitor readings from RM-1705-32A & RM-1705-32B from Panel C910
Standard:	Obtains & Records Reactor Building Vent Monitor readings from RM-1705-32A & RM-1705-32B from Panel C910
Comment:	**SEE KEY for correct values**

Performance Step: 4	Compare Channel A readings against Channel B readings for agreement (< 50% delta)
Standard:	Compares Channel A readings against Channel B readings for agreement (< 50% delta)
Comment:	**SEE KEY for correct values**

Performance Step: 5	Mark the intersection of the measured points on Graph Figure 4 (Gross Activity Release Limit)
Standard:	Mark the intersection of the measured points on Graph Figure 4 (Gross Activity Release Limit)
Comment:	**SEE KEY for correct values**

Performance Step: 6	Determine that the ODCM limit has been exceeded Inform CRS
Standard:	Determines that the ODCM limit has been exceeded and informs CRS.
Comment:	

Performance Step: 7	Obtain and Record Main Stack Recorder Reading RR-1705-19 – Channel A (RED) and Channel B (BLUE).
Standard:	Obtains and Records Main Stack Recorder Reading RR-1705-19 – Channel A (RED) and Channel B (BLUE).
CUE:	If candidate does not report status of readings, ask for the results.
Comment:	**SEE KEY for correct values**

Performance Step: 8	Obtain and Record Rx Building Vent Recorder Reading RR-1705-24 – Channel A (RED) and Channel B (BLUE).
Standard:	Obtains and Records Rx Building Vent Recorder Reading RR-1705-24 – Channel A (RED) and Channel B (BLUE).
CUE:	If candidate does not report status of readings, ask for the results.
Comment:	**SEE KEY for correct values**

Performance Step: 9	Compare Recorder reading to Rad Monitor reading for the Main Stack and then the Rx Building Vent Rad Monitors
Standard:	Compares Recorder readings to Rad Monitor readings for the Main Stack and then the Rx Building Vent Rad Monitors Determines they are within agreement
Comment:	**SEE KEY for correct values**

Performance Step: 10	Initial Performed By and submit for review
Standard:	Initials Performed By and submit for review
Comment:	

Terminating Cue: **The JPM is complete after the candidate discusses their findings.**

STOP TIME: _____ **TIME CRITICAL STOP TIME:** _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 AUDIT JPM RO RC

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

Initial Conditions: Plant conditions are as follows:

- The plant is at power with indications of as fuel element failure present.
- A plant shutdown is in progress.

Initiating Cue: You are directed to determine Offsite Release Rate IAW PNPS 2.1.15 Daily Log Test #34

Facility: PILGRIM Task No.:

Task Title: Verify Recombiner Operation JPM No.: 2009 NRC RO/SRO JPM COO1

K/A Reference: 2.1.25 2.8 / 3.1

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is operating at 50% power. High hydrogen concentration is occurring downstream of the AOG Recombiners.

Task Standard: Determines recombiner delta-temperature indicates recombiner is overheated.

Required Materials: N/A

General References: PNPS 2.4.141

Initiating Cue: You have been directed to perform PNPS 2.4.141 “Abnormal Recombiner Operation”.

SRO ONLY - Take appropriate actions for abnormal conditions, if any.

Time Critical Task: NO

Simulator Booth: **TAKE SIMULATOR OUT OF FREEZE**

Validation Time:

SIMULATOR SETUP

1. Initialize simulator to 50% power.

2. Insert Instructor Overrides on CP600 Hydrogen Recorder AR-R603 so that both channels indicate 2.80%

3. Turn on CP-600L Alarms:
   A-7 “H2 Analyzer A H2 CONC HI”
   B-7 “H2 Analyzer B H2 CONC HI”

4. Turn off CP-600L Alarm:
   A-8 “ After CNDSR LOOP SEAL LVL HILO”

5. Insert malfunction **OG05** “Water In Offgas System”. Allow the simulator to run until the Recombiner Exit temperature, Pt.5 on Recorder TR-9250, Lowers to < 425 degrees.

6. Freeze Simulator

7. Place Danger tags on the MO-9205 and MO-9204.

8. Ensure Preheater exit temperature is >350 degrees (procedure NOTE at step 4.2 [1])

(Critical Steps denoted with a check (√) mark)

START TIME: _____

Performance Step: 1 Section 3.0 – If the recombiner temperature exceeds 1000 degrees F AND a reactor scram has not been initiated, THEN SCRAM the reactor AND ENTER PNPS 2.1.6, “Reactor Scram”.

Standard: Determines that temperature has not exceeded 1000 degrees and a reactor scram is not required.

Comment: **Recombiner temperature can be determined at point 5 on recorder TR-9250.**

Performance Step: 2 Proceeds to PNPS 2.4.141 Section 4.2 - High Hydrogen Concentration Downstream of the Recombiners.

Standard: Enters PNPS 2.4.141 Section 4.2

Comment:

√ **Performance Step: 3** Section 4.2 Step [1] - TRIP the ETS using "ETS SHUTDOWN" push button on Panel CP600.

Standard: Depresses "ETS SHUTDOWN" pushbutton

Comment:

SIM BOOTH: Ensure Preheater exit temperature is >350 degrees

NOTE

Reducing Reactor power will reduce recombiner exit temperature by reducing hydrogen production. Preheater exit temperature should be greater than 350°F at 100% power.

Performance Step: 4 Section 4.2 Step [2] - If both H2 analyzers are indicating greater than or equal to 4%....

Standard: Reviews above NOTE.

Determines that both H2 analyzers are not greater than 4% and continues in procedure

Comment:

√ **Performance Step: 5** Section 4.2 [3] - Verify recombiner operation for the power level being maintained by referring to Att. 1 or Att. 2 as applicable.

Standard: Evaluates recombiner delta-temperature utilizing Att. 1 and determines recombiner delta-temperature is in the questionable region of the graph.

Reports results to CRS (examiner)

Evaluator Note: For Att.1, Recombiner ΔT is determined by subtracting Preheater Exit Temperature (Indicator TI-R601A) from Recombiner TOP Temperature (Point 5 on Recorder TR-9250). Reactor power is provided in the initiating cue.

This will result in a point residing in the questionable region of the graph.

Comment: NOTE **The procedure step states to use Att.1 OR Att.2. Prompt candidate to evaluate using both graphs if only one is used.**

√	**Performance Step: 6**	Evaluate recombiner delta-temperature utilizing Attachment 2
	Standard:	Determines recombiner delta-temperature is below the Low Limit of the graph Reports results to CRS (examiner)
	Evaluator Note:	For Att.2, Recombiner temperature is read on Recorder TR-9250 Point 5. Reactor power is provided in the initiating cue. This will result in a point residing below the Low Limit line on the graph.
	Comment:	**Termination for RO ONLY, SRO continues to next step**
	Performance Step: 7	Direct placing the standby recombiner in service.
	Standard:	AOG will be directed to be bypassed IAW PNPS 2.2.106 while maintaining steam dilution and air purge through the recombiner and the charcoal beds
	Cue:	If the standby recombiner is directed to be placed in service, **"the 'B' recombiner is unavailable"**
√	**Standard:**	Direct maintaining steam dilution and air purge on the 'A' recombiner.
	Cue:	**An operator has been assigned to initiate air purge on 'A' recombiner and the charcoal beds.**
	Evaluator Note:	The candidate may indicate a power reduction is necessary when performing the following step. If so, it has been directed to the 905 operator.
√	**Standard:**	Direct bypassing the AOG system IAW PNPS 2.2.106
	Cue:	**An operator is bypassing AOG IAW PNPS 2.2.106**

√ **Performance Step: 8** Procedure Step 4.2 [5]a,b,c - whenever the H2 concentration downstream of the recombiner is greater than or equal to 2% continuously monitor:

(a) Differential pressure on PRE-FILTER D/P Indicator DPIS-R611 and OFF-GAS FILTERS D/P Indicator DPIS-R616 on Panel CP600

(b) System pressure

(c) Indications on RECOMBINER and ADSORBER TEMPERATURES Recorder TR-9250 and ADSORBER VAULT TEMP Recorder TRS-R615 on Panel CP600

Standard: Continuously monitors above parameters at step at Panel CP 600.

Comment:

√ **Performance Step: 9** Step 4.2 [5]d,e - whenever the H2 concentration downstream of the recombiner is greater than or equal to 2% continuously monitor:

(d) Temperature drop across vault refrigeration unit

(e) Offgas flow rate

Standard: Directs a field operator to continuously monitor the parameters for recombiner operations locally at Panel C75.

Comment: **SRO termination of the JPM.**

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

STOP TIME: _____ _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 NRC JPM RO/SRO COO1

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: The plant is operating at 50% power. High hydrogen concentration is occurring downstream of the AOG Recombiners.

INITIATING CUE: You have been directed to perform PNPS 2.4.141 “Abnormal Recombiner Operation”.

SRO ONLY - Take appropriate actions for abnormal conditions, if any.

Facility: PILGRIM Task No.:

Task Title: Perform & Assess requirements for a Recirc Pump Start JPM No.: 2009 NRC SRO JPM COO2

K/A Reference: 2.1.7 4.7

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: "B" Recirc MG Set tripped 2 days ago and single loop operations were commenced.

The Recirc MG Set fault has been repaired and preparations are underway to restart the "B" Recirc MG set IAW Section 7.4 of 2.2.84 "Reactor Recirculation System".

EPIC is not available.

Task Standard: Determines that TS limitations have been eclipsed and are not satisfied at this time to permit a pump start.

Required Materials: N/A

General References: PNPS

Initiating Cue: You are directed to perform PNPS 2.2.84 Att [5] Section B for temperature limits in preparation for the start of "B" Recirc Pump.

Time Critical Task: NO

Validation Time: 15 minutes

SIMULATOR SETUP

1. Initialize simulator to IC12

2. Trip “B” Recirc pump manually and close the discharge valve

3. Manipulate “A” Recirc & Rods such that:
   - Core Flow is between 27.6 and 36 mlbm/hr
   - Core Operating Point is outside of the Buffer Region

4. Insert Instructor Overrides such that:
   - “B” Recirc Loop suction temp is 65 degrees less than the “A” Recirc Loop suction temp as indicated on TR-260-151 A/B
   - Vessel Bottom head drain temp (Pt.3 on TR-263-104) is 170 degrees below current vessel saturation temperature

5. Shutdown EPIC using remote function

6. Ensure that operating recirc pump speed is <50%

6. Freeze the simulator

START TIME: _____

Performance Step: 1 Obtains PNPS 2.2.84, Att.5

Standard: Reviews Limitations of PNPS 2.2.84, Att.5

Comment: **Provide candidate with blank copy of PNPS 2.2.84**

Attachment 5 Steps

√ **Performance Step: 2**

(a) **RECORD** the following data:

(1) Vessel Dome Pressure _____ psig

(2) Saturation Temperature _____ °F

(3) Bottom Head Drain Temperature (point 3 on TRU-263-104 or RXX006) _____ °F

(b) **VERIFY** Limitations Step B.[1](a) is met. _____ CRS Init

Standard: Records data & determines that limitations of Step B. [1](a) are NOT met.

(a) The Reactor Recirculation Pumps shall not be started **UNLESS** the coolant temperatures between the dome and the bottom head drain are within 145°F (Tech Spec 3.6.A.5).

Per Procedure Note:

NOTE

If required, Bottom Head Drain temperature can be adjusted in accordance with PNPS 2.4.24, *"Reactor Vessel Cold Water Stratification"*, Attachment 1 for Reactor coolant temperature ≥ 212°F.

References PNPS 2.4.24, Att.1 Step 3, and directs raising Bottom Head Flow to RWCU.

CUE: **After the candidate informs you of the requirements of 2.4.24 and directs raising flow, then state that another operator will perform that task and they should continue with this attachment**

Comment: **Bottom Head drain temperature will be approximately 170 degrees below current vessel saturation temperature**

√ **Performance Step: 3**

(c) **RECORD** the following data:

(1) **IF** required, **PERFORM** a controlled heatup of the idle loop in accordance with base document Step 7.4[4]. _____ Initials

(2) Recirculation loop temperature on idle pump _____ °F

(3) Recirculation loop temperature on operating pump _____ °F

(d) **VERIFY** Limitations Step B.[1](b) is met. _____ CRS Init

Standard: Records the data and determines that the limitations of Step B.[1](b) are not met.

(b) The pump in an idle Recirculation Loop shall not be started **UNLESS** the temperature of the coolant within the idle Recirculation Loop is within 50°F of Reactor coolant temperature (Tech Spec 3.6.A.4 also meets the intent of FSAR Section 4.3.7).

References and directs step 7.4[4] for controlled heatup of idle loop (below)

[4] **IF** the pump to be started requires a controlled heat up to ensure compliance with Technical Specifications Sections 3.6.A.4 and 3.6.A.5, **THEN ESTABLISH** a heatup rate (not to exceed 50°F/hour) as follows:

(a) **RECORD** initial data on Section C of Attachment 5 (OPER-19).

(b) **CRACK OPEN** MO-202-5A (B), Pump Disch Vlv.

(c) **IF** the heatup rate becomes excessive, **REDUCE** flow through the pump by throttling **OR** closing MO-202-5A (B), Pump Disch Vlv.

(d) **RECORD** data every 15 minutes until temperature has stabilized for three consecutive readings on Section C of Attachment 5 (OPER-19).

CUE: **If the candidate directs actions in 7.4, State that another operator will perform that task and they should continue with this attachment.**

Comment: **"B" Recirc Loop suction temp will be approximately 65 degrees less than the "A" Recirc Loop suction temp as indicated on TR-260-151 A/B**

√ **Performance Step: 4** (e) **VERIFY** operating pump speed is less than 50%. _____ CRS Init

Standard: Verifies that operating pump speed is < 50%

Comment: **See key for actual values**

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

STOP TIME: _____ _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 NRC JPM SRO COO2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: "B" Recirc MG Set tripped 2 days ago and single loop operations were commenced.

The Recirc MG Set fault has been repaired and preparations are underway to restart the "B" Recirc MG set IAW Section 7.4 of 2.2.84 "Reactor Recirculation System".

EPIC is not available.

INITIATING CUE: You are directed to perform PNPS 2.2.84 Att [5] Section B for temperature limits in preparation for the start of "B" Recirc Pump.

Facility:	PILGRIM	Task No.:	
Task Title:	Review RBCCW Pump "A" System Quarterly Operability PNPS 8.5.3.1 – Determine pump operability	JPM No.:	2009 NRC SRO JPM EC
K/A Reference:	2.2.12 4.1		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The RBCCW Pump "A" System Quarterly Operability Test - PNPS 8.5.3.1 – has been completed.
All RBCCW System components are operable.

Task Standard: Identify that the pump is inoperable due to not meeting acceptance criteria.

Required Materials: N/A

General References: PNPS

Initiating Cue: Review the RBCCW Pump "A" System Quarterly Operability Test - PNPS 8.5.3.1 – Review Acceptance Criteria and determine pump operability.

Time Critical Task: NO

Validation Time: 15 minutes

SIMULATOR SETUP

N/A

(Critical Steps denoted with a check (√) mark)

START TIME: _____

Performance Step: 1	Obtain RBCCW Pump "A" System Quarterly Operability Test - PNPS 8.5.3.1 Att.1A
Standard:	Obtains RBCCW Pump "A" System Quarterly Operability Test - PNPS 8.5.3.1 Att.1A
Comment:	**Provide completed surveillance to candidate.**

√ **Performance Step: 2** Reviews Acceptance Criteria

P-202A - QUARTERLY AND BIENNIAL COMPREHENSIVE INSERVICE PUMP TESTING DATA SHEET

TEST PARAMETER	REFERENCE VALUE	ACCEPTABLE RANGE	ALERT RANGE		REQ ACTION RANGE		MEASURED VALUE
			LOW	HIGH	LOW	HIGH	
FLOW RATE (GPM)	2050	N/A	N/A	N/A	< 2000	N/A	GPM
SUCT. PRESS. AT 2040 GPM (psig)	36.5	≥ 20	N/A	N/A	N/A	N/A	psig
DISCH. PRESS. AT 2040 GPM (psig)	76.5	N/A	N/A	N/A	N/A	N/A	psig
Quarterly Test TOTAL DYNAMIC HEAD (TDH) AT 2040 GPM (ft)	92.36	83.12 to 101.60	N/A	N/A	< 83.12	> 101.60	%% ft
Bi-Comp Test TOTAL DYNAMIC HEAD (TDH) AT 2040 GPM (ft)	92.36	85.89 to 95.13	< 85.89 to 83.12	N/A	< 83.12	> 95.13	## ft
PUMP INBOARD HORIZ. VIBS (PIH) - VEL (in./sec)	0.0387	≤ 0.097	N/A	> 0.097 to 0.232	N/A	> 0.232	(PIH)
PUMP INBOARD VERT. VIBS (PIV) - VEL (in./sec)	0.0373	≤ 0.093	N/A	> 0.093 to 0.224	N/A	> 0.224	(PIV)
PUMP OUTBOARD HORIZ. VIBS (POH) - VEL (in./sec)	0.040	≤ 0.100	N/A	> 0.100 to 0.240	N/A	> 0.240	(POH)
PUMP OUTBOARD VERT. VIBS (POV) - VEL (in./sec)	0.0368	≤ 0.092	N/A	> 0.092 to 0.221	N/A	> 0.221	(POV)
PUMP OUTBOARD AXIAL VIBS (POA) - VEL (in./sec)	0.0356	≤ 0.089	N/A	> 0.089 to 0.214	N/A	> 0.214	(POA)

Hydraulic and vibration reference values were obtained during conduct of PNPS 8.5.3.18 on 9/23/04.
%% Mark as "N/P" for Bi-Comp Test.
Mark as "N\P" for Quarterly Test.

CALCULATIONS:

TOTAL DYNAMIC HEAD AT 2040 GPM (TDH)

TDH = (Disch Press at 2040 GPM - Running Suction Pressure) X 2.309

TDH = (_____ psig - _____ psig) X 2.309
Discharge Suction

TDH = _____ ft

Standard: 1. Determines that Total Dynamic Head Calculation is incorrect.

2. The correct calculation puts you in the Required Action Range.

3. Determines pump is inoperable

** May reference TS 3.5.B.3 Action A.1. – 7 days, However, this TS does not apply because 2 other RBCCW pumps are operable in the loop (at least 2 required).

Comment: **Items 1, 2 and 3 are Critical Steps – See Key**

√ **Performance Step: 3** Reviews Acceptance Criteria

Standard: 4. Determines Pump Inboard Vertical Vibration is in the Alert Range

Comment: **Item is a Critical Step**

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

STOP TIME: _____ _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 NRC JPM SRO EC

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: The RBCCW Pump “A” System Quarterly Operability Test - PNPS 8.5.3.1 – has been completed.

All RBCCW System components are operable.

INITIATING CUE: Review the RBCCW Pump “A” System Quarterly Operability Test - PNPS 8.5.3.1 – Review Acceptance Criteria and determine pump operability.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
(SRO Only)

TITLE: **EMERGENCY PLAN IMPLEMENTATION**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME #1: **(Assessment and Declaration)**	Required Time (min):	**15**	Actual Time (min):	
CRITICAL TIME FRAME #2: **(Notification of Off-Site Agencies)**	Required Time (min):	**15**	Actual Time (min):	
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

SYNOPSIS: The SRO will assess plant conditions using the information provided, compare plant conditions against the Emergency Action Level (EAL) criteria and declare the appropriate EAL. Following the initial declaration, the SRO will activate the PNPS Emergency Response Organization (ERO) and complete the notification of off-site agencies.

TASK STANDARD: The SRO will declare an Alert based on EAL 7.3.1.2, Aircraft crash on the facility affecting plant operation, within 15 minutes. Following initial declaration the SRO will activate the PNPS ERO and complete the notification of off-site agencies in accordance with EP-IP-100. Notification of off-site agencies shall be completed within 15 minutes of initial declaration.

EVALUATION METHOD:

x Perform
Simulate

EVALUATION LOCATION:

Plant
x Simulator
Control Room

Prepared: _____ **Date:** _____

Reviewed: _____ **Date:** _____

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

REVISION LOG

Revision Number: 0	**Date Originated: 11/20/2008**
Pages Affected: All	Description: New JPM

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Classify events requiring Emergency Plan implementation.	015-05-02-013	Generic 2.4.40	2.7 / 4.5

REFERENCES:

EP-IP-100 Emergency Classification and Notification

SIMULATOR CONDITIONS:

1. The simulator may be initialized to any IC.
2. Using remote function MT22, set outside weather conditions to:
   a) Wind direction on 220 foot met tower: 264 degrees
   b) Wind speed on 220 foot met tower: 13 mph
3. Allow simulator to run a sufficient amount of time to allow the 15 minute averages on the met tower display to stabilize.
4. The Digital Notification System is Operable and in the Training Configuration.

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".

INITIAL CONDITIONS:

1) PNPS was at full power when a load reject and loss of off-site power occurred.
2) All control rods fully inserted.
3) Both Emergency Diesel Generators Started and 4160 VAC buses A5 and A6 have been re-energized. All other 4160 VAC buses have de-energized.
4) The security shift commander has called the control room and reported that a small aircraft crashed into the switchyard and that three 345 KV ACBs have been severely damaged. The aircraft is on fire and off-site fire fighting assistance is recommended. No PNPS equipment is currently engulfed by the fire.
5) Following the scram, RPV Level lowered to - 47 inches. Both RCIC and HPCI auto started and aligned for injection.
6) HPCI was manually shifted to pressure control when RPV level recovered to the normal band.
7) RPV level is currently stable at 20 inches being controlled by RCIC
8) RPV pressure is currently 900 psig and slowly lowering with HPCI in pressure control.
9) The Control Room Supervisor is coordinating overall plant response, including fire brigade response and notification of Plymouth Fire.
10) All containment parameters are normal, with the exception of Torus Water Temperature. Torus Water Temperature has just exceeded 80 degrees.
11) The security shift commander has determined that this is not a security event and that plant access and egress has not been impacted.
12) Weather conditions are as indicated on Panel MT1

INITIATING CUE:

You are the Third SRO on shift. The Shift Manager is incapacitated. Implement the Emergency Plan as required.

PERFORMANCE:

Notes This task is covered in EP-IP 100, Emergency Classification and Notification. Notification of Off-site Agencies will be completed via the Digital Notification Network.

Attachment 2 of this JPM contains the anticipated information to be entered for the initial notification to off-site agencies and may be used as an aid in evaluating the accuracy of the initial notification.

START TIME: _____

CRITICAL TIME FRAME #1 START TIME: _____

1.	**Procedure Step:**	NOTE Procedure steps and Attachments may be performed in parallel when appropriate to facilitate timely notifications. [1] When indications of abnormal conditions are received, personnel will verify the symptoms/indications and then compare them with the Emergency Action Levels (EP-IP-100.1 Attachment 1, Emergency Action Levels).
	Standard	Operator refers to EP-IP-100 to commence the evaluation and concurrent reviews EP-IP-100.1, Attachment 1, Emergency Action Levels.
	Cue	
	Notes	EP-IP-100 is a ”Reference Use” procedure. The operator may go directly to the “EAL Chart” to determine the classification. This is acceptable.
	Results	SAT ☐ UNSAT ☐

2.	**Procedure Step:**	[2] Identify the highest emergency classification level (if multiple EALs are exceeded) for which an EAL has been met or exceeded considering the following: (a) If conditions warrant the issuance of Protective Action Recommendations (PARs), the classification of General Emergency will be made. (b) If plant conditions indicate a possible radiological release or a release is in progress or suspected, evaluate the applicability of offsite dose-based EALs (EAL category 5.2). (c) If a classification level was met or exceeded before it was recognized or declared but the classifiable condition no longer exists (a lesser classification level may or may not still be appropriate), refer to Section 5.4 (Transitory Events).
	Standard	Operator determines that EAL 7.3.1.2, Aircraft crash on the facility affecting plant operation is the highest emergency classification level that has been exceeded.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

3.	**Procedure Step:**	5.2 INITIAL DECLARATION OF AN EMERGENCY FROM THE CONTROL ROOM [1] Announce to the Control Room operating staff: (a) That an emergency has been declared; (b) The emergency classification level; (c) Who has assumed the role of Emergency Director.
	Standard	Operator Announces that: An Alert has been declared due to an Aircraft crash on the facility affecting plant operation at time (current time) and that he/she has assumed the role of the Emergency Director.
	Cue	
	Notes	Expected format of the announcement is in the form of a “Crew Update”. Exact verbiage above is not required provided the information is provided.
	Results	SAT ☐ UNSAT ☐

CRITICAL TIME FRAME #1 END TIME: _____

CRITICAL TIME FRAME #2 START TIME: _____ (Same as Critical Time Frame #1 End Time)

4.	**Procedure Step:**	[2] Conduct initial emergency notifications as follows: (a) If the event involves a security compromise or security considerations, then contact/consult with the Security Shift Commander or Supervisor to determine whether ERO members should be directed to report to their respective Emergency Response Facilities or whether some alternate response is appropriate.
	Standard	Operator determines that event does not involve a security compromise or security considerations and continues to next step.
	Cue	
	Notes	Initial conditions indicated that a security event was not in progress.
	Results	SAT ☐ UNSAT ☐

5.	**Procedure Step:**	(b) If the normal site egress/access point is unavailable for site evacuation, then direct the Security Shift Commander or Security Supervisor to: (1) Contact Maintenance to remove the vehicle barriers blocking either the I&S or Shorefront gates. (2) Dispatch Security personnel to unlock the appropriate gates. (3) Redirect vehicles and personnel as appropriate.
	Standard	Operator determines that normal site egress/access is available and continues to next step.
	Cue	
	Notes	Initial conditions indicated that a security event site egress/access was not impacted by the event.
	Results	SAT ☐ UNSAT ☐

6.	**Procedure Step:**	(c) If the GaiTronics is inoperative during notifications to Station personnel at any time, then determine alternate means to disseminate information to plant personnel.
	Standard	Operator determines that GaiTronics is available and continues to the next step.
	Cue	
	Notes	No indication has been provided to indicate that GaiTronics is unavailable. Operator may do a brief test of the GaiTronics system.
	Results	SAT ☐ UNSAT ☐

7.	**Procedure Step:**	(d) For events which are classified as a General Emergency, complete the General Emergency Notification Checklist (Attachment 4). (e) For events which are classified as a Site Area Emergency, complete the Site Area Emergency Notification Checklist (Attachment 3). (f) For events which are classified as an Alert, complete the Alert Notification Checklist (Attachment 2). (g) For events which are classified as an Unusual Event, complete the Unusual Event Notification Checklist (Attachment 1).
	Standard	Operator continues utilizing Attachment 2 of EP-IP-100.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

8.	**Procedure Step:** **Examiner Note:**	**NOTIFICATION OF STATION PERSONNEL** **CAUTION** During a security threat, it may be advisable **NOT** to sound an alarm. Ensure appropriate message content is prepared before announcement. Sound/have the Control Room sound the Operator Recall Alarm and make the following announcement over the public-address system TWICE: A. "Attention all personnel, attention all personnel: An Alert has been declared due to (*brief description of initiating event*). Members of the Emergency Response Organization *(Choose one:)* (1) Remain in place; await further instructions. (2) Report to your assigned Emergency Response Facility. (3) CR/TSC/OSC staff report to Chiltonville staging area and EOF/Media Center staff report to your assigned Emergency Response Facility. **All visitors, all nonessential contractor personnel, all declared pregnant females, and all persons with disabilities** - *(Choose one:)* (1) Remain in place; await further instructions. (2) Please leave the site at this time." [ ] **The ONLY announcements that apply for this event are:** **Report to your assigned Emergency Response Facility** **AND** **Please leave the site at this time**.
	Standard	Operator: 1. Sounds the Operator Recall Alarm 2. Makes the above announcement over the GaiTronics, specifying that the ERO is to report to their assigned Emergency Response Facility. 3. Directs that all visitors, nonessential personnel, declared pregnant females and disabled personnel leave the site. 4. Repeats the announcement.
	Cue	
	Results	SAT [ ] UNSAT [ ]

9.	**Procedure Step:**	B. If there is a localized emergency (for example; high radiation, fire), announce its type and location and instruct personnel to stand clear of this area. [ ]
	Standard	Operator announces over the GaiTronics that there is a fire in the switchyard and that all unnecessary personnel should stay clear of the area.
	Cue	
	Notes	

	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	C. If there is a potential for an airborne radiological release, consider announcing that there will be no eating, drinking, or smoking until further notice. [ ]
	Standard	Operator determines that there is no potential for airborne release and continues to the next step.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

11.	Procedure Step:	**NOTIFICATION OF THE ERO - EMERGENCY FACILITY ACTIVATION** NOTE If at any time CANS cannot be contacted or does not respond as expected, go to Attachment 10 for backup ERO activation. If all emergency response facilities have been activated and staffed, subsequent CANS activation is not required unless directed by the Emergency Director. (Example includes a change in the ERO response due to a security event - the 3rd digit.) In the event of a security incident, the Shift Manager or Emergency Director and Security Shift Supervisor should be consulted to determine appropriate CANS three-digit activation code and text message. A. If not previously done or it is determined that notification of the ERO needs to be revised from previous CANS messages, obtain the correct CANS three-digit activation code to be sent to the ERO: **1st Digit**: **2** = Alert **2nd Digit:**: **1** = Security Event; **0** = No Security Event **3rd Digit:**: **1** = NOTIFICATION ONLY - NO RESPONSE; **2** = ALL ERO STAFF SHOULD RESPOND TO THEIR ASSIGNED EMERGENCY RESPONSE FACILITIES.; **3** = CR/TSC/OSC staff should respond to the staging area (Chiltonville). EOF/Media Center staff should report to the EOF/Media Center. ERO staff should NOT report to the site.; **4** = ERO staff should remain in place if onsite. CR/TSC/OSC staff should report to the staging area if offsite. EOF/Media Center staff should report to the EOF/Media Center if offsite. ERO staff should NOT report to the site. CODE: 2 _____ _____ [ ]
	Standard	Operator determines the CANS code to be 202.
	Cue	
	Notes	If operator does not record the code in the procedure or verbalizes the code then question the operator at the conclusion of the JPM.
	Results	☐ SAT ☐ UNSAT

EVALUATOR CAUTION:
Following the process described below will actually ACTIVATE the pagers for the ERO.

PRIOR to the operator commencing CANS activation, CUE that CANS has been activated and that the operator is to explain the process that he/she would utilize.

12.	**Procedure Step:**	B. Contact CANS using one of the following: 1. Preprogrammed speed dial button located on the designated Control Room Notification telephone (phone located in E-Plan Cabinet); **OR** 2. Any touch-tone telephone line by calling 1-508-732-6687. [ ] C. Listen for the CANS introductory message: "This is the remote activation module. Please enter your scenario activation password followed by the # sign". [ ] NOTE The nine-digit scenario activation password is preprogrammed on a speed dial button located on the designated Control Room Notification telephone or is listed in the Immediate Notification (blue tab) section of the PNPS Emergency Telephone Directory. D. After hearing the CANS introductory message, implement one of the following: 1. Press the preprogrammed speed dial button for the scenario activation password on the designated Control Room Notification telephone; **OR** 2. Manually enter the nine-digit scenario activation password followed by the # sign. [ ] E. After CANS accepts the scenario activation password, CANS will then state the following two verbal prompts: 1. "To start a scenario, enter the scenario ID, followed by the # sign". 2. "Press # alone for more options." [ ] F. Start scenario by entering the scenario ID (i.e., CANS activation code) as follows: 1. If a DRILL, enter "**37455**" followed by the CANS three-digit activation code and then the # sign. 2. If NOT A DRILL, enter the CANS three-digit activation code followed by the # sign. [ ] G. After entering the CANS activation code, the CANS will state the following two verbal prompts: 1. "To start the scenario, press 3". 2. "To return to main menu, press #". [ ] H. Press 3 to start scenario and CANS will prompt you that "the scenario is building" and then immediately state the following verbal prompts: 1. "To start a scenario, press 1". 2. "To stop a scenario, press 2". 3. "To check scenario information, press 3". 4. "To enter a different scenario activation password, press 4". 5. "To end this call, press #". [ ]
	Standard	Operator locates the dedicated CANS telephone and accurately describes the activation process.
	Cue	**EVALUATOR CAUTION:** Following the process described above will actually ACTIVATE the pagers for the ERO. PRIOR to the operator commencing CANS activation, CUE that CANS has been activated and that the operator is to explain the process that he/she would utilize.
	Notes	
	Results	SAT [ ] UNSAT [ ]

13.	**Procedure Step:**	**INITIAL NOTIFICATIONS (COMMONWEALTH AND LOCAL AUTHORITIES)** 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, then implement one of the following actions: 1. If a revision CAN be completed within the original 15-minute time limit from the previous classification, then revise the Initial Notification Form with the most current event classification and transmit the information to the Commonwealth and local authorities. **OR** 2. If a revision CANNOT be completed within the original 15-minute time limit, then transmit the original, unrevised Initial Notification Form within the 15-minute time period with a caveat (if possible or as time permits) that a change in classification is forthcoming and in addition prepare and transmit the notification for the change in classification within its 15-minute time limit. NOTE DNN operating instructions are contained in Attachment 11, if needed. C. Initiate DNN Initial Notification instructions as follows: 1. Record EAL number and time declared in space provided. [ ] **EAL Number: ____ . ____ . ____ . __2__ (Obtain from ED) Time Declared: _____**
	Standard	Operator records “7.3.1.2” and the time of declaration in the space provided in the procedure.
	Cue	
	Notes	
	Results	SAT [ ] UNSAT [ ]

14.	**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 7 and implement backup notification instructions. [ ]
	Standard	DNN program is successfully opened on DNN laptop computer.
	Cue	
	Notes	
	Results	SAT [ ] UNSAT [ ]

15.	**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 5.7. [ ]
	Standard	Blocks 1-7 are completed. Refer to attachment 2 for critical elements of the notification and the required degree of accuracy.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

16.	**Procedure Step:**	4. Press the onscreen "Send" button. [ ]
	Standard	Operator activates the “Send” function. Message window displays computer generated message, *“Notification sent successfully”.*
	Cue	
	Notes	Computer generated message will take approximately 10 seconds to appear if successful.
	Results	SAT ☐ UNSAT ☐

Cue: **This completes this JPM.**

CRITICAL TIME FRAME #1 END TIME: _____

STOP TIME: _____

JPM GRADING INSTRUCTIONS

CRITERIA FOR SATISFACTORY EVALUATION

1. 100% of critical elements/steps identified in the JPM successfully completed.
2. Critical Time Frame is met if applicable
3. No actual safety violation (radiological or industrial) requiring evaluator intervention.

CRITERIA FOR UNSAT EVALUATION

1. Any critical element/step is graded as "UNSAT"
2. Critical Time Frame is not met if applicable. *
3. Actual safety violation (radiological or industrial) requiring evaluator intervention.
4. Operator's actions would have damaged plant equipment, created a personnel safety hazard, or otherwise reduced the level of safety of the plant

CRITERIA FOR NEEDS IMPROVEMENT EVALUATION

1. One or more non-critical elements/ steps evaluated as UNSAT which indicate the need for remediation.
2. Any relevant Management Expectation/Standard missed a majority of the opportunities.

ADMINISTRATIVE REQUIREMENTS

Any performance deficiencies resulting in an UNSAT or NEEDS IMPROVEMENT evaluation shall be documented on the JPM comment sheet.

Documentation for Satisfactory evaluations need only consist of the cover sheet and any applicable comment sheet(s) provided that a Master Copy of the JPM is on file or captured.

Documentation for UNSAT evaluations shall consist of the entire, as administered JPM, with associated comment sheets.

Documentation for NEEDS IMPROVEMENT evaluations need only consist of the cover sheet and the associated comment sheet(s) describing the operator deficiencies noted, provided that a Master Copy of the JPM is on file or captured and the deficiencies are involving only management expectations. Otherwise, the entire JPM shall be retained.

JPM COMMENT SHEET

REQUIREMENTS:

- Any operator deficiencies resulting in an UNSAT or NEEDS IMPROVEMENT evaluation shall be documented.
- Any follow-up questions asked and the operator's response must be documented.
- Any operator deficiencies which, in themselves, would not result in an UNSAT evaluation of this JPM but may, when coupled with performance on other JPMs, result in an OVERALL FAILING evaluation for the JPM exam should also be documented below.
- Any other comments, positive or negative, that the evaluator determines is worth noting.

COMMENTS:

Attachment 2 - KEY

Initial Notification Grading Aid
(Critical Elements are Shaded Grey)

PILGRIM NUCLEAR POWER STATION
INITIAL EMERGENCY NOTIFICATION

This is a Training Event

Notification Number: 1

As of __:__ on __/__/_____, Pilgrim Station has Entered an Alert.

Degree of Accuracy: Time, ± 1 min of Declared Time
Date, Today's Date

EAL Number: 7.3.1.2.

Degree of Accuracy: Exact

Description of Event:
Any of the following events occurring which affect plant operation:
--Aircraft crash on facility.
--Missile impact from any source on the facility.
--Entry of toxic or flammable gas into a plant process building atmosphere (includes significant Main Generator hydrogen leaks).
-- Explosion (unplanned).

Note: Computer Fills this in Automatically

Emergency Radioactive Release IS NOT in progress.

Degree of Accuracy: Exact

Emergency Radioactive Release IS BELOW Protective Action Guides.

Note: Computer Fills this in Automatically

Meteorological Data as of __:__ on __/__/_____,:
Wind Direction FROM 264 degrees TO 84 degrees at 13 miles per hour.

–

PNPS's Protective Action Recommendations:
NO Protective Actions Necessary.

Note: Computer Fills this in Automatically

Notification initiated by _____ at (not yet sent).
(ENTERGY.COM_____ from NPI-D9HJHHF1)

This is a Training Event

Approved by _____

INITIAL CONDITIONS:
ATTACHMENT 1

1) PNPS was at full power when a load reject and loss of off-site power occurred.
2) All control rods fully inserted.
3) Both Emergency Diesel Generators Started and 4160 VAC buses A5 and A6 have been re-energized. All other 4160 VAC buses have de-energized.
4) The security shift commander has called the control room and reported that a small aircraft crashed into the switchyard and that three 345 KV ACBs have been severely damaged. The aircraft is on fire and off-site fire fighting assistance is recommended. No PNPS equipment is currently engulfed by the fire.
5) Following the scram, RPV Level lowered to - 47 inches. Both RCIC and HPCI auto started and aligned for injection.
6) HPCI was manually shifted to pressure control when RPV level recovered to the normal band.
7) RPV level is currently stable at 20 inches being controlled by RCIC
8) RPV pressure is currently 900 psig and slowly lowering with HPCI in pressure control.
9) The Control Room Supervisor is coordinating overall plant response, including fire brigade response and notification of Plymouth Fire.
10) All containment parameters are normal, with the exception of Torus Water Temperature. Torus Water Temperature has just exceeded 80 degrees.
11) The security shift commander has determined that this is not a security event and that plant access and egress has not been impacted.
12) Weather conditions are as indicated on Panel MT1

INITIATING CUE:

You are the Third SRO on shift. The Shift Manager is incapacitated. Implement the Emergency Plan as required.

Facility:	PILGRIM	Task No.:	NEW
Task Title:	Perform Daily Log Test #31 – High Range Effluent Monitors	JPM No.:	2009 NRC JPM SRO RC
K/A Reference:	K/A: 2.3.11 (3.8) Ability to control radiation releases.		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: Plant conditions are as follows:

- Plant conditions are stable.

Task Standard: Performs the test and determines that Reactor Building Vent Effluent Rad Monitor is OOS and TS Table 3.2.F. Action (7) applies

Required Materials: PNPS 2.1.15 Daily Log test #31

General References: PNPS 2.1.15 Daily Log test #31

Initiating Cue: You are directed to perform Daily Log Test #31 - High Range Effluent Monitors and determine any required actions.

Time Critical Task: NO

Validation Time: 15 minutes

SIMULATOR SETUP

1. Set the value for RBV Rad Monitor “RT-1001-609” to indicate $<10^3$ R/hr when the switch is placed in “check”.

Critical Steps in Shaded

START TIME: _____

Performance Step: 1 Obtain and review PNPS 2.1.15 , Daily Log Test #31

Standard: Obtains and reviews PNPS 2.1.15 , Daily Log Test #31

Comment:

Performance Step: 2

Daily Log Test #31 - High Range Effluent Monitors

Tech Spec Table 3.2.F 4.2.F (1)

Once each day, perform an instrument check of the High Range Effluent Monitors on Panel C910 and compare the results to the Effluent Monitor Recorder RR-1001-608.

(1) Note: Not required to be operable when in the Cold Shutdown or Refuel mode to satisfy the requirements of Tables 3.2.F and 4.2.F (Tech Spec Bases 3.2).

If a malfunctioning instrument or recorder is suspected, submit a Work Request (WR).

NOTE

During plant operations, TB Ex Monitor and corresponding pen on recorder may not indicate full downscale due to detector general area radiation level. (PR98.9353)

Standard: Review the statements at the beginning of the test

Comment:

Performance Step: 3

		MS RT-1001-608 (check marks)	RBV RT-1001-609 (check marks)	TB Ex. RT-1001-610 (check marks)
1.	Record meter reading.	_____	_____	_____
2.	Turn switch to check position and verify the following:			
	a. Meter reading > 10^3 R/hr.	_____	_____	_____
	b. Trip #1 and #2 lights on.	_____	_____	_____
	c. Associated indicator and recorder on C170 reading > 10^3 R/hr.	_____	_____	_____
3.	Release switch so it returns to OPERATE and verify the following:			
	a. Meter returns to as-found reading.	_____	_____	_____
	b. Trip #1 and #2 lights still on.	_____	_____	_____
	c. Associated recorder and indicator on C170 return to as-found readings.	_____	_____	_____

		MS RT-1001-608 (check marks)	RBV RT-1001-609 (check marks)	TB Ex. RT-1001-610 (check marks)
4.	Depress Trip #1 and #2 lights and verify the following:			
	a. Trip #1 and #2 lights are off.	_____	_____	_____
5.	Press and hold Operate light.	_____	_____	_____
6.	Turn and hold switch to Trip Adj. position and verify the following:			
	a. Meter reading = 10^0 R/hr.	_____	_____	_____
	b. Trip #1 and #2 occur at 10^0 R/hr.	_____	_____	_____
7.	Release switch so it returns to OPERATE.	_____	_____	_____
8.	Release Operate light.	_____	_____	_____
9.	Depress Trip #1 and #2 lights and verify both trip lights are off.	_____	_____	_____
10.	Verify the green Operate light is on.	_____	_____	_____

Standard: Performs the test IAW the steps above for each rad monitor and determines that RBV – RT-1001-609 does not read >10^3 R/hr with the switch in the "check" position.

NOTE/CUE: **At Step 2.c.** for each Rad Monitor the test requires a verification of the indications on the C170 Panel while the switch is held in the "check" position. Normally this test would be performed by two individuals.

When this step is reached, **CUE the candidate that the C170 panel readings are consistent with the meter reading.**

Before the JPM is complete, ask the candidate where the indications are on the C170 Panel.

Comment: **EVALUATOR SEE ATTACHED KEY**

Performance Step: 4 Determine that the minimum # of operable channels is not met and that action (7) of TS Table 3.2.F. applies

(7) With less than the minimum number of operable instrument channels, restore the inoperable channels to operable status within 7 days or prepare and submit a special report to the Commission within 14 days of the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the channels to operable status.

Standard: Determine that the minimum # of operable channels is not met and that action (7) of TS Table 3.2.F. applies

Comment:

Terminating Cue: **The JPM is complete after the candidate discusses their findings.**

STOP TIME: _____ **TIME CRITICAL STOP TIME:** _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 AUDIT JPM SRO RC

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

Initial Conditions: Plant conditions are as follows:

- Plant conditions are stable.

Initiating Cue: You are directed to perform Daily Log Test #31 - High Range Effluent Monitors and determine any required actions.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE (RO/SRO)

TITLE: **RESTORE A CRD PUMP TO SERVICE FOLLOWING A PUMP TRIP (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):	12	Actual Time (min):	

JPM RESULTS*: SAT UNSAT
(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. The running CRD pump has just tripped. The operator will start the standby pump IAW 2.4.4, Loss of CRD Pumps. During the restoration of CRD system flow, the in-service CRD flow control valve will fail close. The operator is expected to diagnose the condition, and shift to the standby FCV IAW 2.4.11.1 and restore CRD system flow.

TASK STANDARD: The 'B' CRD Pump will be placed in-service and CRD system flow restored to normal. There CRD system shall be restored to normal operating conditions in accordance with all system precautions and limitations and without failure of any critical elements.

EVALUATION METHOD:

X Perform
Simulate

EVALUATION LOCATION:

Plant
X Simulator
Control Room

Prepared: _____ **Date:** _____

Reviewed: _____ **Date:** _____

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

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
SHIFT CRD FLOW CONTROL VALVE	201-01-04-012	201001	3.2/3.1 A2.07

REFERENCES:

PNPS 2.4.4, Loss of CRD Pumps
2.4.11.1, CRD System Malfunctions

SIMULATOR CONDITIONS:

5. Initialize the simulator to any IC
6. Insert a CRD pump trip on the running CRD pump
   - RD05 CRD Hydraulic Pump A Trip
7. Insert the CRD Flow Control Valve Fails Close Malfunction for the in-service flow control valve. Condition the malfunction to go active when the RED open indication for that valve is FALSE.
   - RD02 CRD Flow Control Valve 6AF
   - Cue Off – 'A' FCV Red Light OFF
8. Acknowledge all alarms.
9. An IOS operator is standing by to support the operator in responding to the JPM.

GENERAL TOOLS AND EQUIPMENT:

2. None

CRITICAL ELEMENTS:

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

OPERATOR BRIEF:

2. 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".
3. The task conditions are as follows:
   i) The reactor is operating at power
   ii) CRD Pump A has just tripped.
   iii) Off-normal procedure 2.4.4, Loss of CRD Pumps, has just been entered.
4. Solicit and answer any questions the operator may have.

INITIAL CONDITIONS:

- The reactor is operating at power.
- CRD Pump A has just tripped.
- Off-normal procedure 2.4.4, Loss of CRD Pumps, has just been entered.

INITIATING CUE:

Execute procedure 2.4.4, Loss of CRD Pumps, and restore the CRD system to normal."

PERFORMANCE:

Notes This task is covered in 2.4.4. The actions for the Flow Control Valve failure are addressed in procedure 2.4.11.1, section Attachment 5.

All controls are located on panel C905.

All critical steps must be performed in order written unless otherwise noted

START TIME: _____

9.	**Procedure Step:**	Operator obtains a copy of procedure 2.4.4 and reviews the immediate action; **3.0 IMMEDIATE OPERATOR ACTIONS** NOTE Section 5.0 (Discussion) provides the definition of "Immediate". [1] **IF** at any time during this Procedure Reactor pressure is less than 950 psig **AND** the following conditions occur, **THEN MANUALLY SCRAM** the Reactor **AND CONCURRENTLY EXECUTE** PNPS 2.1.6, *"Reactor Scram"*. (a) One or more inoperable control rod Scram accumulators exist, as indicated by the ACCUM Trouble lights on the full core display, concurrent with charging water pressure < 940 psig. **AND** (b) All control rods associated with inoperable control rod Scram accumulators cannot be verified to be fully inserted immediately.
	Standard	Operator determines that Reactor Pressure is > 950 psig and that the immediate actions are not applicable, regardless of the status of accumulator alarms.
	Cue	
	Notes	Multiple RPV pressure indicators located immediately above the CRD system controls.
	Results	SAT ☐ UNSAT ☐

10.	**Procedure Step:**	**4.0 SUBSEQUENT OPERATOR ACTIONS** [1] **TRANSFER** CRD flow controller (FIC-340-1) to MANUAL **AND CLOSE** the Flow Control Valve by rotating the controller manual potentiometer fully counterclockwise.
	Standard	Output meter of CRD Flow controller indicates zero.
	Cue	
	Notes	The FCV position indication will also go from full open to full close. It will take a few seconds for the valve to go full closed. The valve will fail close once the valve indicates full closed via the pre-programmed malfunction.
	Results	SAT ☐ UNSAT ☐

11.	**Procedure Step:**	[2] **VERIFY** that the in-service Flow Control Valve is closed by observing the green C905 valve position light for FLOW CONTROL VLV A (B) [FCV-302-6A (B)].
	Standard	Operator observes the valve position indication and notes that the Green close light is illuminated and the Red open light is extinguished.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

12.	**Procedure Step:**	[3] **IF** the CRD pumps have been lost due to a load shed signal **AND** the CRD pump(s) is required, **THEN BYPASS** the load shed signal for the applicable CRD pump(s) in accordance with Attachment 1. (a) **IF** a Scram signal exists, **THEN CLOSE** 301-25, CRD Charging Water Supply Valve.
	Standard	Operator determines that this step is not applicable and proceeds to the next step.
	Cue	
	Notes	Initial conditions stated that the reactor is at power. There are no indications in the control room indicating either a load shed or a reactor scram.
	Results	SAT ☐ UNSAT ☐

13.	**Procedure Step:**	[4] **START** the standby CRD pump.
	Standard	Operator starts the standby pump
	Cue	
	Notes	Operator should announce the start of the CRD pump over the gaitronics prior to the pump start. This is not critical. The operator may also dispatch an operator to verify that the pump is running normally. If so, then ROLE PLAY, and CUE " The Pump is running normally".
	Results	SAT ☐ UNSAT ☐

14.	**Procedure Step:**	[5] **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-MIA/3B-MIB) stabilize, **THEN BALANCE** the deviation meter on the CRD flow controller by slowly rotating the manual potentiometer clockwise while observing system flow.
	Standard	Operator waits until system pressure and pump amps stabilize and then attempts to open the flow control valve by rotating the manual potentiometer clockwise.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

15.	**Procedure Step:**	Operator verifies that the FCV opens in response to the flow controller output increasing.
	Standard	Operator determines that the flow control valve is not opening.
	Cue	
	Notes	The operator may attempt to check the red indicating light. However there are multiple indications that the valve is not opening: flow indication on the controller, pump amps, drive pressure, etc. The operator may direct an equipment operator to check the valve locally. If so, ROLE PLAY and CUE: "The valve has not opened. There is an air leak on the actuator."
	Results	SAT ☐ UNSAT ☐

16.	**Procedure Step:**	Operator notifies the control room supervisor that the valve has closed.
	Standard	Operator notifies the supervisor.
	Cue	Acknowledge the report and question the operator as to what he/she recommends. Assuming the operator recommends entry into 2.4.11.1, CUE: "Execute 2.4.11.1"
	Notes	The sustained loss of CRD cooling flow may result in CRD high temperature alarms. If so, then ROLE Play as the CRS and inform the operator that another operator is monitoring CRD temperatures and to continue with system restoration. The operator could also go to PNPS 2.2.87 "Control Rod Drive System" rather than 2.4.11.1. If this course is taken, Section 7.7.5.2 "Placing Flow Control valve b in service" applies. The SOP actions are more specific than the Off-Normal but are essentially the same.
	Results	SAT ☐ UNSAT ☐

17.	**Procedure Step:**	Operator obtains a copy of 2.4.11.1 and reviews the immediate actions. **3.0 IMMEDIATE OPERATOR ACTIONS** None
	Standard	Operator proceeds to the subsequent actions section of the procedure.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

18.	**Procedure Step:**	**4.0 SUBSEQUENT ACTIONS** [1] **WHEN** the type of malfunction which has occurred has been determined, **THEN PERFORM** the applicable Attachment listed below:

Attachment	Malfunction	Page
1	Degraded Control Rod Motion	7
2	RPIS Malfunction	15
3	CRD High Temperature	17
4	CRD Flow Controller Failure	18
5	CRD Flow Control Valve Failure	19

Standard	Operator continues on in the procedure utilizing Attachment 5.
Cue	
Notes	
Results	SAT ☐ UNSAT ☐

19.	**Procedure Step:**	CRD FLOW CONTROL VALVE FAILURE [1] 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".
	Standard	Operator rotates the manual potentiometer fully counter clockwise.
	Cue	
	Notes	Note this action may have been performed earlier when the operator determined that the valve did not open.
	Results	SAT ☐ UNSAT ☐

20.	**Procedure Step:**	[2] At Flow Control Valve Station: (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). (f) **NOTIFY** the Control Room that flow control valves have been swapped over locally.
	Standard	Operator contacts an equipment operator and directs/coordinates the performance of step [2].
	Cue	IOS Operator is to role play as necessary to support this step. IOS operator is to utilize remote functions as directed by the operator.
	Notes	
	Results	SAT ☐ UNSAT ☐

21.	**Procedure Step:**	[3] At Panel C905, **SLOWLY RAISE** CRD flow controller to a setpoint of 50 GPM; **VERIFY** the flow increase.
	Standard	Operator opens the FCV and raises flow by rotating the manual potentiometer in the clockwise direction and observing flow increase. Flow indication on controller rises to 50 gpm. RED status light comes ON
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

22.	**Procedure Step:**	(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.
	Standard	Operator checks pressures and determines that they are normal.
	Cue	
	Notes	Operator may determine that adjustments are required. However this is not expected. Note per, 2.1.35, Control room readings, CRD drive pressure is 150 to 250 psid. Cooling water pressure is normally 8-15 psid.
	Results	SAT ☐ UNSAT ☐

23.	**Procedure Step:**	(b) **RETURN** flow controller (FIC-340-1) on Panel C905 to "AUTO".
	Standard	Flow Controller is placed in AUTO position
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

Cue: **This completes this JPM.**

STOP TIME: _____

INITIAL CONDITIONS:

- The reactor is operating at power.
- CRD Pump A has just tripped.
- Off-normal procedure 2.4.4, Loss of CRD Pumps, has just been entered.

INITIATING CUE:

Execute procedure 2.4.4, Loss of CRD Pumps, and restore the CRD system to normal."

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
(RO/SRO)

TITLE: **PLACING THE FIRST FEEDWATER REGULATING VALVE IN SERVICE**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	12	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 in a normal startup configuration at ~10% power and a main feed regulating valve needs to be placed in service to continue the startup.

TASK STANDARD: One Main Feed Reg. Valve is in service controlling vessel level with the startup regulator closed. Reactor water level will be maintained between the low level scram and main turbine trip setpoints. The system shall be operated in accordance with all applicable precautions and limitations. The system procedure shall be followed without failure of critical elements.

EVALUATION METHOD:

X Perform
Simulate

EVALUATION LOCATION:

Plant
X Simulator
Control Room

Prepared: _____ **Date:** _____

Reviewed: _____ **Date:** _____

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

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
PLACE THE FEEDWATER CONTROLS FROM MANUAL TO AUTO.	259-01-01-006	259002	3.8/3.6 A4.03

REFERENCES:

PNPS 2.2.82

SIMULATOR CONDITIONS:

10. Reset the simulator to a condition with Rx power at approximately 10 - 12% and level controlled on the startup regulator.
11. Simulator Conditions are consistent with PNPS 2.1.1 Rx Plant Startup Step[110](b)
12. Insert Malfunction FW06 Master Controller Fails High in Auto
13. Verify both downstream blocks are open
14. FWLC is aligned for single element control.
15. Adjust the setpoint tape adjust on the Master Controller to achieve a mismatch between actual level and the setpoint. Setpoint should be outside the + 25 to 30" band.
16. Verify EPIC is operating

GENERAL TOOLS AND EQUIPMENT:

3. None

CRITICAL ELEMENTS:

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

OPERATOR BRIEF:

5. 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. The task conditions are as follows:
   i) A plant startup is in progress IAW 2.1.1. Step[110]
   ii) The mode switch is in Run
   iii) Reactor power is approximately 10%
3. Solicit and answer any questions the operator may have.

INITIAL CONDITIONS:

- A plant startup is in progress IAW 2.1.1. Step[110]
- The mode switch is in Run
- Reactor power is approximately 10%

INITIATING CUE:

IAW procedure 2.2.82 Section 7.1.1, place the "A" main feed reg valve in service and secure the startup feed reg valve. Inform me when you have completed this task."

The ATC operator will be standing by to monitor reactor power and adjust IRM Range Switches if required during the evolution.

PERFORMANCE:

EXAMINER NOTE: An ATC operator will be standing by to monitor reactor power and adjust IRM Range Switches if required during the evolution.

Notes This task is covered in 2.2.82, section 7.1.1.

All components are located on 905 horizontal and vertical section unless otherwise noted.

All critical steps must be performed in order written unless otherwise noted.

START TIME: _____

24.	**Procedure Step:**	**CAUTION** If the piping between 1st Point Feedwater Heater Outlet Block Valves, MO-3479/3480, and Feedwater Regulating Valves, FV-642A/B has been isolated for an extended period of time (as determined by the SM/CRS), then the differential pressure between this piping and the RFP Discharge Header pressure shall be checked in accordance with Attachment 4 (Feedwater Piping Pressure Monitoring) prior to placing a Feedwater Regulating Valve into service.
	Standard	Operator questions the SM/CRS as to whether there is a concern with the differential pressure in the Feedwater discharge header.
	Cue	If asked cue: We have determined that the Feedwater piping pressure is equalized between the1st Point Feedwater Heater Outlet Block Valves and the Feedwater Regulating Valves using attachment 4.
	Notes	The operator may ask this question during his/her procedure review prior to commencing the evolution.
	Results	SAT ☐ UNSAT ☐

25.	**Procedure Step:**	**VERIFY** the following: The MASTER LEVEL CONTROL in "MANUAL" and the Manual control knob is turned FULLY COUNTERCLOCKWISE.
	Standard	Operator verifies: Control switch for the MASTER controller is aligned to Manual Manual control knob (knurled knob) is set to minimum by attempting to turn knurled knob counterclockwise.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

26.	**Procedure Step:**	The SP adjust knob on the MASTER LEVEL CONTROL is set between 25" and 30" as indicated on the center digital display.
	Standard	Operator checks the digital display on the Master Controller and adjusts the setpoint to control between 25" and 30".
	Cue	
	Notes	Initial setup of simulator adjusted the tape adjust to outside the prescribed band.
	Results	SAT ☐ UNSAT ☐

27.	**Procedure Step:**	The control switch for LEVEL MODE SELECT is in the "1 ELEM" position.
	Standard	Operator verifies 1 / 3 element control is aligned to "1 ELEM" position.
	Cue	
	Notes	Switch is on vertical section on board, above the control switches for the downstream block valves.
	Results	SAT ☐ UNSAT ☐

28.	**Procedure Step:**	The bias adjustment on FIC-640-19A and FIC-640-19B, FLOW CONTROL VLVs, is set at zero.
	Standard	The bias adjust dial for both individual M/A stations is set at zero. (Bias adjust dial is immediately below the upper meter on the controller.)
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

29.	**Procedure Step:**	Each individual FLOW CONTROL VLV controller is in the MANUAL mode AND the Manual control knob is turned fully counterclockwise (FULLY CLOSED).
	Standard	Operator verifies: • Control switch for the "A" M/A controller is aligned to Manual • Manual control knob (knurled knob) for the "A" M/A controller is set to minimum by attempting to turn knurled knob counterclockwise. • Control switch for the "B" M/A controller is aligned to Manual • Manual control knob (knurled knob) for the "B" M/A controller is set to minimum by attempting to turn knurled knob counterclockwise
	Cue	
	Notes	Manual control signal can also be verified by observing that the M/A output meter is at "zero".
	Results	SAT ☐ UNSAT ☐

30.	**Procedure Step:**	The signal to the Feedwater Regulating Valve is a CLOSED signal as verified by the lower meter on the individual flow controller indicating 0%.
	Standard	Operator verifies that the control signal to the feed reg to be placed in service is reading “zero”.
	Cue	
	Notes	The upper meter on the controller will also indicate zero signal.
	Results	SAT ☐ UNSAT ☐

31.	**Procedure Step:**	WHEN ready to transfer to a FLOW CONTROL VLV, OPEN OR VERIFY OPEN MO-3479 AND MO-3480.
	Standard	Operator verifies MO-3479 AND MO-3480 OPEN by checking green light OFF, red light ON.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

32.	**Procedure Step:**	**VERIFY** the deviation meter (located on top of the individual controllers) for the valve to be placed in service is balanced (needle on RED DOT). IF required, adjust the selected individual FLOW CONTROL VLV Manual control knob to achieve the balanced condition.
	Standard	Operator checks that the “A” M/A is balanced by checking that needle for the deviation meter is on the red dot (upper meter). If not, then operator adjusts the Manual control (knurled knob) to balance the controller.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

33.	**Procedure Step:**	**NOTE** Refer to Precaution 5.0[4]. **SWITCH** the individual controller for the selected FLOW CONTROL VLV to the "AUTO" position. The valve is now under MASTER/MANUAL control.
	Standard	Operator rotates control switch for “A” M/ A station to the “AUTO” position.
	Cue	
	Notes	Precaution #4 states: When placing a Feedwater Regulating Valve in or out of service or switching from MANUAL to AUTO, consider monitoring computer points FWR114 (Feedline "A" Flow) and FWR116 (Feedline "B" Flow) on EPIC to watch for flow oscillations. Operator may call up EPIC points to monitor feed flows.
	Results	SAT ☐ UNSAT ☐

34.	**Procedure Step:**	SLOWLY ADJUST the SP adjust knob on the MASTER LEVEL CONTROL until the master controller deviation meter to the right of the digital display is just balanced (needle in the center).
	Standard	Operator adjusts the setpoint knob until the deviation meter on the MASTER controller is balanced.
	Cue	
	Notes	This step may or may not be critical depending upon actual water level and its relationship to the setpoint tape adjust. This JPM is written assuming that there is a delta and therefore an adjustment of the tape is required.
	Results	SAT ☐ UNSAT ☐

35.	**Procedure Step:**	SWITCH the MASTER LEVEL CONTROL to the "AUTO" position. The valve is now under MASTER/AUTO control.
	Standard	Operator rotates the control switch for the MASTER Controller to the AUTO position.
	Cue	
	Notes	When Master Controller is placed in AUTO it will fail High. The operator recognizes the FRV failed open and RPV Level increasing. Operator responds to Annunciator and/or increasing level IAW next JPM step
	Results	SAT ☐ UNSAT ☐

36.	**Procedure Step:**	Respond to increasing RPV level and/or Annunciator C905R-C7 "Reactor Water Level High" 3. Perform Corrective Actions a) **IF** necessary, take manual control of feedwater control system and restore Reactor water level to normal b) Investigate and correct cause of level problem
	Standard	The operator returns the controller to manual and gains control of reactor water level prior to the Turbine Trip at +45" Reactor Water Level. Reports failure to CRS.
	Cue	
	Notes	The master or individual controller may be used to control level
	Results	SAT ☐ UNSAT ☐

Cue: **This completes the JPM.**

STOP TIME: _____

INITIAL CONDITIONS:

- A plant startup is in progress IAW 2.1.1. Step[110]
- The mode switch is in Run
- Reactor power is approximately 10%

INITIATING CUE:

IAW procedure 2.2.82 Section 7.1.1, place the "A" main feed reg valve in service and secure the startup feed reg valve. Inform me when you have completed this task."

The ATC operator will be standing by to monitor reactor power and adjust IRM Range Switches if required during the evolution.

(RO/SRO)

TITLE: **RESTORATION OF POWER TO 4160 VAC BUS A-5 FROM THE STARTUP TRANSFORMER**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	11	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: Following an initial loss of Off-Site power both diesel generators have started and re-energized their respective safety buses. The operator will perform a dead bus transfer and transfer the A5 bus back to the startup transformer.

TASK STANDARD: Power is restored to 4160 VAC bus A-5 via the Startup Transformer. The system shall be operated in accordance with all applicable precautions and limitations. The procedure shall be followed without a failure of critical elements.

EVALUATION METHOD:

X Perform
Simulate

EVALUATION LOCATION:

Plant
X Simulator
Control Room

Prepared: _____ **Date:** _____

Reviewed: _____ **Date:** _____

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

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Recover Off-Site Power Following Initial Loss of Grid	262-04-01-010	295003	AA1.01 3.7/3.8

REFERENCES: PNPS 2.4.16

SIMULATOR CONDITIONS:

17. Initialize to IC14
18. Trip ACB 102 and 103 and Place in PTL
19. Insert a scram to cause the LOOP
20. Verify B6 is aligned to B2
21. Verify Open B1 to B6
22. Stabilize plant conditions as required.
23. Place all fast transfer switches to OFF
24. Place condensate transfer pumps in PTL
25. Re-close ACB 102 and 103
26. Re-energize A1 through A4 from the startup transformer
27. Re-open MO-3808

GENERAL TOOLS AND EQUIPMENT: None

CRITICAL ELEMENTS:

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

OPERATOR BRIEF:

6. 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. The task conditions are as follows:
   i) The plant had experienced a loss of off-site power
   ii) Both EDGs are powering the emergency buses (A5 & A6)
   iii) The Startup Transformer has been re-energized and buses A1 through A4 have been energized.
   iv) The SM has determined that the grid is stable following discussions with REMVEC and the ISO.
   v) A field operator is standing by to support you in any required actions
   iv) PNPS 2.4.16, ATT.11 "Restoration Of AC Power" is complete through Step[5]

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

INITIAL CONDITIONS:

- The plant had experienced a loss of off-site power
- Both EDGs are powering the emergency buses (A5 & A6)
- The Startup Transformer has been re-energized and buses A1 through A4 have been energized.
- The SM has determined that the grid is stable following discussions with REMVEC and the ISO.
- A field operator is standing by to support you in any required actions
- PNPS 2.4.16, ATT.11 ”Restoration Of AC Power” is complete through Step[5]

INITIATING CUE:

Restore power to the 4160VAC bus A-5 from the Startup Transformer per procedure 2.4.16, Attachment 11, starting at Step[6]”.

PERFORMANCE:

Notes This task is covered in 2.4.16, Attachment 11, Step 6.

All components are located on C3 horizontal and vertical section unless otherwise noted.

All critical steps must be performed in order written unless otherwise noted.

START TIME: _____

37.	**Procedure Step:**	**CAUTION** Coordinate restoration of emergency buses back to off-site power sources with ISO-NE, REMVEC, and BPSSC. Be aware that another loss of off-site power may occur during grid restoration. (SOER 99-01) [6] Restoring 4160V Bus A5 or A6 to Startup Transformer (a) 4160V Bus A5 (1) **IF** SBO Diesel Generator is powering A5, **THEN GO TO** PNPS 2.2.146 to restore A5. (2) **IF** A5 is DE-ENERGIZED, **THEN**: a. **VERIFY OR PLACE** A5 auto-transfer switch in "OFF". b. **POSITION** the Startup Xfmr to Bus A5 synch switch to "ON". c. **MANUALLY CLOSE** the Startup Xfmr Breaker to A5. (3) **IF** Emergency Diesel Generator "A" is powering A5, **THEN**: a. **IF** 480V Bus B6 is being fed from 480V Bus B1 **AND IF** B2 is ENERGIZED, **THEN TRANSFER** feed to 480V Bus B2 (**SEE** PNPS 2.2.7, *"480V AC System"*).
	Standard	Operator determines that A5 is being powered from the "A" EDG and that 480V B6 is powered from B2.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

38.	**Procedure Step:**	b. **IF** B2 is DE-ENERGIZED, **THEN REVIEW** Step 5.0[7] in the base document of this Procedure before proceeding.
	Standard	Operator recognizes that B6 has been transferred to B2.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

39.	**Procedure Step:**	c. Since the transfer of Bus A5 from the Diesel to the Startup Transformer is a "dead-bus" transfer, **SWITCH** necessary loads to 480V MCC B14 and 480V MCC B18.
	Standard	Operator notes loads shifted to MCC B14 and B18.
	Cue	"Loads have been shifted to B14 and B18 (as CRS)."
	Notes	
	Results	SAT ☐ UNSAT ☐

40.	**Procedure Step:**	d. **IF** any component has had its load shed signal bypassed, **THEN**, **PRIOR** to proceeding, **RESTORE** the load shed signal to that component (SOER 99-10).
	Standard	Operator questions CRS as to whether any load shed signals have been bypassed.
	Cue	"Load shed signals have not been bypassed (if asked as CRS)."
	Notes	
	Results	SAT ☐ UNSAT ☐

41.	**Procedure Step:**	e. **VERIFY OR PLACE** A5 auto-transfer switch in "OFF".
	Standard	Operator verifies that Auto transfer switch is in "OFF".
	Cue	
	Notes	Auto Transfer switches are already in OFF position per the initial steps of the procedure.
	Results	SAT ☐ UNSAT ☐

42.	**Procedure Step:**	f. **POSITION** the STARTUP XFMR TO BUS A5 synch switch to "ON".
	Standard	Synch switch is turned on; synch lights go on.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

43.	**Procedure Step:**	g. **TRIP** Diesel Generator Breaker A509 to 4160V AC Bus A5.
	Standard	A509 breaker is opened. Green light is on, red breaker light is off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

44.	**Procedure Step:**	a. **MANUALLY CLOSE** the Startup Transformer to A5 bus after one second **BUT** before 4 seconds have elapsed. (The one second delay ensures a dead bus transfer; less than 4 seconds to prevent A509 reclosure.)
	Standard	Operator waits minimum of 1 second but not so long such that the EDG auto recloses back onto the bus (~ 4 seconds).
	Cue	
	Notes	If bus is de-energized for 4 seconds then the EDG will auto reclose onto the bus.
	Results	SAT ☐ UNSAT ☐

45.	**Procedure Step:**	**VERIFY** Bus A5 is ENERGIZED by observing bus VOLTAGE and bus AMP meters.
	Standard	Operator observes bus loading.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

46.	**Procedure Step:**	**PLACE** the STARTUP XFMR TO BUS A5 synch switch to OFF.
	Standard	Operator turns synch switch off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

47.	**Procedure Step:**	2. **RETURN** Diesel Generator to "STANDBY" in accordance with PNPS 2.2.8, *"Standby AC Power System (Diesel Generators)"*.
	Standard	Operator reports to the CRS that the Diesel Generator needs to be placed in standby.
	Cue	Another operator will perform that task
	Notes	
	Results	SAT ☐ UNSAT ☐

Cue: **This completes this JPM.**

STOP TIME: _____

INITIAL CONDITIONS:

- The plant had experienced a loss of off-site power
- Both EDGs are powering the emergency buses (A5 & A6)
- The Startup Transformer has been re-energized and buses A1 through A4 have been energized.
- The SM has determined that the grid is stable following discussions with REMVEC and the ISO.
- A field operator is standing by to support you in any required actions
- PNPS 2.4.16, ATT.11 ”Restoration Of AC Power” is complete through Step[5]

INITIATING CUE:

Restore power to the 4160VAC bus A-5 from the Startup Transformer per procedure 2.4.16, Attachment 11, starting at Step[6]”.

(RO/SRO)

TITLE: **TRANSFER PRESSURE REGULATION FROM MPR TO EPR WITH EPR FAILURE (ALTERNATE PATH)**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**NA**	Actual Time (min):	**NA**
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: With the reactor at full power, MHC pressure regulation is being controlled by the MPR following a failure of the EPR. Following repairs to the EPR, pressure regulation will be restored to the EPR. The operator will energize the EPR and place the EPR in service, when EPR is in service the EPR fails. Operator takes actions in accordance with 2.4.37.

TASK STANDARD: The EPR will be energized and placed in service IAW 2.2.99. The procedure should be followed with no failure of critical elements. There will be no unacceptable pressure transients resulting from this transition (Rx scram, Bypass valve operation)

EVALUATION METHOD:

X Perform
Simulate

EVALUATION LOCATION:

Plant
X Simulator
Control Room

Prepared: _____ **Date:** _____

Reviewed: _____ **Date:** _____

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

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
RESPOND TO EPR-MPR MALFUNCTION.	248-04-01-002	241000 A4.19	3.5/3.4

REFERENCES:

PNPS 2.2.99, Rev.46

SIMULATOR CONDITIONS:

28. Initialize to full power IC
29. Transfer MHC pressure regulation to the MPR IAW 2.4.37.
30. Adjust MPR so that RPV pressure is within the prescribed band of 2.4.37.
31. Take EPR power to off
32. Pend EPR oscillation failure (UT1EP-TCO6 when H_A2_A1_M3_GT 936)
33. When MPR set point is raised the EPR will fail.

GENERAL TOOLS AND EQUIPMENT:

4. None

CRITICAL ELEMENTS:

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

OPERATOR BRIEF:

7. 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. The task conditions are as follows:
   i) The plant is at rated power
   ii) Following a failure of the EPR, the MPR was placed in service IAW 2.4.37
   iii) The EPR has been repaired
3. Solicit and answer any questions the operator may have.

INITIAL CONDITIONS:

- The plant is at rated power
- Following a failure of the EPR, the MPR was placed in service IAW 2.4.37
- The EPR has been repaired

INITIATING CUE:

IAW with 2.2.99, section 7.4.4, energize the EPR and restore pressure control to the EPR.

PERFORMANCE:

Notes This task is covered in 2.2.99, Section 7.4.4

All components are located on Panel C2 horizontal and vertical section unless otherwise noted

All critical steps must be performed in order written unless otherwise noted

START TIME: _____

48.	**Procedure Step:**	7.4.4 Transferring from MPR to EPR NOTE When the EPR is initially energized, the pressure setpoint will automatically ramp to maximum pressure, prior to placing the EPR in control and energizing the Operator's setpoint control switch (EPR SETPT). This will take approximately 5 minutes to occur. **CAUTION** Adjust pressure regulators SLOWLY to avoid pressure transients. [1] **PLACE/VERIFY** EPR POWER switch to "NORM" at Panel C2.
	Standard	EPR Power Switch placed in NORM position EPR power failure alarm clears.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

49.	**Procedure Step:**	[2] **WAIT** 1 minute from the time EPR SETPT Indicator ZI-3013 reaches its maximum setpoint of 1010 psi**g**.
	Standard	Operator waits long enough for Indicator ZI-3013 to go full scale.
	Cue	
	Notes	If operator does not wait long enough the EPR control switch will not respond in the next step.
	Results	SAT ☐ UNSAT ☐

50.	**Procedure Step:**	NOTE Once the EPR takes control, the red PRESS CONTROL light over the EPR SETPT switch on Panel C2 will come on and EPR CONTROL POSITION Indicator ZI-3014 will rapidly increase to the setpoint indicating the EPR has control. The red PRESS CONTROL light above the MPR SETPT switch will go off and the green NOT IN CONTROL light will come on. This rapid increase is an instrument response and will not result in a pressure transient. [3] **RESTORE** the EPR to control slowly by placing the EPR SETPT C/S to "LOWER" until the EPR takes control from the MPR (red PRESS CONTROL light above EPR SETPT C/S comes on).
	Standard	Operator goes to LOWER on EPR control switch. Red “Press Control” light illuminates above the EPR setpoint switch.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

51.	**Procedure Step:**	[4] **ADJUST** MPR SETPT C/S so that MPR CONTROL POSITION Indicator ZI-3020 is set approximately 11 to 13% lower than EPR CONTROL POSITION Indicator ZI-3014. (a) **IF** EPR controlling pressure deviation is > 13%, **THEN LOWER** the MPR pressure setpoint indicated on ZI-3021 by taking the MPR Set Point Control Switch to "LOWER". (b) **IF** EPR controlling pressure deviation is < 11%, **THEN RAISE** the MPR pressure setpoint indicated on ZI-3021 by taking the MPR Set Point Control Switch to "RAISE".
	Standard	Operator adjusts the MPR pressure setpoint to establish a deviation between 11 and 13%, with the EPR control position indicator being the higher of the two.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

52.	**Procedure Step:**	[5] **SET** EPR SETPT to maintain PI-640-25A, REACTOR PRESSURE for CH A, and PI-640-25B, REACTOR PRESSURE for CH B, on Panel C905 at ≤ 1035 psi**g**.
	Standard	Operator adjusts EPR setpoint as required. PI-640-25A/B stable at a pressure of 1025 to 1045 psig
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

53.	**Procedure Step:**	[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	Operator recognizes the pressure oscillations when the EPR fails and enters 2.4.37
	Cue	
	Notes	If required the operator will lower core flow to obtain lee than or equal to 90% power
	Results	SAT ☐ UNSAT ☐

54.	**Procedure Step:**	[1] **ATTEMPT TO TAKE CONTROL** of Reactor pressure with the MPR by holding the MPR SET PT control switch in the "LOWER" position. (a) **IF** MPR takes control, **THEN PLACE** the EPR POWER control switch to the "OFF" position.
	Standard	Operator reduces the MPR set point until the MPR takes control and takes the EPR control switch to OFF position.
	Cue	
	Notes	Operator takes EPR to off. This completes this JPM.
	Results	SAT ☐ UNSAT ☐

STOP TIME: _____

INITIAL CONDITIONS:

- The plant is at rated power
- Following a failure of the EPR, the MPR was placed in service IAW 2.4.37
- The EPR has been repaired

INITIATING CUE:

IAW with 2.2.99, section 7.4.4, energize the EPR and restore pressure control to the EPR.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
(RO/SRO)

TITLE: **Restoration of SDC LOOP A**

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 was shutdown four (4) hours ago. Shutdown cooling had already been established, but was terminated for testing purposes. The tests have been completed and 'A' loop RHR shutdown cooling needs to be re-established. When it is placed in service, a RHR leak will develop which should cause an auto PCIS isolation, however, the auto action doesn't work and manual action is required by the operator to isolate the leak.

TASK STANDARD: The 'A' loop of RHR is placed in shutdown cooling. RHR shall be operated in accordance with all applicable system precautions and limitations. When it is placed in service, a RHR leak will develop which requires manual operator action to isolate due to a PCIS failure. Procedure 2.2.19 shall be followed without deviation and with no failure of critical elements.

EVALUATION METHOD:

X Perform
Simulate

EVALUATION LOCATION:

Plant
X Simulator
Control Room

Prepared: _____ **Date:** _____

Reviewed: _____ **Date:** _____

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

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Restoration of SDC Loop A		205000 A4.02	3.6/3.5

REFERENCES:

PNPS 2.2.19.1 Att.12

Examiners Note: PNPS 2.2.19.1 Rev 27, RESIDUAL HEAT REMOVAL SYSTEM-SHUTDOWN COOLING MODE OF OPERATION includes a typographical error. Attachment 12 Section 2.0, step [4] incorrectly identifies the 'C' RHR Torus Suction Valve as 'A'. The candidate will be provided with a corrected copy.

SIMULATOR CONDITIONS:

1. IC18
2. Secure Loop A SDC IAW PNPS 2.2.19.1 Att.12, Section 1.0 in its entirety.
3. Insert Malf. COP3, PCIS Group 3 Isolation Bypass.
4. Insert Malf RH05, Leak on RHR Pump A Disch Line at 4000 gpm. Condition malfunction on FI-1040-7. Greater than 1800 gpm.
5. Ensure MO-1001-29A, MO-1001-47 and MO-1001-50 are CLOSED.
6. Ensure Rector Water Level is > +30" and < +45"

GENERAL TOOLS AND EQUIPMENT:

NONE

CRITICAL ELEMENTS:

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

OPERATOR BRIEF:

8. 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. The task conditions are as follows:
   - The reactor was shutdown four (4) hours ago. 'A' loop of RHR shutdown cooling needs to be re-established following a brief shutdown for testing.
3. Solicit and answer any questions the operator may have.

INITIAL CONDITIONS:

The reactor was shutdown four (4) hours ago. 'A' loop of RHR shutdown cooling needs to be re-established following a brief shutdown for testing.

INITIATING CUE:

Restore SDC using "A" RHR Pump IAW PNPS 2.2.19.1, Attachment 12, Section 2.0.

PERFORMANCE:

Notes

START TIME: _____

55.	**Procedure Step:**	[1] CLOSE/VERIFY CLOSED MO-1001-28A, LPCI Inj Throttle Vlv #1.
	Standard	Closes/verifies CLOSED MO-1001-28A, LPCI Inj Throttle Vlv #1.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

56.	**Procedure Step:**	[2] ENSURE an Operator is monitoring the Reactor water level.
	Standard	Ensures an Operator is monitoring the Reactor water level.
	Cue	Another operator is monitoring RPV Level
	Notes	
	Results	SAT ☐ UNSAT ☐

57.	**Procedure Step:**	[3] ISOLATE/VERIFY ISOLATED MO-1001-18A, RHR Pumps Loop A Minimum Flow Valve, control switch and breaker (B1754).
	Standard	Isolates/verifies ISOLATED MO-1001-18A, RHR Pumps Loop A Minimum Flow Valve, control switch and breaker (B1754).
	Cue	
	Notes	MO-1001-18A position may be verified using Protective Tagging.
	Results	SAT ☐ UNSAT ☐

58.	**Procedure Step:**	**CAUTION** If at any time during Step [4] an unexpected Reactor water level drop is observed, immediately close the last valve operated. **[SOER87-2/NRC Bulletin 93-03]** [4] VERIFY the RHR Loop "A" Shutdown Cooling flow path as follows:
		• CLOSE/VERIFY CLOSED MO-1001-7A, RHR Pump A Torus Suction Valve.
	Standard	Verifies the RHR Loop "A" Shutdown Cooling flow path as follows:
		• Closes/Verifies CLOSED MO-1001-7A, RHR Pump A Torus Suction Valve.
	Cue	
	Notes	MO-1001-7A position may be verified using Protective Tagging.
	Results	SAT ☐ UNSAT ☐

59.	**Procedure Step:**	CLOSE/VERIFY CLOSED MO-1001-7C, RHR Pump C Torus Suction Valve.
	Standard	Closes/Verifies CLOSED MO-1001-7C, RHR Pump C Torus Suction Valve.
	Cue	
	Notes	MO-1001-7C position may be verified using Protective Tagging.
	Results	SAT ☐ UNSAT ☐

60.	**Procedure Step:**	CLOSE/VERIFY CLOSED MO-1001-18A, RHR Pumps Loop A Minimum Flow Valve.
	Standard	Closes/Verifies CLOSED MO-1001-18A, RHR Pumps Loop A Minimum Flow Valve.
	Cue	
	Notes	MO-1001-18A position may be verified using Protective Tagging.
	Results	SAT ☐ UNSAT ☐

61.	**Procedure Step:**	OPEN/VERIFY OPEN MO-1001-43A, Pump Suct Vlv.
	Standard	Opens MO-1001-43A, Pump Suct Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

62.	**Procedure Step:**	OPEN/VERIFY OPEN MO-1001-43C, Pump Suct Vlv.
	Standard	Opens/Verifies OPEN MO-1001-43C, Pump Suct Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

63.	**Procedure Step:**	OPEN/VERIFY OPEN MO-1001-47, SDC Outbd Isol Vlv.
	Standard	Opens MO-1001-47, SDC Outbd Isol Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

64.	**Procedure Step:**	OPEN/VERIFY OPEN MO-1001-50, SDC Inbd Isol Vlv.
	Standard	Opens MO-1001-50, SDC Inbd Isol Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

65.	**Procedure Step:**	OPEN/VERIFY OPEN MO-1001-29A, LPCI Injection Vlv. #2.
	Standard	Opens MO-1001-29A, LPCI Injection Vlv. #2.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

66.	**Procedure Step:**	OPEN/VERIFY OPEN MO-1001-16A, RHR HX A Byp Vlv.
	Standard	Opens MO-1001-16A, RHR HX A Byp Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

67.	**Procedure Step:**	**CAUTION** Reactor Vessel level will lower with the start of an RHR Pump. The intent of Step [5] is to prevent a low RWL isolation when starting an RHR Pump. [5] VERIFY OR ADJUST Reactor water level to > +30", (IF cavity level is flooded, ENTER "N/P".)
	Standard	Operator verifies Reactor water level to > +30".
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

68.	**Procedure Step:**	[6] **NOTIFY** CRS to record in the CRS logbook the date and time RHR is placed into SDC mode. (a) **NOTIFY** Radiation Protection (RP) that RHR Pump A or C is about to be returned to service in the SDC mode. RP should monitor the "A" RHR Quadrant and the "A" Valve Room for radiological changes.
	Standard	Notifies CRS to record date and time RHR is placed in SDC in the CRS logbook. Notifies Radiation Protection (RP) that RHR Pump A or C is about to be returned to service in the SDC mode. RP should monitor the "A" RHR Quadrant and the "A" Valve Room for radiological changes.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

69.	**Procedure Step:**	NOTE Flow Indicators FI-1040-1A (B) and FI-1040-2A (B) will indicate zero flow if the actual RHR flow is ≤ 1400 GPM. When RHR flow is ≤ 1400 GPM, FR-1040-7 will indicate flow. EPIC points RHR002 and RHR004 are also available for total flow indication.
	Standard	Reviews NOTE
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

70.	**Procedure Step:**	[7] **START** an RHR pump by performing the following: (a) **START** RHR PUMP A **OR** C
	Standard	Starts A RHR Pump
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

71.	**Procedure Step:**	(b) **SLOWLY OPEN** MO-1001-28A to establish approximately 1000 GPM flow rate as indicated on FR-1040-7.
	Standard	Opens MO-1001-28A to establish approximately 1000 GPM flow rate as indicated on FR-1040-7.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

72.	**Procedure Step:**	[8] **AFTER** approximately 1 minute, **JOG OPEN** MO-1001-28A **AND INCREASE** RHR flow rate to approximately 1800 to 2000 GPM as indicated on FI-1040-1A and FI-1040-2A (RHR Total Flow Indicators).
	Standard	JOGS OPEN MO-1001-28A to establish 1800 to 2000 GPM as indicated on FI-1040-1A and FI-1040-2A.
	Cue	
	Notes	Leak will activate when flow is greater than 1800 GPM.
	Results	SAT ☐ UNSAT ☐

73.	**Procedure Step:**	Annunciator C904L D-7 Alarms "RHR A Quad Leakage" Alarms AND Indications of a Group 3 PCIS Isolation Signal.
	Standard	Operator observes Annunciator C904L D-7 "RHR A Quad Leakage". Operator CLOSES EITHER M-1001-47 OR M-1001-50 to isolate the leak.
	Cue	
	Notes	A Group 3 PCIS isolation occurred and should have closed the valves. Per Administrative procedure EN-OP-115., When an Auto signal does not work, make it happen.
	Results	SAT ☐ UNSAT ☐

74.	**Procedure Step:**	Operator Completes the Group 3 Isolation.
	Standard	Operator CLOSES MO-1001-47, MO-1001-50, AND MO-1001-29A.
	Cue	
	Notes	If not Tripped beforehand, the 'A' RHR pump will trip on loss of suction flowpath.
	Results	SAT ☐ UNSAT ☐

75.	**Procedure Step:**	Trip or Verify Tripped RHR Pump 'A'.
	Standard	'A' RHR Pump is Tripped.
	Cue	
	Notes	Operator may manually trip the 'A' RHR pump at the onset of the leak.
	Results	SAT ☐ UNSAT ☐

Cue: **This completes this JPM.**

STOP TIME: _____

INITIAL CONDITIONS:

The reactor was shutdown four (4) hours ago. 'A' loop of RHR shutdown cooling needs to be re-established following a brief shutdown for testing.

INITIATING CUE:

Restore SDC using "A" RHR Pump IAW PNPS 2.2.19.1, Attachment 12, Section 2.0.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
(RO/SRO)

TITLE: **INERTING THE CONTAINMENT**

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 about 5%. The operator will line up to inert containment IAW PNPS 2.2.70 Att.8 beginning at step 4.1[12]. A cooler will begin leaking causing an annunciator alarm (C7L-A5,6,7) requiring the operator to isolate the flowpath per Att.13 Step 3.0[2]

TASK STANDARD: Inert containment IAW PNPS 2.2.70 Att.8. Isolate the system IAW PNPS 2.2.70 ATT.13 upon alarm indications of a cooler leak. Evolution shall be performed in accordance with all system precautions and limitations and without failure of any critical elements.

EVALUATION METHOD:

X Perform
Simulate

EVALUATION LOCATION:

Plant
X Simulator
Control Room

Prepared: _____ **Date:** _____

Reviewed: _____ **Date:** _____

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

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
INERTING THE CONTAINMENT		223001 A4.10	3.2/3.2

REFERENCES:

1. PNPS 2.2.70 Att.8 & 13

SIMULATOR CONDITIONS:

34. IC with Reactor power at about 5%
35. PNPS 2.2.70 Att.8 complete thru Step 4.1[12]
3. At JPM Step 17 - Inserts Alarms:
- **C7L-A5 and A6 "Cooler NNN leaking "**
- **C904LC-B3 "C19A/B Trouble"**

GENERAL TOOLS AND EQUIPMENT:

5. None

CRITICAL ELEMENTS:

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

OPERATOR BRIEF:

9. 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. The task conditions are as follows:
   i) The reactor is at about 5% power
   ii) Containment inerting preparations have started IAW PNPS 2.2.70 Att.8. The procedure is complete through Step 4.1[12]
3. Solicit and answer any questions the operator may have.

INITIAL CONDITIONS:

- The reactor is at approximately 5% power
- Containment inerting preparations have started IAW PNPS 2.2.70 Att.8. The procedure is complete through Step 4.1[12]

INITIATING CUE:

Line up SGTS A train to inert containment IAW PNPS 2.2.70 Att.8 beginning at step 4.1[12].

PERFORMANCE:

Notes

START TIME: _____

76.	**Procedure Step:**	IF while purging, venting, OR inerting the containment, alarm is received which requires termination of the purging, venting, or inerting evolution, THEN EXIT this Attachment AND ENTER base document Section 7.10 (Isolation of Containment Purge Lines Upon Indication of Reactor Coolant Pressure Boundary Leakage). Alarms are listed below:
		• "SBGT DISCH RAD HI" (C904LC-F4)
		• "C19 A/B TROUBLE" (C904LC-B3)
		• "DRYWELL EQPT DRAIN SUMP DISCH HIGH TOTAL FLOW" (C20C)
		• "DRYWELL FLOOR DRAIN SUMP DISCH HIGH TOTAL FLOW (C20C)
		• "DRYWELL EQPT DRAIN PUMP SUMP HIGH LEVEL" (twice within 30 minutes) (C20L)
		• "DRYWELL FLOOR DRAIN SUMP HIGH LEVEL" (twice within a 160-minute interval) (C20L)
		• "COOLER 'NNN' LEAKING alarms, where 'NNN' is the specific cooler number (more than one unit in alarm) Panel C7L windows A5, A6, A7, B5, B6, B7, C5, and C6
	Standard	Operator reviews alarms listed above.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

77.	**Procedure Step:**	VERIFY the control switches for the following valves are in the "AUTO" position at Panel C904:
		• AO-5035A, DRYWELL PURGE SUPPLY ISOL VLV
		• AO-5036A, TORUS PURGE SUPPLY ISOL VLV
	Standard	Verifies the control switches for the following valves are in the "AUTO" position at Panel C904:
		• AO-5035A, DRYWELL PURGE SUPPLY ISOL VLV
		• AO-5036A, TORUS PURGE SUPPLY ISOL VLV
	Cue	
	Notes	

	Results	SAT ☐ UNSAT ☐

78.	**Procedure Step:**	OPEN the following valves from Panel C7:
		• AO-5042A, TORUS PURGE EXHAUSE ISOL VLV
		• AO-5042B, TORUS PURGE EXHAUST ISOL VLV
	Standard	Opens the following valves from Panel C7:
		• AO-5042A, TORUS PURGE EXHAUSE ISOL VLV
		• AO-5042B, TORUS PURGE EXHAUST ISOL VLV
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

79.	**Procedure Step:**	VERIFY CLOSED AO-5035A, DRYWELL PURGE SUPPLY ISOL VLV, from Panel C7.
	Standard	Verifies Closed AO-5035A, DRYWELL PURGE SUPPLY ISOL VLV, from Panel C7.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

80.	**Procedure Step:**	CLOSE the air supply block valve to AO-5035A, DRYWELL PURGE SUPPLY ISOL VLV, located in the Drywell personnel air lock access.
	Standard	Closes the air supply block valve to AO-5035A, DRYWELL PURGE SUPPLY ISOL VLV, located in the Drywell personnel air lock access.
	Evaluator Operator:	Candidate contacts Field Operator to close Valve.
	Cue:	Evaluator responds.
	Notes	
	Results	SAT ☐ UNSAT ☐

81.	**Procedure Step:**	VERIFY CLOSED AO-5035B, DRYWELL PURGE SUPPLY ISOL VLV.
	Standard	Verifies Closed AO-5035B, DRYWELL PURGE SUPPLY ISOL VLV.

	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

82.	**Procedure Step:**	VERIFY CLOSED AO-5036B, TORUS PURGE SUPPLY ISOL VLV.
	Standard	Verifies Closed AO-5036B, TORUS PURGE SUPPLY ISOL VLV.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

83.	**Procedure Step:**	OPEN AO-5033B, DW/TORUS N_2 PURGE ISOL VLV.
	Standard	Opens AO-5033B, DW/TORUS N_2 PURGE ISOL VLV.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

84.	**Procedure Step:**	THROTTLE OPEN 9-HO-262, N_2 Supply to Drywell/Torus Purge Block Valve. (Rx Bldg El. 23')
	Standard	Throttles Open -HO-262, N_2 Supply to Drywell/Torus Purge Block Valve.
	Cue	Candidate contacts Field Operator to open valve.
	Evaluator Cue	Evaluator responds as Field Operator that he opened the valve.
	Notes	
	Results	SAT ☐ UNSAT ☐

85.	**Procedure Step:**	OPEN 9-HO-117, Primary Cntmt Atm Control N_2 Purge Supply Block Valve. (Drywell Access, Rx Bldg El. 23')
	Standard	Opens 9-HO-117, Primary Cntmt Atm Control N_2 Purge Supply Block Valve.
	Cue	Candidate contacts Field Operator to open valve.
	Evaluator's Cue	Responds as Field Operator that he opened the valve.
	Notes	

	Results	SAT ☐	UNSAT ☐

86.	**Procedure Step:**	VERIFY OPEN OR OPEN AO-N-98, Contaminated Exh to SGTS Inlet Plenum, as needed to maintain flow/pressure.	
	Standard	Opens AO-N-98, Contaminated Exh to SGTS Inlet Plenum.	
	Cue		
	Notes		
	Results	SAT ☐	UNSAT ☐

87.	**Procedure Step:**	VERIFY OPEN OR OPEN AO-N-101, Refuel Floor Exh to SGTS Inlet Plenum, as needed to maintain flow/pressure.	
	Standard	Opens AO-N-101, Refuel Floor Exh to SGTS Inlet Plenum.	
	Cue		
	Notes		
	Results	SAT ☐	UNSAT ☐

88.	**Procedure Step:**	AO-N-99, TRAIN A INLET DMPR, IS OPEN.	
	Standard	AO-N-99, TRAIN A INLET DMPR, IS OPEN.	
	Cue		
	Notes		
	Results	SAT ☐	UNSAT ☐

89.	**Procedure Step:**	AO-N-108, TRAIN A OUTL DMPR, is OPEN.	
	Standard	AO-N-108, TRAIN A OUTL DMPR, is OPEN.	
	Cue		
	Notes		
	Results	SAT ☐	UNSAT ☐

90.	**Procedure Step:**	VEX-210B, STANDBY GAS FAN B, is in “STANDBY”.
	Standard	VEX-210B, STANDBY GAS FAN B, is in “STANDBY”.
	Cue	
	Sim Booth Evaluator	
	Examiner’s Note	
	Notes	
	Results	SAT ☐ UNSAT ☐

91.	**Procedure Step:**	START VEX-210A, STANDBY GAS FAN A, Panel C7 by placing the control switch in “RUN”
	Standard	STARTS VEX-210A, STANDBY GAS FAN A, Panel C7 by placing the control switch in “RUN”
	Cue	
	Sim Booth Evaluator	
	Examiner’s Note	Applicant must now go to Attachment 13.
	Notes	
	Results	SAT ☐ UNSAT ☐

92.	**Procedure Step:**	Record the start time in the CRS LOG
	Standard	Records Start time in CRS LOG.
	Cue	
	Sim Booth	**Inserts Alarms:** **C7L-A5 and A6 ”Cooler NNN leaking “** **C904LC-B3 “C19A/B Trouble”**
	Examiner’s Note	Applicant must now go to Attachment 13. The Critical Portion of this step is responding to the alarms
	Notes	
	Results	SAT ☐ UNSAT ☐

93.	**Procedure Step:**	IAW Att.13 Steps 13[1] & [2] IF, while venting, purging, or inerting the containment during power operation, any of the following alarms are received:
		• "SBGT DISCH RAD HI" (C904LC-F4)
		• **"C19 A/B TROUBLE" (C904LC-B3)**
		• "DRYWELL EQPT DRAIN SUMP DISCH HIGH TOTAL FLOW" (C20C)
		• "DRYWELL FLOOR DRAIN SUMP DISCH HIGH TOTAL FLOW" (C20C)
		• "DRYWELL EQPT DRAIN PUMP SUMP HIGH LEVEL" (twice with 30 minutes) (C20L)
		• "DRYWELL FLOOR DRAIN SUMP HIGH LEVEL" (twice within a 2-hour 40-minute interval) (C20L)
		• **"COOLER 'NNN' LEAKING" ALARMS, WHERE 'NNN' is the specific cooler number (more than one unit in alarm) Panel C7L windows A5, A6, A7, B5, B6, B7, C5, and C6**
	Standard	Responds to Annunciators
	Notes	Annunciators above in **BOLD** will alarm
	Results	SAT ☐ UNSAT ☐

94.	**Procedure Step:**	CLOSES OR VERIFIES CLOSED SV-5030A, N_2 Makeup Supply Block Valve.
	Standard	Closes SV-5030A, N_2 Makeup Supply Block Valve.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

95.	**Procedure Step:**	CLOSES OR VERIFIES CLOSED AO-5035A, Drywell Purge Supply Isol Vlv.
	Standard	Closes AO-5035A, Drywell Purge Supply Isol Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

96.	**Procedure Step:**	CLOSES OR VERIFIES CLOSED AO-5036A, Torus Purge Supply Isol Vlv.
	Standard	Closes AO-5036A, Torus Purge Supply Isol Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

97.	**Procedure Step:**	CLOSES OR VERIFIES CLOSED AO-5041A, Torus Normal Exhaust Isol Vlv.
	Standard	Closes AO-5041A, Torus Normal Exhaust Isol Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

98.	**Procedure Step:**	CLOSES OR VERIFIES CLOSED AO-5041B, Torus Normal Exhaust Isol Vlv.
	Standard	Closes AO-5041B, Torus Normal Exhaust Isol Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

99.	**Procedure Step:**	CLOSES OR VERIFIES CLOSED AO-5042A, torus Purge Exhaust Isol Vlv.
	Standard	Closes AO-5042A, Torus Purge Exhaust Isol Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

100.	**Procedure Step:**	CLOSES OR VERIFIES CLOSED AO-5042B, torus Purge Exhaust Isol Vlv.
	Standard	Closes AO-5042B, Torus Purge Exhaust Isol Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

101.	**Procedure Step:**	CLOSES OR VERIFIES CLOSED AO-5043A, Drywell Normal Exhaust Isol Vlv.
	Standard	Closes AO-5043A, Drywell Normal Exhaust Isol Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

102.	**Procedure Step:**	CLOSES OR VERIFIES CLOSED AO-5043B, Drywell Normal Exhaust Isol Vlv.
	Standard	Closes AO-5043B, Drywell Normal Exhaust Isol Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

103.	**Procedure Step:**	CLOSES OR VERIFIES CLOSED AO-5044A, Drywell Purge Exhaust Isol Vlv.
	Standard	Closes AO-5044A, Drywell Purge Exhaust Isol Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

104.	**Procedure Step:**	CLOSES OR VERIFIES CLOSED AO-5044B, Drywell Purge Exhaust Isol Vlv.
	Standard	Closes AO-5044B, Drywell Purge Exhaust Isol Vlv.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

105.	**Procedure Step:**	IF "A" SGTS was running, THEN at Panel C7, PLACE control switch for VEX-210A, Standby Gas Fan A, to "AUTO".
	Standard	Places control switch for VEX-210A, Standby Gas Fan A, to "AUTO".
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

106.	**Procedure Step:**	IF "B" SGTS was running, THEN at Panel C7, PLACE control switch for AO-N-106, Train B Inlet Dmpr, to "AUTO".
	Standard	N/A – B was not running
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

107.	**Procedure Step:**	VERIFY OR PLACE the following dampers into the "AUTO" position:
		• AO-N-99, Train A Inlet Dmpr
		• AO-N-108, Train A Outl Dmpr
		• AO-N-112, Train B Outl Dmpr
	Standard	Places the following dampers into the "AUTO" position:
		• AO-N-99, Train A Inlet Dmpr
		• AO-N-108, Train A Outl Dmpr
		• AO-N-112, Train B Outl Dmpr
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

CUE: **JPM is complete**

STOP TIME: _____

INITIAL CONDITIONS:

- The reactor is at approximately 5% power
- Containment inerting preparations have started IAW PNPS 2.2.70 Att.8. The procedure is complete through Step 4.1[12]

INITIATING CUE:

Line up SGTS A train to inert containment IAW PNPS 2.2.70 Att.8 beginning at step 4.1[12].

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE
(RO/SRO)

TITLE: **RECOVER RBCCW LOOP 'B' WITH AN ELEVATED DRYWELL TEMPERATURE**

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: A non-LOCA event occurred that caused a reactor scram. Subsequent power and equipment failures have rendered RBCCW Loop 'B' inoperable, causing drywell temperature to exceed 250°F. Electrical faults have been corrected, and it is desired to restore RBCCW Loop 'B' system flow.

TASK STANDARD: The RBCCW Loop 'B' will be restored without causing condensation-induced water hammer due to elevated drywell temperature. Procedure 2.4.42 shall be carried out without failure of any critical elements.

EVALUATION METHOD:

X Perform
Simulate

EVALUATION LOCATION:

Plant
X Simulator
Control Room

Prepared: _____ **Date:** _____

Reviewed: _____ **Date:** _____

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

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Respond to High Drywell Temperature (EOP-03)	200-05-01-021	400000 AA4.01	3.1/3.2

REFERENCES:

PNPS 2.4.42

SIMULATOR CONDITIONS:

36. Initialize to any at power IC
37. Place HPCI Aux. Oil Pump in PTL.
38. Place all Loop "B" RBCCW Pumps in PTL
39. When the Reactor Scrams, carry out PNPS 2.1.6
40. Stabilize RPV Pressure and Level
41. Allow Drywell Temperature to rise to greater than 250 degrees

GENERAL TOOLS AND EQUIPMENT: None

CRITICAL ELEMENTS:

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

OPERATOR BRIEF:

10. 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. The task conditions are as follows:
    i) A loss of B14 has occurred resulting in a loss of "B" loop RBCCW pumps
    ii) RBCCW could not be cross-tied due to the inability to open a cross connect valve.
    iii) The HPCI Aux Oil Pump is in PTL.
    iv) The reactor was scrammed and the actions of PNPS 2.1.6 carried out.
    v) EOP-03 has been entered on high drywell temperature
    vi) The fault on B-14 has been cleared
    vii) SSW pumps have been started IAW PNPS 2.4.43
    viii) "B" Loop RBCCW pumps are in PTL in preparation for restoring B14 IAW 2.4.42.
    ix) Drywell temperature has exceeded 250 degrees for the past 8 minutes

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

INITIAL CONDITIONS:

- A loss of B14 has occurred resulting in a loss of “B” loop RBCCW pumps
- RBCCW could not be cross-tied due to the inability to open a cross connect valve.
- The HPCI Aux Oil Pump is in PTL.
- The reactor was scrammed and the actions of PNPS 2.1.6 carried out.
- EOP-03 has been entered on high drywell temperature
- The fault on B-14 has been cleared
- SSW pumps have been started IAW PNPS 2.4.43
- “B” Loop RBCCW pumps are in PTL in preparation for restoring B14 IAW 2.4.42.
- Drywell temperature has exceeded 250 degrees for the past 8 minutes

INITIATING CUE:

B14 has been re-energized. Restore RBCCW Loop ‘B’ IAW PNPS 2.4.42 Section 4.2. Inform me when you have completed the task.

PERFORMANCE:

Notes This task is covered in 2.4.42, Section 4.2.

All critical steps must be performed in order written unless otherwise noted.

START TIME: _____

108.	**Procedure Step:**	4.2 RECOVERY OF RBCCW LOOP "B" WITH AN ELEVATED DRYWELL TEMPERATURE **[NRC GL96-06]** **CAUTION** If Drywell temperatures exceed 250°F and the RBCCW Loop "B" pumps are not running, it is possible for boiling to occur in the Drywell Coolers that may result in a condensation-induced water hammer when the RBCCW Pumps are started or the loops are cross-tied, unless the RBCCW nonessential block valves are closed first. **[NRC GL96-06]** [1] (a) **IF** indications of a major LOCA exist, **THEN PERFORM** Step [2]. (b) **IF** NO indications of a major LOCA exist, **THEN PERFORM** Step [3].
	Standard	Operator enters Step 3 of the procedure.
	Cue	
	Notes	Initial Conditions described Non-LOCA conditions.
	Results	SAT ☐ UNSAT ☐

109.	**Procedure Step:**	[3] **IF ALL** of the following conditions exist: • NO indications of a major LOCA inside Primary Containment; • Drywell temperature has been ≥250F; • RBCCW flow has been lost to the Drywell for ≥6 minutes; **THEN RECOVER** RBCCW Loop "B" as directed in the following steps: NOTE "Drywell Temperature" as stated in this section of PNPS 2.4.42 shall be determined by the direction provided according to PNPS 2.1.27, *"Drywell Temperature Indication"*. This is the same direction given for Drywell temperature determination for execution of the EOPs. (a)**CLOSE** the following RBCCW Loop "B" Nonessential Isolation Valves at Panel C1: • MO-4009A, RBCCW Loop "B" Nonessential Loop Inlet Valve • MO-4009B, RBCCW Loop "B" Nonessential Loop Outlet Valve
	Standard	Operator closes MO-4009A & B. Both valves indicate closed as evidenced by red light off & green light on.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

110.	**Procedure Step:**	CAUTION The RBCCW loops shall not be cross-tied when the Suppression Pool temperature is ≥130°F and only one loop of containment cooling is operable. (b) START one "B" RBCCW loop pump OR CROSS-TIE RBCCW loops in accordance with Attachment 5.
	Standard	Operator starts one RBCCW pump. Red light on and green light off, and pressure increase on PI-4008 Panel C-1.
	Cue	IF the Operator requests a Field Operator be dispatched to the "B" Auxiliary Bay for the pump start, as CRS respond, "No Field Operators are available."
	Notes	
	Results	SAT ☐ UNSAT ☐

111.	**Procedure Step:**	(c) **IF** Maximized Torus Cooling, Torus Spray, Drywell Spray, **OR** LPCI Injection With Maximized Cooling mode is required, **THEN MAXIMIZE** RBCCW Cooling in accordance with PNPS 2.2.19.5 Attachment 1 **AND ALIGN** the RHR System for the required mode in accordance with PNPS 2.2.19.5 Attachment 3, 4, 5, **OR** 6.
	Standard	Operator questions CRS as to need to align systems for maximized cooling.
	Cue	"The ECCS operator has placed RBCCW and torus cooling in service using loop "A" systems. Continue restoration of "B" loop RBCCW."
	Notes	
	Results	SAT ☐ UNSAT ☐

112.	**Procedure Step:**	NOTE Drywell Cooler Motor Operated Supply Valves MO-4038A, MO-4038B, MO-4038C, MO-4038D, MO-4038E, MO-4038F MO-4039A, MO-4039B, MO-4039C, MO-4039D, MO-4039E, MO-4039F MO-4040A, MO-4040B, MO-4041A, MO-4041B (d) At Panel C7, **PLACE** all Drywell cooler motor operated supply valves (**SEE** Note directly above) to approximately the 10% **OPEN** position.
	Standard	All 16 motor operated valves are opened to 10%. MO-4038A at 10%: ____ MO-4039A at 10%: ____ MO-4040A at 10%: ____ MO-4038B at 10%: ____ MO-4039B at 10%: ____ MO-4040B at 10%: ____ MO-4038C at 10%: ____ MO-4039C at 10%: ____ MO-4041A at 10%: ____ MO-4038D at 10%: ____ MO-4039D at 10%: ____ MO-4041B at 10%: ____ MO-4038E at 10%: ____ MO-4039E at 10%: ____ MO-4038F at 10%: ____ MO-4039F at 10%: ____
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

113.	**Procedure Step:**	(e) OPEN the following RBCCW Loop "B" Nonessential Isolation Valves at Panel C1: • MO-4009A, RBCCW Loop "B" Nonessential Loop Inlet Valve • MO-4009B, RBCCW Loop "B" Nonessential Loop Outlet Valve
	Standard	MO-4009A and B are opened. Red light on/green light off.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

114.	**Procedure Step:**	(f) OPEN all Drywell cooler supply MOV's [SEE Note above Step (d)].
	Standard	All 16 motor operated valves are opened to 100%. MO-4038A at 100%: ___ MO-4039A at 100%: ___ MO-4040A at 100%: ___ MO-4038B at 100%: ___ MO-4039B at 100%: ___ MO-4040B at 100%: ___ MO-4038C at 100%: ___ MO-4039C at 100%: ___ MO-4041A at 100%: ___ MO-4038D at 100%: ___ MO-4039D at 100%: ___ MO-4041B at 100%: ___ MO-4038E at 100%: ___ MO-4039E at 100%: ___ MO-4038F at 100%: ___ MO-4039F at 100%: ___
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

115.	**Procedure Step:**	(g) IF plant conditions indicate a breach in the Drywell RBCCW cooling piping, THEN **ISOLATE** the RBCCW flow to the Drywell by closing; • MO-4009A, RBCCW Loop "B" Nonessential Loop Inlet Valve • MO-4009B, RBCCW Loop "B" Nonessential Loop Outlet Valve
	Standard	Operator determines that there is no break in RBCCW cooling piping in D/W.
	Cue	Role Play as required to provide indication that RBCCW loop "B" has not been breached if operator requests information from field
	Notes	The operator can make this determination in several ways, including the following: Operator can use steady pressure indication on RBCCW loop "B" and /or Absence of RBCCW loop "B" surge tank alarm and/or Request field operator to verify steady surge tank level. Etc. .
	Results	SAT ☐ UNSAT ☐

116.	**Procedure Step:**	(h) **PERFORM** PNPS 2.2.19.5 Attachments 1 (Maximize RBCCW Cooling) and 2 (Maximize Drywell Cooling) as necessary.
	Standard	
	Cue	"This concludes the JPM."
	Notes	
	Results	SAT ☐ UNSAT ☐

STOP TIME: _____

INITIAL CONDITIONS:

- A loss of B14 has occurred resulting in a loss of "B" loop RBCCW pumps
- RBCCW could not be cross-tied due to the inability to open a cross connect valve.
- The HPCI Aux Oil Pump is in PTL.
- The reactor was scrammed and the actions of PNPS 2.1.6 carried out.
- EOP-03 has been entered on high drywell temperature
- The fault on B-14 has been cleared
- SSW pumps have been started IAW PNPS 2.4.43
- "B" Loop RBCCW pumps are in PTL in preparation for restoring B14 IAW 2.4.42.
- Drywell temperature has exceeded 250 degrees for the past 8 minutes

INITIATING CUE:

B14 has been re-energized. Restore RBCCW Loop 'B' IAW PNPS 2.4.42 Section 4.2. Inform me when you have completed the task.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE

TITLE: **APRM "B"FUNCTIONAL TEST**

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: A plant startup is in progress. The operator will perform the APRM 'B" functional test IAW 8.M.1-3.1 Att.2 Steps [6] thru [28]

TASK STANDARD: APRM B Functional Test complete IAW 8.M.1-3.1, Attachment 2 through step 28 and APRM B out of Bypass. Task is performed in accordance with all system precautions and limitations and without failure of any critical elements.

EVALUATION METHOD:

X Perform
Simulate

EVALUATION LOCATION:

Plant
X Simulator
Control Room

Prepared: _____ **Date:** _____

Reviewed: _____ **Date:** _____

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

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
APRM FUNCTIONAL TEST		215005 A4.03	3.2/3.2

REFERENCES:

PNPS 8.M.1-3.1 Att.2

SIMULATOR CONDITIONS:

1. IC 18.
2. MODE SELECTOR SWITCH NOT in RUN

GENERAL TOOLS AND EQUIPMENT:

6. None

CRITICAL ELEMENTS:

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

OPERATOR BRIEF:

11. 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. The task conditions are as follows:
    i) The plant is starting up.
    ii) APRM "B" Functional Test has begun IAW 8.M.1-3.1, Attachment 2, and is complete through Step [5]
12. Solicit and answer any questions the operator may have.

INITIAL CONDITIONS:

- A plant startup is in progress
- APRM “B” Functional Test has begun IAW 8.M.1-3.1, Attachment 2, and is complete through Step [5]

INITIATING CUE:

Perform APRM “B” Functional Test in accordance with 8.M.1-3.1, Attachment 2. Begin at procedure Step [6].

PERFORMANCE:

Notes

START TIME: _____

117.	**Procedure Step:**	VERIFY the APRM "B" BYPASS indication lights at Panels C905 and C937 are ON.
	Standard	Verifies the APRM "B" BYPASS indication lights at Panels C905 and C937 are ON.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

118.	**Procedure Step:**	VERIFY the following:
		• The SET DOWN white light for APRM "B" channel at Panel C937 is ON.
		• CRD Scram Solenoid Group 1-4 lights at Panels C915 and C917 are ON.
	Standard	Verifies the following:
		• The SET DOWN white light for APRM "B" channel at Panel C937 is ON.
		• CRD Scram Solenoid Group 1-4 lights at Panels C915 and C917 are ON.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

119.	**Procedure Step:**	PERFORM Attachment 9 (RPS Reset Verification).

ATTACHMENT 9
Sheet 1 of 1

RPS RESET VERIFICATION

[1] **VERIFY** that the backup Scram valve relays are reset as follows:

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 62.5V DC on the four backup Scram voltmeters. (Reference Drawing M1N22-8.)

(a) **VERIFY** voltage indicator EI-302-19AA on Panel C915 reads approximately 62.5 volts DC. _____ Initials

(b) **VERIFY** voltage indicator EI-302-19AB on Panel C915 reads approximately 62.5 volts DC. _____ Initials

(c) **VERIFY** voltage indicator EI-302-19BB on Panel C917 reads approximately 62.5 volts DC. _____ Initials

(d) **VERIFY** voltage indicator EI-302-19BA on Panel C917 reads approximately 62.5 volts DC. _____ Initials

CAUTION

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) **IF** any of the voltages verified in Steps (a) through (d) were NOT approximately 62.5V DC, **THEN STOP** this Procedure **AND NOTIFY** the Shift Manager. **IF** the voltages were acceptable, **ENTER** "N/P". _____ Initials

[2] Reviews:

Performed by: _____ (Name (print)) _____ (Initials) _____ (Date)

SRO Review: _____ (Name (print)) _____ (Initials) _____ (Date)

Standard	Verifies the above voltages
Cue	
Notes	NONE will be OOS
Results	SAT ☐ UNSAT ☐

120.	**Procedure Step:**	POSITION APRM “B” meter function switch to “COUNT”.
	Standard	POSITIONS APRM “B” meter function switch to “COUNT”.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

121.	**Procedure Step:**	VERIFY that all LPRM card switches are in the “OP” position. IF LPRM card switches are in the “BY” position due to a faulty detector or other trouble, they will remain in the “BY” position (RECORD LPRMs found in BYPASS below).
	Standard	Records that no LPRMS were found in BYPASS.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

122.	**Procedure Step:**	BYPASS additional LPRM card switches to achieve a total of four LPRM inputs (including LPRM inputs already bypassed).
	Standard	Bypasses additional LPRM card switches to achieve a total of four LPRM inputs (including LPRM inputs already bypassed).
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

123.	**Procedure Step:**	VERIFY APRM "B" local INOP light is ON AND APRM "B" meter indicates correct number of operable LPRM inputs. RECORD value below:
	Standard	Verifies APRM "B" local INOP light is ON AND APRM "B" meter indicates correct number of operable LPRM inputs.
	Cue	Candidate records value of 50%.
	Notes	
	Results	SAT ☐ UNSAT ☐

124.	**Procedure Step:**	RETURN previously selected LPRM card switches to the "OPERATE" position observing the instruction in Step [9] above.
	Standard	Returns previously selected LPRM card switches to the "OPERATE" position observing the instruction in Step [9]
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

125.	**Procedure Step:**	ACTUATE trip reset switch on APRM "B".
	Standard	Actuates the trip reset switch for APRM "B".
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

126.	**Procedure Step:**	VERIFY APRM "B" local INOP light is OFF.
	Standard	Verifies APRM "B" local INOP light is OFF.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

127.	**Procedure Step:**	PLACE the APRM "B" mode switch in the "STANDBY" position.
		• VERIFY APRM "B" local INOP light is ON.
	Standard	Places the APRM "B" mode switch in the "STANDBY" position.
		• Verifies APRM "B" local INOP light is ON.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

128.	**Procedure Step:**	PLACE the APRM "B" mode switch in the "TEST POWER" position.
		• RESET any local trips associated with APRM "B".
		• VERIFY local alarm lights are CLEAR. (Power potentiometer may need to be adjusted to clear local alarms.)
	Standard	Places the APRM "B" mode switch in the "TEST POWER" position.
		• Resets any local trips associated with APRM "B".
		• Verifies local alarm lights are CLEAR. (Power potentiometer may need to be adjusted to clear local alarms.)
	Cue	
	Notes	Resetting local trips, and verifying local alarm lights are clear, ARE NOT critical for this step.
	Results	SAT ☐ UNSAT ☐

129.	**Procedure Step:**	POSITION the APRM "B" meter function switch to the "AVERAGE" position.
	Standard	Positions the APRM "B" meter function switch to the "AVERAGE" position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

130.	**Procedure Step:**	ADJUST the APRM "B" POWER potentiometer until the HIGH light comes on indicating the value of power signal that will initiate a rod block function.
	Standard	Adjusts the APRM "B" POWER potentiometer until the HIGH light comes on indicating the value of power signal that will initiate a rod block function.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

131.	**Procedure Step:**	RECORD the "As-Found" value of power. The setpoint for the HIGH or rod block function is 11 (10.5 to 11.5) percent power.
	Standard	Records the "As-Found" value of power. The setpoint for the HIGH or rod block function is 11 (10.5 to 11.5) percent power.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

132.	**Procedure Step:**	ADJUST the APRM "B" POWER potentiometer until the HIGH-HIGH light comes on indicating the value of power signal that will initiate a Scram function.
	Standard	Adjust the APRM "B" Power potentiometer until the HIGH-HIGH light comes on indicating the value of power signal that will initiate a Scram function.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

133.	**Procedure Step:**	RECORD the "As-Found" value of power. The setpoint for the HIGH-HIGH or Scram function is 13 (12.5 to 13.5) percent power.
	Standard	Records the "As-Found" value of power.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

134.	**Procedure Step:**	LOWER the APRM "B" POWER adjustment to approximately 5 percent power.
	Standard	Lowers the APRM "B" power adjustment to approximately 5 percent power.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

135.	**Procedure Step:**	RESET the APRM "B" trip functions.
	Standard	Resets the APRM "B" trip functions.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

136.	**Procedure Step:**	LOWER the APRM "B" POWER level adjustment until the local DNSCL light comes on indicating the value of power signal that will initiate a downscale function.
	Standard	Lowers the APRM "B" POWER level adjustment until the local DNSCL light comes on indicating the value of power signal that will initiate a downscale function.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

137.	**Procedure Step:**	RECORD the "As-Found" value of power. The setpoint for downscale is 3.0 (3.0 to 4.0) percent power, decreasing.
	Standard	Records the "As-Found" value of power.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

138.	**Procedure Step:**	RAISE the APRM "B" POWER level adjustment to approximately 5 percent power.
	Standard	Raises the APRM "B" POWER level adjustment to approximately 5 percent power.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

139.	**Procedure Step:**	RESET the APRM "B" channel trip functions.
		• VERIFY local alarms are CLEAR.
	Standard	Resets the APRM "B" channel trip functions.
		• Verifies local alarms are CLEAR.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

140.	**Procedure Step:**	PLACE the APRM "B" mode switch in the "OPERATE" position.
	Standard	Places the APRM "B" mode switch in the "OPERATE" position.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

141.	**Procedure Step:**	REMOVE bypass from APRM "B" channel by placing APRM "B" channel bypass switch in "NEUTRAL" position (Panel C905).
		• VERIFY BYPASS lights are OFF (local and Panel C905).
	Standard	Removes bypass from APRM "B" channel by placing APRM "B" channel bypass switch in "NEUTRAL" position.
		• Verifies Bypass lights are OFF.
	Cue	
	Notes	
	Results	SAT ☐ UNSAT ☐

STOP TIME: _____

INITIAL CONDITIONS:

- A plant startup is in progress
- APRM “B” Functional Test has begun IAW 8.M.1-3.1, Attachment 2, and is complete through Step [5]

INITIATING CUE:

Perform APRM “B” Functional Test in accordance with 8.M.1-3.1, Attachment 2. Begin at procedure Step [6].

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE

TITLE: **CROSS-TIE RBCCW COOLING LOOPS**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	
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: With the plant at full power, a loss of 4160 VAC bus A5 occurred. Procedure 2.4.A.5 directs that RBCCW loops be cross-tied.

TASK STANDARD: The 'A' and 'B' Reactor Building Closed Cooling Water loops are cross-tied. The Reactor Building Closed Cooling Water System shall be operated in accordance with all applicable system precautions and limitations. PNPS 2.4.42 Attachment 5, shall be followed without failure of any 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)

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 2.4.42, Attachment 5

SIMULATOR CONDITIONS:

42. N/A

GENERAL TOOLS AND EQUIPMENT:

7. None

CRITICAL ELEMENTS:

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

OPERATOR BRIEF:

13. 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 simulated. 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. The task conditions are as follows:
    i) The plant was operating at 100% power when bus A5 locked out due to a ground fault and is unavailable.
    ii) As a result, the RBCCW loop 'A' pumps have been lost.
    iii) Off-normal procedure 2.4.A5, Loss of A5, has been entered.
3. Solicit and answer any questions the operator may have.

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:

Cross-tie Reactor Building Closed Cooling Water with the 'B' loop supplying, in accordance with PNPS 2.4.42 Attachment 5. Inform me when you have completed this task.

PERFORMANCE:

Notes

This task is covered in 2.4.42, Attachment 5.

Operator reviews the applicable section of the procedure.

All critical steps must be simulated in order written unless otherwise noted.

2.4.42 Attachment 5 includes a **CAUTION** which states in part, "RBCCW shall NOT be cross-tied if Torus Temp is greater than or equal to 130F." Operator may ask for Torus Temperature. Respond "75 degrees F"

START TIME: _____

142.	**Procedure Step:**	**[1] PLACE/VERIFY** sufficient RBCCW pumps in service in the active loop.
	Standard	Operator calls Control Room.
	Cue	Control Room reports that, "RBCCW pumps 'D' and 'E' are in service in RBCCW Loop 'B'."
	Notes	
	Results	SAT ☐ UNSAT ☐

143.	**Procedure Step:**	**[2] SECURE** any running RBCCW pump(s) in the idle loop from Panel C1.
	Standard	Operator calls Control Room.
	Cue	Control Room reports, "There are no pumps running on Loop "A"."
	Notes	
	Results	SAT ☐ UNSAT ☐

144.	**Procedure Step:**	**[3] PLACE** all three control switches for RBCCW pumps in the idle loop to "PULL-TO-LOCK" at Panel C1.
	Standard	Operator calls Control Room.
	Cue	Control Room reports that, "RBCCW Pump 'A', 'B' & 'C' switches are in "PULL-TO-LOCK."
	Notes	
	Results	SAT ☐ UNSAT ☐

145.	**Procedure Step:**	**[4]** 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	Operator locates, 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: "Valve is unlocked and CLOSED"
	Notes	
	Results	SAT ☐ UNSAT ☐

146.	**Procedure Step:**	**[5] OPEN** manual suction and discharge tie valves on east wall of "A" loop RBCCW area. (a) 30-HO-114, RBCCW Loop A & B Suction Crosstie Block Valve
	Standard	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 ☐

147.	**Procedure Step:**	(b) 30-HO-115, RBCCW Loop A & B Suction Crosstie Block Valve
	Standard	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 ☐

148.	**Procedure Step:**	(c) 30-HO-192, RBCCW Loop A & B Discharge Crosstie Block Valve
	Standard	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 ☐

149.	**Procedure Step:**	(d) 30-HO-193, RBCCW Loop A & B Discharge Crosstie Block Valve
	Standard	Operator locates 30-HO-193 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 ☐

150.	**Procedure Step:**	
	Standard	**Operator contacts the Control Room and informs them that the RBCCW loops have been cross-tied.**
	Cue	"This completes the JPM."
	Notes	
	Results	SAT ☐ UNSAT ☐

STOP TIME: _____

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:

Cross-tie Reactor Building Closed Cooling Water with the 'B' loop supplying, in accordance with PNPS 2.4.42 Attachment 5. Inform me when you have completed this task.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE

TITLE: **RCIC START FROM THE ALTERNATE SHUTDOWN PANELS**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**20**	Actual Time (min):	
PERFORMANCE TIME:	Average Time (min):	16	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 place RCIC in service from the alternate shutdown panels for level control following control room abandonment due to a fire.

TASK STANDARD: The RCIC turbine will be in operation from the Alternate Shutdown Panels in the level control mode. The system shall be operated in accordance with all applicable precautions and limitations. The procedure shall be followed without failure of any 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)

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Manually Operate and Adjust RCIC System Flow With RCIC Flow Controls At Alternate Shutdown Panel	217-02-01-006	295016	AA1.06 4.0/4.1

REFERENCES:

PNPS 2.4.143

SIMULATOR CONDITIONS:

43. N/A

GENERAL TOOLS AND EQUIPMENT:

1. Keys to Alternate Shutdown Panels C-154 and C-159 (ASP Key Ring CR-66 or CRA051).

CRITICAL ELEMENTS:

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

OPERATOR BRIEF:

14. 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 simulated. 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".
15. The task conditions are as follows:
    a) The control room has been evacuated due to a fire
    b) The reactor has been scrammed successfully
    c) RPV level control has not been established
    d) RCIC must be started to accomplish RPV level control
    e) Communications have been established with the Shift Manager, who is standing by the level instrument rack 2205 and with an operator stationed at Rack 2258 with walkie-talkies or a cellular phone.
16. Solicit and answer any questions the operator may have.

INITIAL CONDITIONS:

- The control room has been evacuated due to a fire
- The reactor has been scrammed successfully
- RPV level control has not been established
- RCIC must be started to accomplish RPV level control
- Communications have been established with the Shift Manager, who is standing by the level instrument rack 2205 and with an operator stationed at Rack 2258 with walkie-talkies or a cellular phone.

INITIATING CUE:

This JPM is TIME CRITICAL. Start RCIC from the Alternate Shutdown Panels and place the system in the injection mode in accordance with PNPS procedure 2.4.143, Appendix B. Maintain reactor water level between +20 and +40. Water level is currently +30 and slowly lowering. Inform me when you have completed the assigned task.

NOTE: The JPM time will start after the Examiner has completed reading the above statements. Two, (2), minutes are assumed to have elapsed while the candidate obtained keys and transited into the Reactor Building 23' elevation.

PERFORMANCE:

Notes This task is covered in 2.4.143, Appendix B, Sections 3.1 - 3.3.

All controls are located at the alternate shutdown panels C154, C155 and C159 unless noted.

All critical steps must be performed in order written unless otherwise noted.

151.	**Procedure Step:**	3.1 TRANSFER OF CONTROL TO THE ALTERNATE SHUTDOWN PANELS (ASPs) [1] **OBTAIN** the keys to ASP C154, ASP C155 (HPCI), and switch 13A-LS1 on ASP C159 (CRA-051 or CR-066).
	Standard	The keys are obtained.
	Cue	
	Notes	Keys are available at the ASP, behind "brake glass" enclosures. After the operator identifies key location, provide the keys.
	Results	SAT ☐ UNSAT ☐

TIME CRITICAL START TIME_____ NOTE: Start time begins once the RCA has been entered

152.	**Procedure Step:**	[2] **PLACE** RCIC Area Cooler at C61A for VAC-202A (B) to "TEST" from "RUN" position.
	Standard	Operator proceeds to C61A, selects correct switch and simulates movement to the "TEST" position.
	Cue	"The switch is turning and now it is in "TEST". The red light is on and the green and amber lights are off for VAC 202A (VAC 202B)."
	Notes	Fan control switch for VAC 202A(B) is located on panel C61A. Starting EITHER fan satisfies the critical step.
	Results	SAT ☐ UNSAT ☐

153.	**Procedure Step:**	[3] **LOCALLY START** the RCIC Vacuum Pump P-222 in the Quadrant.
	Standard	Operator starts personally or calls individual in quadrant start the vacuum pump.
	Cue	"The RCIC vacuum pump is already running."
	Notes	It is not necessary to go to the Quadrant to accomplish this step. The operator may choose to call the operator stationed in the quad to start the pump. If not performed, note "N/A".

	Results	SAT ☐	UNSAT ☐

NOTE

Valve MO-2301-15 may already be in use if HPCI is in operation.

154.	**Procedure Step:**	[4] PLACE the control switch to MO-2301-15 (HPCI/RCIC Test Return Valve) at ASP C155 (HPCI Quad entrance) to the pushed-in NORMAL position.
	Standard	Operator simulates pushing in the Control switch for MO-2301-15
	Cue	"The control switch is pushed in."
	Notes	
	Results	SAT ☐ UNSAT ☐

155.	**Procedure Step:**	[5] **OPEN <u>OR</u> CHECK OPEN** valve MO-2301-15 from ASP C155.
	Standard	Operator identifies correct switch and motions in the proper direction.
	Cue	"The red light is on and the green light is off."
	Notes	
	Results	SAT ☐ UNSAT ☐

156.	**Procedure Step:**	[6] **PLACE** switch 13A-LS1 at ASP C159 (RCIC ASP) to "LOCAL".
	Standard	Operator locates correct switch and simulates motion in proper direction.
	Cue	"Switch 13A-LS1 is in local."
	Notes	
	Results	SAT ☐ UNSAT ☐

157.	**Procedure Step:**	[7] PLACE all control switches (five valve control switches) in ASP C154 out of "PULL-TO-LOCK" and into the pushed-in NORMAL position: • MO-1301-49, RCIC Injection Valve #2 • MO-1301-53, RCIC Full Flow Test Valve • MO-1301-60, RCIC Pump Minimum Flow Valve • MO-1301-61, RCIC Turbine Steam Inlet Valve • MO-1301-62, RCIC Cooling Water Supply Valve
	Standard	Operator simulates pushing in all control switches.
	Cue	After each switch is pointed to, "The control switch is pushed in."
	Notes	Switches may be pushed in any order as long as all 5 get pushed in.
	Results	SAT ☐ UNSAT ☐

158.	**Procedure Step:**	[8] **VERIFY/PLACE** the power supply "ON" at Power Supply Panel N551, adjacent to C154 and C159.
	Standard	Operator locates correct switch and simulates motion in proper direction.
	Cue	"The switch is simulated in the ON position. The red light is on, voltage indicates 120 volts, current indicates slightly above 0 amps."
	Notes	
	Results	SAT ☐ UNSAT ☐

NOTE

Control of RCIC components, which may be controlled at Panels C154 and C159, as well as control of the HPCI/RCIC common Full Flow Test Valve (MO-2301-15 at ASP 155), has now been transferred to the ASPs.

159.	**Procedure Step:**	[9] **VERIFY** that the amber lights on the front of Panels C154 and C159 are NOT lit.
	Standard	Operator verifies amber light is out on both panels.
	Cue	"The amber light is off (repeat for each panel)."
	Notes	
	Results	SAT ☐ UNSAT ☐

160.	**Procedure Step:**	3.2 VALVE LINEUP [1] **IF** manned **AND** available, **REQUEST** additional support from the OSC/TSC to assist in aligning and operating the RCIC System.
	Standard	Operator requests additional assistance.
	Cue	"The OSC/TSC is not yet sufficiently manned."
	Notes	
	Results	SAT ☐ UNSAT ☐

NOTE

The following lineup is for initial start of RCIC. It assumes that flow will be established to the TEST LINE. Subsequent flow adjustment and valve manipulation are at the direction of the SM.

161.	**Procedure Step:**	[2] **VERIFY** that Flow Controller FIC-1340-2 on ASP C159 is in "AUTO" and the setpoint is 250 GPM.
	Standard	Operator verifies flow controller is in auto and the setpoint is 250 GPM.
	Cue	"Controller and setpoint tape is as you see them."
	Notes	
	Results	SAT ☐ UNSAT ☐

162.	**Procedure Step:**	[3] **OPEN** MO-1301-62, Cooling Water Supply Vlv, on ASP C154
	Standard	Operator identifies the proper control switch and simulates rotation in the proper direction.
	Cue	"The red light is on and the green light is off."
	Notes	
	Results	SAT ☐ UNSAT ☐

163.	**Procedure Step:**	[4] **OPEN/VERIFY OPEN** MO-2301-15, HPCI/RCIC Test Return Valve, on ASP C155.
	Standard	Operator simulates verifying indications and/or notes the valve has been checked open already.
	Cue	"The red light is on and the green light is off."
	Notes	The operator may indicate that the position of the valve has already been checked. In this case no cue is required.
	Results	SAT ☐ UNSAT ☐

164.	**Procedure Step:**	[5] **JOG OPEN** MO-1301-53, RCIC Full Flow Test Valve, for 6 seconds.
	Standard	Operator locates and simulates opening of MO-1301-53 for six seconds.
	Cue	"The red and green lights are both on."
	Notes	C154
	Results	SAT ☐ UNSAT ☐

CAUTION

During normal operation, the turbine should not be run below 2000 RPM. Below 2000 RPM, intermittent exhaust flow will cause water hammer in the exhaust line. If turbine operation below 2000 RPM is required to achieve and/or maintain adequate core cooling, then the turbine should not be run below 1000 RPM. This will ensure adequate oil pressure to maintain the stop valve open and bearing lubrication. The time the turbine is run below 2000, RPM should be kept to a minimum.

165.	**Procedure Step:**	3.3 TURBINE STARTUP AND SYSTEM OPERATION [1] **OPEN** MO-1301-61, RCIC Turbine Supply Valve, from ASP C154 **AND OBSERVE** that the Turbine starts. **IF** problems are encountered, **REFER TO** Precaution 2.0[5] of Appendix B.
	Standard	Operator identifies correct control switch and motions operations in proper direction.
	Cue	"The red light is on and the green light is off."
	Notes	
	Results	SAT ☐ UNSAT ☐

166.	**Procedure Step:**	
	Standard	Operator verifies increase in turbine speed.
	Cue	"SI-1340-2 is rising and stabilizes at 2800 RPM."
	Notes	C159
	Results	SAT ☐ UNSAT ☐

167.	**Procedure Step:**	
	Standard	Operator verifies flow.
	Cue	"FI-1340-2 is rising and stabilizes at 250 GPM."
	Notes	C159
	Results	SAT ☐ UNSAT ☐

168.	**Procedure Step:**	[2] **OPERATE** system as necessary to control Reactor Vessel level and pressure. (a) **MONITOR** system operation **AND ADJUST** FIC-1340-2, Injection Flow Control, and/or MO-1301-53, RCIC Full Flow Test Valve, on ASP C159 to obtain RCIC flow rate as directed by the SM.
	Standard	Operator monitors system.
	Cue	As the SM, "Place RCIC in the injection mode."
	Notes	
	Results	SAT ☐ UNSAT ☐

NOTE

The next few steps will affect RCIC discharge pressure and steam demand. FIC-1340-2 and MO-1301-53 should be manipulated in tandem such that Reactor Vessel pressure and level are controlled as desired. RCIC discharge pressure can be monitored at PI-1360-5 (Rack C2258) if desired.

CAUTION

DO NOT bring RCIC flow below 200 GPM when injecting to the Reactor Vessel (MO-1301-49 OPEN) in the AUTO mode of control.

169.	**Procedure Step:**	[3] PERFORM the following steps to swap over to injection: (a) USE MO-1301-53, RCIC Full Flow Test Valve, on ASP C154 to adjust pump discharge pressure to less than Reactor pressure.
	Standard	Operator reviews Note and Caution then, simulates opening MO-1301-53 and/or adjusts FIC-1340-2 until cued that discharge pressure is less than reactor pressure.
	Cue	As the operator at C2258, "Discharge pressure is below reactor pressure."
	Notes	The operator may call the operator at rack 2258 to determine reactor pressure and RCIC pump discharge pressure.
	Results	SAT ☐ UNSAT ☐

170.	**Procedure Step:**	(b) OPEN MO-1301-49 Injection Valve #2 on ASP C154.
	Standard	Operator simulates taking the control switch for MO-1301-49 to the open position.
	Cue	"Red light is on, green light is off."
	Notes	
	Results	SAT ☐ UNSAT ☐

171.	**Procedure Step:**	(c) **THROTTLE** MO-1301-53, RCIC Full Flow Test Valve, on ASP C154 to obtain vessel level increase.
	Standard	Operator simulates taking the control switch for MO-1301-53 to the closed position momentarily.
	Cue	As the SM, "RPV level is +25 inches and slowly rising."
	Notes	
	Results	SAT ☐ UNSAT ☐

TIME CRITICAL STOP TIME_____

Cue: **This completes this JPM.**

STOP TIME: _____

INITIAL CONDITIONS:

- The control room has been evacuated due to a fire
- The reactor has been scrammed successfully
- RPV level control has not been established
- RCIC must be started to accomplish RPV level control
- Communications have been established with the Shift Manager, who is standing by the level instrument rack 2205 and with an operator stationed at Rack 2258 with walkie-talkies or a cellular phone.

INITIATING CUE:

This JPM is TIME CRITICAL. Start RCIC from the Alternate Shutdown Panels and place the system in the injection mode in accordance with PNPS procedure 2.4.143, Appendix B. Maintain reactor water level between +20 and +40. Water level is currently +30 and slowly lowering. Inform me when you have completed the assigned task.

NOTE: The JPM time will start after the Examiner has completed reading the above statements. Two, (2), minutes are assumed to have elapsed while the candidate obtained keys and transited into the Reactor Building 23' elevation.

NUCLEAR PLANT OPERATOR JOB PERFORMANCE MEASURE

TITLE: **LOCAL START AND FIELD FLASH OF AN EDG**

OPERATOR: _____ **DATE:** _____

EVALUATOR: _____ **EVALUATOR SIGNATURE:** _____

CRITICAL TIME FRAME:	Required Time (min):	**N/A**	Actual Time (min):	**N/A**
PERFORMANCE TIME:	Average Time (min):	8	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: Following a loss of all AC power and loss of DC power to the A EDG, the operator is required to start the "A" DG at the air start solenoids and then flash the field with two 12-volt batteries.

TASK STANDARD: The 'A' DG is running and ready to load. 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)

TASK Title:	Task Number	K&A SYSTEM:	K&A RATING:
Local Start and Field Flash of an EDG Following a Loss of 125 VDC Power	264-05-04-001	295004	AA1.03 3.4/3.6

REFERENCES:

PNPS 2.4.16

SIMULATOR CONDITIONS:

44. N/A.

GENERAL TOOLS AND EQUIPMENT:

1. CR-155 Keys to 2.4.16 toolbox in 'B' EDG room.

CRITICAL ELEMENTS:

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

OPERATOR BRIEF:

17. 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 simulated. 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. The task conditions are as follows:
    i) The plant has experienced a complete loss of AC power.
    ii) DC control power to the "A" EDG has also been lost resulting in the inability to start and load the "A" EDG.
    iii) Procedure 2.4.16 is being executed.
18. Solicit and answer any questions the operator may have.

INITIAL CONDITIONS:

- The plant has experienced a complete loss of AC power.
- DC control power to the “A” EDG has also been lost resulting in the inability to start and load the “A” EDG.
- Procedure 2.4.16 is being executed.

INITIATING CUE:

Start the “A” EDG and flash the field in accordance with PNPS 2.4.16, Attachment 3. Inform me when you have completed the assigned task."

PERFORMANCE:

Notes This task is covered in 2.4.16, Attachment 3.
All controls are located on the A EDG unless otherwise noted.
All critical steps must be performed in order written unless otherwise noted

START TIME: _____

172.	**Procedure Step:**	LOCAL EMERGENCY OPERATION OF DIESEL GENERATOR - WITHOUT DC POWER INTRODUCTION This procedure assumes a total loss of AC power coincidental with a loss of DC power to the Diesel Generator local controls and a necessity to start and operate the Diesel Generator. START DIESEL ENGINE Using pencils or short rods, **DEPRESS** actuator buttons on top of air solenoids to air starting motors **AND HOLD** until engine is spinning fast enough to run on its own (3 to 4 seconds). The engine will accelerate to about 960 RPM and be under control of the mechanical governor.
	Standard	Operator obtains pencils/short rods and uses them to simulate depressing air start solenoids.
	Cue	"You hear the engine start and settle at 960 RPM's."
	Notes	The 2.4.16 toolbox is in the 'B' EDG room. Pencils are available, but operator may use his own. One Air Start Motor Solenoid is sufficient to start the Emergency Diesel Generator.
	Results	SAT ☐ UNSAT ☐

173.	**Procedure Step:**	[1] Obtain KEY (CR-155) for jumper and equipment toolbox stationed in the Emergency Diesel Generator 'B' Room.
	Standard	Operator states the need to obtain the key.
	Cue	Provide the Operator with the CR-155 key.
	Notes	
	Results	SAT ☐ UNSAT ☐

174.	**Procedure Step:**	FLASH FIELD [2] Protective clothing (e.g., voltage rated gloves, arc face shield, and appropriate protective clothing) shall be donned in accordance with EN-IS-123, *"Electrical Safety"*.
	Standard	Operator mentions donning protective clothing and where it would be obtained from.
	Cue	
	Notes	If Operator doesn't mention this, coach after JPM is completed and record in comments section.
	Results	SAT ☐ UNSAT ☐

175.	**Procedure Step:**	[3] **OBTAIN** two 12-volt batteries (from a car, truck, or other location); **CONNECT** in series;
	Standard	Operator states possible locations of batteries and once obtained, connects in series with jumpers. **Note:** Batteries in series are connected F+ to positive of battery #1, battery #1 negative to positive of battery #2 and battery #2 negative to F-.
	Cue	"You have two 12-volt batteries."
	Notes	See Attached drawing.
	Results	SAT ☐ UNSAT ☐

176.	**Procedure Step:**	**AND**, with jumper cables, **MOMENTARILY CONNECT** the batteries to the following terminals in Panels C101/C102: (a) **ATTACH** the (+) jumper to the F + terminal. (b) **ATTACH** the (-) jumper to the F - terminal.
	Standard	Operator simulates attaching jumpers from batteries to F+ and F- terminals in C101.
	Cue	"You hear the engine slow down and achieve a steady speed."
	Notes	
	Results	SAT ☐ UNSAT ☐

177.	**Procedure Step:**	[4] **REMOVE** the jumper cables as soon as voltage begins to indicate on the field voltmeter. The engine will now be under control of the electric governor, will reduce speed to about 900 RPM, and is ready to accept load automatically.
	Standard	Operator observes indication of field volts on field voltmeter at C101 and removes jumpers from terminals inside C101.
	Cue	As operator looks at field volts, "Voltage is increasing. The jumpers are removed. Engine speed is 900 RPM."
	Notes	
	Results	SAT ☐ UNSAT ☐

Cue: **This completes this JPM.**

STOP TIME: _____

INITIAL CONDITIONS:

- The plant has experienced a complete loss of AC power.
- DC control power to the “A” EDG has also been lost resulting in the inability to start and load the “A” EDG.
- Procedure 2.4.16 is being executed.

INITIATING CUE:

Start the “A” EDG and flash the field in accordance with PNPS 2.4.16, Attachment 3. Inform me when you have completed the assigned task."

Facility:	PILGRIM	Scenario No.:	1	Op Test No.:	2009 NRC
Examiners:		Operators:	SRO -		
			RO -		
			BOP -		

Initial Conditions:
- Reactor Power is 100%
- APRM C is bypassed while I & C replaces a power supply.
- B RHR Pump will be OOS for maintenance. Currently in day 1 of a 7 day LCO
- B Feedwater Pump has a bad pump seal and must be secured and isolated.

Turnover:
- Reduce Reactor Power IAW 2.1.14 Sections 7.11 & 7.9, continue power reduction with the RPR, then remove the B Feedwater Pump from service

Critical Tasks:
1. Restore power to at least one ECCS bus by manually starting the "B" EDG and/or placing the SBO DG in service.
2. When RPV level cannot be restored and maintained above (-150 inches), Emergency Depressurization is directed and performed.
3. Restores RPV level above +12 inches using low-pressure ECCS pumps.

Event No.	Malf. No.	Event Type*	Event Description
1		R-RO R-SRO	Power reduction required with RPR due to FW pump issue
2		N – BOP N - SRO	Secure Feedwater Pump "B" (PNPS 2.2.96)
3	RD07 for in sequence rod	I – RO I- SRO TS- SRO	Rod drifts out of the core (Rod 10-27) AOP-2.4.11, Control Rod Positioning Malfunctions, Att 2 ANN C905L-A3 – Rod Drift TS – 3.3.B.1.C – LCO to fully insert within 3 hours, disarm within 4 hours
4	NM21 – APRM 'E' fails downscale	I – RO I – SRO TS - SRO	APRM 'E' failure Downscale ANN-C905L-D8 – APRM Downscale TS 3.1.1 – action A. place in trip condition within 12 hours

5	HP01 – HPCI inadvertently starts	C-BOP C-SRO TS-SRO	HPCI Spurious Initiation C905R & C1L-F5 Enters AOP 2.4.35 step 4.0 [1] to secure HPCI TSs 3.5.A.3, 3.5.B.1.a, 3.5.C.3, 3.5.C.2 is most limiting shutdown/cooldown within 24 hours
6	ED27- loss of line 355 DG03B & DG02A (5 minutes after loop)	C - ALL	Loss of all offsite power. EDG "B" will not auto start, but can be started manually. EDG "A" will tie on initially but will trip shortly and lockout. SBO DG must be started. EOP-1 entry Annunciators: C3R-A8 – Line 355 Undervoltage B6 – ACB 105 trip C6 – ACB 102 Trip AOP-2.4.16 - DISTRIBUTION ALIGNMENT ELECTRICAL SYSTEM MALFUNCTIONS PNPS 2.2.146
7	PC01 – 1500 gpm Insert after SBO DG starts OR if SBO DG is not started within 10 minutes of trip of EDG "A"	M – ALL	Recirc leak in Drywell leads to Emergency Depressurization on low RPV level. EOP-1 – Hi Drywell Pressure EOP-3 – Hi Drywell pressure
8	RHR04	C – BOP C - SRO	MO-1001-29B LPCI Injection Valve #2 fails to auto open
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Pilgrim 2009 NRC Scenario #1

The plant is operating at 100% power, End of Cycle. "B" RHR Pump and APRM "C" are OOS for maintenance. The crew must reduce power and remove the "B" Feedwater Pump from service due to a leaking pump seal.

After the Feedwater Pump is secured a control rod will begin to drift out. The RO will take action IAW AOP-2.4.11 to insert the rod. Technical Specifications must be addressed and will require disarming the rod after insertion. APRM 'E' will then fail downscale requiring the SRO to address Technical Specification 3.1.1. The RO will be required to insert a half scram on the affected channel.

Once the APRM actions are addressed, a spurious HPCI injection will occur requiring action by the BOP to secure HPCI. The SRO will address Technical Specifications for the system being inoperable.

A Loss of All Offsite Power will then occur. The "B" Diesel will fail to auto start but can be started manually. The "A" Diesel will start and tie to the bus initially but will trip shortly and lockout. The SBO DG must be started to supply the bus (**Critical Task**).

Once conditions stabilize following the reactor scram and restoration of power, a leak will occur in the Recirculation piping leading to increasing drywell pressure. The crew will continue taking actions in EOP-01 and enter EOP-03 due to high drywell pressure and other degrading containment parameters. The crew will place Suppression Pool Cooling and Spray in service as well as Drywell Spray as required by EOPs. Due to the unavailability of HPCI and the severity of the leak RPV level will continue to lower and the crew will take actions to Emergency Depressurize (**Critical Task**) and reflood the RPV with low pressure ECCS systems (**Critical Task**). Complicating the reflood effort will be the failure of LPCI Injection Valve MO-1001-29B to auto-open.

The scenario may be terminated when level has been restored to the required EOP band and containment parameters are improving.

EAL: Alert – 3.4.1.2 – Drywell Pressure >2.2 psig

Op Test No.: 2009 Scenario # 1 Event # 1		
Event Description: Reduce Reactor Power IAW 2.1.14 and the RPR to <75%		
Time	Position	Applicant's Actions or Behavior
	CRS	Brief/Direct Power Reduction IAW the RPR & PNPS 2.1.14 Sections 7.11 & 7.9
NOTE: Annunciator C905L-B4 is an expected alarm during the power reduction		
	RO	**REDUCE** core flow as necessary to approximately 43 Mlb/hr then **INSERT** control rods IAW the RPR
	CRS/RO	Monitor Power to Flow Map
	RO	Continue to monitor Reactor Pressure & Level as reactor power is decreased
When directed by Lead Examiner, proceed to next event		

Op Test No.: 2009	Scenario # 1	Event # 2		
Event Description:	Shutdown the “B” Feedwater Pump			
Time	Position	Applicant’s Actions or Behavior		

	CRS	Brief/Direct Shutdown of “B” Feedwater Pump IAW 2.2.96.
	BOP	**PLACE/VERIFY** the RFP TRIP SEQUENCE ENABLE switch is in the "OFF" position.
	BOP	**WHEN** total feedwater flow is ≤ 75%, **THEN STOP** the selected RFP by placing P-103B C/S, RFP B on Panel C1 to the "STOP" position:
	BOP	**VERIFY** motor heater breaker is CLOSED. (Local Operation)
	BOP	**VERIFY** Reactor water level is stable
	BOP	**VERIFY** on the remaining operating Reactor Feed Pumps Motor Current Indicators amps are normal (< 650 amps)
	BOP	**VERIFY** Auxiliary L.O. Pump auto-starts:
	BOP	**VERIFY** the selected RFP Recirculation Valve closes
	BOP	**CLOSE OR VERIFY CLOSED** 73-HO-F052B, RFP B H2 Injection Valve. (Local Operation)
	BOP	**VERIFY OR PLACE** the control switch for 68-AO-112B, switch SW618, to "CLOSE". (Local Operation)
	BOP	**MAY direct field operator to THROTTLE** the TBCCW outlet valves from the lube oil coolers to maintain temperatures of 90°F to 110°F **AFTER** RFP coastdown.
	BOP	Notify CREW that the B RFP has been secured.
	RO	Continues to monitor reactor power, pressure and level
When directed by Lead Examiner, proceed to next event		

Op Test No.: 2009	Scenario # 1	Event # 3		
Event Description:	Control Rod Drift Out			

Time	Position	Applicant's Actions or Behavior
	CREW	Observes Control Rod 10-27 Drift and responds to ANN C905L-A3 – Rod Drift
	CRS	Directs entry to AOP-2.4.11- Control Rod Positioning Malfunctions, and actions in Att 2
	RO	Identifies affected rod drifting out. **ATTEMPTS TO STOP** drifting rod by applying a drive in signal. **APPLIES** a drive signal **AND INSERTS** the control rod to position 00. Identifies the affected rod remains at position **00**.
	CRS	Contacts Reactor engineering.
	CRS	Notifies WWM/Maintenance to develop troubleshooting guide & initiates a condition report.
	CRS	Refers to TS 3.3.B.1.C – LCO to fully insert within 3 hours, disarm within 4 hours
When directed by Lead Examiner, proceed to next event		

Op Test No.: 2009	Scenario # 1	Event # 4		
Event Description: APRM "E" fails downscale				
Time	Position	Applicant's Actions or Behavior		
	RO	Recognize/announce APRM downscale alarm.		
	RO	Refer to ARP C905L, D8 – APRM Downscale		
	RO	At Panel C905, check APRM power level and status lights, recognize/report failure of APRM E downscale.		
	CRS	Send the BOP operator to check the failed APRM on Panel C937. Directs I&C to troubleshoot APRM 'E' failure.		
Sim Booth: When contacted (after 5 minutes), report back as I&C that it will take at least 24 hours to repair the APRM.				
	BOP	Go to C937 to verify that 'E' APRM has failed low based on meter indication and lights in alarm.		
	CRS	Refers to TS 3.1.1 – action A. place in trip condition within 12 hours Directs the RO to insert a trip on RPS Channel "A" Verifies Rod Withdrawal Block and FSAR 3.2.C compliance Contacts WWM for troubleshooting		
		Examiner Note: FSAR Table 3.2.C specifies that the minimum number of required APRMs for the rod block function is four. Therefore the minimum number required is still satisfied for the rod block function.		
	RO	Inserts a trip on RPS channel "A"		
When directed by Lead Examiner, proceed to next event				

Op Test No.: 2009	Scenario # 1	Event # 5		
Event Description: HPCI Spurious Initiation				
Time	Position	Applicant's Actions or Behavior		

	CREW	Recognize that HPCI has started.
	CRS	Enters PNPS 2.4.35, "Inadvertent Initiation of Core Standby Cooling Systems."
	BOP/ CRS	Inadvertent initiation is verified (Drywell < 2.2 psig & RPV level > -46 inches) on two independent instruments.
	CRS	Directs tripping HPCI IAW 2.4.35
	BOP	• Depresses and hold the HPCI Turbine Trip PB. • After the turbine has come to a complete stop, place the Aux Oil Pump (P-229) control switch to the PULL-TO-LOCK position. • Releases the Turbine Trip PB.
	CRS/ RO	Assess operating conditions by plotting power verses core flow on the Pilgrim Power/Flow Map,
	RO	Monitors/Controls RPV level
	BOP/ CRS	Check Process Rad Monitors for indications of fuel damage.
	CRS/RO	Verify that peak power and pressure did not exceed any limits.
	CRS	Investigate cause of inadvertent initiation by calling I&C.
	CRS	Refers to TSs, 3.5.C.2 & 3.5.C.3, Determines that a 24 hour cold shutdown LCO is required due to HPCI being OOS and LPCI being INOP concurrently.
SIM BOOTH: Prevent HPCI restart/reset after it is secured		
When directed by Lead Examiner, proceed to next event		

Op Test No.: 2009	Scenario # 1	Event # 7, 8		
Event Description:	7. Recirc leak in Drywell leads to Emergency Depressurization on low RPV level. 8. MO-1001-29B LPCI Injection Valve #2 fails to auto open			
Time	Position	Applicant's Actions or Behavior		

NOTE: LOOP occurs about 30 seconds after initial ALARMS		
	RO	Recognize/report reactor scram and Loss of all Offsite power
	CRS	Directs mode switch taken to SHUTDOWN and perform action of PNPS 2.1.6.
	RO	Place mode switch in shutdown and enter PNPS 2.1.6.
	RO	Verify and announce the status of APRM downscales.
	RO	Verify all control rods are fully inserted.
	RO	Insert IRM and SRM detectors, select two SRMs for recording, and place selector switch for APRM/IRM to "IRM".
	RO	Verify reactor recirc pumps at minimum speed.
	RO	Verify trip of the turbine.
	CRS	Direct (initially) reactor water level control using RCIC. Expected band +20 to +40 inches.
	CRS	Direct reactor pressure 900 to 1050 psig with SRVs.
	ANY	Determines that a loss of Off Site power has occurred.
	BOP/RO	Report EOP-01 entry conditions.

Op Test No.: 2009	Scenario # 1	Event # 7, 8		
Event Description:	7. Recirc leak in Drywell leads to Emergency Depressurization on low RPV level. 8. MO-1001-29B LPCI Injection Valve #2 fails to auto open			
Time	Position	Applicant's Actions or Behavior		

	CRS	Enters EOP-1. Direct verification of:
		• Isolations.
		• ECCS initiations.
		• Emergency Diesel Generator initiations.
	CRS	Announces entry into 2.4.16, "Distribution Alignment Electrical Systems Malfunctions". Directs actions be taken per 2.4.16.
CRITICAL TASK #1	CREW	Recognizes that "B" EDG failed to auto start
CRITICAL TASK #1	BOP	Starts "B" EDG and repowers bus
CRITICAL TASK #1	Crew	Recognizes Trip and Lockout on EDG "A"
CRITICAL TASK #1	BOP	Upon trip of "A" EDG, Starts SBO diesel and re-powers bus. IAW 2.2.146 Section 7.1. (as follows) VERIFY the SBO Diesel Generator lockout relay is RESET by verifying either annunciator "BLACKOUT DIESEL GEN TROUBLE" (C3L-A4) OR "SBO DIESEL GEN BKR TRIP/INOP OR LO RELAY TRIP" (C190-A4) is CLEAR. IF the SBO Diesel Generator lockout relay is tripped, THEN RESET it in accordance with the guidance provided in PNPS ARP-C190 window A4. VERIFY OPEN OR OPEN Breaker A600 at Panel C3. VERIFY OPEN OR OPEN 24kV Incoming Circuit Switcher at Panel C3.

Op Test No.: 2009	Scenario # 1	Event # 7, 8		
Event Description:	7. Recirc leak in Drywell leads to Emergency Depressurization on low RPV level. 8. MO-1001-29B LPCI Injection Valve #2 fails to auto open			
Time	Position	Applicant's Actions or Behavior		

		VERIFY TRIPPED OR TRIP Shutdown XFMR Breaker A802 on Panel C3. CHECK the Shutdown Transformer lockout relay on Panel C5. IF the Shutdown Transformer lockout relay has tripped, EXAMINE the Shutdown Transformer protective relaying on Panel C5 for dropped targets. IF the negative sequence relay was the cause of the trip (as indicated by no dropped targets), and THEN RESET the lockout relay. IF the trip was caused by any other relay, a fault could exist on the bus work that will be powered by the SBODG. DO NOT RESET the lockout relay. REFER TO PNPS 1.3.11, "Reset of Lock-out Relays and Protective Relay Targets." PLACE the BLACKOUT DIESEL GENERATOR START control switch to "START" on Panel C3. WAIT 30 seconds, AND THEN PLACE the control switch for BLACKOUT DIESEL GENERATOR Breaker A801 to "CLOSE" on Panel C3. At Panel C903, PLACE the control switches for RHR Pumps "A" and "C" to the "PULL-TO-LOCK" position. At Panel C903, PLACE the control switch for Core Spray Pump "A" to the "PULL-TO-LOCK" position. At Panel C3, PLACE the control switch for Shutdown Transformer Breaker A601 to the "PULL-TO-LOCK" position. At Panel C3, SIMULTANEOUSLY DEPRESS the Load Shed Manual Initiation Channel "A" push buttons for 5 seconds.
		CLOSE OR VERIFY CLOSED Breaker A600 at Panel C3. VERIFY that the SBODG has come up to rated voltage (4160V) as indicated on Shutdown Transformer voltmeter Panel C3. IF NOT, OPEN Breaker A600 at Panel C3. For the bus to be loaded, CLOSE OR VERIFY CLOSED the Shutdown Transformer Breaker A501 (A601).

Op Test No.: 2009	Scenario # 1	Event # 7, 8		
Event Description:	7. Recirc leak in Drywell leads to Emergency Depressurization on low RPV level. 8. MO-1001-29B LPCI Injection Valve #2 fails to auto open			
Time	Position	Applicant's Actions or Behavior		

NOTE: Station Blackout Diesel Load is monitored on the Shutdown Transformer MWe Indication at panel C3LC. Diesel is sized for one ECCS pump (2000 KW)		
EXAMINER NOTE: Critical Task #1 is to ensure at least one of the 2 vital buses is powered		
EXAMINER NOTE: The next event will be inserted after SBODG starts OR if SBODG is not started within 10 minutes of trip of EDG 'A'		
Examiner Note: The following steps address actions required for controlling Primary Containment Parameters		
	BOP/RO	Recognize/announce rising drywell parameters
	CRS	Recognize/announce EOP-03 entry on High DW pressure
	RO/BOP	Report to the CRS when out of current RPV level/pressure band.
	CRS	Establish new pressure bands as the reactor depressurizes due to the leak.
	CRS	When Drywell temperature cannot be maintained < 150°F, directs that Drywell cooling be maximized. Directs defeat of Drywell area cooler load shed
NOTE:		**Drywell area cooler load shed must be defeated.**
	BOP	• Maximizes RBCCW on the 'B' loop of RBCCW.
		• Maximizes Drywell cooling.
	CRS	When Torus temperature cannot be maintained < 80°F, directs that Torus cooling be maximized.

Op Test No.: 2009 Scenario # 1 Event # 7, 8

Event Description: 7. Recirc leak in Drywell leads to Emergency Depressurization on low RPV level.
8. MO-1001-29B LPCI Injection Valve #2 fails to auto open

Time	Position	Applicant's Actions or Behavior
	BOP	Maximizes Torus cooling.
	CRS	Recognize/announce EOP-01 re-entry.
	CRS	Before drywell pressure reaches 16 psig, directs that Torus spray be placed in service using 'A' or 'B' RHR. Directs that Torus Spray be secured before Torus pressure goes below 0 psig.

	BOP	Starts Torus Spray using 'A' or 'B' RHR.
	CRS	When Drywell pressure exceeds 16 psig:
		• Verifies Drywell temperature and pressure within DSIL (Fig. 5).
		• Verifies torus water level below 180 inches.
		• Verifies Recirc pumps shutdown.
		• Directs that Drywell sprays be placed in service using A/B RHR loops.
		• Directs that Drywell spray secured before Drywell pressure goes below 0 psig.
	BOP	As directed, places drywell sprays in service using A/B RHR loops.
Examiner Note: The following steps address actions pertaining to lowering RPV level		
	CRS	Directs that CRD pump load shed be defeated per PNPS 2.4.4, "Loss of CRD Pumps".
	RO	Using PNPS 2.4.4, "Loss of CRD Pumps" calls I&C and has CRD Pump load shed defeated.
	RO	Determines that RCIC is not keeping up with the leak.

Op Test No.: 2009	Scenario # 1	Event # 7, 8		
Event Description:	7. Recirc leak in Drywell leads to Emergency Depressurization on low RPV level. 8. MO-1001-29B LPCI Injection Valve #2 fails to auto open			

Time	Position	Applicant's Actions or Behavior
	CRS	Determines water level cannot be maintained above + 12 and establishes a new band between -125 and +45.
		• Directs CRD lined up for injection with one pump.
		• Directs SBLC injection to RPV.
	RO	Lines up CRD for injection with one pump IAW PNPS 2.2.87
	RO	Injects SBLC
	BOP	Recognizes/announces any/all of the following:
		• RPV water level at or below –46 inches.
		• 2 minute timer initiated.
	CRS	Directs that the ADS Inhibit keylock switch be taken to the "INHIBIT" position.
	BOP	Places the ADS Inhibit switch in the "INHIBIT" position.
	CRS	Establishes new RPV pressure bands and may order a cooldown at a rate < 100°F/hr.
NOTE: The RPV will be depressurizing slowly on its own due to the Recirc leak		
	BOP	Monitors pressure bands established by the CRS
	CRS	Determines water level cannot be maintained above –125. Directs that 2 or more Injection Systems, Table C lined up for injection and the pumps started.
	BOP	Lines up for injection and starts all available RHR and Core Spray pumps.

Op Test No.: 2009	Scenario # 1	Event # 7, 8		
Event Description:	7. Recirc leak in Drywell leads to Emergency Depressurization on low RPV level. 8. MO-1001-29B LPCI Injection Valve #2 fails to auto open			
Time	Position	Applicant's Actions or Behavior		

	CRS	When it is determined that RPV level cannot be restored and maintained above -150 inches, determines that Emergency RPV Depressurization is required and enters EOP-17.
		• Verifies Torus water level is > 50 inches.
CRITICAL TASK		• Directs that all 4 SRVs opened.
CRITICAL TASK	BOP	*Opens all 4 SRVs.*
	BOP	Verifies SRVs have opened:
		• Checks the acoustic monitor lights on Panel C171.
		• Checks SRV tail pipe temperatures on Panel C921.
	CRS	When RPV pressure goes below the shutoff head of the low pressure ECCS directs that RPV level restored and maintained +20 to +40 using the low pressure ECCS pumps.
	BOP	Recognize/report MO-1001-29B LPCI Injection Valve #2 fails to auto open AND opens valve as required
CRITCAL TASK	BOP	Restores RPV level using low-pressure ECCS pumps to > +12 inches.
EXAMINER NOTE: The scenario may be terminated when RPV level is being restored to > +12" OR when directed by the Chief Examiner.		
EAL: Alert – 3.4.1.2 – Drywell Pressure >2.2 psig		

Facility:	PILGRIM	Scenario No.:	2	Op Test No.: **2009 NRC**
Examiners:		Operators:		SRO -
				RO -
				BOP -

Initial Conditions:	• Power is ~3.5 % reactor pressure ~ 960 psig
	• APRM C is bypassed while I & C replaces a power supply.
	• RHR Pump 'B' OOS for maintenance – Day 1 of a 7 day LCO has been entered.
	• RM-1705-3B Log Rad Monitor is tagged and is Out of Service.
Turnover:	• Place RWCU in service. RWCU was previously removed from service due to a filter demin holding pump trip. Filter demins have been backwashed and precoated. PNPS 2.2.83 Section 7.2 is complete through Step [4]. Continue at Step [5]. • After RWCU is in service, continue the startup at PNPS 2.1.1 Step [103]
Critical Tasks:	1. Upon failure of RPS & Mode Switch, Actuates ARI to insert control rods 2. Emergency depressurizes when Torus Bottom Pressure cannot be maintained below PSP. 3. Performs Alternate RPV depressurization actions per Table T of EOP-17 when 4 SRVs do not open from the control room.

Event No.	Malf. No.	Event Type*	Event Description
1		N – BOP N - SRO	Place RWCU in service PNPS 2.2.83, Section 7.2
2		R – RO R - SRO	Continue withdrawing control rods to raise power
3	RD09 – Control Rod 46-15 stuck	C – RO C - SRO	Stuck Rod - 46-15 AOP 2.4.11.1, Att.1 – CRD System Malfunctions Frees the stuck control rod after drive pressure is raised.

4	RM-02 - RM-1705-3A Detector Fails	TS-SRO	Air Ejector Off-Gas Process rad monitor RM-1705-3A Fails ANN 600R-C4 TS- ODCM 3.1-2 Action 4
5	PC-2 - RWCU system leak PC-15 – MO-1201-5 auto isolation failure	C - BOP C - SRO	RWCU isolates due to leak, outboard supply isolation valve fails to auto close and must be manually closed from control room. ANN C904RC-C2 – NON REGEN HX OUTLET TEMP HI ANN C904RC-A1 – RWCU Isolated EOP-4 entry AOP 2.4.27 – RWCU Malfunctions
6	ED19- Y-3 Failure Insert next event after TS and secondary containment are addressed.	I - BOP I - SRO TS - SRO	Loss of power to Y-3 AOP 5.3.18 – Loss of 120VAC Y-3 ANN C905L-B5 – Division 1 Panel Trouble TS 3.5.A – Cold Shutdown within 24 hours 3.9.A, 3.9.B
7	RP13,14 – RPS A & B Scram Failure Auto & Complete Insert next event once EOP-2 is exited	C – RO C - SRO	A loss of Turbine Lube oil will occur requiring a reactor scram. When the reactor is scrammed a failure of RPS PB & Mode Switch occurs. ARI functions. EOP-1 (in-out-in), EOP-2 (in-out)
8	MS17 – Safety Valve 4A Leak – 15 minute ramp to max severity PC21 – DW Downcomer Leak – Initially at demanded value of 7.0 and ramped to max severity over 15 minutes	M - All	Leaking Safety Valve, Downcomer break, Containment parameters degrade, ED required. EOP-3 entries
9	MS15 – SRV 3C fails to open	C – BOP C - SRO	ALL SRVs do not open during ED, Alternate Depressurization Required

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

Pilgrim 2009 NRC Scenario #2

The plant is at 3.5% power with reactor pressure approximately 960 psig and a startup is in progress IAW PNPS Startup procedure 2.1.1. After assuming the watch, the BOP will place RWCU in service IAW plant operating procedures.

Once the startup continues, as the RO is withdrawing control rods, CR 46-15 will become stuck. The RO will enter the AOP and take actions to free the stuck control rod.

Once the startup continues, an Air Ejector Off-Gas Process rad monitor will fail requiring the SRO to enter TS-ODCM 3.1.2 Action 4. Once TSs are addressed, a RWCU leak will occur and the system will not fully isolate. The BOP will take action to isolate the system per the AOP. The SRO will enter EOP-04.

Next a loss of 120 VAC Y-3 will occur. The crew will enter the AOP and take actions which include initiating a Reactor Building Isolation Signal and placing Standby Gas Treatment in service. Additionally, the SRO will enter Technical Specifications and determine the most limiting TS LCO is being in Cold Shutdown within 24 hours.

After the loss of Y-3 has been addressed, a trip of the aux oil pumps will result in a loss of turbine lube oil causing the Turbine Bypass Valves to close and a loss of pressure control. RPS will fail to automatically trip and cannot be tripped manually. However the control rods will fully insert when the RO manually initiates ARI **(Critical Task)**. The SRO will enter EOP-01 due to the scram.

Following the scram, a leaking SRV and downcomer break will result in a loss of pressure suppression capability. Containment pressure will rise requiring EOP-03 entry. As torus bottom pressure rises drywell sprays will be required. Eventually containment pressure will exceed the pressure suppression pressure of EOP-03 requiring an emergency depressurization. The crew is expected to emergency depressurize (ED) the reactor IAW EOP-17 (**Critical Task**). All SRVs will not open during the ED requiring Alternate Depressurization methods (**Critical Task**).

The scenario may be terminated when the RPV is depressurized and containment parameters are improving.

EAL: SAE – 3.4.1.3 – Torus Bottom Pressure cannot be maintained below PSP.

Op Test No.: 2009	Scenario # 2	Event # 2		
Event Description:	Continue Reactor Startup			

Time	Position	Applicant's Actions or Behavior
	CRS	Directs placing RWCU in service IAW PNPS 2.2.83 Section 7.2 beginning at Step [5].
	BOP	Obtains and Reviews PNPS 2.2.83 Section 7.2 and places RWCU in service beginning at Step[5]. Contacts field operator to assist in placing RWCU in service **SIM BOOTH: respond as field operator that you are standing by to assist as needed for the steps below. Respond as needed when contacted by the Control Room Operator** [5] **OPEN/VERIFY OPEN** MO-1201-5, Outbd Isol Vlv. [6] **THROTTLE SLIGHTLY OPEN** MO-1201-80, Return Isol Vlv. [7] **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. (b) At Panel C1279, **LOWER** FC-1279-15A (FC-1279-15B) control switch to the minimum setting **AND VERIFY** FV-1279-15A (FV-1279-15B), RWCU Filter/Demin T-216A (B) Effluent Valve, is CLOSED. [8] **START** a Cleanup Recirculation Pump (P-204A/P-204B) [9] **VERIFY/PLACE** the "HOLD/FILTER" switch in the "FILTER" position. [10] **COORDINATE** activities to perform simultaneously: **SLOWLY JOG OPEN** MO-1201-80; **SLOWLY PLACE** FC-1279-15A (FC-1279-15B) control switch in service to achieve 111 GPM. (a) **CHECK** FI-1290-30A (B) for filter flow increase. [11] **IF** filter flow does NOT increase, **THEN STOP** the pump **AND CHECK** for isolated filters. **WHEN** a filter has been precoated **AND** pressurized, **THEN PROCEED AGAIN** beginning with Step 7.2[4].

Op Test No.: 2009	Scenario # 2	Event # 2		
Event Description:	Continue Reactor Startup			

Time	Position	Applicant's Actions or Behavior
		[12] **CONTINUE OPENING** MO-1201-80 **AND ADJUST** flow controls as necessary to maintain 111 GPM flow. [13] **OPEN** MO-1201-80 to FULL OPEN and the system is back in service. [14] **OPEN** MO-1201-77, Reject to CRW Block Vlv, **AND/OR** MO-1201-78, Reject To Condr Block Valve, to re-establish a Reactor Vessel water reject flow path as directed by the CRS.
	RO	Monitors reactor power pressure and level.
When directed by Lead Examiner, proceed to next event		
	CRS	Brief/Direct power increase IAW PNPS 2.1.1 and 2.1.14
	RO	• Commences control rod withdraw • Regularly checks APRM channel indications.
	BOP	Serves as peer checker/second verifier during control rod movement.
	RO	Monitors RPV power, pressure and level.
Examiner Note: The next event, a stuck control rod, will occur when the operator attempts to move Control Rod 46-15.		

Op Test No.: 2009 Scenario # 2 Event # 3

Event Description: Stuck Control Rod - 46-15

Time	Position	Applicant's Actions or Behavior
	RO	While increasing reactor power with control rods, recognizes rod 46-15 is stuck and informs CRS.
	CRS	Directs entry to AOP 2.4.11.1 – CRD SYSTEM MALFUNCTIONS
	RO	Refers to AOP 2.4.11.1. Att.1 • **ATTEMPTS TO MOVE** the control rod one notch in the direction specified by the Procedure in use when the degraded control rod motion was identified. • Ensures Control Rod 46-15 is selected • **Increases** drive water pressure in approximately 50 psi increments attempting to move the drive after each increment. **EXAMINER NOTE: The control rod will move after the second increase in drive pressure** • Once the control rod has moved, **RETURNs** the drive water pressure to normal (approximately 250 psi**g** above Reactor pressure).
	CRS	**ENSUREs** a Condition Report is submitted to document the event.
	RO	Continues with reactor startup as directed by the CRS
When directed by Lead Examiner, proceed to next event		

Op Test No.: 2009	Scenario # 2	Event # 4		
Event Description:	Air Ejector Off-Gas Process rad monitor RM-1805-3A Fails			

Time	Position	Applicant's Actions or Behavior
SIM BOOTH: RM-1805-3B NUMAC is tagged – indications are as read.		
	CREW	Responds to Annunciator 600R-C4 - PRE-TREATMENT RAD MONITOR DNSCL/INOP
	CRS	Directs Checking Log Rad Monitors 1805-3A, B on Panel C910
	BOP	Check Log Rad Monitors 1805-3A, B on Panel C910 and determines 1805-3A has failed. Informs CRS
	CRS	Refers to ODCM Table 3.1-2, Action 4 – releases may continue for up to 72 hours as long as the augmented offgas system is not bypassed and the downstream post treatment rad monitor is operable
When directed by Lead Examiner, proceed to next event		

Op Test No.: 2009	Scenario # 2	Event # 5		
Event Description:	RWCU isolates due to leak, outboard isolation valve fails to auto close and must be manually closed from control room.			

Time	Position	Applicant's Actions or Behavior
	CREW	Responds to and acknowledges: ANN C904RC-C2 – NON REGEN HX OUTLET TEMP HI ANN C904RC-A1 – RWCU Isolated
	CRS	Directs Response IAW ARP & Directs entry to AOP 2.4.27 – RWCU Malfunctions Verify RWCU MO-1201-2, RWCU INBD ISOL VALVE. AND MO-1201-5, RWCU OUTBD ISOL VALVE have closed.
	BOP	Observes RWCU MO-1201-2 and MO-1201-5 have failed to close. CLOSES MO-1201-2 AND MO-1201-5 and informs CRS of auto close failure.
	CRS	Enters to EOP-04 on Rx Bldg Vent Rad Hi Ensures RWCU is isolated
SIM BOOTH: If contacted by control room to report field status, state that all coolers are in service and the quads are dry		
Examiner Note: When leak is isolated and when directed by Lead Examiner, proceed to next event		

Op Test No.: 2009	Scenario # 2	Event # 6		
Event Description:	Loss of Y-3 / Y-31			

Time	Position	Applicant's Actions or Behavior
	CREW	Responds to annunciator: C905L-B5 – Division 1 Panel Trouble 1. Confirm Alarm a) Check status lights and LEDs on ATWS Panel C2277 (RB El. 51' N) 2. Verify Automatic Actions None 3. Perform Corrective Actions a) Check Division 1 trip units (Panel C2277) for gross failure or trip units out of file b) Check the following Division 1 power supplies: - status lights DS-1A, DS-2A, DS-6A (Panel C2277) - breaker 2 on 125V DC Panel D36 (El. 37' Swgr Rm A) - breaker 8 on 120V AC Panel Y3 (RPS MG Room) - breaker 7 on 125V DC Panel D4 (El. 37' Swgr Rm A) c) Ensure Tech Spec 3.2.G is satisfied Diagnoses Loss of Y3
	CRS	Directs Entry to 5.3.18 - LOSS OF 120V AC SAFEGUARD BUSES Y3 AND Y31 - Directs actions listed below: [1] **INITIATE** an RBIS **AND MONITOR** steam tunnel temperatures. [2] **VERIFY** RWCU Pumps trip **AND COMPLETE** the Group 6 isolation. [3] **COMPLETE** the Group 2 isolation. [4] **CHECK** Transformer X55 (Vital MG Set Room): NOTE: Directs completion of Group 2 Isolation. (CLOSE the following valves): • UPPER DRYWELL SUPPLY ISOLATION VALVES SV-5065-13B AND SV-5065-20B • REACTOR COOLANT OUTBOARD SAMPLE VALVE AO-220-45 • DW SUPPLY TO C19A/ C4, CV-5085-90 • DW SUPPLY TO C19B, CV-5085-88

Op Test No.: 2009 Scenario # 2 Event # 6

Event Description: Loss of Y-3 / Y-31

Time	Position	Applicant's Actions or Behavior
		• C19/C41 RETURN ISOL VALVE, CV-5065-92
	RO	Monitors power, pressure and level
	BOP	Initiates an RBIS Completes the Group 2 isolations as required Dispatches field operator to check Transformer X55
SIM BOOTH: When contacted by control room, acknowledge request to check out the status of transformer X55		
	CRS	Contacts WWM to investigate loss of Y3 Determines that Cold Shutdown within 24 hours is required based on multiple INOPERABLE systems due to loss of power to system components. NOTE: PNPS 5.3.18, Loss of 120VAC Safeguard buses Y-3 and Y-31, Section 5.0 lists equipment which has lost power.
When TS are addressed, continue with next event.		

Op Test No.: 2009	Scenario # 2	Event # 7		
Event Description:	A loss of Turbine Lube oil will occur and bypass valves close requiring a reactor scram. When the reactor is scrammed a failure of RPS manual scram PBs & Mode Switch to Shutdown occurs. ARI functions.			

Time	Position	Applicant's Actions or Behavior
	CREW	Recognizes a loss of the turbine lube oil aux oil pump and closure of the Turbine Bypass valves.
	CRS	Directs reactor scram due to loss of pressure control
	RO	• Depresses both manual scram pushbuttons
		• Places mode switch in shutdown and enter PNPS 2.1.6.
	RO	Recognize/report failure to scram.
	CRS	Enters EOP-01 and immediately transitions to EOP-02 based on all controls rods not at or beyond position 02.
	RO	Performs the following actions:
		• Verifies mode switch in "SHUTDOWN".
CRITICAL TASK		• Accomplishes reactor scram with either channel of ARI.
		• Recognizes all control rods are inserted fully informs CRS
	CRS	Exits EOP-02 and re-enters EOP-01 based on all controls rods inserted to or beyond position 02.
	RO	Insert IRM and SRM detectors, select two SRMs for recording, and place selector switch for APRM/IRM to "IRM".
	RO	Verify reactor recirc pumps at minimum speed.
	RO	Verify trip of the turbine.
	CRS	Direct verification of:
		• Isolations

Op Test No.: 2009	Scenario # 2	Event # 7		
Event Description:	A loss of Turbine Lube oil will occur and bypass valves close requiring a reactor scram. When the reactor is scrammed a failure of RPS manual scram PBs & Mode Switch to Shutdown occurs. ARI functions.			

Time	Position	Applicant's Actions or Behavior
		• ECCS initiations.
		• Emergency Diesel Generator initiations.
	CRS	Direct reactor water level +20 - +40.
	CRS	Direct reactor pressure band of 900 to 1050 psig with HPCI/RCIC.
Examiner Note: The next event will occur once the CRS exits EOP-02 and a RPV level and pressure band are directed.		

	CREW	Recognize/report rising Torus and Drywell press/temp. Recognize 4A Safety Valve leak
	CRS	Recognize/announce EOP-03 Entry on HI DW Pressure AND direct TRIP and inhibit of HPCI.
	CRS	Recognize/announce EOP-01 re-entry. Direct re-verification of Isolations, Initiations.
	RO/BOP	Continues to maintain reactor level in band directed by CRS (approx. +20 to +40 inches)
	RO/BOP	Report to the CRS when out of current RPV level/pressure band.
	CRS	Establish new pressure bands as the reactor depressurizes due to the leak.
	CRS	When Drywell temperature cannot be maintained < 150°F, directs that Drywell cooling be maximized.
	RO/BOP	• Maximizes RBCCW on the 'B' loop of RBCCW.
		• Maximizes Drywell cooling.
	CRS	Before torus bottom pressure reaches 16 psig, directs that Torus spray be placed in service using 'A' or 'B' RHR. Directs that Torus Spray be secured before Torus pressure goes below 0 psig.
	BOP	Starts Torus Spray using 'A' or 'B' RHR.
Examiner Note: Refer to provided copy of PNPS 5.3.35.1 Att.15 and 16 for specific actions.		
	CRS	When Torus Bottom pressure exceeds 16 psig:
		• Verifies Drywell temperature and pressure within DSIL (Fig. 5).
		• Verifies torus water level below 180 inches.
		• Verifies Recirc pumps shutdown.
		• Directs that Drywell sprays be placed in service using A/B RHR loops.

		• Directs that Drywell spray secured before Drywell pressure goes below 0 psig.
	BOP	Initiates Drywell Sprays as directed.
	CREW	Recognize Containment pressure approaching limits of PSP.
CRITICAL TASK	CRS	When Torus Bottom Pressure cannot be maintained below PSP, Enters and direct the activities of EOP-17 Emergency Depressurization
		• Verifies Torus water level is > 50 inches.
		• Directs that all 4 SRVs opened.
	BOP	Attempts to opens all 4 SRVs. <u>ONLY 3 OPEN</u> – "B" does not open. Informs CRS that only 3 SRVs opened.
CRITCAL TASK	CRS	Enter 5.3.24 to supplement depressurization. Orders "B" SRV be opened from the Alternate Shutdown Panel
	BOP	Contacts field operator IAW 5.3.24 to open the "B" SRV from the Alternate Shutdown Panel
SIM BOOTH: When contacted by control room, acknowledge request and open "B" SRV from the ASP.		
	BOP	Verify (Acoustic Monitor or Tailpipe Temperature) that all 4 SRVs are open.
	CRS	Directs actions IAW EOP-03 to control containment parameters once the ED is complete.
Examiner Note: A Critical Step is added if the PCPL is approached. Operators must initiate action to vent the Primary Containment BEFORE exceeding PCPL.		
Examiner Note: The scenario may be terminated after the Emergency Depressurization is complete and containment parameters are improving.		
EAL: SAE – 3.4.1.3 – Torus Bottom Pressure cannot be maintained below PSP.		

Facility:	PILGRIM NRC	Scenario No.:	3	Op Test No.:	**2009 NRC**
Examiners:		Operators:			

Initial setup: B,C,D,E SSW pumps in service

Initial Conditions:
- Reactor Power is 100%
- APRM C is bypassed while I & C replaces a power supply.
- 'B' RHR Pump is OOS for maintenance. Today is day one of the LCO.

Turnover:
- Daily Screen Wash is in progress
- Maintenance has requested that "B" Salt Service Water Pump be tagged out. Start "A" SSW Pump, place SSW Loop selector to "A" Loop, and Place "B" SSW pump in PTL.

Critical Tasks:
1. Terminate and prevent injection except from Boron, RCIC and CRD
2. Inject SBLC before Torus Water temperatures reaches the BIIT
3. Insert Control Rods and achieve shutdown under all conditions

Event No.	Malf. No.	Event Type*	Event Description
1		N – BOP N - SRO	Shift Salt Service Water Pumps Start "A" SSW Pump, place SSW Loop selector to "A" Loop, and Place "B" SSW pump in PTL.IAW PNPS 2.2.32 Section 7.2
2	RD05	C – RO C - SRO	CRD Pump trip ANN 905R - A5 – CRD Pump A Trip ANN 905R - G5 – Charging Water Pressure Low AOP 2.4.4 – Loss of CRD pumps
3	Overrides for controllers – LV3251 LV3250	I – BOP R- RO I – SRO	Loss of FW heating Power reduction required (Recirc then RPR array) Recirc to 43 mlbm/hr then RPR array Ann C1C-A3 – 1st Point Heater Level Hi AOP 2.4.150 – Loss of Feedwater Heating

4	CW01- 'A' SSW pump trip	TS-SRO	"A" Salt Service Water Pump Trip TS 3.5.B.4 – Restore SSW to operable status within 72 hours
5	RP09A – RPS MTR Gen 'A' Trip RM02 - Refuel Floor Rad Monitor RM-1805-8A fails downscale	C – ALL TS-SRO	Failure of RPS MG Set "A" requires transfer to alternate power. Ann 905R-C1 – RPS MG Set A Trip 2.2.79 – RPS Section 7.1.5 Refuel Floor Rad Monitor RM-1805-8A fails requiring entry to TS 3.2.D.1 – no recently irridated fuel movement unless SBGT is in service
6	MS-14 – SRV 3B Fails open LHWT (East & West SDIVs 99% full)	M-All	SRV fails open, Scram required, ATWS ANN 903L-B2, A2 AOP 2.4.29 – Stuck Open SRV EOP1, EOP 2
7	LP01 A & B	C – BOP C - SRO	SBLC fails to inject initially and then will inject (for less than one minute) after determining initial failure

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

Pilgrim 2009 NRC Scenario #3

The plant is at 100% power, Maintenance has requested a clearance on Salt Service Water (SSW) Pump "B". The crew must start SSW Pump "A" and secure and isolate "B" SSW Pump.

Once those actions are completed a trip will occur on the operating CRD pump and the crew will respond per the AOP. The RO will start the standby pump. Then, a loss of Feedwater Heating will occur due to I&C accidentally bumping into a transmitter rack. The crew will enter the AOP and the RO will perform a power reduction as required. The BOP will restore the FW heater to service.

After the power reduction and plant conditions are stable, SSW pump 'A' will trip and the SRO will enter Technical Specification LCO 3.5.B.4 – restore SW to operable status within 72 hours.

The crew will then respond to a failure of the "A" RPS MG set requiring a transfer to alternate power. When that occurs the Refuel Floor Rad Monitor RM-1705-8A fails requiring the SRO to enter Technical Specification LCO 3.2.D.1.

Once TS have been addressed, an SRV fails open and will not close initially requiring a reactor scram. When the manual scram is inserted numerous control rods will fail to insert and EOP-01 and then EOP-02 must be entered for the ATWS. The crew will be required to stop and prevent injection (except for CRD and SBLC) to lower RPV water level **(Critical Task)** and bypass the MSIV isolation to preserve the Main Condenser as a heat sink. Actions will also be required to respond to a SBLC injection failure **(Critical Task)** and to insert control rods after level is lowered to maintain the reactor shutdown under all conditions **(Critical Task)**.

The scenario can be terminated once the reactor is shutdown under all conditions.

EAL: SAE -2.3.1.3 – SBLC Injection

Op Test No.: 2009	Scenario # 3	Event # 1		
Event Description:	Shift Salt Service Water Pumps IAW Section 7.2 of PNPS 2.2.32			

Time	Position	Applicant's Actions or Behavior
	CRS	Direct shifting SSW Loop selector to "A" Loop and SSW Pumps IAW Sect 7.2 of PNPS 2.2.32
	BOP	Reviews procedure and Starts the "A" SSW pump
	BOP	Monitors SSW System and verify pressures stabilize
	BOP	Stops the "B" SSW pump. Places SSW Loop Selector to Position "A" and places the handswitch for SSW pump "B" in PTL
SIM BOOTH: Provide Tags when requested.		
When directed by Lead Examiner, proceed to next event		

Op Test No.: 2009	Scenario # 3	Event # 2		
Event Description: CRD Pump Trip				
Time	Position	Applicant's Actions or Behavior		

	RO	Acknowledges/announces trip of 'A' CRD pump. Refers to the following annunciator responses: • ANN 905R - A5 – CRD Pump A Trip • ANN 905R - G5 – Charging Water Pressure Low Informs CRS of CRD pump "A" trip
	CRS	Directs entry into PNPS 2.4.4. – Loss of CRD Pumps
	RO	Checks power, pressure, level. Performs immediate actions of PNPS 2.4.4:
		• Notes pressure greater than 950 psig.
		• No inoperable accumulator alarms.
	CRS	Directs RO to start standby CRD pump IAW with PNPS 2.4.4. Contacts WWM to investigate pump trip
	RO	• Transfers FCV to manual and closes.
		• Starts 'B' CRD pump.
		• Verifies pump amp and discharge pressure stabilize.
		• Balances deviation meter.
		• Transfers CRD controller to AUTO.
When directed by Lead Examiner, proceed to next event		

Op Test No.:	2009	Scenario #	3	Event #	3		
Event Description:	Loss of FW heating Power reduction.						

Time	Position	Applicant's Actions or Behavior
SIM BOOTH: Clear malfunction as soon as MO-3256 is FULL CLOSED.		
	CREW	Responds to Annunciator C1C-A3 – 1st Point Heater Level Hi
	CRS	Directs actions IAW the ARP and AOP 2.4.150 – Loss of FW Heating May direct: • Check position of LV-3251, FW HTR DUMP VALVE TRAIN B 1ST PNT (Panel C1) • Check status of LIC-3250, 1ST PNT HTR DRAIN VLV LVL CONTR, and • LIC-3251, 1ST PNT HTR DUMP VLV LVL CONTR (Panel C4) • Check FEEDWATER HEATERS TRAIN B EXTRACTION STEAM pressure (Panel C4) May direct an attempt at manual control of the heater level controller
	BOP	Checks indications as directed by CRS and confirms high level in 1st Point FW. Diagnoses controller failure May attempt manual control of heater level control Contacts field operator to investigate
	CRS	Directs the following IAW AOP 2.4.150: Power reduction using recirc to 43 mlbm/hr. Then, the RPR array to 75% reactor power Once power is reduced, may refer to 2.4.150 Attachment 1 to determine if within feedwater temperature limits for the current power level. Verifies load limitations against 2.4.150 – Att.2 guidance
	RO	At CRS direction, reduces power to <75% by reducing Recirc flow to 43 Mlbm/Hr and inserting RPR as necessary.

Op Test No.: 2009	Scenario # 3	Event # 3		
Event Description:	Loss of FW heating Power reduction.			

Time	Position	Applicant's Actions or Behavior
	CRS	After conditions stabilize, contacts reactor engineering for guidance due to the power reduction
SIM BOOTH: Call control room as an I&C Tech and report that you accidentally bumped into FW Htr Rack C51. No damage occurred. Your supervisor reports there is no issue with restoring the FW heater that was lost in the transient		
	CRS	When informed that the FW heater can be returned to service, directs the BOP to restore it IAW 2.4.150.
	BOP	Restores FWH IAW 2.4.150 guidance in Att.3 **IF** necessary to recover a 1st point feedwater heater, **PERFORM** the following: (a) **ENSURE** condensate flow is established through the 2nd point feedwater heater by verifying the high pressure feedwater heater 1ST & 2ND PNT INLET BLOCK VALVE ("A" MO-3477/"B" MO-3478) **AND** the 1ST PNT HTR OUTLET BLOCK VALVE ("A" MO-3479/"B" MO-3480) are OPEN. (b) **SLOWLY JOG OPEN** the Panel C4 1ST PNT HTR EXTRACTION STEAM ISOLATION VALVE ("A" MO-3156/"B" MO-3256) while observing heater level for level perturbations.
When directed by Lead Examiner, proceed to next event		

Op Test No.: 2009 Scenario # 3 Event # 4

Event Description: "A" Salt Service Water Pump Trip.

Time	Position	Applicant's Actions or Behavior
	CREW	Respond to Trip of "A" SSW Pump. May refer to 2.4.43. Actions are in accordance with 2.2.32.
	BOP	Contacts field operator to investigate
SIM BOOTH: Call control room as field operator and report that screens have stopped turning and the screen wash pumps have tripped on low pressure. **When contacted to check on pump trip – report back after 1 minute an acrid odor is coming from B1541, but no signs of fire or fire damage.**		
	CRS	Coordinates control room response and references technical specifications. Determines that TS 3.5.B.4.A.1 – Restore SSW to operable status within 72 hours applies.
	RO	Monitors reactor power, pressure and level
When directed by Lead Examiner, proceed to next event		

Op Test No.: 2009	Scenario # 3	Event # 5		
Event Description:	Failure of RPS MG Set "A" requires transfer to alternate power. Refuel Floor Rad Monitor RM-1705-8A fails.			
Time	Position	Applicant's Actions or Behavior		

	CREW	Recognize / announce various annunciators associated with the loss of "A" RPS bus including • Ann 905R-C1 – RPS MG Set A Trip
	RO	• Diagnoses a trip of the RPS 'A' MG Set. • Recognize / announce loss of A' RPS bus. • Recognize / announce annunciator "RPS MG Set A Trip" is in alarm. • Refers to ARP C905R-C1. • Verifies ½ scram RPS Channel 'A' • Directs Field Operator to investigate
SIM BOOTH: Report back as Field Operator that MG Set Output Breaker and 'A' RPS EPA's are tripped.		
	CRS	Directs that action be taken per ARP C905R-C1. Refers to Tech Specs 3.1 and Table 3.1.1. Direct troubleshooting/repair of RPS MG Set 'A'. Direct placing RPS 'A' on the backup power supply IAW PNPS 2.2.79.
	CREW	Recognizes Refuel Floor Rad Monitor RM-1705-8A has failed. CRS informed.
	CRS	Refers to the following Tech Specs • RPS Tech Specs 3.1 and Table 3.1.1. • Rad Monitor - 3.2.D.1 – no recently irridated fuel movement unless SBGT is in service
When directed by Lead Examiner, proceed to next event		

	ALL	Identify/announce ‘B’ SRV open.
	BOP	Reference ARP C903L, B2. – Relief / Safety valve Open
	CRS	Direct entry into PNPS 2.4.29. – Stuck Open SRV
	CRS	Direct monitoring of Torus bulk temperature and note time.
	CRS	Direct BOP to attempt cycling of ‘B’ SRV switch.
	BOP	Cycles ‘B’ SRV switch identifies ‘B’ SRV remains open. Contacts field operator to place switch at ASP to close
SIM BOOTH: When contacted by control room to cycle SRV switch at ASP, acknowledge request. Report back after 1 minute that the switch was cycled.		
	RO	As time permits, attempt to lower power
	CRS	Briefs requirement for manual reactor scram if ‘B’ SRV remains open.
IF Operator: After taking the ‘B’ SRV C/S to close at the ASP, report back that you have done so.		
	CRS	When it has been determined that the safety relief valve cannot be closed, direct a manual reactor scram.
	RO	• Depress both manual scram pushbuttons.
		• Place mode switch in shutdown and enter PNPS 2.1.6.
	RO	Verify and announce the status of APRMs
	RO	Recognize/report failure to scram.

	CRS	Enters EOP-01 and immediately transitions to EOP-02 based on all controls rods not at or beyond position 02. Enters EOP-03 on High Torus Bulk temperature.
	CRS	Verifies the actions required by EOP-02:
		• Verifies mode switch in “SHUTDOWN”.
		• Verifies both channels of ARI initiated.
		• Verifies the turbine has tripped.
		• Recognizes reactor power is above 3%.
		• Verifies both Recirc pumps are tripped.
		• Inhibit ADS
		• Directs 5.3.23, Alternate Rod Insertion.
		• May direct initial Reactor Water Level band established at -20” to +10”
	RO	Performs the following actions:
		• Verifies mode switch in “SHUTDOWN”.
		• Initiates both channels of ARI.
		• Recognizes the turbine has tripped.
		• Recognizes reactor power is above 3%.
		• Trips/verifies tripped both Recirc. Pumps.
		• Inhibits ADS
	CRS	When RPV level is determined to be > – 25” enters the ‘Q’ Leg of EOP-02 and performs the following steps:
CRITICAL TASK		• Orders stop and prevent all injection into the vessel except from Boron, RCIC and CRD.
	RO/BOP	Stops and Prevents injection IAW PNPS 5.3.35.1, ATT. 35.
CRITICAL TASK	RO	Closes/verifies closed the feedwater heater downstream block valves and Startup Feed Reg. Valve.
CRITICAL TASK	BOP	Places the control switches for the RHR and Core Spray pumps in the PTL position.

	RO	Start one SBLC system by placing the SLC ACTUATE switch to SYS 'A' or SYS 'B' position on Panel C905.
	RO	Recognize/report that after attempting to start the first SBLC Train; the SLC pump failed to start.
	CRS	Direct using other train of SBLC.
CRITICAL TASK	RO	Start the opposite SBLC train with the SLC ACTUATE switch.
	RO	Recognize/report that the second SBLC pump is running & injecting. Reports Boron tank initial level.
	RO	Recognize/report that the second SLC pump has tripped.
	CRS	Directs RO to establish alternate means of injecting SBLC (through RWCU).
	CREW	Recognizes/reports SRV has CLOSED.
	CRS	Directs pressure band of 900-1000 psig.
	RO	Enters PNPS 5.3 23, "Alternate Rod Insertion". Determines that there is a hydraulic lock and goes to Section 3.3 of the procedure and performs it concurrently with the "General Actions" section of the procedure.
	RO	When requested, I&C defeats RPS and ARI interlocks IAW PNPS 5.3.23 ATT.1 and 2.
SIM BOOTH: When requested to defeat RPS and ARI interlocks, acknowledge request then call back in 5 minutes too report they've been defeated.		
	CRS	Asks the crew to report any of the following plant conditions:
		• Rx power <3% (APRM downscales are in).
		• RPV water level reaches –125 inches TAF.
	RO	Performs the following actions to reset and scram the reactor:

		• Reset the scram using the RPS reset switch.
		• Places the Air Dump System Test Switch to “ISOLATE”.
		• Waits for/verifies the “SPVAH Pressure Lo” alarm clears.
		• Places the Air Dump System Test Switch to “NORMAL”.
		• Verifies either SDIV Level Hi or SDIV East Not Drained and SDIV West Not Drained alarms are clear.
		• Initiates a manual scram.
		• Verifies and announces all rods in, when achieved
CRITICAL TASK – is to insert all control rods to achieve shutdown under all conditions. **SIM BOOTH: Permit Rod Insertion (to ALL RODS FULL IN) on second manual SCRAM attempt.**		
	CRS	When all rods are in transitions to EOP-01. Orders RPV water level be restored and maintained between +20 and +40 inches. Initiates a cooldown using HPCI or SRVs at less than 100° per hour.
	BOP	Restores and maintains RPV level +20 to +40. Initiates a cooldown at less than 100° per hour.
The scenario may be terminated at the discretion of the Examiner OR when RPV level has been restored to between +20 and +40 and a cooldown has been initiated.		
EAL: SAE -2.3.1.3 – SBLC Injection		

Facility:	PILGRIM	Scenario No.:	4	Op Test No.:	**2009 NRC**
Examiners:		Operators:	SRO -		
			RO -		
			BOP -		

Initial Conditions:
- Power is 100 %
- APRM C is bypassed while I & C replaces a power supply.
- RHR Pump 'B' OOS for maintenance – Day 1 of a 7 day LCO has been entered

Turnover:
- Place SBGT "A" in service for I&C to check vibrations.
- A control rod pattern adjustment is scheduled; the crew is directed to lower power to 90 %.

Critical Task:
1. Scram the reactor before one area exceeds max safe temperature
2. Emergency Depressurize when two areas exceed max safe temp

Event No.	Malf. No.	Event Type*	Event Description
1	Override AO5041B OPEN after it is opened for evolution	N – BOP N – SRO TS - SRO	Place "A" SBGT in service for vibration checks IAW 2.2.70 TS 3.7.A.2.B – Deactivate in isolated condition – Torus Vent AO5041B fails in open position.
2		R – RO R - SRO	Lower power to 90% using Recirculation Flow

3	Insert Override when operator is adjusting Recirc Pump A Speed - Recirc Pump 'A' controller fails Downscale	I – RO I - SRO	Recirc Flow Controller 'A' failure fails downscale. ANN 904RC-C7 MG 'A' Deviation High AOP 2.4.20, 2.4.165 TS 3.6.F.1. - 24 hours to have loop flows within 10%
4	Manual Stop and Hold RCIC initiation PB	C – BOP C – SRO TS - SRO	Spurious RCIC injection (signal does not clear) – operators trip RCIC. AOP 2.4.35, 2.2.22 Section 7.2 TS 3.5.D.2 – 14 days
5	RR11 – Recirc Pump 'A' Hi Vibs	C - RO C -SRO	Recirc pump 'A' High Vibration. Requires removing the 'A' Recirculation Pump from service. Trips Pump, Shuts discharge valve ANN 904RC-B6 – Pump Motor A Vibration High AOP 2.4.17 Section 4.1 (End up in Exclusion/Unanalyzed Region, Insert CRs per RPR array). TS 3.6.F.1
6	CW05-RBCCW Pump trip RR13-Recirc Pump 'B' seal failure	C - BOP C - SRO	RBCCW Pump Trips, Failure of Pump in Auto to start. Recirc Pump 'B' inner seal failure. RWCU may isolate due to RBCCW loss. AOP 2.4.42 – Loss of RBCCW AOP 2.4.22 – Failure of a Recirc Pump inboard seal ANN 904RC-G6, 904R-G5 –Seal Cooling Flow Lo (A & B) ANN 904R-D5 –Pump B Seal staging Flow Hi ANN C1R-A5 – Low Discharge pressure
7	RC06 – initial ramp 15 in 20 minutes <u>OR</u> Overrides for individual area temperatures	M - All	RCIC steam line break in the Secondary Containment, RCIC Steam line isolation valves fail to close which results in the need to scram (1 area) and eventually 2 areas exceeding max safe requiring an E-Depress. EOP-04 for leak and EOP-01 for scram ANN 904L-A6 – Steam leakage area temp high ANN 903-A1- CRD/Drywell Misc Temp Hi
8	TFU-114 – Main Turbine Auto trip Failure	C – BOP C - SRO	Failure of the Main Turbine to auto trip on reactor scram.

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

Pilgrim 2009 NRC Scenario #4

The plant is at 100% power. The crew will place SBGT "A" in service for I&C vibration checks. As the lineup for the evolution is being secured, a primary containment isolation damper will fail to close requiring a Technical Specification (TS) entry by the SRO, TS LCO 3.7.A.2.B.

Once TS are addressed reactor power will be lowered to 90%. As power is being decreased, Recirc Flow Controller 'A' failure will fail low requiring a scoop tube lockup (AOP) by the RO. After plant conditions have stabilized, a spurious RCIC initiation will occur; RCIC must be tripped by the BOP operator. The RCIC initiation will not reset (AOP). A TS entry will be required by the SRO, TS 3.5.D.2 – 14 day LCO

'A' Recirc Pump will then experience high vibrations requiring removal from service. Power to Flow may end up in the exclusion area and control rods must inserted by the RO. The SRO must address TS for Recirc Loop Flow Mismatch, TS 3.6.F.1. Once power/flow and TS are addressed a RBCCW pump will trip and the pump in auto will fail to start requiring manual action (AOP) by the BOP operator. Additionally, the RO must diagnose one seal failure on the "B" Recirc Pump requiring entry to an AOP.

Then, a RCIC steam line break in the Secondary Containment will occur. The RCIC Steam line isolation valves fail to close resulting in increasing area temperatures and an EOP-04 entry. A reactor scram and entry to EOP-01 will be required before one area reaches its maximum safe operating value (**Critical Task**). The Main Turbine will fail to auto trip when the reactor scrams requiring manual action by the operator to trip the turbine. Eventually 2 areas will exceed safe operating values and an Emergency Depressurization will be required (**Critical Task**). The crew may anticipate ED and use bypass valves to reduce reactor pressure.

The scenario may be terminated when the ED is complete.

EAL: SAE – 6.2.2.3 – steam line break without isolation AND/OR 4.2.1.3 – 2 areas above max safe

Op Test No.: 2009	Scenario # 4	Event # 1		
Event Description:	Place SBGT 'A' in service for vibration checks.			

Time	Position	Applicant's Actions or Behavior
	CRS	Directs the BOP to place the 'A' SBGT system in service In accordance with 2.2.70 Section 7.3.3.
	BOP	Reviews PNPS 2.2.70 Section 7.3.3 and performs the following steps: • **OPEN** AO-5041A, TORUS NORMAL EXHAUST ISOL VLV. • **OPEN** AO-5041B, TORUS NORMAL EXHAUST ISOL VLV. • **VERIFY OPEN OR OPEN**: o AO-N-98, CONTAMINATED EXH TO SGTS INLET PLENUM o AO-N-101, REFUEL FLOOR EXH TO SGTS INLET PLENUM **IF** using the "A" Standby Gas Treatment (SGTS) train, **VERIFY OR ESTABLISH** the lineup at Panel C7 as follows: • AO-N-99, TRAIN A INLET DMPR, is OPEN. • AO-N-108, TRAIN A OUTL DMPR, is OPEN. • VEX-210B, STANDBY GAS FAN B, is in "STANDBY". • **START** VEX-210A, STANDBY GAS FAN A, at Panel C7 by placing the control switch in "RUN". • **RECORD** the start time in the CRS Log. **WHEN** the Torus pressure is 0.00 to 0.05 psi**g** as indicated on PID-5067B (CONTAINMENT PRESSURE, TORUS) on Panel C904, **THEN SECURE** SGTS as follows: • To secure "A" SGT: o **PLACE** control switch for VEX-210A, STANDBY GAS FAN "A", to "AUTO" • At Panel C7. o **VERIFY** that fan VEX-210A indicates OFF at Panel C7. o **RECORD** the stop time in the CRS log. • **CLOSE** AO-5041A, TORUS NORMAL EXHAUST ISOL VLV. • **CLOSE** AO-5041B, TORUS NORMAL EXHAUST ISOL VLV. **RECOGNIZES Failure of AO-5041B to CLOSE and informs CRS** **Continues as below:** • **RETURN** the following to "AUTO": o AO-N-98, CONTAMINATED EXH TO SGTS INLET PLENUM o AO-N-101, REFUEL FLOOR EXH TO SGTS INLET PLENUM • **RETURN** SGTS to Normal standby status at Panel C7 as follows:

Op Test No.: 2009	Scenario # 4	Event # 1		
Event Description:	Place SBGT 'A' in service for vibration checks.			
Time	Position	Applicant's Actions or Behavior		
		○ For "A" SGTS operation: • **PLACE** AO-N-99; TRAIN A INLET DMPR, in "AUTO". • **PLACE** AO-N-108; TRAIN A OUTL DMPR, in "AUTO".		
	CRS	When informed by BOP that the AO-5041B failed to close, refers to TS 3.7.A.2.B – Isolate and deactivate the Operable PCIV in the same penetration line.		
When directed by Lead Examiner, proceed to next event				

Op Test No.: 2009	Scenario # 4	Event # 2		
Event Description:	Lower power to 90% using Recirculation Flow			

Time	Position	Applicant's Actions or Behavior
	CRS	Brief/Direct power decrease IAW PNPS 2.1.14 section 7.5.
	CRS	Inform I&C standby to adjust AGAFs as required
	RO	At Panel 904, use the Recirc. Pump speed controllers to lower core flow.
	BOP	Monitors balance of plant as power is reduced
	RO	Plot position on power to flow map.

SIM Booth and Examiner NOTE: The next event will occur as the RO is adjusting recirc pump speed downward for the power decrease.

INSERT the malfunction when reactor power is close to 90%

Op Test No.: 2009 Scenario # 4 Event # 3

Event Description: Recirc Flow Controller 'A' failure fails downscale.

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Recognize/announce Recirc Pump 'A' Flow Controller failure.
		Respond to Annunciator ANN 904RC-C7 MG 'A' Deviation High
		Inform CRS of condition
	CRS	Directs entry to PNPS 2.4.20, Reactor Recirculation System Speed or Flow Control System Malfunction.
	RO	Refers to PNPS 2.4.20.
	CRS	Direct initiating scoop lockup of 'A' Recirc pump.
	RO	Initiates 'A' Recirc pump scoop tube lockup.
	CRS	May refer to PNPS 2.4.19. – Scoop Tube Lockup
	CRS	Direct assessment of power to flow conditions.
	RO	Plot power and flow on power to flow map.
	RO	Checks for loop flow balance IAW PNPS 2.2.84. (Within 10% above 80% power.)
	CRS	Notify WWM to investigate and repair. May contact system engineer
	CRS	May Request licensed operator standby for manual operation of scoop tube positioned if needed.
	CRS	Verify pump speeds within Tech Spec limits 3.6.F.1. - 24 hours to have loop flows within 10% at >80% power & 15% at<80% power

Op Test No.: 2009 Scenario # 4 Event # 3		
Event Description: Recirc Flow Controller 'A' failure fails downscale.		
Time	Position	Applicant's Actions or Behavior

When directed by Lead Examiner, proceed to next event

Op Test No.: 2009	Scenario # 4	Event # 4
Event Description:	Spurious RCIC injection (signal does not clear) – operators trip RCIC.	

Time	Position	Applicant's Actions or Behavior
SIM BOOTH: IF RCIC initiation is not diagnosed within 5 minutes- insert annunciator 904RC-(E4) STM LINE DRN POT LVL HI		
	CREW	Recognize that RCIC has initiated.
	CRS	Enters PNPS 2.4.35, "Inadvertent Initiation of Core Standby Cooling Systems."
	BOP/ CRS	Inadvertent initiation is verified on two independent instruments.
	CRS	Directs tripping RCIC IAW 2.4.35
	BOP	**DEPRESSES** the RCIC Trip push button.
	CRS/ RO	Assess operating conditions by plotting power verses core flow on the Pilgrim Power/Flow Map, then perform action required IAW 2.1.14, Section 7.10.
	CRS	Investigate cause of inadvertent initiation by calling I&C.
	CRS	Refers to TS 3.5.D.2 – 14 day LCO
Sim Booth: Ensure initiation signal does not clear		
When directed by Lead Examiner, proceed to next event		

Op Test No.:	2009	Scenario #	4	Event #	5		
Event Description:	Recirc pump 'A' High Vibration. Requires removing the pump from service.						

Time	Position	Applicant's Actions or Behavior
	Crew	Respond to annunciator 904RC-B6 – Pump Motor A Vibration High
	CRS	Directs actions IAW ARP: Enters AOP 2.4.17 – Recirc Pump Trip Enters AOP- 2.4.165 Power Oscillations Directs Trip of Recirc Pump "A" and closure of discharge valve
SIM BOOTH: When contacted by control room to check vibrations, report back that Recirc Pump A vibration indications are pegged high		
	RO	As time permits, Contacts field operator to check vibration locally Trips Recirc pump "A' and closes its discharge valve. **WHEN** at least 5 minutes have elapsed since the closure of the Recirculation Pump Discharge Valve (MO-202-5A **OR** MO-202-5B) in Step 4.1[1], **AND THEN OPEN** the discharge valve to maintain the idle loop suction temperature > 400°F. Monitors for power oscillations May attempt to reset the high vibration by depressing the reset pushbutton
	CRS	Plots power to flow and determines that the Exclusion Region has been entered Directs Inserting Control rods per RPR array
	RO	Inserts control rods per the RPR array to exit Exclusion Region.
	CRS	Refers to TS 3.11.A – 15 minutes to exit region
	BOP	Monitors balance of plant equipment
When directed by Lead Examiner, proceed to next event		

Op Test No.: 2009	Scenario # 4	Event # 6		
Event Description:	RBCCW Pump Trips, Failure of Pump in auto to start. RWCU may isolate due to RBCCW loss. 'B' Recirc Pump seal leak.			

Time	Position	Applicant's Actions or Behavior
	BOP	Acknowledges/announces trip of 'F' RBCCW pump. Responds to annunciator: ANN C1R-A5 – RBCCW LOOP B HDR DISCH PRESS LO
Examiner Note: RWCU may isolate due to RBCCW loss depending on how quickly the standby pump is started.		
	BOP	At panel C1, checks PI-4058, RBCCW Loop B pressure.
	BOP	Recognizes auto start failure of standby pump and at panel C1 starts standby RBCCW pump. **Examiner Note: The operator may not recognize that the standby pump failed to auto start based on his/her response time (auto start is time delayed)**
SIM BOOTH: When contacted by field operator to check the RBCCW pump that tripped, report there are no apparent problems at the pump. The breaker is tripped free, but no apparent signs of overheating or fire. **If contacted when the standby pump is started, report that indications are normal**		
	CRS	Directs entry into PNPS 2.4.42 – Loss of RBCCW section 4.4. May enter 2.4.47 – RWCU Malfunction
	BOP	Monitors/verifies RBCCW system for proper response.
	CRS	Declares a tracking LCO based on one of the three RBCCW pumps in the loop Inoperable. (Only two RBCCW pumps are required TS 3.5.B.3.A.1 and associated bases))
	RO	Responds to the following alarms: ANN 904RC-G6, 904R-G5 –Seal Cooling Flow Lo (A & B)

Op Test No.: 2009	Scenario # 4	Event # 6		
Event Description:	RBCCW Pump Trips, Failure of Pump in auto to start. RWCU may isolate due to RBCCW loss. 'B' Recirc Pump seal leak.			

Time	Position	Applicant's Actions or Behavior
		ANN 904R-D5 –Pump B Seal staging Flow Hi Diagnoses failure of Recirc Pump "B" #1 seal. Informs CRS
	CRS	Directs Entry into PNPS 2.4.22- FAILURE OF A RECIRCULATION PUMP SEAL. Directs close monitoring of Drywell temperature and pressure.
	RO	Closely monitors Drywell temperature and pressure.
When directed by Lead Examiner, proceed to next event		

	Crew	Responds to the following annunciators: ANN 904L-A6 – Steam leakage area temp high ANN 903-A1- CRD/Drywell Misc Temp Hi
	CRS	Directs crew to read temperature of alarming module at Panel C921 Directs RO/BOP to send field operator to investigate area in alarm
Examiner Note: This malfunction is a pipe break in the RCIC steam supply line downstream of MO-1301-61. Area temperatures will rise requiring an EOP-04 entry then a reactor scram and entry to EOP-01. The leak will fail to isolate, (MO-1301-61, RCIC TURBINE SUPPLY ISOLATION VALVE and MO-1301-17, RCIC TURBINE SUPPLY OUTBD ISOL VALVE), eventually requiring an Emergency Depressurization IAW EOP-17.		
SIM BOOTH: When contacted, report that there is steam in the room		
	CREW	Diagnoses based on alarm indication and field operator report that the leak is in the RCIC room.
	CRS	Enters EOP-04 on High RCIC Normal Area Temperature Directs operating available area coolers Directs isolating RCIC
	BOP	Recognizes RCIC failure to auto isolate on high temperature and attempts manual isolation Reports to CRS that RCIC cannot be isolated
Critical Task	CRS	Determines that a reactor scram is required, in accordance with EOP-4, step SC-14 (which states: BEFORE any secondary containment parameter reaches its Maximum Safe Operating Value- Enter EOP-1). RCIC Area is approaching max safe temperature as stated in EOP-4 Table L. Enters EOP-01. Directs reactor scram
Critical Task	RO	Places mode switch in shutdown

	BOP/RO	Recognize failure of Main turbine to trip after reactor is scrammed Manually trips the main turbine
	RO	Verify and announce the status of APRM downscales.
	RO	Verify all control rods are fully inserted.
	RO	Insert IRM and SRM detectors, select two SRMs for recording, and place selector switch for APRM/IRM to “IRM”.
	RO	Verify reactor recirc pumps at minimum speed.
	RO	Verify trip of the turbine.
	CRS	Direct reactor water level +20 - +40 inches using Feedwater/Condensate
	CRS	Direct stabilizing pressure between 900-1050 psig with bypass valves.
	BOP	As directed, Controls RPV pressure with bypass valves and RPV level with Feedwater /Condensate
	CREW	Recognize and report when any area temperature exceeds Max Safe Value.
	CRS	In anticipation of ED, may direct the reactor be rapidly depressurized to the main condenser via the Main Turbine Bypass Valves, disregarding the cooldown rate.
	BOP	As directed rapidly depressurize the reactor to the main condenser via the Main Turbine Bypass Valves, disregarding the cooldown rate
	CREW	Recognize and report when 2 or more area temperatures exceed Max Safe Value.
	CRS	Directs Emergency Depressurization when 2 or more area temperatures exceed Max Safe Value. First Area:

		• RCIC Torus Piping Area- Torus Compt. • RCIC Turbine Area –Stairwell (-)17 ft Second Area: • RCIC Tip Room
	CRS	Enters and direct the activities of EOP-17:
		• Verifies Torus water level is > 50 inches.
Critical Task		• Directs that all 4 SRVs opened.
Critical Task	BOP	Opens and verifies open all 4 SRVs
EXAMINER NOTE: The scenario may be terminated when the ED is completed and RPV level is being maintained in the normal band OR when directed by the Chief Examiner.		
EAL: SAE – 6.2.2.3 – steam line break without isolation AND/OR 4.2.1.3 – 2 areas above max safe		