DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

NRC 2011 RO ADMIN JPM COO1

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **PERFORMANCE OF ATTACHMENT 10, VOLUME WEIGHTED DRYWELL AVERAGE AIR TEMPERATURE, OF STP 3.0.0-01, INSTRUMENT CHECKS**

JPM NUMBER: **NRC 2011 RO C0001 REV. 0**
DAEC BANK #2.1.7-05

TASK NUMBER(S) / TASK TITLE(S): **1.07 (REACTOR OPERATOR)**

K/A NUMBERS: **2.1.7 (4.4)** **K/A VALUE:**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☐

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐
Simulator: [X] Other: ☐
Lab: ☐

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No
Alternate Path [INPO]: ☐ Yes ☒ No

Developed by:		
	Instructor	Date
Validated by:		
	Validation Instructor	Date
Reviewed by:		
	Plant Reviewer	Date
Approved by:		
	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

TURNOVER SHEET

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- The plant is operating at 100% electrical output.
- It's a very hot and humid day.
- The RO who was performing the Instrument Checks STP has just been called to the Multi-Shop briefing room to attend a Pre-job Brief.
  - SPDS point SPDS006 has gone bad.
  - Just prior to the RO being called away he recorded the required drywell temperature readings from 1C29 on to Attachment #10.

INITIATING CUES (IF APPLICABLE):

- Complete Attachment 10 of STP 3.0.0-01, Instrument Checks.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- The plant is operating at 100% electrical output.
- It's a very hot and humid day.
- The RO who was performing the Instrument Checks STP has just been called to the Multi-Shop briefing room to attend a Pre-job Brief.
    - SPDS point SPDS006 has gone bad.
    - Just prior to the RO being called away he recorded the required drywell temperature readings from 1C29 on to Attachment #10.

INITIATING CUES (IF APPLICABLE):

- Complete Attachment 10 of STP 3.0.0-01, Instrument Checks.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: **Critical N (SEQ-)**	Takes the reading from TR-4383A Pen 1 (R) and multiplies it by the Volume Fraction: 188.38 X 0.1067
Standard:	Multiplies 188.38 X 0.1067 and gets 20.1. Then records this number in the PRODUCT (3.0) column.
Evaluator Note:	**It is acceptable to round off the reading.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Takes the reading from TR-4383A Pen 2 (G) and multiplies it by the Volume Fraction: • 166.98 X 0.1244.
Standard:	Multiplies 166.98 X 0.1244 and gets 20.77. Then records this number in the PRODUCT (3.0) column.
Evaluator Note:	**It is acceptable to round off the reading.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Takes the reading from TR-4383A Pen 3 (B) and multiplies it by the Volume Fraction: • 122.97 X 0.1737.
Standard:	Multiplies 122.97 X 0.1737 and gets 21.36 Then records this number in the PRODUCT (3.0) column.
Evaluator Note:	**It is acceptable to round off the reading.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Takes the reading from TR-4383B Pen 1 (R) and multiplies it by the Volume Fraction: • 167.34 X 0.1244.
Standard:	Multiplies 167.34 X 0.1244 and gets 20.82 Then records this number in the PRODUCT (3.0) column.
Evaluator Note:	**It is acceptable to round off the reading.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Takes the reading from TR-4383B Pen 2 (G) and multiplies it by the Volume Fraction: • 134.88 X 0.1737.
Standard:	Multiplies 134.88 X 0.1737 and gets 23.43 Then records this number in the PRODUCT (3.0) column.
Evaluator Note:	**It is acceptable to round off the reading.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Takes the reading from TR-4383B Pen 3 (B) and multiplies it by the Volume Fraction: • 114.99 X 0.1259.
Standard:	Multiplies 114.99 X 0.1259 and gets 14.48. Then records this number in the PRODUCT (3.0) column.
Evaluator Note:	**It is acceptable to round off the reading.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Takes the reading from TR-4383C Pen 1 (R) and multiplies it by the Volume Fraction: • 122.75 X 0.1259.
Standard:	Multiplies 122.75 X 0.1259 and gets 15.45. Then records this number in the PRODUCT (3.0) column.
Evaluator Note:	**It is acceptable to round off the reading.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Takes the reading from TR-4383C Pen 2 (G) and multiplies it by the Volume Fraction: • 113.83 X 0.0453.
Standard:	Multiplies 113.83 X 0.0453 and gets 5.16 Then records this number in the PRODUCT (3.0) column.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Adds up column PRODUCT (3.0). 20.1 20.77 21.36 20.82 23.43 14.48 15.45 5.16 141.57
Standard:	Adds up the volume fractions for each drywell temperatures and gets a value of 141.57.
Evaluator Note:	The number does not have to be exactly the same as above, it will depend on how he rounded off the Volume Fraction calculations. The critical portion is that the calculation be above 135 degrees.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Instrument Checks Acceptance Criteria for Volume Weighted Drywell Average Air Temperature is less than or equal to 135 degrees F.
Standard:	Determines that the Attachment 10 value determined in previous step is above the Acceptance Criteria for the STP, and reports the findings to the CRS/SM.
Evaluator Note:	**If the candidate does not recognize that this reading is above the T.S. acceptance criteria it should be noted as a competency.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

NRC 2011 RO C001, DAEC Bank # 2.1.7-05Performance of Attachment 10, Volume Weighted Drywell Average Air Temperature, of STP 3.0.0-01, Instrument Checks, Rev. 0

Terminating Cues: When the Candidate informs the CRS/SM that they do not meet the acceptance criteria for Drywell average air temperatures, the JPM is complete.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

ATTACHMENT 10

VOLUME WEIGHTED DRYWELL AVERAGE AIR TEMPERATURE ♦

NOTE

Attachment 10 is to be performed whenever Computer Point SPDS006 is unavailable or inaccurate. Four different options are available for obtaining alternate temperature readings for each Drywell location and all readings do not have to be from the same option. The 1C29 temperatures used in Step 2.1 and the computer points used in Step 2.2 are sensed from the same temperature elements which input to SPDS006 but the computer points used in Step 2.3 and the 1C142 readings used in Step 2.4 are sensed from different temperature elements. If readings are obtained per Step 2.3 or 2.4, the calculated value may be different than what SPDS006 indicates and the System Engineer should be notified for further evaluation if the change is significant or exceeds the Tech Spec limit of 135°F. Any one of the four options is acceptable to use, but the Step 2.1 or Step 2.2 options should be used if available for better accuracy. Assistance from an I&C Tech will be needed for using Step 2.4 option.

1. Determine which individual instruments are available, circle and initial the instrument chosen in each row.
2. Obtain the readings per the following as appropriate:
   - 2.1 At 1C29, record the recorder reading in the table.
   - 2.2 Using the Plant Process Computer, record the computer point reading in the table.
   - 2.3 Using the Plant Process Computer, record the computer point reading plus the correction in the table.
   - 2.4 At 1C142, select the ILRT position on switch HSS-4354 and use an L&N Temperature Calibrator to record the temperature reading plus the correction in the table. Refer to NG-96-1963 (Temperature Conversion Reference Tables) Tab 7 for converting resistance readings to temperatures.
3. Multiply each reading by its volume fraction and record the product in the table.
4. Determine the Volume Weighted Drywell Average Air Temperature by adding the eight products.

INSTRUMENT (1.0)				READING (2.0)	VOLUME	PRODUCT (3.0)
1C29 (2.1)	Comp. Pt. (2.2)	Comp. Pt. (2.3)	1C142 (2.4)		FRACTION	
TR-4383A Channel 1 (R)	B147	B095 + 4.0	TE-4328L + 4.0		X 0.1067	
TR-4383A Channel 2 (G)	B145	B093 + 10.0	TE-4328J + 10.0		X 0.1244	
TR-4383A Channel 3 (B)	B143	B091 + 4.0	TE-4328G + 4.0		X 0.1737	
TR-4383B Channel 1 (R)	B146	B094 + 10.0	TE-4328K + 10.0		X 0.1244	
TR-4383B Channel 2 (G)	B144	B092 + 4.0	TE-4328H + 4.0		X 0.1737	
TR-4383B Channel 3 (B)	B141	B089 + 4.0	TE-4328E + 4.0		X 0.1259	
TR-4383C Channel 1 (R)	B142	B090 + 4.0	TE-4328F + 4.0		X 0.1259	
TR-4383C Channel 2 (G)	B149	B096 + 4.0	TE-4328M + 4.0		X 0.0453	
Volume Weighted Drywell Average Air Temperature (4.0)						

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

NRC 2011 RO ADMIN JPM COO2

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **VERIFICATION OF LICENSE REQUIREMENTS**

JPM NUMBER: **NRC 2011 RO C0002** **REV.** **0**

TASK NUMBER(S) / TASK TITLE(S): **2.1.4 (3.3/3.8)**

K/A NUMBERS: **N/A** **K/A VALUE:** Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc.

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION:

In-Plant:	[ ]	Control Room:	[ ]
Simulator:	[ ]	Other:	[ ]
Lab:	[ ]	Classroom	X

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

Developed by:		
	Instructor	Date
Validated by:		
	Validation Instructor	Date
Reviewed by:		
	Plant Reviewer	Date
Approved by:		
	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 RO COO2, Verification of License Requirements, Rev. 0
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☐	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☐	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☐
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☐	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☐	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☐	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☐
8.	Is the Licensee level appropriate for the task being evaluated if required?	☐	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☐	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☐
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	☐	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☐
13.	Are all references identified, current, accurate, and available to the trainee?	☐	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☐	☐	☐
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	☐	☐	☐
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	☐	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel Date

Re-Validation Personnel Date

Re-Validation Personnel Date

Re-Validation Personnel Date

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions: None

SIMULATOR MALFUNCTIONS: None

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Required Materials:	10 CFR 55.53 NAP-408-License Maintenance And Activation Program ACP 1411.20 –Respiratory Protection NP-912-Respiratory Qualification Requirements
General References:	10 CFR 55.53 NAP-408-License Maintenance And Activation Program ACP 1411.20 –Respiratory Protection NP-912-Respiratory Qualification Requirements
Task Standards:	Identifies which personnel are available to assume the watch and the reaon(s) other(s) are not.

TURNOVER SHEET

INITIAL CONDITIONS:

- The plant is operating at 100% power.
- Today is July 4, 2011.
- You are the RO.
- You must leave shift.
- Three replacement operators are available.

INITIATING CUES (IF APPLICABLE):

- Using the given information on Handout #1, determine which of the three operators, if any, are qualified to relieve you IAW the plant procedures. If not qualified, record reason why.

- Record your findings on Handout #2.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

PERFORMANCE:

EXAMINER NOTE: Provide candidate with Handout #1

START TIME: _____

1.	**Procedure Step:**	Operator reviews the handout and applicable sections of the procedures.
	Standard	Determines eligibility of the operators in accordance with the below key
	Comments	
	Results	SAT ☐ UNSAT ☐

Terminating Cue: **ONCE candidate discusses their findings the JPM can be terminated**

Answer Key

	Qualified for Relief? (Yes/No)	If No, what requirement is not being met.
RO #1	**NO**	**Does not have a medical exam within the past 2 years** **Does not have the annual fit test**
RO #2	**NO**	**Does not meet the required number of hours performing duties as a licensed operator for the last quarter** **(Work Control hours do NOT count)**
RO #3	**YES**	**N/A**

HANDOUT #1

RO#1
Hours Performing Operator Duties in Last Quarter 4/16/11 - 0700 - 1900 - ANSOE 4/17/11 - 0700 - 1900 - NSOE 4/25/11 - 0700 - 1900 - ANSOE 5/5/11 - 0700 - 1900 - Work Control Tagout Coordinator 5/6/11 - 0700 - 1900 - ANSOE 5/7/11 - 0700 - 1900 - NSOE 6/4/11 - 0700 - 1900 - NSOE 6/5/11 - 0700 - 1900 – Work Control Tagout Coordinator
Date of Most Recent Medical Exam - 4/10/2009
Latest Mask Fit Test – 12/28/2009

RO#2
Hours Performing Operator Duties in Last Quarter 5/21/11: 0700 - 1900 – Work Control Tagout Coordinator 5/30/11: 0700 - 1900 - ANSOE 6/14/11: 0700 - 1900 - NSOE 6/15/11: 0700 - 1900 – Work Control Tagout Coordinator 6/24/11: 0700 - 1900 - NSOE 6/25/11: 0700 - 1900 - NSOE 6/26/11: 0700 – 1900 – Work Control Tagout Coordinator
Date of Most Recent Medical Exam - 10/14/2009
Latest Mask Fit Test – 11/16/2010

RO#3
Hours Performing Operator Duties in Last Quarter 4/6/11 0700 - 1900 - ANSOE 5/8/11: 0700 - 1900 - ANSOE 5/9/11: 0700 - 1900 – NSOE 5/15/11: 0700 - 1900 – Work Control Tagout Coordinator 6/1/11: 0700 - 1900 - NSOE 6/21/11: 0700 - 1900 - ANSOE
Date of Most Recent Medical Exam - 7/15/2010
Latest Mask Fit Test – 6/10/2010

HANDOUT #2

	Qualified for Relief? (Yes/No)	If No, what requirement(s) is/are not being met.
RO #1		
RO #2		
RO #3		

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- The plant is operating at 100% power.
- Today is July 4, 2011.
- You are the RO.
- You must leave shift.
- Three replacement operators are available.

INITIATING CUES (IF APPLICABLE):

- Using the given information on Handout #1, determine which of the three operators, if any, are qualified to relieve you IAW the plant procedures. If not qualified, record reason why.

- Record your findings on Handout #2.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step:
Critical

Standard:

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

Comments: _____

Terminating Cues: **ONCE candidate discusses their findings the JPM can be terminated**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

NRC 2011 RO COO2, Verification of License Requirements, Rev. 0

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

NRC 2011 RO ADMIN JPM EC

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **DETERMINE CLEARANCE POINTS FOR RBCCW "B" PUMP REPLACEMENT**

JPM NUMBER: **NRC 2011 EC** **REV.** **0**

TASK NUMBER(S) / TASK TITLE(S):

K/A NUMBERS: **2.2.13 (4.1)** **K/A VALUE:** **Knowledge of tagging and clearance procedures.**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION:

In-Plant:	[ ]	Control Room:	[ ]
Simulator:	[X]	Other:	[ ]
Lab:	[ ]	Classroom	X

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

Developed by:		
	Instructor	Date
Validated by:		
	Validation Instructor	Date
Reviewed by:		
	Plant Reviewer	Date
Approved by:		
	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 EC, Determine Clearance Points for RBCCW "B" Pump Replacement, Rev. 0
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☐	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☐	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☐
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☐	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☐	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☐	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☐
8.	Is the Licensee level appropriate for the task being evaluated if required?	☐	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☐	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☐
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	☐	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☐
13.	Are all references identified, current, accurate, and available to the trainee?	☐	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☐	☐	☐
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	☐	☐	☐
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	☐	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel	Date	Re-Validation Personnel	Date
Re-Validation Personnel	Date	Re-Validation Personnel	Date

NRC 2011 EC, Determine Clearance Points for RBCCW "B" Pump Replacement, Rev. 0

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions: None

SIMULATOR MALFUNCTIONS: None

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Required Materials:	BECH-M112 BECH-E111<0007> Rev.3 OI 414 Rev 36 OI 414 Att.1 Rev 2 OI 414 Att.2 Rev 1
General References:	BECH-M112 BECH-E111<0007> Rev.3 OI 414 Rev 36 OI 414 Att.1 Rev 2 OI 414 Att.2 Rev 1 Clearance 1400-1P081B: CYCLE-23
Task Standards:	Identifies the isolation points, tag type, component position and tag sequence for a "B" RBCCW clearance

TURNOVER SHEET

INITIAL CONDITIONS:

- The plant is operating at 100% power.
- eSOMS is NOT Available

INITIATING CUES (IF APPLICABLE):

- Identify the components required to isolate the “B” RBCCW Pump for pump replacement.
- Record the required components, tag type, component positions and tagging sequence on the handout provided.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- The plant is operating at 100% power.
- eSOMS is NOT Available

INITIATING CUES (IF APPLICABLE):

- Identify the components required to isolate the "B" RBCCW Pump for pump replacement.
- Record the required components, tag type, component positions and tagging sequence on the handout provided.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: **Critical N (SEQ-)**	Obtain references, as required: • P&ID BECH-M-112 & BECH-E111<0007>
Standard:	Obtains references P&ID BECH-M- 112 & BECH-E111<0007
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Records the isolation points
Standard:	See Key Below
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Terminating Cues: ONCE candidate discusses their findings the JPM can be terminated

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

KEY

Component Description	Tag Type	Sequence**	Component Position/Configuration
Handswitch HS4833	**Maintenance in Progress OR Caution OR Info**	Anytime	**Tag on Handswitch**
Breaker 1B4320	**Danger**	**1**	**OFF**
Discharge Valve V12-0007	**Danger**	**2**	**Closed**
Suction Valve V12-0005	**Danger**	**2**	**Closed**
Drain Valve V12-0125	**Caution**	**3**	**Operate As Needed To Drain OR Open**
Pressure Point V12-0125	Caution	3	Operate as needed to Drain **OR** Open
Pressure Point V12-0126	Caution	3	Operate as needed to Drain **OR** Open

****Examiner Note:**

The sequence must be electrical first (control switch, fuses, breaker), valve isolations second (suction, discharge) and drains third.

The Pressure Points and Sequence Info for the Handswitch are NOT CRITICAL and in a smaller font size

Critical Portions are BOLD, identified in RED and in a LARGER Font size

HANDOUT #1

Component Description	Tag Type	Sequence	Component Position/Configuration
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			

Examinee: **Evaluator:**

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

NRC 2011 RO ADMIN JPM RC

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **DETERMINE PERSONNEL AVAILABILITY TO PERFORM RADIATION AREA TASK**

JPM NUMBER: **NRC 2011 RO ADMIN JPM REV. 0**
RC

TASK NUMBER(S) / TASK TITLE(S): **96.05**
CONDUCT PLNAT OPERATIONS IN ACCORDANCE WITH ADMINISTRATIVE PROCEDURES

K/A NUMBERS: **2.3.12** **K/A VALUE:**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION: In-Plant: [ ] Control Room: [ ]
Simulator: [ ] Other: [X]
Lab: [ ]

Time for Completion: 10 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No
Alternate Path [INPO]: ☐ Yes ☒ No

Developed by:	Instructor	Date
Validated by:	Validation Instructor	Date
Reviewed by:	Plant Reviewer	Date
Approved by:	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 RO Admin JPM RC. Determine Personnel Availability to Perform Radiation Area Task, Rev. 0

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☐	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☐	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☐
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☐	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☐	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☐	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☐
8.	Is the Licensee level appropriate for the task being evaluated if required?	☐	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☐	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☐
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	☐	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☐
13.	Are all references identified, current, accurate, and available to the trainee?	☐	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☐	☐	☐
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	☐	☐	☐
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	☐	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel	Date	Re-Validation Personnel	Date
Re-Validation Personnel	Date	Re-Validation Personnel	Date

NRC 2011 RO Admin JPM RC. Determine Personnel Availability to Perform Radiation Area Task, Rev. 0

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions: None

SIMULATOR MALFUNCTIONS:

TIME	MALFUNCTION #	MALFUNCTION TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.

SIMULATOR OVERRIDES:

TIME	OVERRIDE ID	OVERRIDE DESCRIPTION	ET	DELAY	VALUE	RAMP

SIMULATOR REMOTE FUNCTIONS:

TIME	REMOTE FUNCTION #	REMOTE FUNCTION TITLE	VALUE	RAMP

Required Materials: Calculator
Candidate may refer to ACP 1411.17, OCCUPATIONAL DOSE LIMITS AND UPGRADES (Level of Usage is "Information Use"). If stated they would refer to the ACP, provide a copy.

General References: ACP 1411.17, OCCUPATIONAL DOSE LIMITS AND UPGRADES, Revision 21

Task Standards: Determines the expected exposure for the task
Selects the operator who can perform the task without exceeding DAEC limits

TURNOVER SHEET

INITIAL CONDITIONS:

- Entry to the reactor building is required to manually close MO-2701, RWCU SUCTION OUTBOARD ISOLATION, which failed to isolate remotely, due to a steam leak from a cracked weld in RWCU.
- DAEC Management has decided that an operator will make the required area entry.
- Time to complete the task for an experienced operator will be 24 minutes.
- Time to complete the task for a new operator will be 30 minutes
- Radiation levels at the valve are as high as 1500 mR/hr.
- Four (4) individuals are available to perform the task.
  A. Operator A is a volunteer who is an experienced Licensed Reactor Operator that received a planned special exposure, at another facility, this year, of 4.5R TEDE (TLD #1, Employee # - 00001, SSN: 111-11-1111).
  B. Operator B is a volunteer who is an experienced Licensed Reactor Operator and is a declared pregnant worker and has received a dose of 15 mR this year (TLD #2, Employee # - 00002, SSN: 222-22-2222).
  C. Operator C is a volunteer who is a new Licensed Reactor Operator that has received a dose of 600 mR this year (TLD #3, Employee # 00003, SSN: 333-33-3333).
  D. Operator D is a volunteer who is an experienced Licensed Reactor Operator that has received a dose of 1500 mR this year (TLD #4, Employee # 00004, SSN: 444-44-4444).

INITIATING CUES (IF APPLICABLE):

- Determine the following using the maximum dose rate expected and information above:
- The individual(s) available to close MO-2701 without exceeding DAEC Administrative Limits
- The radiation exposure the individuals would receive if they performed the task
- The reason a particular worker would not be chosen for the task

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- Entry to the reactor building is required to manually close MO-2701, RWCU SUCTION OUTBOARD ISOLATION, which failed to isolate remotely, due to a steam leak from a cracked weld in RWCU.
- DAEC Management has decided that an operator will make the required area entry.
- Time to complete the task for an experienced operator will be 24 minutes.
- Time to complete the task for a new operator will be 30 minutes
- Radiation levels at the valve are as high as 1500 mR/hr.
- Four (4) individuals are available to perform the task.

  E. Operator A is a volunteer who is an experienced Licensed Reactor Operator that received a planned special exposure, at another facility, this year, of 4.5R TEDE
  (TLD #1, Employee # - 00001, SSN: 111-11-1111).

  F. Operator B is a volunteer who is an experienced Licensed Reactor Operator and is a declared pregnant worker and has received a dose of 15 mR this year
  (TLD #2, Employee # - 00002, SSN: 222-22-2222).

  G. Operator C is a volunteer who is a new Licensed Reactor Operator that has received a dose of 600 mR this year
  (TLD #3, Employee # 00003, SSN: 333-33-3333).

  H. Operator D is a volunteer who is an experienced Licensed Reactor Operator that has received a dose of 1500 mR this year
  (TLD #4, Employee # 00004, SSN: 444-44-4444).

INITIATING CUES (IF APPLICABLE):

- Determine the following using the maximum dose rate expected and information above:
- The individual(s) available to close MO-2701 without exceeding DAEC Administrative Limits
- The radiation exposure the individuals would receive if they performed the task
- The reason a particular worker would not be chosen for the task

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: **Critical Y (SEQ-)**	Determine the expected exposure for the task for both a new and experienced operator
Standard:	For an experienced operator - Calculates that a 24 minute exposure in a 1500 mR/hr field will cause a dose of 600 mR. For a new operator - Calculates that a 30 minute exposure in a 1500 mR/hr field will cause a dose of 750 mR.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Determine which, if any, of the individuals is available to close MO-2701 without exceeding his annual DAEC Administrative Limit.
Standard:	Determines operator C is the only operator available to close MO-2701 without exceeding DAEC Administrative Limits: • Operator A has previously received a planned special exposure. 600 mR would cause him/her to exceed 5 R TEDE. • Operator B is a declared pregnant worker. 600 mR would cause her to exceed 450mR. • **Operator C is a new Licensed Reactor Operator. 750 mR will cause him/her to have a total of 1350 mR.** • Operator D is an experienced Licensed Reactor Operator. 600 mR will cause him to exceed 2000 mR.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Terminating Cues: When the candidate has stated the expected dose for the task and states which operator(s), if any, are available for the task without exceeding DAEC Administrative limits, inform him that the JPM is complete.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

Examinee: **Evaluator:**

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

NRC 2011 SRO ADMIN JPM COO1

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **PERFORM STP 3.0.0-01, ATT. 11 – CORE THERMAL LIMITS CHECK**

JPM NUMBER: **NRC 2011 ADMIN JPM SRO C001** **REV. 0**

TASK NUMBER(S) / TASK TITLE(S): **82.00 Monitor the Rod Block Monitoring System**

K/A NUMBERS: 2.1.7 (4.7)**2.1.7 (4.7)** **K/A VALUE:** **Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☐ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION:

In-Plant:	[ ]	Control Room:	[ ]
Simulator:	[X]	Other:	[ ]
Lab:	[ ]	Classroom	X

Time for Completion: 15 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 ADMIN JPM SRO C001, Perform STP 3.0.0-01, Att. 11 – Core Thermal Limits Check, Rev. 0

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☐	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☐	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☐
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☐	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☐	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☐	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☐
8.	Is the Licensee level appropriate for the task being evaluated if required?	☐	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☐	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☐
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	☐	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☐
13.	Are all references identified, current, accurate, and available to the trainee?	☐	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☐	☐	☐
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	☐	☐	☐
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	☐	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel	Date	Re-Validation Personnel	Date
Re-Validation Personnel	Date	Re-Validation Personnel	Date

NRC 2011 ADMIN JPM SRO C001, Perform STP 3.0.0-01, Att. 11 – Core Thermal Limits Check, Rev. 0

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions: None

SIMULATOR MALFUNCTIONS: None

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Required Materials:	ARP 1C05B (A-6) (B-6) Plant process computer Technical Specifications Copy of Official 3D Case with MFLCPR and Load Line OOS Power to Flow Map COLR
General References:	ARP 1C05B (A-6) (B-6), Rev 74 Technical Specifications, LCO 3.2.2, Amendment 243 Power to Flow Map
Task Standards:	Identify Tech Spec Safety Limit violation (MCPR) Identify Load Line and MFLCPR limits are exceeded

TURNOVER SHEET

INITIAL CONDITIONS:
- The plant is at rated power

INITIATING CUES (IF APPLICABLE):
- Perform a review of a just completed Attachment 11, Sections 1.0 and 2.0 of STP 3.0.0-01, and determine actions required, if any.

EVALUATOR CUE:
- Provide the candidate with the 3D Monicore printout and the filled in copy of the STP

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:
- The plant is at rated power

INITIATING CUES (IF APPLICABLE):
- Perform a review of a just completed Attachment 11, Sections 1.0 and 2.0 of STP 3.0.0-01, and determine actions required, if any.

EVALUATOR CUE:
- Provide the candidate with the 3D Monicore printout and the filled in copy of the STP

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: **Critical Y (SEQ-)**	Takes initial data including Load Line.
Standard:	Identifies that the load line is greater than the allowable value and is also greater than the MELLA Limit. Recommends that load line be reduced to below MELLA immediately (IAW Power to Flow Map note) Enters AOP 255.2 at Step 7. for actions
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Continues review and notes MCPR and MFLCPR limit is OOS
Standard:	Determines MCPR is OOS and enters Technical Specification 3.2.2 Condition A which requires the plant to reduce MCPR to within limits in 2 hours.
Evaluator Note:	**May reference COLR**
Evaluator Note:	**Provide a copy of Power to Flow Map if requested**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Terminating Cues: **When the candidate identifies entry into TS 3.2.2 Condition A and that the MELLA limit has been exceeded and immediate action is required, the JPM is complete.**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

ATTACHMENT 11

CORE THERMAL LIMITS AND APRM GAIN ADJUSTMENT
(Note: Not required in Mode 4 ♦)

NOTE

If the reactor is operating in Single Loop (SLO), then "N/A" Attachment 11 and perform the Combined Single Loop Surveillance Procedure STP-3.4.1-02. APRM Gain Adjustment shall be accomplished once per day when in MODE 1 while greater than or equal to (≥) 21.7% RTP and within 12 hours after greater than or equal to (≥) 21.7% RTP on startup. Attachment 11 may be marked N/A if operating at less than (<) 21.7% RTP for an extended period of time.

crs

1.0 APRM GAIN ADJUSTMENT (TWO LOOP OPERATION ONLY)

1.1 Record CORE POWER and indicate source below: crs

(**X**) From PERIODIC LOG
( ) From POWER and FLOW LOG
( ) From Computer Point C133
( ) From heat balance conducted by Reactor Engineer

CORE POWER = **99.9** % Power.

1.2 Determine desired APRM setting. APRM setting shall be greater than or equal to (≥) CORE POWER minus 2% from Step 1.1 and less than or equal to (≤) CORE POWER plus 2%. crs

Desired APRM setting: ≥ **97.9** % Power and ≤ **101.9** % Power

	A	B	C	D	E	F	
1.3 Record as found indicated APRM power % @ 1C37	**100**	**100**	**101**	**100**	**101**	**101**	crs
a) Bypass, and adjust desired APRM setting if necessary.	_____	_____	_____	_____	_____	_____	N/A
b) Confirm bypass light on Panel 1C05	_____	_____	_____	_____	_____	_____	N/A
c) Confirm bypass light on Panel 1C37	_____	_____	_____	_____	_____	_____	N/A
d) Confirm computer alarm message	_____ A548	_____ A549	_____ A550	_____ A551	_____ A552	_____ A553	N/A
e) Confirm all alarms are reset	_____	_____	_____	_____	_____	_____	N/A
f) Record as left indicated APRM power, % @ 1C37	**100**	**100**	**101**	**100**	**101**	**101**	N/A

ATTACHMENT 11

CORE THERMAL LIMITS AND APRM GAIN ADJUSTMENT ♦

1.5 Confirm APRM Computer Points (B000-B005) values are approximately the same as the As-Left values on 1C37. If not, notify the Reactor Engineer and appropriate System Engineer. **crs**

2.0 CORE THERMAL LIMITS

2.1 If the process computer is not available, responsibility for Attachment 11 has been turned over to a Reactor Engineer. (N/A this step if process computer is available.) **N/A**

2.2 Check the method or methods used to determine the core parameters. **crs**

Periodic Log: **X** Power and Flow Log: _____

Heat Balance by RE: _____

2.3 Record the following core parameters.

2.3.1 Core Megawatt Thermal (POWER MWT) **1909** Mwt **crs**

2.3.2 Percent Reactor Pwr (CORE POWER) **99.9** % **crs**

2.3.3 Percent Load Line (LOAD LINE) **100.68** % **crs**

a) If Load Line is greater than (>) 100.4%, immediately notify the CRS. Otherwise, mark this step N/A. **crs**

2.3.4 Core flow (FLOW) **48.760** Mlb/hr **crs**

a) If Core flow is greater than (>) 51.3 Mlb/hr, immediately notify the CRS. Otherwise, mark this step N/A. **N/A**

2.3.5 Percent Core Flow (CORE FLOW) **99.5** % **crs**

2.3.6 Most Limiting Maximum Fraction of Limiting Critical Power Ratio **crs**

(MFLCPR) **1.002**

a) If Most Limiting MFLCPR is ≤ 0.99, N/A Steps 2.3.6.b and c and proceed to Step 2.3.7. **N/A**

b) If Most Limiting MFLCPR is > 0.99 but ≤ 1.00, notify the CRS, N/A Step 2.3.6.c and proceed to Step 2.3.7. **N/A**

c) If Most Limiting MFLCPR is > 1.00, observe General Instructions 4.3 through 4.5. **crs**

ATTACHMENT 11

CORE THERMAL LIMITS AND APRM GAIN ADJUSTMENT ♦

2.3.7 Most Limiting Max Fraction of Limiting Power Density — crs

(MFLPD) **0.848**

a) If Most Limiting MFLPD is ≤ 0.99, N/A Steps 2.3.7.b and c and proceed to Step 2.3.8. — crs

b) If Most Limiting MFLPD is > 0.99 but ≤ 1.0, notify the CRS, N/A Step 2.3.7.c and proceed to Step 2.3.8. — N/A

c) If MFLPD is > 1.0, observe General Instructions 4.3 through 4.5. — N/A

2.3.8 Most Limiting Maximum Average Planar Linear Heat Generation Rate Ratio — crs

(MAPRAT) **0.717**

a) If the Most Limiting MAPRAT is ≤ 0.99, N/A Steps 2.3.8.b and c. — crs

b) If Most Limiting MAPRAT is > 0.99 but ≤ 1.0, notify the CRS and N/A Step 2.3.8.c. — N/A

c) If Most Limiting MAPRAT is > 1.0, observe General Instructions 4.3 through 4.5. — N/A

HANDOUT #1


```
                        >>>> SIMULATOR <<<<          SEQUENCE NO 2
CORE PARAMETERS              3DM/P11                 TODAY 5 MINUTES AGO CALCULATED
POWER     MWT         1909.  PERIODIC LOG           TODAY 5 MINUTES AGO   PRINTED
POWER     MWE          646.  USER REQUEST           CASE ID     FMLD1090730012821
FLOW      MLB/HR     48.760  CALC RESULTS           RESTART     FMLD1090730012821
FPAPDR                0.833                        LPRM SHAPE        - FULL CORE
SUBC      BTU/LB      22.91  Keff           1.0037
PR        PSIa       1038.5  XE WORTH    %  -2.34  LOAD LINE SUMMARY
CORE      MWD/sT    21469.0  XE/RATED        1.01  CORE POWER              99.9%
CYCLE     MWD/sT     7900.6  AVE VF          0.494 CORE FLOW               99.5%
MCPR                  1.337                        LOAD LINE             100.68%

CORRECTION FACTOR:        MFLCPR=   1.008   MFLPD=   1.000    MAPRAT=   1.000
OPTION:  ARTS              2 LOOPS ON        MANUAL FLOW       MCPRLIM=   1.34
                        MOST LIMITING LOCATIONS (NON-SYMMETRIC)
MFLCPR     LOC       MFLPD       LOC       MAPRAT     LOC       PCRAT     LOC
1.002     25-28      0.848     9-16-  6     0.717     9-16-  6    0.783   35-30-  6
1.000     25-18      0.846    35-30-  6     0.716     9-30-  6    0.781    9-16-  6
0.998     19-28      0.845     9-30-  6     0.714    35-30-  6    0.779   35-16-  6
0.996     19-18      0.843    35-16-  6     0.690    15-10-  5    0.767    9-30-  6
0.993     25-36      0.816    15-10-  5     0.689    29-10-  5    0.752   29-10-  5
0.991     25-10      0.814    29-10-  5     0.687    29-36-  5    0.750   15-10-  5
0.989     19-36      0.812    29-36-  5     0.685    15-36-  5    0.749   15-36-  5
0.987     23-20      0.811    15-36-  6     0.682     7-18-  6    0.747   29-36-  5
0.984     21-26      0.808    37-28-  6     0.681    37-28-  6    0.745    7-28-  6
0.982     23-26      0.807     7-28-  6     0.679    37-18-  6    0.743   37-28-  6

SEQ. A-1   C=MFLCPR D=MFLPD M=MAPRAT P=PCRAT *=MULTIPLE   CORE AVE AXIAL
                                                          NOTCH REL PW LOC
                                                                0.263  25
                                                          00    0.527  24
                                                          02    0.651  23
43                                                        04    0.776  22
  L                                                       06    0.836  21
39                                                        08    0.895  20
                                                          10    0.925  19
35                                                        12    0.954  18
  L                                                       14    1.006  17
31                38       22       38   P               16    1.059  16
                                                          18    1.070  15
27                           C                            20    1.082  14
  L                                                       22    1.108  13
23                22        8       22                   24    1.134  12
                                                          26    1.162  11
19                                                        28    1.189  10
  L                                                       30    1.234  09
15          *     38       22       38                   32    1.278  08
                                                          34    1.310  07
11                                                        36    1.342  06
  L                                                       38    1.266  05
07                                                        40    1.190  04
                                                          42    0.882  03
03                                                        44    0.573  02
            L        L        L        L        L         46    0.287  01
    02   06   10   14   18   22   26   30   34   38   42
CORE AVERAGE RADIAL POWER DISTRIBUTION
```

RING #	1	2	3	4	5	6
REL PW	0.849	1.227	1.191	1.203	1.154	0.629

HANDOUT #1


```
>>>> SIMULATOR <<<< INSTRUMENT READINGS/STATUS SEQUENCE NO 2
                    RAW LPRM READINGS          TODAY 5 MINUTES AGO CALCULATED
                                               TODAY 5 MINUTES AGO PRINTED
      41D          18.8  24.0                  CASE ID FMLD1090730012821
      C            26.2  33.9                  LPRM SHAPE - FULL CORE
      B            33.5  41.1
      A            34.3  41.5                     # OF TIPS NOT SCANNED: 1
                                                  # OF TIPS REJECTED:  1
      33D  24.8    34.6   37.1C  30.9
      C     36.1   49.9  53.7  45.5               FAILED SENSORS:
      B     44.8   57.1  50.4  55.6               LPRM (  0 SIGNAL FAILED)
      A     47.8   53.2  49.1  49.5P              LPRM ( 0 PANACEA-REJECTED)
                                                  OTHER SENSORS (  0 TOTAL)
      25D   31.9   42.2  41.0  37.4  24.3         SUB RODS
      C     45.9   61.8  50.3  57.6  34.8            NONE
      B     52.3   52.6  49.3  50.7  42.3
      A     54.7   44.4  42.3  45.4  37.8         T = TIP RUN RECOMMENDED
                                                  C = MFLCPR LOCATION
      17D   29.0   39.2  41.6  34.6  19.1         M = MAPRAT LOCATION
      C     43.0   58.6  61.7  54.5  26.2         D = MFLPD LOCATION
      B     51.8   62.4  52.3  61.5  33.7         P = PCRAT LOCATION
      A     54.3*  44.8  45.5  47.7  30.5         # = MULTIPLE LIMIT

      O9D   17.7   28.4  31.2  24.5
      C     23.5   42.3  45.4  36.4
      B     30.7   51.1  56.8  45.2
      A     26.1   63.4  61.8  53.7

             08    16    24    32    40

CORE SUMMARY
 INER          1.121
 CORE POWER   99.9%     CALC SUB FLOW    101.7%     DP MEAS PSI             23.88
 CORE FLOW    99.5%     OPER SUB FLOW     -2.0%     DP CALC PSI             27.87
 LOAD LINE   100.68%    FLOW BASIS         MEAS     FEEDWTR FLOW MLB/HR     8.26

                    APRM CALIBRATION
                A      B       C      D      E      F
READING       98.7   98.5   100.8   98.9   98.5   98.3
AGAF           1.016  1.018   0.995  1.015  1.017  1.018

APRM - %CTP   -1.6   -1.8     0.5   -1.5   -1.7   -2.0

    TIP RUNS RECOMMENDED
STRINGS:        NONE
```

Examinee: **Evaluator:**

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

NRC 2011 SRO ADMIN JPM COO2

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **VERIFICATION OF LICENSE REQUIREMENTS**

JPM NUMBER: **NRC 2011 SRO ADMIN JPM C002** **REV. 0**

TASK NUMBER(S) / TASK TITLE(S):

K/A NUMBERS: **2.1.4 (3.3/3.8)** **K/A VALUE:** **Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc.**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION:

In-Plant:	[ ]	Control Room:	[ ]
Simulator:	[ ]	Other:	[ ]
Lab:	[ ]	Classroom	**X**

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NCR 2011 SRO Admin JPPM C002, Verification of License Requirements, Rev. 0
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☐	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☐	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☐
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☐	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☐	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☐	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☐
8.	Is the Licensee level appropriate for the task being evaluated if required?	☐	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☐	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☐
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	☐	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☐
13.	Are all references identified, current, accurate, and available to the trainee?	☐	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☐	☐	☐
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	☐	☐	☐
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	☐	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel	Date	Re-Validation Personnel	Date
Re-Validation Personnel	Date	Re-Validation Personnel	Date

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions: None

SIMULATOR MALFUNCTIONS: None

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Required Materials:	10 CFR 55.53 NAP-408-License Maintenance And Activation Program ACP 1411.20 –Respiratory Protection NP-912-Respiratory Qualification Requirements ODI-9
General References:	10 CFR 55.53 NAP-408-License Maintenance And Activation Program ACP 1411.20 –Respiratory Protection NP-912-Respiratory Qualification Requirements ODI-9
Task Standards:	Identifies which personnel are available to assume the watch and the reason(s) other(s) are not.

TURNOVER SHEET

INITIAL CONDITIONS:

- The plant is operating at 100% power.
- Today is July 4, 2011.
- You are the CRS.
- You must leave shift.
- Three other Control Room Supervisors are available.

INITIATING CUES (IF APPLICABLE):

- Using the given information on Handout #1, determine which of the three Control Room Supervisors, if any, are qualified to relieve you IAW plant procedures.

- Record your findings on Handout #2.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- The plant is operating at 100% power.
- Today is July 4, 2011.
- You are the CRS.
- You must leave shift.
- Three other Control Room Supervisors are available.

INITIATING CUES (IF APPLICABLE):

- Using the given information on Handout #1, determine which of the three Control Room Supervisors, if any, are qualified to relieve you IAW plant procedures.

- Record your findings on Handout #2.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: Critical	Operator reviews the handout and applicable sections of the procedures.
Standard:	Determines eligibility of the operators in accordance with the below key
Evaluator Note:	**Provide candidate with Handout #1**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Terminating Cues: ONCE candidate discusses their findings the JPM can be terminated

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

Answer Key

	Qualified for Relief? (Yes/No)	If No, what requirement is not being met.
SRO #1	**NO**	**Does not have a medical exam within the past 2 years** **Does have the annual fit test**
SRO #2	**NO**	**Does not meet the required number of hours performing duties as a licensed operator for the last quarter** **(Work Control Supervisor hours do NOT count)**
SRO #3	**YES**	**N/A**

Answer KEY

HANDOUT #1

SRO#1
Hours Performing Operator Duties in Last Quarter 4/16/11 - 0700 - 1900 - CRS 4/17/11 - 0700 - 1900 - CRS 4/25/11 - 0700 - 1900 - CRS 5/5/11 - 0700 - 1900 - Work Control Supervisor 5/6/11 - 0700 - 1900 - CRS 5/7/11 - 0700 - 1900 - CRS 6/4/11 - 0700 - 1900 - CRS 6/5/11 - 0700 - 1900 – Work Control Supervisor
Date of Most Recent Medical Exam - 4/10/2009
Latest Mask Fit Test – 12/28/2009
SRO#2
Hours Performing Operator Duties in Last Quarter 5/21/11: 0700 - 1900 – Work Control Supervisor 5/30/11: 0700 - 1900 - CRS 6/14/11: 0700 - 1900 - CRS 6/15/11: 0700 - 1900 – Work Control Supervisor 6/24/11: 0700 - 1900 - CRS 6/25/11: 0700 - 1900 - CRS 6/26/11: 0700 – 1900 – Work Control Supervisor
Date of Most Recent Medical Exam - 10/14/2009
Latest Mask Fit Test – 11/16/2010
SRO#3
Hours Performing Operator Duties in Last Quarter 4/6/11 0700 - 1900 - CRS 5/8/11: 0700 - 1900 - CRS 5/9/11: 0700 - 1900 – CRS 5/15/11: 0700 - 1900 – Work Control Supervisor 6/1/11: 0700 - 1900 - CRS 6/21/11: 0700 - 1900 - CRS
Date of Most Recent Medical Exam - 7/15/2010
Latest Mask Fit Test – 6/10/2010

HANDOUT #2

	Qualified for Relief? (Yes/No)	**If No, what requirement(s) is/are not being met.**
SRO #1		
SRO #2		
SRO #3		

Examinee: **Evaluator:**

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

NRC 2011 SRO ADMIN JPM EC

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **REVIEW THE ISOLATION POINTS FOR RWS BAY "A" DIVER INSPECTION & "A" CORE SPRAY PUMP MOTOR INSPECTION BY ELECTRICAL MAINTENANCE**

JPM NUMBER: **NRC 2011 SRO ADMIN JPM EC** **REV. 0**

TASK NUMBER(S) / TASK TITLE(S):

K/A NUMBERS: **2.2.13 (4.3) KNOWLEDGE OF TAGGING AND CLEARANCE PROCEDURES** **K/A VALUE:**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION:

In-Plant:	[ ]	Control Room:	[ ]	
Simulator:	[X]	Other:	[ ]	
Lab:	[ ]	Classroom	X	

Time for Completion: 25 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 SRO Admin JPM EC, Review the Isolation Points for RWS Bay "A" Diver Inspection & "A" Core Spray Pump Motor Inspection by Electrical Maintenance, Rev. 0

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☐	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☐	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☐
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☐	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☐	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☐	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☐
8.	Is the Licensee level appropriate for the task being evaluated if required?	☐	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☐	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☐
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	☐	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☐
13.	Are all references identified, current, accurate, and available to the trainee?	☐	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☐	☐	☐
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	☐	☐	☐
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	☐	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel	Date	Re-Validation Personnel	Date
Re-Validation Personnel	Date	Re-Validation Personnel	Date

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions: None

SIMULATOR MALFUNCTIONS: None

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Required Materials:	Clearances for the "A" Intake Structure Pit and the "A" Core Spray Pump Tech Specs
General References:	Clearances for the "A" Intake Structure Pit and the "A" Core Spray Pump Tech Specs
Task Standards:	Determines 2 incorrect blocking points and their correct replacements. Determines applicable TS.


Clearance for CS


Clearance for RWS

TURNOVER SHEET

INITIAL CONDITIONS:

- The plant is operating at rated power.
- All TS LCOs are currently met
- Divers will be inspecting the “A” RWS intake structure pit
- Electricians will be performing an inspection of the “A” Core Spray Pump motor

INITIATING CUES (IF APPLICABLE):

- Review the isolations points on the clearances provided to perform the work above and determine required Technical Specification actions, if any.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- The plant is operating at rated power.
- All TS LCOs are currently met
- Divers will be inspecting the "A" RWS intake structure pit
- Electricians will be performing an inspection of the "A" Core Spray Pump motor

INITIATING CUES (IF APPLICABLE):

- Review the isolations points on the clearances provided to perform the work above and determine required Technical Specification actions, if any.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

EXAMINER NOTE: Provide candidate with the clearances for the "A" Intake Structure Pit and the "A" Core Spray Pump

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

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

Performance Step: **Critical Y (SEQ-)**	Obtain and reviews clearances.
Standard:	Determines the following clearance points are incorrect and then provides the correct blocking points: 1. The heater breaker for Core Spray Pump 1P-211A-M is identified as the heater breaker for "B" Core Spray Pump and should be 1L80-25 (Danger Tag 932). 2. The "A" Bay Screen Wash Nozzle Shutoff valve breaker is identified as 1B2112 and should be 1B9112 (Danger Tag 966)
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Identifies the required TS entries
Standard:	Determines that the following TS apply 1. RWS – TS 3.7.2 Condition A. – 7 day 2. Core Spray – TS 3.5.1 Condition B. – 7 days
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Terminating Cues: **ONCE candidate discusses their findings the JPM can be terminated.**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

Examinee: **Evaluator:**

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

NRC 2011 ADMIN SRO JPM RC

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **SURVEY MAP REVIEW AND DOSE CALCULATIONS TO DETERMINE THE ADEQUACY OF THE RWP DOSE SETTING AND DETERMINE IF A DOSE EXTENSION IS REQUIRED**

JPM NUMBER: **NRC 2011 ADMIN SRO** **REV. 1**
JPM RC

TASK NUMBER(S) / TASK TITLE(S): **1.11 (SENIOR REACTOR OPERATOR)**

K/A NUMBERS: **2.3.13 (3.8)** **K/A VALUE:** Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☐ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION:

In-Plant:	[ ]	Control Room:	[ ]
Simulator:	[X]	Other:	[ ]
Lab:	[ ]	Classroom	**X**

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 ADMIN SRO JPM RC, Survey Map Review and Dose Calculations to Determine the Adequacy of the RWP Dose Setting and Determine if a Dose Extension is Required, Rev. 1

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☐	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☐	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☐
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☐	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☐	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☐	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☐
8.	Is the Licensee level appropriate for the task being evaluated if required?	☐	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☐	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☐
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	☐	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☐
13.	Are all references identified, current, accurate, and available to the trainee?	☐	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☐	☐	☐
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	☐	☐	☐
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	☐	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel	Date	Re-Validation Personnel	Date
Re-Validation Personnel	Date	Re-Validation Personnel	Date

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions: None

SIMULATOR MALFUNCTIONS: None

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Required Materials:

1. Survey map of the Heater Bay at 61% power.
2. Copy of ACP 1411.17 to write on.
3. Copy of NG-165K when requested

General References: ACP 1411.17
NG-165K

Task Standards:

- Determines that the total dose for the prep, support and weld is approximately 157.5 mrem.
- Determine that the worker **will** need a dose extension and completes Section 1 and 2 of NG-165K.

TURNOVER SHEET

INITIAL CONDITIONS:

- The plant is operating at about 60% power.
- The date is currently 6/23/11. You are the CRS.
- The piping supporting Level Transmitter LT-1065B, to the drain valve of 1T93A Moisture Separator Drain Tank that controls the Drain to the 1E-05A heater, has failed.
- The old piping and LT have been removed. The New piping and LT are ready for installation.
- Brad Pit is the only qualified welder who can perform the job. SSN # 123-45-6789, TLD 9999
- Brad Pit's supervisor, Mike Heffley, has performed a pre-job brief.
- A welder apprentice has run all of the required material to the job site.
- The following are the estimated times required for the job:
- 10 minutes to prep the welds.
- 20 minutes to secure the new LT and pipes in place.
- 15 minutes to actually weld the pipes.
- Brad has received 1855 mrem for the year.
- Scaffolding for the job has been erected at location 5 on the survey map.

INITIATING CUES (IF APPLICABLE):

- Given the above and a survey map, determine the specific dose for the job and whether a dose extension is required. Complete associated paperwork if required.
- Show all work assumptions on the survey map.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- The plant is operating at about 60% power.
- The date is currently 6/23/11. You are the CRS.
- The piping supporting Level Transmitter LT-1065B, to the drain valve of 1T93A Moisture Separator Drain Tank that controls the Drain to the 1E-05A heater, has failed.
- The old piping and LT have been removed. The New piping and LT are ready for installation.
- Brad Pit is the only qualified welder who can perform the job. SSN # 123-45-6789, TLD 9999
- Brad Pit's supervisor, Mike Heffley, has performed a pre-job brief.
- A welder apprentice has run all of the required material to the job site.
- The following are the estimated times required for the job:
- 10 minutes to prep the welds.
- 20 minutes to secure the new LT and pipes in place.
- 15 minutes to actually weld the pipes.
- Brad has received 1855 mrem for the year.
- Scaffolding for the job has been erected at location 5 on the survey map.

INITIATING CUES (IF APPLICABLE):

- Given the above and a survey map, determine the specific dose for the job and whether a dose extension is required. Complete associated paperwork if required.
- Show all work assumptions on the survey map.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: **Critical Y (SEQ-)**	Determine the dose needed for the job.
Standard:	Determines that the total dose for the prep, support and weld is approximately 157.5 mrem.
Evaluator Note:	**The Candidate may add some additional dose for the trip to and from the job. This will not affect the fact that Brad will need a dose extension for the job.**
Performance:	**SATISFACTORY UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Determine **if** the worker will need a dose extension.
Standard:	Determine that the worker **will** need a dose extension and completes Sections 1 and 2 of NG-165K.
Evaluator Cue:	**Prompt to begin the paperwork required for the extension. When the candidate obtains the document, provide a copy and tell them to fill out sections 1 and 2 only.**
Performance:	**SATISFACTORY UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Per ACP 1411.17, the workers first line supervisor may extend the individuals dose.
Standard:	Determine that Brad's supervisor or higher will have to extend his dose to greater than 2000 mrem. Completes section 1 and 2 of NG-165K, Increased Administrative Dose Limit Request
Evaluator Note:	**Provide Copy of NG-165K when requested.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Terminating Cues: The JPM is complete when the candidate has determined the dose for the weld job, determined that a dose extension is required and completes section 1 and 2 of NG-165K.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

NG-165K, ADMINISTRATIVE DOSE LIMIT REQUEST

Worker Name: _____ TLD Number: _____ SSN: _____

Employed by: _____ Supervisor: _____

1. *Type of Extension*

☐ Beyond 2,000 millirem per Year TEDE ☐ Beyond 4,000 millirem per Year TEDE

☐ Beyond 3,000 millirem per Year TEDE ☐ Beyond 4,500 millirem per Year TEDE

2. *TEDE Review & Upgrade Request*

Worker's current yearly TEDE: _____ millirem

Extend to yearly limit of: _____ millirem

Detailed Reason for extension (Required for all extensions): _____

_____

_____

3. *Dosimetry Review*

Dosimetry to verify: documented evidence of current year dose is on file with no personal estimate for current year; and SDE and LDE not limiting.

☐ Approved ☐ Disapproved, reason: _____

_____
Dosimetry / Date

4. *Approval signatures* ***Circle One***

Beyond 2,000 millirem/yr TEDE: Y / N _____
Radiation Protection Manager / Date

Beyond 3,000 millirem/yr TEDE: Y / N _____
Radiation Protection Manager / Date

Y / N _____
Plant General Manager / Date

Beyond 4 ,000 millirem//yr TEDE: Y / N _____
Radiation Protection Manager / Date

Y / N _____
Plant General. Manager / Date

Beyond 4,500 millirem/yr TEDE: Y / N _____
Site Vice President/ Date

5. *Worker's Acknowledgment* _____
(Required for *any* increase) Worker / Date

Duane Arnold Energy Center HP Survey

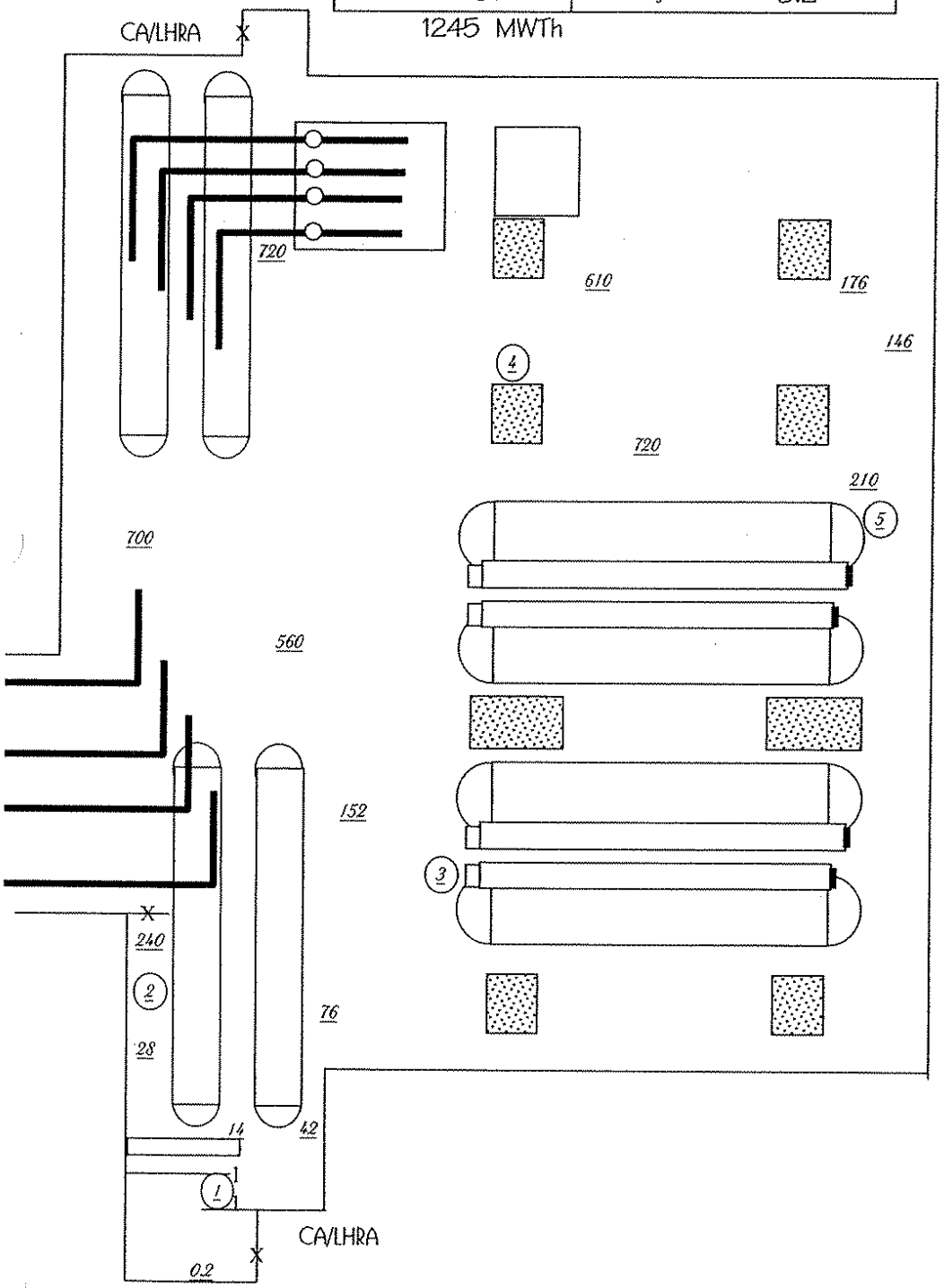
Survey # 05-023

Key: Low Dose Area | A Alara Caution | C Caution Hot Spot | D Danger Hot Spot | # Smears | XXX Radiological Boundry | # / # Contact @ 30 cm | # Dose Rate mrem/Hr DDE | Dose Rate mrem/Hr DDE

Map#	Location/Description	Date: 6/6/11	Freq.	Radiological Ranges	RWP - JS
TB110	TB 757' HEATER BAY WELD JOB ON LT-1065b		y	Dose 0.2 CO 720 Cont. <-1 k	32-5

Rx Power 61 % | HWC injection rate: 3.2 scfm

1245 MWTh



#	Location	dpm 100cm^2
1	WALL	<1K
2	FLOOR	<1K
3	FLOOR	<1K
4	COLUMN	<1K
5	LADDER	<1K
6		
7		
8		
9		
10		
11		
12		
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14		
15		
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18	N A	
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30		

Examinee: **Evaluator:**

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

ADMINISTRATIVE CONTROL PROCEDURE	ACP 1411.17
OCCUPATIONAL DOSE LIMITS AND UPGRADES	**Rev. 22** Page 1 of 11

Usage Level

Information Use

Approved for **'Point-of-Use'** printing **IF NO Temporary Changes** are in effect for this procedure.
(on designated printers)

Record the following: Date / Time: _____ / _____ Initials: ____

NOTE: *A check to ensure current revision and no temporary changes shall be performed and documented every 24 hours if active document use exceeds a 24 hour period as determined from the date and time recorded above.*

Prepared By: _____ / _____ Date: _____
Print Signature

CROSS-DISCIPLINE REVIEW (AS REQUIRED)

Reviewed By: _____ / _____ Date: _____
Print Signature

Reviewed By: _____ / _____ Date: _____
Print Signature

PROCEDURE APPROVAL BY QUALIFIED REVIEWER

Approved By _____ / _____ Date: _____
Print Signature

Table of Contents

1.0 PURPOSE

This procedure provides guidance for ensuring that DAEC personnel do not exceed Federal exposure limits and instructions for increasing DAEC administrative dose limits and applies to all personnel entering the restricted area at DAEC as Radiation Workers or Visitors.

The DAEC shall attempt to obtain the records of cumulative occupational dose of workers in accordance with 10 CFR 20.2104. A Workers "Declaration of Exposure" for prior years may be used to meet the requirements of 10 CFR 20.2104.

NOTE

Personnel receiving treatment with medical isotopes should not enter the restricted area unless approved by the Health Physics Supervisor or Radiation Protection Manager.

Contact Dosimetry for further guidance.

2.0 DEFINITIONS

Administrative Dose Limit – Specified doses established to require review prior to exceeding.

Committed Dose Equivalent (CDE) – Dose to organs that will be received from an intake of radioactive material during the 50 year period following the intake.

Committed Effective Dose Equivalent (CEDE) – Sum of the products of the weighing factors applicable to each of the organs irradiated and the CDE.

Deep Dose Equivalent (DDE) – Dose resulting from external exposure of the whole body at a depth of 1 centimeter (1000 mg/cm2).

Escorted Radiation Worker (ERW) – A visitor who may receive occupational exposure and, therefore, is monitored while on site with a Thermoluminescent Dosimeter (TLD) and assigned exposure limits.

Extremity – Hand, elbow, arm below elbow, foot, knee, leg below the knee.

Form NRC-4 – Nuclear Regulatory Commission form entitled "Occupational External Radiation Exposure History" or equivalent.

Lens Dose Equivalent (LDE) – Applies to the external exposure of the lens of the eye and is taken as the dose equivalent at a tissue depth of 0.3 centimeters (300 mg/cm^2).

Member of the Public – Member of the public means an individual in a controlled or unrestricted area. However, an individual is not a member of the public during any period in which the individual receives occupational exposure.

Minor – Minor means an individual less than 18 years of age.

Radiation Worker – Trained individuals, commensurate with risk, working in or frequenting any portion of the restricted area or RCA who are considered to receive occupational dose (their "assigned duties" involve exposure to radiation and radioactive materials).

Restricted Area or Radiologically Controlled Area (RCA) – Any area which is controlled on site for the purposes of protection of individuals from exposure to radiation and radioactive materials. For DAEC, the Restricted Area is the area within the security fence.

Shallow Dose Equivalent (SDE) – Dose resulting from external exposure of the skin or extremity, at a depth of 0.007 centimeters (7 mg/cm2) averaged over an area of one square centimeter.

Total Effective Dose Equivalent (TEDE) – Sum of the deep dose equivalent and committed effective dose equivalent.

Total Organ Dose Equivalent (TODE) – Sum of the deep dose equivalent and committed dose equivalent.

Visitors – Individual that is not trained in radiation protection as required by 10CFR19. This individual can be a worker (Federal dose limits for an occupationally exposed worker apply) or the individual can be an individual who is not performing work functions (Public dose limits apply).

3.0 INSTRUCTIONS

3.1 INSTRUCTIONAL DETAILS

(1) Each radiation worker shall be responsible for maintaining awareness of their administrative dose limit, for maintaining their dose ALARA, and for ensuring that their dose limit is not exceeded.

(2) Supervisors and managers or designees shall be responsible for approving dose limit extensions.

(3) The Radiation Protection Manager shall be responsible for:

(a) Establishing and maintaining the personnel dose monitoring program consistent with the requirements of 10CFR20.

(b) Ensuring administrative dose limits are established.

(4) Female radiation workers wishing to declare their pregnancy shall inform the Radiation Protection Manager in writing prior to receiving Pregnancy Exposure Limits.

(5) Radiation workers are required to obtain the required authorizations before exceeding an administrative dose limit.

(6) Extensions to the administrative dose limits shall be approved by the appropriate level of management as delineated in Section 3.3 of this procedure.

(7) The Site Vice President shall be responsible for approving dose extensions beyond 4,500 millirem for TEDE.

3.2 FEDERAL REGULATORY DOSE LIMITS

(1) The occupational dose limits established by the NRC (10CFR20.1201) are:

Dose Category	Rem/Year
Total Effective Dose Equivalent (TEDE)	5
Total Organ Dose Equivalent (TODE)	50
Lens of the Eye Dose Equivalent (LDE)	15
Shallow Dose Equivalent (SDE) to skin of the whole body or extremities	50

(2) Furthermore, 10CFR20.1206 allows for additional exposure under unusual circumstances. The additional dose a worker with a fully documented radiation exposure history may receive under the provisions of a Planned Special Exposure (PSE) are:

Dose Category	Rem/Year	Rem in a Lifetime
TEDE	5	25
TODE	50	250
LDE	15	75
SDE	50	250

(3) The dose equivalent limit to the embryo/fetus of an occupationally exposed woman, who has declared her pregnancy, is:

(a) 500 millirem TEDE during the gestation period, or

(b) 50 millirem TEDE for the remainder of the gestation period, if the embryo/fetus dose exceeds 500 millirem or is within 50 millirem of this dose at the time of declaration.

(4) The U.S. Environmental Protection Agency Guidance on Dose Limits for workers performing emergency activities are as follows:

Activity	Dose Category	Limit (rem)
Routine Emergency Worker Activities	TEDE	5
Protecting Property	TEDE	10
	LDE	30
	SDE / TODE	100
Life Saving or Protection of Large Populations (may exceeded if volunteers used)	TEDE	25
	LDE	75
	SDE / TODE	250

3.3 DAEC ADMINISTRATIVE DOSE LIMITS FOR ROUTINE OPERATIONS

(1) DAEC uses administrative dose limits in order to:

(a) Ensure federal regulatory dose limits will not be exceeded.

(b) Alert appropriate levels of management to exposures which are significant or out of the ordinary.

(c) Encourage supervisory review and management of doses to their workers.

(2) No radiation worker's annual TEDE (in rem) from all facilities or sources will be allowed to exceed the value listed below unless authorized to do so by the designated level of supervision and the Increased Exposure Request Prerequisites listed in paragraph 3.4.1 are met.

Administrative Limit	
TEDE (**millirem)**	Permission to Exceed Granted By:
2,000	Radiation Protection Manager approval
3,000	Radiation Protection Manager with concurrence from Plant General Manager
4,000	Plant General Manager, Site Vice President and Radiation Protection Manager approval
4,500	Site Vice President (with Radiation Protection Manager (RPM) and Plant General Manager concurrence)

(3) The following unique conditions may affect a worker's administrative dose limits:

(a) Radiation workers who attest to have been occupationally exposed at other facilities during the current year shall be placed on an annual TEDE limit of 250 millirem until documented evidence of their current year's dose is obtained by the DAEC per 10CFR20, Paragraph 2104 and a signed NRC Form 4 is on file at the DAEC.

(b) The worker is a "declared pregnant woman". See Section 3.6.

(4) If an individual is found to have exceeded an administrative dose limit without prior approval, it shall be brought to the attention of the Radiation Protection Manager and the individual supervisor for investigation.

3.4 EXPOSURE HISTORY

(1) The DAEC will actively seek Current Year TEDE, SDE, LDE, and CEDE exposure on radiation workers expected to be assigned to the DAEC less than or equal to 1 (one) year. A lifetime estimate of the worker's TEDE exposure may be documented per 10 CFR 20, Paragraph 2104. The following may be used to document an exposure history:

(a) An NRC Form 5 (or equivalent) signed by the licensee

(b) An NRC Form 4 (or equivalent) prepared and countersigned by a licensee

(c) A termination report signed by a licensee

(d) Data electronically maintained on PADS, as estimate or record

(e) Data Obtained from REIRS

(f) A Declaration of Occupational Exposure per 10 CFR 20, Paragraph 2104

(2) The DAEC will actively seek lifetime TEDE exposure on radiation workers expected to be assigned to the DAEC greater than 1 (one) year in addition to Current Year TEDE, DDE, SDE, LDE, and CEDE to ensure adequate numbers of radiation workers eligible for a Planned Special Exposure. The following may be used to document an exposure history:

(a) An NRC Form 5 (or equivalent) signed by the licensee

(b) An NRC Form 4 (or equivalent) prepared and countersigned by a licensee

(c) A termination report signed by a licensee

(d) Data electronically maintained on PADS, as estimate or record

(e) Data Obtained from REIRS

(f) A Declaration of Occupational Exposure per 10 CFR 20, Paragraph 2104

3.5 INCREASED EXPOSURE REQUESTS

3.5.1 PREREQUISITES

(1) A completed, signed, NRC Form-4 (or equivalent) must be on file at the Dosimetry Group. The completed, signed Form 4 shall not include a worker's "Estimate of TEDE Exposure" for the current year.

(2) The radiation worker's exposure shall not exceed 10 rem in the past 5 consecutive years. This may require additional dose history evaluations be performed. Contact the Dosimetry Group for assistance in determining historical dose.

(3) The radiation worker's year-to-date LDE and SDE must be less than three times his/her year-to-date TEDE.

(4) The worker's need for an increase in allowed exposure is documented per Section 3.4.2 of this procedure.

3.5.2 UPGRADING ADMINISTRATIVE LIMITS

(1) The radiation worker's supervisor shall complete the demographic information and Sections 1 and 2 of Form NG-165K, "Increased Administrative Dose Limit Request."

(2) Forward the form to Dosimetry.

(3) Dosimetry shall verify the appropriate TEDE records are on file and the SDE and/or LDE are not limiting factors.

(4) Dosimetry will complete Section 3 of the form and return to the radiation worker's supervisor. If the request is denied, Dosimetry shall indicate the reason for denial. This section may be completed per telecon if necessary as long as the telecon is documented.

(5) The appropriate level of management/supervision should sign and date the form (see Section 3.3).

(6) The radiation worker shall be told of his/her new administrative limits and he/she shall acknowledge that he/she understands the limits have been changed by signing Form NG-165K.

(7) Forward Form NG-165K to Dosimetry for updating the radiation worker's records and filing.

3.6 EXPOSURE TO A DEVELOPING EMBRYO AND FETUS

(1) A woman may, at her discretion, declare her pregnancy to NextEra Energy.

(a) The declaration by the woman must be made in writing to the Radiation Protection Manager.

(b) The declaration must have the approximate date of conception.

(2) The designation of Declared Pregnant Woman will remain in effect until:

(a) The end of pregnancy, or

(b) The woman requests, in writing that it be removed.

(3) The Radiation Protection Manager shall forward the declaration to the Dosimetry Group for inclusion in her file.

(4) The Dosimetry Group will:

(a) Reduce the woman's administrative dose limits as instructed by the Radiation Protection Manager. (Normally an administrative dose limit of 450 millirem is set for the gestation period with monthly dose limits of 50 millirem.)

(5) For declared pregnant workers who have already exceeded 450 millirem since the date of conception prior to declaration, the declared pregnant worker will be restricted from the Radiation Controlled Area (RCA).

NOTE

At boiling water reactors, such as Duane Arnold, workers can receive a small incremental dose while working in the Protected Area (typically 10 to 20 millirem per quarter). Declared pregnant women with greater than 450 millirem at the time of declaration will be monitored by personnel dosimetry while in the Protected Area and their dose maintained as low as reasonably achievable. In no case shall their dose exceed an additional 50 millirem during the remainder of their pregnancy, as stipulated in 10CFR 20.1208(d).

(6) A woman planning to become pregnant may request to be placed on the 450 millirem limit. NextEra Energy will make every reasonable effort to accommodate such a request.

(7) Refer to Policy Number NP-906 for further guidance.

3.7 NEXTERA ENERGY DUANE ARNOLD ADMINISTRATIVE DOSE GUIDELINES FOR MINORS AND MEMBERS OF THE PUBLIC

(1) The dose to visitors classified as members of the public and minors shall be limited to 100 millirem/year.

3.8 DAEC DOSE GUIDANCE FOR EMERGENCIES

(1) In the event of emergencies which threaten human life, equipment important for the safe operation of the plant, or large populations the guidance on dose limits contained in the Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA Manual 400-R-92-00, dated Oct 91) shall take precedence over the limits of 10CFR20. Such events include, but are not limited, a declared Alert, Site Area Emergency and General Emergencies.

(2) The radiation worker's year-to-date normal occupation dose will not impact the dose that an emergency worker can receive during the emergency.

(3) All exposures received during a declared emergency will be tracked separately from the normal occupational dose.

(4) After the emergency, the dose received during the emergency shall be added to the individual's occupational dose to determine availability for additional exposure.

(5) Although not Planned Special Exposure dose, dose received during an emergency shall be credited to an individual's Planned Special Exposure limit of 25 rem.

(6) During the recovery phase of an emergency, consideration shall be given to the use of the Planned Special Exposure.

4.0 RECORDS

(1) The following are QA Records and shall be forwarded to Dosimetry when complete and reviewed. These records shall be maintained in accordance with ACP 115.1, Record Control. These records shall be microfilmed and retained for the life of the plant.

(a) NG-165K, Increased Administrative Dose Limit Request

(b) Declaration of Pregnancy

5.0 REFERENCES

(1) 10 CFR 20, Standards for Protection Against Radiation

(2) INPO 91-014, Rev. 1, Guidelines for Radiological Protection at Nuclear Power Stations

(3) Nuclear Regulatory Commission Regulatory Guide 8.13, Appendix A, Possible Health Risks of Women who are Exposed to Radiation During Pregnancy

(4) NRC Information Notice IN 90-48, NRC Hot Particle Enforcement Policy

(5) EPA-400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

(6) AR 95-1935

(7) RP Manual Section A

(8) 10CFR20 Policy and Implementation Cross Reference

(9) NG-165K, Increased Administrative Dose Limit Request

(10) AR 15148

(11) AR 18739

(12) NUREG/CR-6204, Questions and Answers Based on 10CFR20 Revision Dated 11/1/94, Question #142

(13) Corporate Directive 9.2, “Radiation Dose Guidelines”

(14) CA039415

(15) FPL Nuclear Policy # NP-906, “Administrative Radiation Exposure Limits and Prenatal Radiation Exposure Policy”

(16) CA50161, INPO 05-008

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

NRC 2011 SRO ADMIN JPM EP

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **EVENT CLASSIFICATION / RECLASSIFICATION**

JPM NUMBER: **NRC 2011 SRO ADMIN JPM EP** **REV. 0**

TASK NUMBER(S) / TASK TITLE(S):

K/A NUMBERS: **2.4.29 (4.4)** **K/A VALUE:** **KNOWLEDGE OF THE EMERGENCY PLAN**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☐ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION:

In-Plant:	[ ]	Control Room:	[ ]
Simulator:	[ ]	Other:	[ ]
Lab:	[ ]	Classroom	**X**

Time for Completion: 30 Minutes Time Critical: ☒ Yes ☐ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 SRO ADMIN JPM EP, Event Classification / Reclassification, Rev. 0
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☐	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☐	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☐
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☐	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☐	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☐	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☐
8.	Is the Licensee level appropriate for the task being evaluated if required?	☐	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☐	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☐
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	☐	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☐
13.	Are all references identified, current, accurate, and available to the trainee?	☐	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☐	☐	☐
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	☐	☐	☐
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	☐	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel	Date	Re-Validation Personnel	Date
Re-Validation Personnel	Date	Re-Validation Personnel	Date

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions: None

SIMULATOR MALFUNCTIONS: None

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Required Materials:

1. EPIP 1.1, Determination of Emergency Action Levels
2. EPIP 1.2, Notifications
3. Note 5, DAEC Emergency Action Level Notification Form

General References: EPIP 1.1, 1.2, DAEC Notification Form

Task Standards: The following critical tasks are for the SS1.1 declaration.

- Within 15 minutes of being handed the initial conditions, determine that the EAL is an SS1.1 Site Area Emergency.
- Candidate will circle [c] Site Area Emergency.
- Candidate will: Place an N/A in both the TIME and DATE blanks for the PAR change, Print S S 1.1 in the blanks for the EAL. and Circle S in the Category, circle S in the Classification, and circle 1.1 in the Sequence.
- Candidate will circle No and proceed to block 9.
- Candidate will write in 6 mph.
- Candidate will write in 45 degrees.
- Candidate will X the Site Area Emergency [C] box.
- When filled out, the candidate will sign within the 15 minutes from the declaration of the SS1.1, and then give the form to the Security Guard to perform the notifications.

TURNOVER SHEET

INITIAL CONDITIONS:

- You are the Shift Manager at DAEC. The STA is unavailable.
- The following conditions exist at DAEC, which had been operating at 100% power.
- Time 12:00
- A Tornado has hit the site causing a Station Blackout fifteen minutes ago.
- The Emergency Diesels tripped immediately after starting and can NOT be re-started.
- The Systems Operating Center (Load Dispatcher) expects power restoration within 3 hours.
- Drywell Pressure is 1.1 psig and slowly rising.
- Reactor Level is normal
- The current Wind Speed is 6 MPH from 45 degrees

INITIATING CUES (IF APPLICABLE):

Based on the above conditions, you are to determine the event classifications per EPIP 1.1, Determination of Emergency Action Levels. Complete State/County notifications per Note-05.

This is a time critical JPM.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

EVALUATOR TURNOVER SHEET (Read to Applicant)

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- You are the Shift Manager at DAEC. The STA is unavailable.
- The following conditions exist at DAEC, which had been operating at 100% power.
- Time 12:00
- A Tornado has hit the site causing a Station Blackout fifteen minutes ago.
- The Emergency Diesels tripped immediately after starting and can NOT be re-started.
- The Systems Operating Center (Load Dispatcher) expects power restoration within 3 hours.
- Drywell Pressure is 1.1 psig and slowly rising.
- Reactor Level is normal
- The current Wind Speed is 6 MPH from 45 degrees

INITIATING CUES (IF APPLICABLE):

Based on the above conditions, you are to determine the event classifications per EPIP 1.1, Determination of Emergency Action Levels. Complete State/County notifications per Note-05.

This is a time critical JPM.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Handout Sheet #2
HANDOUT WHEN JPM PROMPTS, NOT INITIALLY

INITIAL CONDITIONS:

1. Standby Diesel Generator A (1G-31) has been restored
2. Reactor Level is normal
3. Drywell Pressure is 1.1 psig and stable.
4. The Auxiliary Operator contacted the control room and notified you that two armed intruders have taken control of the 1G31 DG and Day Tank Rooms.

INITIATING CUES:

Based upon the above changes in the conditions, classify the EAL in accordance with EPIP 1.1.

This is time critical.

EVALUATOR TURNOVER SHEET (Read to Applicant)

Handout Sheet #2
HANDOUT WHEN JPM PROMPTS, NOT INITIALLY

INITIAL CONDITIONS:

1. Standby Diesel Generator A (1G-31) has been restored
2. Reactor Level is normal
3. Drywell Pressure is 1.1 psig and stable.
4. The Auxiliary Operator contacted the control room and notified you that two armed intruders have taken control of the 1G31 DG and Day Tank Rooms.

INITIATING CUES:

Based upon the above changes in the conditions, classify the EAL in accordance with EPIP 1.1.

This is time critical.

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: **Critical Y (SEQ-)**	Reviews the given conditions and determines that a Site Area Emergency declaration is required per EPIP 1.1.
Standard:	Declares a Site Area Emergency within fifteen minutes of the JPM start
Evaluator Note:	**The 15 minute clock will not start until the applicant states they understand the task conditions. No procedures can be referenced prior to the clock starting.** **15 Minute Clock Start Time_____.** **Time of Declaration _____ .**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	***Within additional 14 minutes*** *(allows for transmission time) Provides Notification Form*
Standard:	Fills out the Notification Form correctly
Evaluator Note:	*The 14 minute standard allows for transmission time of the form.* Time Notification Form is provided _____. Note-05 – Completed in highlighted areas in Key below Step #9 should state 6 M/Hr, Step #10 Should state From 45 degrees
Evaluator Cue:	**Inform candidate that you will act as Security, and transmit the form when complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

EVALUATOR PROMPT: **Once the filled in paperwork is handed to Security for transmittal, provide the applicant with Handout #2 and have them re-evaluate the event**

NOTE: This is also Time Critical.

Performance Step: **Critical Y (SEQ-)**	Reviews the given conditions and determines that a General Emergency declaration is required per EAL HG1.1.
Standard:	Declares General Emergency within 15 minutes IAW EAL HG1.1.
Evaluator Note:	**15 Minute Clock Start Time_____.** **Time of Declaration _____ .**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Terminating Cues:

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

DAEC EMERGENCY ACTION LEVEL NOTIFICATION FORM

INITIAL ROLL CALL	MESSAGE INITIATED	1. FACILITY IN COMMAND & CONTROL	2. STATUS	3. ACCIDENT CLASSIFICATION
☐ Benton County ☐ Linn County ☐ Iowa HSEMD	Time: _____ Date: _____	[A] Control Room.....2222 [B] TSC.....3333 [C] EOF.....4444	[A] ACTUAL [B] DRILL (or from SIMULATOR)	[A] UNUSUAL EVENT [B] ALERT [C] SITE AREA EMERGENCY [D] GENERAL EMERGENCY [E] RECOVERY [F] CANCELLATION/TERMINATION

(If this notification is for a PAR change ONLY, write "N/A" for information in Block 4.)

4. ☐ PAR CHANGE ONLY — EAL CLASSIFIED @ TIME: TIME DATE: DATE

(For "EAL CLASSIFIED", fill in blank below AND circle appropriate letter or number applicable under Category, Classification and Sequence. For EALs with multiple initiating conditions, specify in Block 12 which initiating condition is applicable.)

EAL S S 1 . 1

Category	Classification	Sequence #
R F H (S) E C	U A (S) G (1)	2 3 4 5 6 7 8 . 0 (1) 2 3 4 5 6 7 8 9

5. ABNORMAL RELEASE IN PROGRESS DUE TO THIS EVENT? (e.g. KAMAN Hi Alarm or field team reports)
☒ Has Not Occurred (Proceed To Block 9) ☐ Has Occurred, Is Now Terminated (Proceed To Block 6) ☐ Is Occurring (Proceed To Block 6)

6. AIRBORNE RELEASE TO ENVIRONMENT	7. TYPE OF RELEASE (mark all that apply)	8. PROJECTED DURATION OF RELEASE:
[A] BELOW FEDERAL LIMITS (No KAMAN Hi-Hi alarm) [B] AT, OR ABOVE, FEDERAL LIMITS (KAMAN Hi-Hi alarm)	[A] RADIOACTIVE AIRBORNE (FILTERED) [B] RADIOACTIVE AIRBORNE (UNFILTERED) [C] RADIOACTIVE LIQUID	[A] UNKNOWN (4 hour default) [B] 1 HOUR OR LESS [C] RELEASE DURATION ____ hour(s)

9. WIND SPEED: 6 MILES/HR (50m value preferred)

10. WIND DIRECTION: FROM 45 DEGREES (50m value preferred)

11. UTILITY PROTECTIVE ACTION RECOMMENDATIONS
(If this notification is for a PAR change ONLY, note time & date. Otherwise write 'N/A' in 'TIME' and 'DATE' in Block 11.)
PAR DETERMINATION @ TIME _____ DATE:_____

Unusual Event	Alert	Site Area Emergency
☐ [A] No actions recommended	☐ [B] No actions recommended	☒ [C] Activate the Prompt Alert and Notification System.

General Emergency (From EPIP 3.3)

☐ [D] *Default, or Dose projections ≥1 REM TEDE or 5 REM CDE @ 0-2 miles from site boundary.*	☐ [E] *Dose projections ≥1 REM TEDE or 5 REM CDE @ 2-5 miles from site boundary.*	☐ [F] *Dose projections ≥1 REM TEDE or 5 REM CDE @ 5-10 miles from site boundary.*
Evacuate, (or shelter if release duration is 1-hour or less), within a 2 mile radius and to 5 miles in the downwind subareas. AND Activate the Prompt Alert and Notification System.	Evacuate, (or shelter if release duration is 1-hour or less), within a 2 mile radius and to 5 miles in the downwind subareas, and shelter downwind subareas from 5 miles to EPZ edge. AND Activate the Prompt Alert and Notification System.	Evacuate, (or shelter if release duration is 1-hour or less), within a 2 mile radius, evacuate, (or shelter if release duration is 1-hour or less), from 2 miles to EPZ edge in downwind subareas, and shelter as appropriate beyond EPZ edge. AND Activate the Prompt Alert and Notification System.

12. ADDITIONAL INFORMATION:

13. APPROVED BY: NAME (OSM, EC, or ER&RD) (DATETIME) DATE (TIMEDATE) TIME

MESSAGE TRANSMITTED BY:	FINAL ROLL CALL (Agency Reps INITIALS)
Name: _____ Time: _____	Benton: _____ Linn: _____ Iowa HSEMD: _____

14. STATE PROTECTIVE ACTIONS	0-2 m	2-5 m	5-10 m	10-EPZ
Shelter Subareas (circle appropriate subareas)	1	2, 3, 4, 5, 6, 7, 8	9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22	23,24
Evacuate Subareas (circle appropriate subareas)	1	2, 3, 4, 5, 6, 7, 8	9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22	23,24

Fax page 1 of this form to the State & Counties immediately after Final Roll Call.

NOTE-05 Page 1 of 3 Rev 14

KEY – DO NOT HANDOUT

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DAEC EMERGENCY RESPONSE ORGANIZATION
NOTE-05
DAEC EMERGENCY ACTION LEVEL NOTIFICATION FORM

Signature Page

Approved for **'Point-of-Use'** printing **IF NO Temporary Changes** are in effect for this procedure.

Record the following: Date / Time: _____ / _____ Initials: ____

NOTE: *A check to ensure current revision and no temporary changes shall be performed and documented every 24 hours if active document use exceeds a 24 hour period as determined from the date and time recorded above.*

Prepared By: _____ / _____ Date: _____
Print Signature

CROSS-DISCIPLINE REVIEW (AS REQUIRED)			
Reviewed By:	_____ / _____	Date:	_____
	Print Signature		
Reviewed By:	_____ / _____	Date:	_____
	Print Signature		

PROCEDURE APPROVAL BY QUALIFIED REVIEWER			
Approved By	_____ / _____	Date:	_____
	Print Signature		

This EPIP Form requires a 50.54q Review for any non-editorial change(s).

DAEC EMERGENCY ACTION LEVEL NOTIFICATION FORM

INITIAL ROLL CALL	**MESSAGE INITIATED**	**1. FACILITY IN COMMAND & CONTROL**	**2. STATUS**	**3. ACCIDENT CLASSIFICATION**
☐ Benton County ☐ Linn County ☐ Iowa HSEMD	Time: _____ Date: _____	[A] Control Room…..2222 [B] TSC…….…....3333 [C] EOF……..4444	[A] ACTUAL [B] DRILL (or from SIMULATOR)	[A] UNUSUAL EVENT [B] ALERT [C] SITE AREA EMERGENCY [D] GENERAL EMERGENCY [E] RECOVERY [F] CANCELLATION/TERMINATION

(If this notification is for a PAR change ONLY, write "N/A" for information in Block 4.)

4. ☐ **PAR CHANGE ONLY** **EAL CLASSIFIED @** TIME: _____ DATE:_____

(For "**EAL CLASSIFIED**", fill in blank below **AND** circle appropriate letter or number applicable under **Category**, **Classification** and **Sequence**. For EALs with multiple initiating conditions, specify in Block 12 which initiating condition is applicable.)

EAL _____ _____ _____ . _____

Category						Classification				Sequence #																		
R	F	H	S	E	C	U	A	S	G	1	2	3	4	5	6	7	8	.	0	1	2	3	4	5	6	7	8	9

5. ABNORMAL RELEASE IN PROGRESS DUE TO THIS EVENT? **(e.g. KAMAN Hi Alarm or field team reports)**
☐ **Has Not Occurred (Proceed To Block 9)** ☐ **Has Occurred, Is Now Terminated (Proceed To Block 6)** ☐ **Is Occurring (Proceed To Block 6)**

6. AIRBORNE RELEASE TO ENVIRONMENT	**7. TYPE OF RELEASE (mark all that apply)**	**8. PROJECTED DURATION OF RELEASE:**
[A] BELOW FEDERAL LIMITS (**No KAMAN Hi-Hi alarm**) [B] AT, OR ABOVE, FEDERAL LIMITS (**KAMAN Hi-Hi alarm**)	[A] RADIOACTIVE AIRBORNE (FILTERED) [B] RADIOACTIVE AIRBORNE (UNFILTERED) [C] RADIOACTIVE LIQUID	[A] UNKNOWN (4 hour default) [B] 1 HOUR OR LESS [C] RELEASE DURATION ____ hour(s)

9. WIND SPEED: _____ MILES/HR (50m value preferred)

10. WIND DIRECTION : FROM _____ DEGREES (50m value preferred)

11. UTILITY PROTECTIVE ACTION RECOMMENDATIONS
(If this notification is for a PAR change ONLY, note time & date. Otherwise write 'N/A' in 'TIME' and 'DATE' in Block 11.)

PAR DETERMINATION @ TIME: _____ DATE:_____

Unusual Event	**Alert**	**Site Area Emergency**
☐ **[A]** No actions recommended	☐ **[B]** No actions recommended	☐ **[C]** Activate the Prompt Alert and Notification System.

General Emergency (From EPIP 3.3)

☐ **[D]** *Default, or Dose projections ≥ 1 REM TEDE or 5 REM CDE @ 0-2 miles from site boundary.*	☐ **[E]** *Dose projections ≥ 1 REM TEDE or 5 REM CDE @ 2-5 miles from site boundary.*	☐ **[F]** *Dose projections ≥ 1 REM TEDE or 5 REM CDE @ 5-10 miles from site boundary.*
Evacuate, (or shelter if release duration is 1-hour or less), within a 2 mile radius and to 5 miles in the downwind subareas. **AND** Activate the Prompt Alert and Notification System.	Evacuate, (or shelter if release duration is 1-hour or less), within a 2 mile radius and to 5 miles in the downwind subareas, and shelter downwind subareas from 5 miles to EPZ edge. **AND** Activate the Prompt Alert and Notification System.	Evacuate, (or shelter if release duration is 1-hour or less), within a 2 mile radius, evacuate, (or shelter if release duration is 1-hour or less), from 2 miles to EPZ edge in downwind subareas, and shelter as appropriate beyond EPZ edge. **AND** Activate the Prompt Alert and Notification System.

12. ADDITIONAL INFORMATION :

13. APPROVED BY: _____ (TIME) _____ (DATE) _____
(OSM, EC, or ER&RD)

MESSAGE TRANSMITTED BY:	**FINAL ROLL CALL** (Agency Reps **INITIALS**)
Name: _____ Time: _____	Benton: _____ Linn: _____ Iowa HSEMD: _____

14. STATE PROTECTIVE ACTIONS	**0-2 m**	**2-5 m**	**5-10 m**	**10-EPZ**
Shelter Subareas (circle appropriate subareas)	1	2, 3, 4, 5, 6, 7, 8	9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22	23,24
Evacuate Subareas (circle appropriate subareas)	1	2, 3, 4, 5, 6, 7, 8	9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22	23,24

Fax page 1 of this form to the State & Counties immediately after Final Roll Call.

INSTRUCTIONS FOR USE

***Items 2, 3, 4, 5, 9, 10 & 11 MUST be accurate*– The accuracy of these items will count towards our DEP Performance Indicator. If any of these items are in error, the Notification is considered inaccurate.**

1. **FACILITY IN COMMAND & CONTROL** - Select the appropriate box, phone numbers are microwave line numbers for the listed facility.
   a) Select box "**A**" if the **Control Room** is in Command & Control.
   b) Select box "**B**" if the **TSC** is in Command & Control.
   c) Select box "**C**" if the **EOF** is in Command & Control.

2. **STATUS**
   a) Select box "**A**" for an **ACTUAL** event.
   b) Select box "**B**" "**DRILL**" for ALL Drills, Exercises, Table Tops, and Training Sessions.

3. **ACCIDENT CLASSIFICATION** - Select the letter corresponding to the latest classification issued by the ERO facility in command and control.
   a) Select box "**A**" for an **Unusual Event** classification.
   b) Select box "**B**" for an **Alert** classification.
   c) Select box "**C**" for a **Site Area Emergency** classification.
   d) Select box "**D**" for a **General Emergency** classification.
   e) Select box "**E**" for a **Recovery** classification.
   f) Select box "**F**" for a **Cancellation** or **Termination** classification.

4. **EAL CLASSIFIED**
   a) **IF** this Notification is for a PAR CHANGE ONLY, check the "PAR CHANGE ONLY" checkbox, write "N/A" in the "Time" and "Date" blanks, and proceed to **Block 5**.
   b) For **All other** notifications:
      i. Write in the TIME that the EAL *declaration* was made.
      ii. Write in the DATE of the event.
      iii. On the lines provided, write the Alpha-numeric code of the EAL, (e.g. HA2.1).
      iv. Circle the corresponding digits for category, classification and sequence #. For Fission Product Barrier Table EALs, a zero may be added (e.g. FG1.0)

5. **ABNORMAL RELEASE IN PROGRESS DUE TO THIS EVENT? –** select the appropriate checkbox and proceed as directed. *NOTE: a KAMAN Hi alarm is indicative of abnormal release rates.*
   a) **IF** no **KAMAN Hi** alarms have occurred, select "**Has Not Occurred**" and proceed to **Block 9**.
   b) **IF** a **KAMAN Hi** alarm **has been received** as a result of the event, but the release is now terminated, select "**Has Occurred, is Now Terminated**" and proceed to **Block 6**.
   c) **IF** a **KAMAN Hi** alarm **has been reached** as a result of the event, **and is still in alarm**, and **the release is not isolated**, select "**Is Occurring**" and proceed to **Block 6**.

6. **AIRBORNE RELEASE TO ENVIRONMENT**
   a) Select box "**A**" if there is **no KAMAN Hi-HI** alarm.
   b) Select box "**B**" if there **IS one or more KAMAN Hi-HI** alarms.

7. **TYPE OF RELEASE** - Mark **ALL** that apply:
   a) Select box "**A**" "RADIOACTIVE AIRBORNE (FILTERED)" for any release flowpath through any operable Standby Gas Treatment train or through the Offgas System adsorbers to the **OFFGAS STACK.** This release is monitored by the Offgas stack KAMAN monitor.
   b) Select box "**B**" "RADIOACTIVE AIRBORNE (UNFILTERED)" for **ANY OTHER** airborne release path. This release path may be monitored by the Reactor/Turbine Building KAMAN monitors OR may be an unmonitored release.
   c) Select box "**C**" for a"RADI0ACTIVE LIQUID" release. Contact the Site Rad Protection Coordinator for additional information and support.
   d) **IF** a release has multiple paths to the environment, mark **ALL** that apply.

8. **PROJECTED DURATION OF RELEASE**
   a) Select box "**A**" if the duration of release is **unknown**. This should be the default unless the release duration can be determined with certainty.
   b) Select box "**B**" if the duration is/was **1 hour or less**.
      i. **IF** the duration of release is one hour or less, note the effect it has on the PAR determination when at a General Emergency.
   c) Select box "**C**" if the duration of release is **known**, and write in the duration in the space provided.

9. **WIND SPEED -** Fill in the wind speed in miles per hour. The preferred value is the 50 meter value. If the 50 meter value is unavailable, use the 10 meter value. If both are unavailable, contact the National Weather Service at 1-800-803-9357.

10. **WIND DIRECTION** - Write in the wind direction in degrees, from the direction of origin. The preferred value is the 50 meter value. If the 50 meter value is not available, use the 10 meter value. If both are unavailable, contact the National Weather Service at 1-800-803-9357.

11. **PROTECTIVE ACTION RECOMMENDATION** - Refer to EPIP 3.3 for guidance on Protective Action decision-making.
    a) **IF** this notification is for a **PAR change ONLY**, write in the TIME and DATE of the new PAR Determination in the blanks provided, otherwise write "N/A" in these blanks.
    b) Select the appropriate checkbox for the current recommendation.

12. **ADDITIONAL INFORMATION –** Include information when:
    a) A wind shift results in additional downwind subareas (see EPIP 3.3 Att. 2).
    b) Corrections to current State/County notifications are made.
    c) Clarification of entry conditions for EALs with multiple initiating conditions is needed.
    d) Other information is needed by the State and/or Counties.

13. **APPROVED BY –** Authorizing signature of OSM, Emergency Coordinator, or ER&RD.

INITIAL ROLL CALL - Dial 9999 (#### to stop the ringing) and mark appropriate box for the applicable agency as they answer the initial roll call.

MESSAGE INITIATED - Document the time and date you get at least one agency on the phone.

Read Items 1-13 on Notification Message Above – Read message from Item 1 through to Item 13, (For example, "One, bravo, drill. Two, delta, simulator…" etc.

MESSAGE TRANSMITTED BY – Applicable Communicator writes in their name and time message completed.

FINAL ROLL CALL – Enter initials of agency representatives receiving this notification.

FAX – Fax page 1 of this form to the State & Counties. Fax to Benton County, Linn County, and the Iowa Homeland Security and Emergency Management Division (HS-EMD) to confirm the notification. In the Control Room and TSC, push button "01" for working hour distribution and button "02" for off hour and weekend distribution. If the fax is not operable, confirmation will be made via microwave, commercial phone, or point-to-point radio.

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14. **STATE PROTECTIVE ACTIONS –** IF AVAILABLE, circle subareas the STATE has chosen to shelter or evacuate. If not available, leave this section blank.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2011 NRC JPM S-1

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **PERFORM REQUIRED ACTIONS FOR RESETTING A RECIRC MG SCOOP TUBE LOCKOUT**

JPM NUMBER: **NRC 2011 JPM S-1** **REV. 2**

TASK NUMBER(S) / TASK TITLE(S): **12.11 RESET SCOOP TUBE LOCKUP**

K/A NUMBERS: **202002** **K/A VALUE: A2.05 3.1/3.1**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION: In-Plant: [ ] Control Room: [ ]
Simulator: [X] Other: [ ]
Lab: [ ]

Time for Completion: 30 Minutes Time Critical: ☐ Yes ☐ No

Alternate Path [NRC]: ☐ Yes ☒ No
Alternate Path [INPO]: ☐ Yes ☒ No

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 JPM S-1, Perform Required Actions for Resetting a Recirc MG Scoop Tube Lockout, Rev. 2

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☐	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☐	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☐
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☐	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☐	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☐	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☐
8.	Is the Licensee level appropriate for the task being evaluated if required?	☐	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☐	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☐
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	☐	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☐
13.	Are all references identified, current, accurate, and available to the trainee?	☐	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☐	☐	☐
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	☐	☐	☐
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	☐	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel	Date	Re-Validation Personnel	Date
Re-Validation Personnel	Date	Re-Validation Personnel	Date

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions:

1. Reset to 100% power (IC 20 preferred.)
2. Go to RUN.
3. Lock BOTH Recirc MG Scoop Tubes.
3. Verify Master Feedwater Level Controller in AUTO, set at 190.6.
4. Push the recorder reset PB in the back of 1C05 to erase recorder data.

SIMULATOR MALFUNCTIONS: None

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Required Materials: OI 264

General References: OI 264
ARP 1C04A (C-5)

Task Standards: Both Scoop Tube Lockouts Reset

TURNOVER SHEET

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- Reactor power is at approximately 100%.
- Both Recirc MG set scoop tubes were manually locked up for I & C testing of the controllers.
- The testing is complete.

INITIATING CUES (IF APPLICABLE):

- The CRS directs you to reset both scoop tube lockouts starting with the “A” Recirc MG set, IAW OI 264, Section 10.2 (1).

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:
The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- Reactor power is at approximately 100%.
- Both Recirc MG set scoop tubes were manually locked up for I & C testing of the controllers.
- The testing is complete.

INITIATING CUES (IF APPLICABLE):

- The CRS directs you to reset both scoop tube lockouts starting with the “A” Recirc MG set, IAW OI 264, Section 10.2 (1).

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Begins in OI 264, Section 10.2 (1) for the A Scoop Tube

Performance Step: 1 **Critical N**	**NOTE** Any parameter (P, S, V or X) may be selected for digital display; however, controller adjustments using the control knob can only be made when SETPOINT (S) is selected. During a reset from a scoop tube lockout / deviation lockup condition, annunciator (1C08A C-8, [1C08A B-8]) inverter overload alarm may be received. **CAUTION** If Recirc MG speed becomes unstable during this procedure, the scoop tube should be immediately relocked by momentarily placing the A[B] SCOOP TUBE CONTROL hand switch on 1C04 to the LOCKED position.
Standard:	Reviews Note & Caution.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 2 **Critical N**	If "A" Recirc MG is running with either a 20% or 45% runback in effect, then perform ARP 1C04A, D-2 prior to resetting the Scoop Tube Lockout.
Standard:	Determine that there are no runbacks in effect.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 3 **Critical N**	If a DEV ALRM is flashing on SIC9245A, clear the DEV ALRM by performing the following, otherwise N/A:
Standard:	Determines that the step is N/A. Continues at procedure step 10.2 (3).
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 4 **Critical N**	If "A" Recirc MG is running, reset the Scoop Tube as follows: **NOTE:** For low core flow or single loop operation conditions (i.e., <27 Mlbm/hr), Core Plate dP can be obtained from PDR/FR-4528. The Core Flow vs Core Plate dP graph should be used to determine core flow in Mlbm/hr. (Reference Appendix B in STP 3.4.1-02). Verify Scoop Tube Position P-%.
Standard:	Reviews Note and verifies Scoop Tube Position P-% by depressing the "D" button on the controller.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 5 **Critical Y**	Adjust setpoint S-% to approximately match Scoop Tube Position P-%.
Standard:	Depresses "D" button on controller until setpoint "S" is displayed. Adjusts setpoint to match value obtained in previous step by rotating the controller knob in the appropriate direction.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 6 **Critical N**	Verify controller output V-% approximately matches Scoop Tube Position P-%.
Standard:	Verifies V approximately matches P. NOTE: This cannot be adjusted on the controller.
Evaluator Note:	**The values will not be exactly matched and cannot be adjusted on the controller. The candidate may need to be prompted to continue if hesitating when determining if "approximate" is met.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 7 **Critical Y**	At 1C04, reset scoop tube lock by momentarily placing handswitch B31A-S3A to **RESET** and then verify the following: • Annunciator 1C04A, C-5, "A RECIRC MG SCOOP TUBE LOCK" **resets**. Amber SCOOP TUBE LOCKED light located at 1C04 (above A Scoop Tube Control handswitch B31A-S3A) is **OFF**.
Standard:	Momentarily places handswitch B31A-S3A to RESET and then verifies the annunciator resets and the SCOOP TUBE LOCKED Light 1C04A, C-5 is OFF
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 8 **Critical N**	Verify that the Recirc pump speed is stable by observing the following parameters:
Standard:	The operator identifies that the following indications are stable by one or more of the following: • SETPOINT (S) • Percent Position (P) • Percent Speed (X) • Recirc pump discharge flow • Total core flow • Core pressure drop • APRM readings
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 9 **Critical N**	Verify that SETPOINT (S) is selected for digital display.
Standard:	Verifies that SETPOINT (S) is selected for digital display.
Evaluator Cue:	**If the Candidate asks to adjust power, cue the Candidate to "maintain power steady and continue with unlocking the 'B' Scoop Tube."**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

NOTE: The applicant has reset the "A" Scoop Tube and now returns to step 10.2 (1) for the "B" Scoop Tube reset

Performance Step: 10 **Critical N**	**NOTE:** Any parameter (P, S, V or X) may be selected for digital display; however, controller adjustments using the control knob can only be made when SETPOINT (S) is selected. During a reset from a scoop tube lockout / deviation lockup condition, annunciator (1C08A C-8, [1C08A B-8]) inverter overload alarm may be received. **CAUTION** If Recirc MG speed becomes unstable during this procedure, the scoop tube should be immediately relocked by momentarily placing the A[B] SCOOP TUBE CONTROL hand switch on 1C04 to the LOCKED position.
Standard:	Reviews Note & Caution.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 11 **Critical N**	If "B" Recirc MG is running with either a 20% or 45% runback in effect, then perform ARP 1C04A, D-8 prior to resetting the Scoop Tube Lockout.
Standard:	Determine that there are no runbacks in effect.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 12 **Critical N**	If a DEV ALRM is flashing on SIC9245B, clear the DEV ALRM by performing the following, otherwise N/A:
Standard:	Determines that the step is N/A. Continues at procedure step 10.2 (3).
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 13 **Critical N**	If "B" Recirc MG is running, reset the Scoop Tube as follows: **NOTE:** For low core flow or single loop operation conditions (i.e., <27 Mlbm/hr), Core Plate dP can be obtained from PDR/FR-4528. The Core Flow vs Core Plate dP graph should be used to determine core flow in Mlbm/hr. (Reference Appendix B in STP 3.4.1-02). Verify Scoop Tube Position P-%.
Standard:	Reviews Note and Verifies Scoop Tube Position P-% by depressing the "D" button on the controller.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 14 **Critical Y**	Adjust setpoint S-% to approximately match Scoop Tube Position P-%.
Standard:	Depresses "D" button on controller until setpoint "S" is displayed. Adjusts setpoint to match value obtained in previous step by rotating the controller knob in the appropriate direction.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 15 **Critical N**	Verify controller output V-% approximately matches Scoop Tube Position P-%.
Standard:	Depresses "D" button on controller until output "V" is displayed. Adjusts output to match value obtained in for position "P" by rotating the controller knob in the appropriate direction.
Evaluator Note:	**The values will not be exactly matched and cannot be adjusted on the controller. The candidate may need to be prompted to continue if hesitating when determining if "approximate" is met.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 16 **Critical Y**	At 1C04, reset scoop tube lock by momentarily placing handswitch B31A-S3B to **RESET** and then verify the following: • Annunciator 1C04B, C-2, "B RECIRC MG SCOOP TUBE LOCK" **resets**. Amber SCOOP TUBE LOCKED light located at 1C04 (above B Scoop Tube Control handswitch B31A-S3B) is **OFF**.
Standard:	Momentarily places handswitch B31A-S3B to RESET and then verifies the annunciator resets and the SCOOP TUBE LOCKED Light 1C04B, C-2 is OFF
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 17 **Critical N**	Verify that the Recirc pump speed is stable by observing the following parameters:
Standard:	The operator identifies that the following indications are stable by one or more of the following: • SETPOINT (S) • Percent Position (P) • Percent Speed (X) • Recirc pump discharge flow • Total core flow • Core pressure drop • APRM readings
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 18 **Critical N**	Verify that SETPOINT (S) is selected for digital display.
Standard:	Verifies that SETPOINT (S) is selected for digital display.
Evaluator Note:	**If the Candidate asks to adjust power, cue the Candidate to "maintain power steady"**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 19 **Critical N**	Communicate to the CRS/ Shift Manager that both scoop tubes are reset.
Standard:	Status communicated to the CRS/Shift Manager.
Evaluator Note:	**Role play as CRS and acknowledge**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Terminating Cues: **Informed that both scoop tubes are reset**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

NRC 2011 JPM S-1, Perform Required Actions for Resetting a Recirc MG Scoop Tube Lockout, Rev. 2

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2011 NRC JPM S-2

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **SHIFTING FROM THE "B" FRV TO THE STARTUP FRV. FAILURE OF THE S/U FRV**

JPM NUMBER: **NRC 2011 JPM S-2** **REV. 0**

TASK NUMBER(S) / TASK TITLE(S): **Shifting from the "B" FRV to the Startup FRV. Failure of S/U FRV**

K/A NUMBERS: **295002** **K/A VALUE: A4.03 3.8/3.6**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION:

In-Plant:	[ ]	Control Room:	[ ]
Simulator:	[X]	Other:	[ ]
Lab:	[ ]		

Time for Completion: 15 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☒ Yes ☐ No

Alternate Path [INPO]: ☒ Yes ☐ No

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 JPM S-2, Shifting from the "B" FRV to the Startup FRV. Failure of the S/U FRV, Rev. 0

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

IC 12
Verify that STARTUP FEED LINE BLOCK MO-1631 on 1C06 is CLOSED

SIMULATOR TRIGGERS

TRIGGER NUMBER	TRIGGER FORMULA	TRIGGER DESCRIPTION
2	HC1622MAN < 1	SU FRV Controller to AUTO

SIMULATOR MALFUNCTIONS:

TIME	MALFUNCTION #	MALFUNCTION TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.

SIMULATOR OVERRIDES:

TIME	OVERRIDE #	OVERRIDE TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.
Setup	AO-FW-046	HIC-1622(2) FW STARTUP CONTROL VALVE CONT INPUT (0-100%)					

SIMULATOR REMOTE FUNCTIONS: None

Required Materials: **OI 644**

General References: **OI 644**

Task Standards: "B" FRV in manual and RPV level controlled between 191 and 195 inches

TURNOVER SHEET

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

1. The plant is shutting down
2. RPV level control must be transferred from the B Feed Reg Valve to the S/U Feed Reg Valve

INITIATING CUES (IF APPLICABLE):

- Shift from the "B" FEED REG VALVE CV-1621 to the STARTUP FEED REG VALVE CV-1622, IAW OI-644, Section 5.2

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

1. The plant is shutting down
2. RPV level control must be transferred from the B Feed Reg Valve to the S/U Feed Reg Valve

INITIATING CUES (IF APPLICABLE):

- Shift from the "B" FEED REG VALVE CV-1621 to the STARTUP FEED REG VALVE CV-1622, IAW OI-644, Section 5.2

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: 1 **Critical N**	At operator's discretion with <1.4 Mlb/hr feedwater flow, place STARTUP FEED REG VALVE CV-1622 in operation as follows:
Standard:	Reads and continues to action steps (next)
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 2 **Critical N**	Verify MASTER FEED REG VALVE CONTROLLER, LC-4577, is in AUTO.
Standard:	Verifies MASTER FEED REG VALVE CONTROLLER, LC-4577, is in AUTO.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 3 **Critical N**	Verify that the operating [B] FEED REG VALVE CONTROLLER, HC-1621 is in AUTO
Standard:	Verifies that the operating [B] FEED REG VALVE CONTROLLER, HC-1621 is in AUTO
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 4	**CAUTION**
Critical N	Valves V-07-271 and V-07-272 should not be open at the same time when both Reactor Feed Pumps are operating. Feedwater flow through the Startup Feed Control Valve supply line may cause uneven loading on the Reactor Feed Pumps and possibly overload one Reactor Feed Pump.
Standard:	Reviews Caution
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 5	Verify [V-07-271], 1P-1[A] Feedwater Isolation to FEEDWATER STARTUP CONTROL VALVE CV-1622 CLOSED.
Critical N	
Standard:	Verifies [V-07-271], 1P-1[A] Feedwater Isolation to FEEDWATER STARTUP CONTROL VALVE CV-1622 CLOSED.
Evaluator Cue:	**IF candidate directs a local operator to verify, then report that V-07-271 is SHUT.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 6	Verify [V-07-272], 1P-1[B] Feedwater Isolation to FEEDWATER STARTUP CONTROL VALVE CV-1622 on the feedwater header with the operating feed reg valve is OPEN
Critical N	
Standard:	Verifies [V-07-272], 1P-1[B] Feedwater Isolation to FEEDWATER STARTUP CONTROL VALVE CV-1622 on the feedwater header with the operating feed reg valve is OPEN
Evaluator Cue:	**IF candidate directs a local operator to verify, then report that V-07-272 is SHUT.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 7 **Critical Y**	Verify START UP FEED REG VALVE CONTROLLER, HC-1622, is in MANUAL, with zero percent open signal (V=0).
Standard:	Places START UP FEED REG VALVE CONTROLLER, HC-1622, in MANUAL, with zero percent open signal (V=0).
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 8 **Critical Y**	Verify open START UP FEED LINE BLOCK MO-1631 on 1C06
Standard:	Opens START UP FEED LINE BLOCK MO-1631 on 1C06
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 9 **Critical Y**	Slowly adjust START UP FEED REG VALVE CV-1622 position by adjusting the potentiometer to obtain a zero reading on the deviation meter (DM-1622).
Standard:	Slowly adjusts START UP FEED REG VALVE CV-1622 position by adjusting the potentiometer to obtain a zero reading on the deviation meter (DM-1622).
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 10 **Critical N**	Observe operating A[B] FEED REG. VALVE throttles closed automatically.
Standard:	Observes operating [B] FEED REG. VALVE throttles closed automatically.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 11 **Critical Y**	Place the STARTUP FEED REG VALVE CONTROLLER to AUTO.
Standard:	Places the STARTUP FEED REG VALVE CONTROLLER to AUTO.
Evaluator Note:	**Once the candidate places the S/U Feed Reg Valve in AUTO the SU Feed Reg Valve will slowly fail open.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 12 **Critical Y**	Recognizes the STARTUP FEED REG VALVE CONTROLLER is malfunctioning
Standard:	Places STARTUP FEED REG VALVE CONTROLLER to MANUAL to attempt level control
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Terminating Cues: "SU" FRV in manual and RPV level controlled

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

NRC 2011 JPM S-2, Shifting from the "B" FRV to the Startup FRV. Failure of theS/U/FRV, Rev. 0

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2011 NRC JPM S-3

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **ESTABLISH A LEAKAGE PATH TO THE MAIN CONDENSER IAW AOP 672.2, OFFGAS RADIATION/REACTOR COOLANT HIGH ACTIVITY**

JPM NUMBER: **NRC 2011 JPM S-3** **REV. 1**

TASK NUMBER(S) / TASK TITLE(S): **94.21**

K/A NUMBERS: **272000** **K/A VALUE: A2.11 3.4/3.7**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION: In-Plant: [ ] Control Room: [ ]

Simulator: [X] Other: [ ]

Lab: [ ]

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions:

Reset to any full power IC.

Note that the following are suggestions. The Setup may vary based on the set of JPMs to be performed. For this JPM, the main thing is to have the MSIVs **closed**.

- Insert malfunctions.
- Insert a manual scram.
- Take the mode switch to shutdown.
- Place feedwater to 158″ in auto.
  - o If necessary secure ECCS injection.
  - o Close the MSIVs.
  - o Start the Mechanical Vacuum Pump

SIMULATOR MALFUNCTIONS:

NOTE: The below malfunctions are suggested as a minimum to create the needed conditions for the JPM, if other JPM setups require these to be altered that is acceptable as long as the intent of this JPM is not changed.

TIME	MALFUNCTION #	MALFUNCTION TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.
T=0	RX01	Fuel failure			5		

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Required Materials: 1. AOP 672.2, Rev. 35

General References:

Task Standards:

- MO-1362A Closed
- MO-1362B Closed
- MO-1169 Closed
- MO 1054 and MO1055 are Closed
- Mechanical Vacuum Pump is secured
- MO-1043 Open
- MO-1044 Open

TURNOVER SHEET

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- A plant transient has occurred which has resulted in a reactor scram.
- AOP 672.2, Offgas Radiation/Reactor Coolant High Activity, has been entered due to fuel failure.
- The MSIVs have isolated.

INITIATING CUES (IF APPLICABLE):

- The CRS directs you to establish a leakage path to the main condenser IAW AOP 672.2, Step 7.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- A plant transient has occurred which has resulted in a reactor scram.
- AOP 672.2, Offgas Radiation/Reactor Coolant High Activity, has been entered due to fuel failure.
- The MSIVs have isolated.

INITIATING CUES (IF APPLICABLE):

- The CRS directs you to establish a leakage path to the main condenser IAW AOP 672.2, Step 7.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: 1 **Critical Y**	At 1C04, isolate the main steam supply to Offgas and SJAEs by placing the following handswitches in the CLOSE position. SJAE & OFFGAS MSL A STEAM SUPPLY MO-1362A.
Standard:	MO 1362A is closed.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 2 **Critical Y**	At 1C04, isolate the main steam supply to Offgas and SJAEs by placing the following handswitches in the CLOSE position. SJAE & OFFGAS MSL B STEAM SUPPLY MO-1362B.
Standard:	MO 1362B is closed.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 3 **Critical Y**	At 1C07, isolate the main steam supply to the Turbine Steam Seal System by placing the following handswitches in the CLOSE position: MAIN STEAM SUPPLY MO-1169.
Standard:	MO-1169 is closed.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 4 **Critical N**	At 1C07, isolate the main steam supply to the Turbine Steam Seal System by placing the following handswitches in the CLOSE position: REGULATOR BYPASS MO-1170.
Standard:	MO- 1170 is verified closed.
Evaluator Note:	**Note MO-1170 is a normally closed valve, unless the steam seal regulator is inoperable. MO-1170 will be verified closed or closed if open.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 5 **Critical Y**	At 1C07, verify that the main steam supply to MSR 2nd Stage Reheat is isolated by holding the following handswitch is in the CLOSE position: MAIN STEAM TO MSR SECOND STAGE MO-1054 & MO-1055.
Standard:	MO-1054 and 1055 are closed.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 6 **Critical Y**	At 1C07, verify that Mechanical Vacuum Pump 1P-32 is secured.
Standard:	1P-32 is secured.
Evaluator Note:	**Note that per the AOP, the Candidate may just take the HS for the Mechanical Vacuum Pump to stop to secure it, or he may get OI 691 and secure the pump per section 5.0. After he secures the pump, there are steps for the inplant operator to perform, cue the Candidate that the inplant operator will finish the actions of OI 691**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 7 **Critical Y**	At 1C04, establish the preferred MSIV leakage path by placing the following handswitches in the OPEN position: MSL HEADER DRAINS BYPASS MO-1043.
Standard:	MO-1043 is Opened.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 8 **Critical Y**	At 1C04, establish the preferred MSIV leakage path by placing the following handswitches in the OPEN position: MSL DRAIN ORIFICE BYPASS MO-1044.
Standard:	MO-1044 is Opened.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 9 **Critical N**	If the preferred MSIV leakage path cannot be established, establish the alternate path by opening MSL HEADER DRAIN CV-1064 using HS-1064 on 1C04.
Standard:	Leakage path can be established.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Terminating Cues: **The JPM is complete when MO-1044 is full open.**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

NRC 2011 JPM S-3, Establish a Leakage Path to the Main Condenser IAW AOP 672.2, Offgas Radiation/Reactor Coolant High Activity, Rev. 1

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2011 NRC JPM S-4

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **MANUAL STARTUP USING THE TEST POT TO CONTROL HPCI IN PRESSURE CONTROL MODE**

JPM NUMBER: **NRC 2011 JPM S-4** **REV. 0**

TASK NUMBER(S) / TASK TITLE(S): **MANUAL STARTUP OF HPCI USING THE TEST POT**

K/A NUMBERS: **206000** **K/A VALUE: A4.01 3.8/3.7**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION: In-Plant: [ ] Control Room: [ ]

Simulator: [X] Other: [ ]

Lab: [ ]

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☐ No

Alternate Path [NRC]: ☒ Yes ☐ No

Alternate Path [INPO]: ☒ Yes ☐ No

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 JPM S-4, MANUAL STARTUP USING THE TEST POT TO CONTROL HPCI IN PRESSURE CONTROL MODE, Rev. 0

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

IC 20
Setup a Schedule file to delete both overrides below when ET 3 goes true. Notice the 7 second delay in the green light.

SIMULATOR TRIGGERS

Event Trigger	Trigger Formula	Trigger Description
1	HPNT > 800	HPCI speed exceeds 800 rpm
3	ZDIHPHS2318(1) >= 1	MO 2318, HPCI Min Flow Valve taken to CLOSE

SIMULATOR MALFUNCTIONS:

TIME	MALFUNCTION #	MALFUNCTION TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.

SIMULATOR OVERRIDES: N/A

TIME	MALFUNCTION #	MALFUNCTION TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.
Preset	DO-HP-047 **NOTE delete with schedule file**	HS-2318(2) MIN FLOW BYPASS MOV-2318 LITES (RED)	1		ON		OFF
Preset	DO-HP-046 **NOTE delete with schedule file**	HS-2318(1) MIN FLOW BYPASS MOV-2318 LITES (GREEN)	1	7 secs	OFF		ON
Preset	DO-HP-047 **(NEW)** **DELETE in 7 seconds**	HS-2318(2) MIN FLOW BYPASS MOV-2318 LITES (RED)	3		ON		OFF

SIMULATOR REMOTE FUNCTIONS: N/A

Required Materials: OI 152

General References: OI 152

Task Standards:

1. HPCI in pressure control mode (CST to CST)
2. HPCI Min Flow Bypass Valve (MO-2318) closed

TURNOVER SHEET

INITIAL CONDITIONS:
The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- The plant is at rated power
- A manual startup of HPCI is required using the Test Pot
- A field operator is stationed near the HPCI Turbine
- OI-152 Section 5.1 is complete through Step (12)

INITIATING CUES (IF APPLICABLE):

- Place HPCI in service in the Pressure Control mode using the Test Pot IAW OI 152, Section 5.1, beginning at Step (13). Establish HPCI at approximately 1065 psig with flow of 3100 gpm.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:
The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- The plant is at rated power
- A manual startup of HPCI is required using the Test Pot
- A field operator is stationed near the HPCI Turbine
- OI-152 Section 5.1 is complete through Step (12)

INITIATING CUES (IF APPLICABLE):

- Place HPCI in service in the Pressure Control mode using the Test Pot IAW OI 152, Section 5.1, beginning at Step (13). Establish HPCI at approximately 1065 psig with flow of 3100 gpm.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: 1 **Critical N**	Verify HPCI Vacuum Tank Hi Level Alarm (1C03C, D-7) is clear
Standard:	Verifies HPCI Vacuum Tank Hi Level Alarm (1C03C, D-7) is clear
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 2 **Critical Y**	Start the 1P-233 HPCI VACUUM PUMP by placing Handswitch HS-2221 on 1C03 to START
Standard:	Starts the 1P-233 HPCI VACUUM PUMP by placing Handswitch HS-2221 on 1C03 to START
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 3 **Critical Y**	Open MO-2247 LUBE OIL & CONDENSER CLG SUPPLY Valve by placing HS-2247 on 1C03 to the OPEN position and allowing it to spring return to the AUTO position.
Standard:	Opens MO-2247 LUBE OIL & CONDENSER CLG SUPPLY Valve by placing HS-2247 on 1C03 to the OPEN position and allowing it to spring return to the AUTO position.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 4 **Critical Y**	Place TURBINE SPEED TEST SELECT Handswitch HS-2257 on 1C03 in the "TURB TEST" position.
Standard:	Places TURBINE SPEED TEST SELECT Handswitch HS-2257 on 1C03 in the "TURB TEST" position.
Evaluator Note:	**Annunciator C-6 Alarms**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 5 **Critical Y**	Place HS-2258 AC POWER TO TURBINE SPEED TEST CKT Handswitch on 1C03 to the "ON" position.
Standard:	Places HS-2258 AC POWER TO TURBINE SPEED TEST CKT Handswitch on 1C03 to the "ON" position.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	**Amber light turns ON** _____

Performance Step: 6 **Critical Y**	Rotate TEST MODE TURBINE SPEED ADJUST potentiometer HS-2273 fully counter-clockwise.
Standard:	Verifies TEST MODE TURBINE SPEED ADJUST potentiometer HS-2273 fully counter-clockwise.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 7 **Critical N**	Verify MO-2311 PUMP DISCHARGE valve open .
Standard:	Verifies MO-2311 PUMP DISCHARGE valve open .
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 8 **Critical N**	The following step makes HPCI inoperable. Verify the CRS has entered the LCO for HPCI being inoperable. NA if not running CST to CST.
Standard:	Informs the SRO that the HPCI LCO must be entered
Evaluator Cue:	**The LCO has been entered**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 9 **Critical Y**	If operation in the CST to CST Mode is desired, perform the following: (a) Open MO-2316 REDUNDANT SHUTOFF valve. (b) Throttle open CV-2315 TEST BYPASS valve to 46-48% open as indicated on ZI-2315
Standard:	Opens MO-2316 REDUNDANT SHUTOFF valve Throttles open CV-2315 TEST BYPASS valve to 46-48% open as indicated on ZI-2315
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 10 **Critical N**	Initiate torus water temperature monitoring per STP 3.6.2.1-01. This is only required while heat is being added to the torus.
Standard:	Informs the CRS that torus temperature monitoring is required per STP 3.6.2.1-01 while heat is being added to the torus.
Evaluator Cue:	**Another operator will perform torus temperature monitoring.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 11 **Critical N**	If time permits, ensure unnecessary/unauthorized personnel are clear of the HPCI Room.
Standard:	May announce via page that unnecessary/unauthorized personnel are clear of the HPCI Room.
Evaluator Note:	**The following annunciators will be received if the AUX OIL PUMP is not started within 15 seconds after opening MO-2202 TURBINE STEAM SUPPLY:** **HPCI TURBINE TRIPPED (alarm only) (1C03C, A-4)** **HPCI LO FLOW (1C03C, B-3)** **HPCI TURBINE BEARING OIL LO PRESSURE (1C03C, A-6)**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 12 **Critical N**	Open MO-2202 TURBINE STEAM SUPPLY valve by placing Handswitch HS-2202 on 1C03 in the OPEN position momentarily and observing proper valve indication.
Standard:	Opens MO-2202 TURBINE STEAM SUPPLY valve by placing Handswitch HS-2202 on 1C03 in the OPEN position momentarily and observing proper valve indication.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 13 **Critical N**	**CONTINUOUS RECHECK STATEMENT** (applicable to the remainder of this section) **IF** injection to the RPV is desired, **THEN** be prepared to open MO-2312 HPCI INJECT valve immediately after 1P-218 is started to prevent a possible HPCI Turbine Overspeed trip.
Standard:	Reviews Continuous Recheck Statement
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 14 **Critical Y**	At 1C03, perform the following in rapid succession: Place 1P-218 AUX OIL PUMP Handswitch HS-2256 on 1C03 in the START position and verify that the following indicating lights on 1C03 turn ON: 1. 1P-218 AUX OIL PUMP red (running) light ON _____ 2. HV-2201 TURBINE STOP VALVE red (open) light ON _____ 3. Verify HV-2200 TURBINE CONTROL VALVE open or throttled, controlling HPCI Turbine speed. _____
Standard:	Places 1P-218 AUX OIL PUMP Handswitch HS-2256 on 1C03 in the START position and verifies the above indications
Evaluator Cue:	**If operator is struggling with HV-2200 position, cue the operator that HV-2200 is throttled to maintain speed. Continue.**
Performance:	**SATISFACTORY UNSATISFACTORY**
Comments:	_____

Performance Step: 15 **Critical N**	If injection into the RPV is desired, immediately open MO-2312 HPCI INJECT valve and confirm proper valve position indication.
Standard:	Reviews step and continues
Evaluator Note:	**This step is N/A**
Performance:	**SATISFACTORY _____ UNSATISFACTORY _____**
Comments:	_____

Performance Step: 16 **Critical Y**	Rapidly raise HPCI TURBINE SPEED using the TEST MODE TURBINE SPEED ADJUST potentiometer HS-2273 until turbine speed (≥) 2000 rpm.
Standard:	Using the TEST MODE TURBINE SPEED ADJUST potentiometer HS-2273, Rapidly raises HPCI TURBINE SPEED until turbine speed (≥) 2000 rpm.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 17 **Critical N**	Confirm that HPCI speed and HPCI Pump discharge pressure indicate increases.
Standard:	Confirms that HPCI speed and HPCI Pump discharge pressure indicate increases.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 18 **Critical N (SEQ-)**	Verify that MO-2318 MIN FLOW BYPASS valve is open when HPCI flow is less than 600 gpm with pump discharge pressure greater than 125 psig.
Standard:	Verifies that MO-2318 MIN FLOW BYPASS valve is open when HPCI flow is less than 600 gpm with pump discharge pressure greater than 125 psig.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 19 **Critical N (SEQ-)**	Verify 1P-218 AUX OIL PUMP stops automatically and that turbine speed remains steady and does not decrease
Standard:	Verifies 1P-218 AUX OIL PUMP stops automatically and that turbine speed remains steady and does not decrease
Evaluator Note:	**There is a 2 second time delay between automatic cycles on MO-2318.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 20 **Critical Y (SEQ-)**	Verify on 1C03 that MO-2318 MIN FLOW BYPASS valve closes as HPCI flow increases above 600 gpm.
Standard:	Recognizes MO-2318 MIN FLOW BYPASS valve failed to close and manually closes the valve.
Evaluator Note:	**The Min Flow valve will fail to close and the operator must take action to manually close the valve:**
Evaluator Cue:	**Once the valve is closed, tell the operator to continue with the procedure. I&C will look into the min flow valve issue.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 21 **Critical N (SEQ-)**	Verify that the following drain valves automatically close: Valve Description CV-2211 HPCI STEAM LINE DRAIN ISOL CV-2212 HPCI STEAM LINE DRAIN ISOL CV-2234 CLOSED RADWASTE DISCH ISOL
Standard:	Verifies the above drain valves are closed
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 22 **Critical Y (SEQ-)**	At 1C03, establish desired HPCI flow and pressure by: (a) Adjusting HPCI Turbine Speed to >2000 rpm using the TEST MODE TURBINE SPEED ADJUST potentiometer HS-2273 AND (b) If in CST to CST mode, throttling TEST BYPASS CV-2315.
Standard:	Establishes HPCI flow of 3100 gpm and pressure at approximately 1065 psig using the TEST BYPASS CV-2315
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical N (SEQ-)**	In the HPCI Room, verify Jockey Oil Pump 1P-283 is not running.
Standard:	
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Terminating Cues: HPCI is in CST-CST mode with Min Flow Valve Closed.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

NRC 2011 JPM S-4, MANUAL STARTUP USING THE TEST POT TO CONTROL HPCI IN PRESSURE CONTROL MODE, Rev. 0

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2011 NRC JPM S-5

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **CONTAINMENT ATMOSPHERE MONITORING SAMPLE LINE ISOLATION DEFEAT**

JPM NUMBER: **NRC 2011 JPM S-5** **REV. 0**

TASK NUMBER(S) / TASK TITLE(S): **CONTAINMENT ATMOSPHERE MONITORING SAMPLE LINE ISOLATION DEFEAT**

K/A NUMBERS: **223001** **K/A VALUE:** **A4.04 3.5/3.6**
A4.05 3.6/3.6

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION: In-Plant: [ ] Control Room: [ ]
Simulator: [X] Other: [ ]
Lab: [ ]

Time for Completion: 15 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No
Alternate Path [INPO]: ☐ Yes ☒ No

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Ensure a Group 3 isolation has occurred.

SIMULATOR MALFUNCTIONS: N/A

SIMULATOR OVERRIDES: N/A

SIMULATOR REMOTE FUNCTIONS: N/A

Required Materials: **Defeat 16**

General References: **Defeat 16**

Task Standards: **1. Open Drywell and Torus Sample Lines after a PCIS Group 3 isolation.**
2. H_2-O_2 Analyzers placed in service and then secured after sampling.

TURNOVER SHEET

INITIAL CONDITIONS:

The initial conditions that I read does not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- The plant was at rated power
- A Group 3 isolation has occurred following an event
- Drywell Sprays have been initiated
- The H2O2 Analyzers are required to be placed in service for containment atmosphere monitoring

INITIATING CUES (IF APPLICABLE):

- Install Containment Atmosphere monitoring sample line isolation Defeat 16

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

The initial conditions that I read does not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- The plant was at rated power
- A Group 3 isolation has occurred following an event
- Drywell Sprays have been initiated
- The H2O2 Analyzers are required to be placed in service for containment atmosphere monitoring

INITIATING CUES (IF APPLICABLE):

- Install Containment Atmosphere monitoring sample line isolation Defeat 16

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: 1 **Critical N**	If a large-break LOCA is suspected, verify that drywell sprays have been initiated prior to overriding the containment atmosphere sample line isolations. If drywell sprays have NOT initiated, consult with the TSC Accident Management Team prior to overriding the isolation
Standard:	Reviews Step and determines that the initiating cue stated that Drywell Sprays have been placed in service.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 2 **Critical Y**	At 1C29, place OUTBOARD SAMPLE ISOLATION VALVES keylock switch HS-8101A in OVERRIDE
Standard:	Places OUTBOARD SAMPLE ISOLATION VALVES keylock switch HS-8101A in OVERRIDE
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 3 **Critical Y**	At 1C29, place INBOARD SAMPLE ISOLATION VALVES keylock switch HS-8100A in OVERRIDE
Standard:	Places INBOARD SAMPLE ISOLATION VALVES keylock switch HS-8100A in OVERRIDE
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 4 **Critical Y**	At 1C29, place INBOARD SAMPLE ISOLATION VALVES keylock switch HS-8100B in OVERRIDE
Standard:	Places INBOARD SAMPLE ISOLATION VALVES keylock switch HS-8100B in OVERRIDE
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 5 **Critical Y**	At 1C29, place OUTBOARD SAMPLE ISOLATION VALVES keylock switch HS-8101B in OVERRIDE
Standard:	Places OUTBOARD SAMPLE ISOLATION VALVES keylock switch HS-8101B in OVERRIDE
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 6 **Critical N**	Confirm ISOLATION OVERRIDE amber lights are ON
Standard:	Confirms ISOLATION OVERRIDE amber lights are ON
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 7 **Critical N**	**NOTE** Both samplers should be placed in service, with one sampling the Drywell and the other sampling the Torus. If only one sampler is available, the Drywell should be sampled first **CAUTION** During flooding of the Primary Containment, the Containment Atmosphere Monitors shall either be isolated or shifted to a higher sample point prior to containment level rising above the sample line containment penetrations. When all containment sample taps are isolated and/or covered, coordinate with the TSC to establish alternate monitoring, if possible.
Standard:	Reviews Note and Caution
Evaluator Cue:	**If asked, cue the candidate that Primary Containment Flood is NOT in progress.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 8 **Critical Y**	At 1C09, select a containment sampling point for the H2O2 Analyzers: • To sample the Torus, position TORUS SAMPLE POINT SELECT switch HS-8116C[D] to OPEN. • To sample Drywell Elevation 817', position DRYWELL SAMPLE POINT 1 SELECT switch HS-8114C[D] to OPEN. • To sample Drywell Elevation 764', position DRYWELL SAMPLE POINT 2 SELECT switch HS-8115C[D] to OPEN.
Standard:	Samples the Torus on one of the analyzers and samples either drywell sampling point on the other analyzer.
Evaluator Note:	**If asked, tell the candidate that Drywell Sample Point 1 is desired**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 9 **Critical Y**	At 1C09, verify the ANALYZER MODE SELECT switch is in the ANAL position for each monitor in use.
Standard:	Places the ANALYZER MODE SELECT switch is in the ANAL position for each monitor in use.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 10 **Critical Y**	At 1C09, reset the Analyzer Trouble Lights by depressing the RESET pushbuttons and confirm ANALZER TROUBLE amber light is OFF.
Standard:	Resets the Analyzer Trouble Lights by depressing the RESET pushbuttons and confirms ANALZER TROUBLE amber lights are OFF.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 11 **Critical N**	At 1C09, reset the "A" CONTAINMENT H2/O2 ANALZER TROUBLE (1C09A, B-4) and/or "B" CONTAINMENT H2/O2 ANALZER TROUBLE (1C09B, B-4) Annunciators.
Standard:	Resets both Trouble Annunciators.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Terminating Cues: **The A & B analyzer in service with sample points from both torus and drywell.**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

NRC 2011 JPM S-5, Containment Atmosphere Monitoring Sample Line Isolation Defeat, Rev. 0

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2011 NRC JPM S-6

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **MAIN GENERATOR SYNCH TO GRID – FAILURE OF MAIN GENERATOR TO AUTO TRIP ON A PRIMARY LOCKOUT**

JPM NUMBER: **NRC 2011 JPM S-6** **REV. 0**

TASK NUMBER(S) / TASK TITLE(S): **ROXX**

K/A NUMBERS: **262001** **K/A VALUE: A4.04 3.6 / 3.7**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION: In-Plant: [ ] Control Room: [ ]

Simulator: [X] Other: [ ]

Lab: [ ]

Time for Completion: 30 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☒ Yes ☐ No

Alternate Path [INPO]: ☒ Yes ☐ No

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions:

1. Reset simulator to IC 12
2. Mark up OI 698, section 3.3 complete through step 2
3. Input the simulator triggers and malfunctions as shown below.

Triggers:

Trigger No.	Trigger Logic Statement	Trigger Word Description
4	ZDIEGX390(2) >= 1	Power System Stabilizer Switch to ON

SIMULATOR MALFUNCTIONS:

TIME	MALFUNCTION #	MALFUNCTION TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.
Setup	EG02A	Main Gen Lockout Relay Fails Act- Primary Lockout (286/P)			Active		Active
Setup	EG02B	Main Gen Lockout Relay Fails Act- Backup Lockout (286/B)			Active		Active
As Dir	AN1C08C (1)	1C08C (A-01) Main Generator Primary Lockout Trip	4		ON		OFF
As Dir	TC01	Main Turbine Trip	4	1 sec	Active		Inactive

SIMULATOR OVERRIDES:

TIME	OVERRIDE ID	OVERRIDE DESCRIPTION	ET	DELAY	VALUE	RAMP
Setup	DI-EG-028	X389 Main Generator Emergency Trip			OFF	

SIMULATOR REMOTE FUNCTIONS: NONE

Required Materials: OI 698, Rev. 76
1C08C A-1, Rev. 48

General References: OI 698

Task Standards:
1. Synchronize Main Generator to the Grid
2. Recognize failure of main generator to auto trip on Primary Lockout, failure trip PBs AND Exciter Field breaker to auto open.
3. Manually opens outputs and exciter field breaker

TURNOVER SHEET

INITIAL CONDITIONS:

- The plant is starting up.
- The Main Generator is ready to be synchronized to the grid

INITIATING CUES (IF APPLICABLE):

- The CRS directs you to synchronize the Main Generator to the grid IAW OI-698 Sections 3.3 and 3.4
- OI 698 is completed through Section 3.3 Step 2.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- The plant is starting up.
- The Main Generator is ready to be synchronized to the grid

INITIATING CUES (IF APPLICABLE):

- The CRS directs you to synchronize the Main Generator to the grid IAW OI-698 Sections 3.3 and 3.4
- OI 698 is completed through Section 3.3 Step 2.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: 1 **Critical N**	Review OI 698 Precautions & Limitations and Sections 3.3 & 3.4
Standard:	Reviews OI 698 Precautions & Limitations and Sections 3.3 & 3.4
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 2 **Critical N**	Verify MAIN TRANSFORMER 1X1 TROUBLE (1C08B, A-12) annunciator is RESET.
Standard:	Verifies MAIN TRANSFORMER 1X1 TROUBLE (1C08B, A-12) annunciator is RESET.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 3 **Critical N**	Verify AUX TRANSFORMER 1X2 TROUBLE (1C08B, C-5) annunciator is RESET.
Standard:	Verifies AUX TRANSFORMER 1X2 TROUBLE (1C08B, C-5) annunciator is RESET.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 4 **Critical N**	Verify that the main turbine is at 1,800 rpm by observing the SPEED indicator on 1C07.
Standard:	Verifies that the main turbine is at 1,800 rpm by observing the SPEED indicator on 1C07.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 5 **Critical N**	If the Hydrogen Seal Oil system was kept in service, verify OPEN V-45-84, PCV-3635 D/P REGULATOR HIGH SIDE ISOLATION.
Standard:	Contacts field operator to verify OPEN V-45-84, PCV-3635 D/P REGULATOR HIGH SIDE ISOLATION.
Evaluator Cue:	**Respond as field operator that PCV-3635 D/P REGULATOR HIGH SIDE ISOLATION is OPEN**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 6 **Critical Y**	Place 241CS, GENERATOR EXCITER FIELD BREAKER control switch, momentarily in the CLOSE position.
Standard:	Places 241CS, GENERATOR EXCITER FIELD BREAKER control switch, momentarily in the CLOSE position.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 7 **Critical N**	Verify the GENERATOR FIELD BREAKER BACKUP red indicating light is ON, indicating the exciter deexcitation circuit is deactivated on 1C08.
Standard:	Verifies the GENERATOR FIELD BREAKER BACKUP red indicating light is ON, indicating the exciter deexcitation circuit is deactivated on 1C08.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 8 **Critical N**	Using the GENERATOR VOLTAGE SELECT switch, observe on the GENERATOR KILOVOLTS meter that all three phases build up to approximately 18,000 volts.
Standard:	Using the GENERATOR VOLTAGE SELECT switch, observes on the GENERATOR KILOVOLTS meter that all three phases build up to approximately 18,000 volts.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 9 **Critical Y**	Observe proper voltage regulator response by varying 270CS, GENERATOR MANUAL VOLTAGE ADJUST, and observing the GENERATOR FIELD VOLTS meter.
Standard:	Observes proper voltage regulator response by varying 270CS, GENERATOR MANUAL VOLTAGE ADJUST, and observing the GENERATOR FIELD VOLTS meter.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 10 **Critical Y**	Raise generator phase voltage to 22,000 volts by adjusting the GENERATOR MANUAL VOLTAGE ADJUST.
Standard:	Raises generator phase voltage to 22,000 volts by adjusting the GENERATOR MANUAL VOLTAGE ADJUST.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 11 **Critical N**	NOTE: • Placing the Main Generator on the Grid with Manual Voltage Regulation, is being performed. NOTE • NERC Std VAR-002-1, Requirement 3 requires notification of voltage regulator and/or power system stabilizer (PSS) status change within 30 minutes.
Standard:	Reviews NOTES and continues to procedure step 12.
Evaluator Cue:	**If asked, inform the candidate that they will NOT be placing the Main Generator on the Grid with Manual Voltage Regulation,**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 12 **Critical Y**	Transfer voltage regulation to automatic as follows: a. Adjust 290CS, GENERATOR AUTOMATIC VOLTAGE ADJUST, until zero is obtained on the GENERATOR REGULATOR VOLTS meter. b. Place 243CS, REGULATOR TRANSFER switch, to the AUTO position. c. Observe proper voltage regulator response by varying 290CS, GENERATOR AUTOMATIC VOLTAGE ADJUST, and observing the GENERATOR FIELD VOLTS meter. d. Return generator phase voltage to 22,000 volts by adjusting the GENERATOR AUTOMATIC VOLTAGE ADJUST.
Standard:	Transfers voltage regulation to automatic IAW the above steps.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 13 **Critical N**	Record the time that the REGULATOR TRANSFER switch was placed in AUTO in the Operating Log.
Standard:	Records the time that the REGULATOR TRANSFER switch was placed in AUTO in the Operating Log.
Evaluator Cue:	**Another operator will record the time in the log**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 14 **Critical N**	Inform the Load Dispatcher, ATC and Real Time Desk that the REGULATOR TRANSFER switch was placed in AUTO and the unit is ready to be placed on the grid.
Standard:	Informs the Load Dispatcher, ATC and Real Time Desk that the REGULATOR TRANSFER switch was placed in AUTO and the unit is ready to be placed on the grid.
Evaluator Cue:	**Another operator will inform the Load Dispatcher, ATC and Real Time Desk that the REGULATOR TRANSFER switch was placed in AUTO and the unit is ready to be placed on the grid.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 15 **Critical N**	Record the time that the Load Dispatcher, ATC and Real Time Desk were notified in the Operating Log.
Standard:	Records the time that the Load Dispatcher, ATC and Real Time Desk were notified in the Operating Log.
Evaluator Cue:	**Another operator will record the time in the log.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Evaluator NOTE: After the above steps are complete, the candidate will transfer to section 3.4 to continue.

Performance Step: 16 **Critical N**	NOTE: The generator may be placed on either the East or the West 161 KV Bus first, depending on system requirements. The following instructions assume that GENERATOR OUTPUT I BREAKER (OCB 4290) (161 KV West Bus) is closed first. Designations shown in brackets should be used if GENERATOR OUTPUT H BREAKER (OCB 0220) (161 KV East Bus) is closed first.
Standard:	Reviews NOTE
Evaluator Note:	**If the candidate asks for guidance, you may direct them to close the "I" breaker first.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 17 **Critical Y**	Close Generator MO - Disconnect SW 0236 and verify closed by red flag and red light on.
Standard:	Closes Generator MO - Disconnect SW 0236 and verify closed by red flag and red light on.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 18 **Critical Y**	Close Generator MO - Disconnect SW 4292 and verify closed by red flag and red light on.
Standard:	Closes Generator MO - Disconnect SW 4292 and verify closed by red flag and red light on.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 19 **Critical N**	Place GENERATOR OUTPUT I[H] BREAKER SYNCHRONIZE switch in the ON position.
Standard:	Places GENERATOR OUTPUT I[H] BREAKER SYNCHRONIZE switch in the ON position.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 20 **Critical Y**	Adjust voltage with 290CS, GENERATOR AUTOMATIC VOLTAGE ADJUST, so that the INCOMING VOLTS SYNCHRONIZE meter is matched with the RUNNING VOLTS SYNCHRONIZE meter.
Standard:	Adjusts voltage with 290CS, GENERATOR AUTOMATIC VOLTAGE ADJUST, so that the INCOMING VOLTS SYNCHRONIZE meter is matched with the RUNNING VOLTS SYNCHRONIZE meter.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 21 **Critical Y**	Adjust the LOAD SET ADJUST INCREASE button on 1C07 until the synchroscope is rotating slowly in the clockwise direction.
Standard:	Adjusts the LOAD SET ADJUST INCREASE button on 1C07 until the synchroscope is rotating slowly in the clockwise direction.
Evaluator Cue:	**If the candidate raises Turbine/Generator speed too much they may want to use the DECREASE pushbutton to adjust speed. If the candidate requests permission to use the DECREASE pushbutton then acknowledge the request and give permission.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 22 **Critical Y**	If necessary, further adjust 290CS, GENERATOR AUTOMATIC VOLTAGE ADJUST, to match the incoming and running volts.
Standard:	If necessary, further adjusts 290CS, GENERATOR AUTOMATIC VOLTAGE ADJUST, to match the incoming and running volts.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 23 **Critical Y**	As the SYNCHROSCOPE pointer reaches the 12 o'clock position, momentarily place the GENERATOR OUTPUT I BREAKER (OCB 4290) [GENERATOR OUTPUT H BREAKER (OCB 0220)] control switch in the CLOSE position.
Standard:	As the SYNCHROSCOPE pointer reaches the 12 o'clock position, momentarily places the GENERATOR OUTPUT I BREAKER (OCB 4290) control switch in the CLOSE position.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 24 **Critical N**	Observe the synchroscope pointer locks in at the 12 o'clock position and that GENERATOR OUTPUT I BREAKER (OCB 4290) [GENERATOR OUTPUT H BREAKER (OCB 0220)] breaker is closed as indicated by the red breaker position indicating light.
Standard:	Observes the synchroscope pointer locks in at the 12 o'clock position and that GENERATOR OUTPUT I BREAKER (OCB 4290) breaker is closed as indicated by the red breaker position indicating light.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 25 **Critical Y**	Establish an initial load as specified by the Operations Shift Supervisor or OI 693.1, Appendix 3, by depressing the LOAD SET ADJUST INCREASE pushbutton on 1C07.
Standard:	Establishes an initial load as specified by the Operations Shift Supervisor or OI 693.1, Appendix 3, by depressing the LOAD SET ADJUST INCREASE pushbutton on 1C07.
Evaluator Cue:	**If the candidate requests guidance then direct them to pick up load as necessary to close the Turbine Bypass Valve.**
Performance:	**SATISFACTORY UNSATISFACTORY**
Comments:	_____

Performance Step: 26 **Critical N**	Place the GENERATOR OUTPUT I BREAKER SYNCHRONIZE [GENERATOR OUTPUT H BREAKER SYNCHRONIZE] switch in the OFF position.
Standard:	Places the GENERATOR OUTPUT I BREAKER SYNCHRONIZE [GENERATOR OUTPUT H BREAKER SYNCHRONIZE] switch in the OFF position.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 27 **Critical N**	Place the GENERATOR OUTPUT H BREAKER (SYNCHRONIZE) [GENERATOR OUTPUT I BREAKER (SYNCHRONIZE)] switch in the ON position. Observe that incoming and running volts are equal and that the synchroscope is stationary at the 12 o'clock position.
Standard:	Places the GENERATOR OUTPUT H BREAKER (SYNCHRONIZE) [GENERATOR OUTPUT I BREAKER (SYNCHRONIZE)] switch in the ON position. Observe that incoming and running volts are equal and that the synchroscope is stationary at the 12 o'clock position.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 28 **Critical Y**	Place the GENERATOR OUTPUT H BREAKER (OCB 0220) [GENERATOR OUTPUT I BREAKER (OCB 4290)] control switch momentarily to the CLOSE position.
Standard:	Places the GENERATOR OUTPUT H BREAKER (OCB 0220) [GENERATOR OUTPUT I BREAKER (OCB 4290)] control switch momentarily to the CLOSE position.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 29 **Critical N**	Observe that GENERATOR OUTPUT H BREAKER (OCB 0220) [GENERATOR OUTPUT I BREAKER (OCB 4290)] breaker is closed as indicated by the red breaker position indicating light.
Standard:	Observes that GENERATOR OUTPUT H BREAKER (OCB 0220) [GENERATOR OUTPUT I BREAKER (OCB 4290)] breaker is closed as indicated by the red breaker position indicating light.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 30 **Critical N**	Place the GENERATOR OUTPUT H BREAKER SYNCHRONIZE [GENERATOR OUTPUT I BREAKER SYNCHRONIZE] switch in the OFF position.
Standard:	Places the GENERATOR OUTPUT H BREAKER SYNCHRONIZE [GENERATOR OUTPUT I BREAKER SYNCHRONIZE] switch in the OFF position.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 31 **Critical N**	NOTE • NERC Std VAR-002-1, Requirement 3 requires notification of voltage regulator and/or power system stabilizer (PSS) status change within 30 minutes.
Standard:	Reviews NOTES and continues.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Evaluator NOTE: When the next step is performed, the Main Turbine will trip, the Primary Generator Lockout will alarm, but the Main Generator will not trip either automatically or with the Main Generator trip pushbutton located on 1C08. The candidate will have to open the H and I breakers, then open the Generator field breaker (in that order).

Performance Step: 32 **Critical N**	Place the GENERATOR ALTERREX SUPPLEMENTARY control switch (Power System Stabilizer) in the ON position.
Standard:	Places the GENERATOR ALTERREX SUPPLEMENTARY control switch (Power System Stabilizer) in the ON position.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 33 **Critical N**	Diagnose Turbine Trip
Standard:	Diagnoses and announces Turbine Trip
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 34 **Critical N**	Diagnose the failure of the Main Generator to Trip
Standard:	Diagnoses the failure of the Main Generator to Trip and proceeds to separate the Generator from the buses.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 35 **Critical Y**	Verify the following: • Generator Output H Breaker OPEN • Generator Output H Breaker OPEN • Generator Field Breaker OPEN
Standard:	Opens the following breakers: • Generator Output H Breaker • Generator Output H Breaker • Generator Field Breaker (**LAST**)
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Terminating Cues: **Turbine and Generator Tripped. Output Breakers OPEN, Exciter Field Breaker OPEN.**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

NRC 2011 JPM S-6, Main Generator Synch to Grid – Failure of Main Generator to auto trip on a Primary Lockout, Rev. 0

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2011 NRC JPM S-7

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **PERFORM DOWNSCALE/UPSCALE TRIP OPERATIONAL CHECK OF ARMS**

JPM NUMBER: **NRC 2011 JPM S-7** **REV. 8**

TASK NUMBER(S) / TASK TITLE(S): **86.04 Perform Downscale/Upscale Trip Setpoint Check**

K/A NUMBERS: **272000** **K/A VALUE: A4.02 3.0/3.0**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION:

In-Plant:	[ ]	Control Room:	[ ]
Simulator:	[X]	Other:	[ ]
Lab:	[ ]		

Time for Completion: 15 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 JPM S-7, Perform Downscale/Upscale Trip Operational Check of Arms, Rev. 8
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions:
1. Reset to any full power IC.
2. Simulator instructor to acknowledge alarms received during performance of the JPM and to function as front panel operator for communications with the operator.

SIMULATOR MALFUNCTIONS: None

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Required Materials: Simulator

General References: OI 879.2, Rev. 22

Task Standards:
1. Determine the Downscale and Upscale Trip Setpoints.
2. Mode Selector Switch for the ARM 9167 taken to the TRIP TEST position.
3. ARM indicator is placed between Downscale and Upscale setpoints.
4. Trip Check Adjust knob turned until the Upscale Trip is activated and the HIGH light turns on.
5. Determines that the trip setpoint is approximately the same as that provided by Appendix 1.
6. ARM Indicator is placed between the Downscale and the Upscale Trip Setpoint.
7. RESET ARM alarms; the HIGH light is OFF
8. Trip Check Adjust Knob turned clockwise until the Downscale Trip is activated and LOW light on.
9. ARM indicator is placed between the Downscale and Upscale Trip
10. RESET ARM alarms; the LOW light is OFF
11. Mode Selector switch is placed in OPERATE.
12. Reset pushbutton is depressed.

TURNOVER SHEET

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- RI-9167, Reactor Building Railroad Access Area ARM was deenergized for approximately two hours on the previous shift.

INITIATING CUES (IF APPLICABLE):

- The CRS directs you to perform the downscale/upscale trip setpoint check on ARM RI-9167, Reactor Building Railroad Access Area, per OI-879.2, Section 6.0.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- RI-9167, Reactor Building Railroad Access Area ARM was deenergized for approximately two hours on the previous shift.

INITIATING CUES (IF APPLICABLE):

- The CRS directs you to perform the downscale/upscale trip setpoint check on ARM RI-9167, Reactor Building Railroad Access Area, per OI-879.2, Section 6.0.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: 1 **Critical N**	The control room operator should check the Downscale and Upscale Trip Setpoints on each ARM when placed in service or whenever the trip setpoints are suspect.
Standard:	The ARM to be tested was given in the turnover.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 2 **Critical Y**	For the Upscale Trip Setpoint verification, the operator shall use the trip setpoint data contained in Appendix 1 of this procedure. The ARM trip setpoint checks will be performed on the respective ARM Indicator and Trip Units at Panel 1C11.
Standard:	Candidate will reference Attachment 1 and determine that the Downscale reading for RI-9167 is .1 mR/Hr and the Upscale setpoint is 10 mR/Hr.
Evaluator Note:	**The Upscale and Downscale setpoints are also on the RI on a faceplate.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 3 **Critical N**	Turn the Trip Check Adjust knob on the respective power supply E/S9150A[B or C] for the ARM being tested fully counter-clockwise.
Standard:	Turns the Trip Check Adjust knob fully counter-clockwise on power supply E/S9150A.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 4 **Critical Y**	Place the Mode Selector Switch for the ARM being tested in the TRIP TEST position.
Standard:	Mode Selector Switch for the ARM 9167 taken to the TRIP TEST position.
Evaluator Note:	**Candidate may state that they are expecting an alarm.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 5 **Critical N**	Verify that the ARM DNSCL/INOP (1C04B, C-7) annunciator is activated.
Standard:	Verifies that the ARM DNSCL/INOP (1C04B, C-7) annunciator is activated.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 6 **Critical Y**	Position the Trip Check Adjust Knob such that the indication on the ARM Indicator and Trip Unit is between the Downscale and Upscale Trip Setpoints.
Standard:	ARM Indicator is placed between the Downscale and Upscale Trip Setpoints.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 7 **Critical N**	Verify that both low and high front panel lights are OFF.
Standard:	Reset pushbutton pushed and both the LOW and HIGH lights are OFF.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 8 **Critical Y**	Slowly turn the Trip Check Adjust knob clockwise until the Upscale Trip is activated, then verify the following: The HIGH light on the front panel of the ARM Indicator and Trip Unit turns on.
Standard:	Trip Check Adjust knob turned until the Upscale Trip is activated and the HIGH light turns on.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 9 **Critical N**	Slowly turn the Trip Check Adjust knob clockwise until the Upscale Trip is activated, then verify the following: • The corresponding ARM Upscale Trip Annunciator on Panel 1C04B or Panel 1C35A is activated. (See Appendix 2 for a listing of ARM annunciators.)
Standard:	Verifies that 1C04B annunciator activated
Evaluator Note:	**Appendix 2 references this alarm as 1C04B <A-6>.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 10 **Critical Y**	Slowly turn the Trip Check Adjust know clockwise until the Upscale Trip is activated, then verify the following; • The Upscale Trip Setpoint is approximately the same as that provided by the Health Physics Department (Appendix 1 is a representative setpoint).
Standard:	Determines that the trip setpoint is approximately the same as that provided by Appendix 1.
Evaluator Cue:	**Candidate may call Health Physics Dept to verify the Appendix 1 data is current/valid. Inform him that Appendix 1 data is current.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 11 **Critical Y**	Position the Trip Check Adjust Knob such that the indication on the ARM Indicator and Trip Unit is between the Downscale and Upscale Trip Setpoints.
Standard:	ARM Indicator is placed between the Downscale and Upscale Trip Setpoints.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 12 **Critical Y**	Depress the RESET pushbutton on the ARM being tested, then verify the following: The HIGH light on the front panel of the Indicator and Trip Unit turns OFF.
Standard:	HIGH light on the front panel of the Indicator and Trip Unit is OFF.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 13 **Critical N**	Depress the RESET pushbutton on the ARM being tested, then verify the following: The corresponding ARM Upscale Trip Annunciator on Panel 1C04B or Panel 1C35A resets
Standard:	Annunciator on 1C04B is resets.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 14 **Critical Y**	Slowly turn the Trip Check Adjust Knob counter-clockwise until the downscale trip is activated, then verify the following: The LOW light on the front panel of the ARM Indicator and Trip Unit turns ON.
Standard:	Trip Check Adjust Knob turned clockwise until the downscale trip is activated and LOW light on.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 15 **Critical N**	Slowly turn the Trip Check Adjust Knob counter-clockwise until the downscale trip is activated, then verify the following: The Downscale Trip Setpoint is approximately the same as that listed in Appendix 1.
Standard:	Determines that the trip setpoint is approximately the same as that provided by Appendix 1.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 16 **Critical Y**	Position the Trip Check Adjust Knob such that the indication on the ARM Indicator and Trip Unit is between the Downscale and Upscale Trip Setpoints.
Standard:	ARM Indicator is placed between the Downscale and Upscale Trip Setpoints. Verify that the LOW light turns OFF.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 17 **Critical N**	Verify that the LOW light turns OFF.
Standard:	Reset pushbutton on the ARM is depressed and the LOW light is OFF.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 18 **Critical Y**	Return the Mode Selector Switch for the ARM being tested to the OPERATE position.
Standard:	Mode Selector switch is placed in OPERATE.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 19 **Critical Y**	Depress the RESET pushbutton and verify that the ARM DNSCL/INOP (1C04B, C-7) annunciator is reset.
Standard:	RESET pushbutton is depressed and annunciator 1C04B C-7 is reset.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Terminating Cues: **The JPM is complete when the Downscale/Upscale Trip Operational check has been performed on RI 9167, Reactor Building Railroad Access Area.**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

NRC 2011 JPM S-7, Perform Downscale/Upscale Trip Operational Check of Arms, Rev. 8

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2011 NRC JPM S-8

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **INSTALL EOP DEFEAT 4 WITH A GROUP 7 ISOLATION**

JPM NUMBER: **NRC 2011 JPM S-8** **REV. 0**

TASK NUMBER(S) / TASK TITLE(S): **95.14**

K/A NUMBERS: **400000** **K/A VALUE: A4.01 3.1/3.0**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION: In-Plant: [ ] Control Room: [ ]

Simulator: [X] Other: [ ]

Lab: [ ]

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☒ Yes ☐ No

Alternate Path [INPO]: ☒ Yes ☐ No

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

SIMULATOR SETUP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions:

1. Reset to an IC that supports installing Defeat 4 Group 7 bypass and re-establishing drywell cooling. (saved IC file for 2011 NRC Exam)
2. Ensure only the "D" Well Water pump is the only well pump operating. Secure the A Well Pump, and set its controller to 10.

SIMULATOR MALFUNCTIONS:

NOTE: The below malfunctions are suggested as a minimum to create the needed conditions for the JPM, if other JPM setups require these to be altered that is acceptable as long as the intent of this JPM is not changed.

TIME	MALFUNCTION #	MALFUNCTION TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.
T=0	RR30	Reactor bottom drain leak			10		As is
T=0	MS32	Spurious group 7 isolation					

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Required Materials:
1. EOP Defeat 4, Rev. 8
2. OI 408, Rev 64

General References:

Task Standards:
1. FC 4414A is dialed to zero flow.
2. HS-4321A taken to OVERRIDE position and amber light is ON.
3. HS-4321B taken to OVERRIDE position and amber light is ON.
4. HS-4417D for "A" Well Water Pump taken to start.
5. "A" Well flow adjusted at 1C23 via FC 4414A.

TURNOVER SHEET

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- A plant Scram has occurred.
- RPV level lowered rapidly, but now is restored.
- EOP 1 and 2 have been entered.
- Drywell pressure is above 2 psig.
- Drywell temperatures are rising.

INITIATING CUES (IF APPLICABLE):

- The CRS directs you to install EOP Defeat 4 and re-establish drywell cooling.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- A plant Scram has occurred.
- RPV level lowered rapidly, but now is restored.
- EOP 1 and 2 have been entered.
- Drywell pressure is above 2 psig.
- Drywell temperatures are rising.

INITIATING CUES (IF APPLICABLE):

- The CRS directs you to install EOP Defeat 4 and re-establish drywell cooling.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: 1 **Critical N**	If a PCIS Group 7 Isolation exists **AND** any well water pump is running, secure all operating well water pumps per OI 408, Section 6.7.
Standard:	It is determined that a group 7 isolation exists, AND the running well water pumps must be secured.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

At this point the operator will leave EOP Defeat 4 and enter OI 408, Well Water System, Section 6.8, and secure the running well water pumps.

Also NOTE that the only running well water pump is the "D" Well.

Performance Step: 2 **Critical N**	If a PCIS group 7 isolation exists and a well water pump is running, perform the following steps, as applicable, to secure the operating well water pumps, otherwise N/A this step.
Standard:	The operator determines that the only well water pump that is running is the "D" Well.
Evaluator Note:	**The Candidate will N/A the steps for the A, B, C Well Water pumps.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 3 **Critical Y**	Secure the "D" Well Water Pump 1P-58D as follows: • Lower the D well water pump 1P-58D flow to zero. • IN Auto: Flow controller FC-4414D on Panel 1C23.
Standard:	FC 4414D is dialed down until the pump trips. This occurs when flow is below 400 gpm.
Evaluator Note:	**In the evolution, you will receive the "D" Well lo flow alarm.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 4 **Critical N**	Observe the respective indicating lights on panel 1C06 and verify that D well water pump 1P-58D is not running.
Standard:	Verified on 1C06 that the D Well is not running.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

At this point the operator will leave OI 408, "Well Water System," and enter and re-enter EOP Defeat 4.

Performance Step: 5 **Critical Y**	Place GROUP 7 CHANNEL A DW COOLING AND FAN SPEED OVERRIDE keylock switch HS-4321A to OVERRIDE position and confirm amber light is ON.
Standard:	HS-4321A taken to OVERRIDE position and amber light is ON.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 6 **Critical Y**	Place GROUP 7 CHANNEL B DW COOLING AND FAN SPEED OVERRIDE keylock switch HS-4321B to OVERRIDE position and confirm amber light is ON.
Standard:	HS-4321B taken to OVERRIDE position and amber light is ON.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 7 **Critical N**	Verify the following: • If high drywell pressure exists, verify that any running drywell cooling fan shifts from low speed (amber light) to high speed (red light).
Standard:	DW fans verified shifted to high speed.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 8 **Critical N**	Verify MODE SELECT switches HS-5718 A and B are in START position.
Standard:	MODE SELECT switches HS-5718 A and B are verified in START position.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 9 **Critical N**	If well water was not in operation and a well water pump can be restarted, start a well water pump and SLOWLY restore well water flow per OI 408, Section 6.9.
Standard:	It is determined that Well Water can be restarted.
Evaluator Note:	**When the Candidate comes to this step, IF he says that he would ask the CRS what he should do, reread the initiating cue and ask the Candidate what he recommends.**
Evaluator Cue:	**Reread the initiating cue and ask the Candidate what he recommends.**
Performance:	**SATISFACTORY _____ UNSATISFACTORY _____**
Comments:	_____

At this point the operator will leave EOP Defeat 4 and enter OI 408, "Well Water System," and restart the well water system.

Performance Step: 10 **Critical N**	If well water is not in operation restore well water as follows: • Start the 1P-58A as follows: • At 1C23 verify that FC 4414A well water controller is set a 10% open.
Standard:	FC 4414A well water controller is set a 10% open.
Evaluator Note:	**Based on the note on page 34 of OI 408, if the operator asks if it is ok to start the "A" Well or if he asks the CRS which Well he wants started, cue him to start the "A" well.**
Evaluator Cue:	**Cue him to start the "A" well.**
Performance:	**SATISFACTORY _____ UNSATISFACTORY _____**
Comments:	_____

Evaluator Note: The selection of the "A" Well Pump is NOT critical.

Performance Step: 11 **Critical Y**	Start the "A" well water pump 1P-58A by performing the following as necessary: • Place the respective handswitch to START position. • HS 4417A A Well Water Pump 1P-58A.
Standard:	HS 4417A for "A" Well Water Pump taken to start.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: 12 **Critical N**	At 1C06, verify the red light is on for the respective well water pump.
Standard:	Red light for the "A" well is verified ON.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 13 **Critical Y**	Adjust flow as desired by adjusting FC4414A at 1C23.
Standard:	"A" Well flow adjusted at 1C23 via FC4414A. Flow should be adjusted to between 350 and 750 gpm.
Evaluator Note:	**If the operator wants to continue on to restart the D or C well, note the flow reference is in the Precautions and Limitations portion of the OI 920.**
Evaluator Cue:	**Cue him that another operator will re-start other wells as needed.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Terminating Cues: **When the well water is restored to the drywell the JPM is complete.**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

NRC 2011 JPM S-8, Install EOP Defeat 4 with a Group 7 Isolation, Rev. 0

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2011 NRC JPM P-1

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **MANUALLY INITIATION CABLE SPREADING ROOM CO_2**

JPM NUMBER: **NRC 2011 JPM P-1** **REV. 0**

TASK NUMBER(S) / **NSPEO 9.08**
TASK TITLE(S): **Manually Initiate Cable Spreading Room $C0_2$ Flood System**

K/A NUMBERS: **286000** **K/A VALUE: 2.1.30 4.4 / 4.0**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☒ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [X] Perform: [ ]

EVALUATION LOCATION: In-Plant: [X] Control Room: [ ]
Simulator: [ ] Other: [ ]
Lab: [ ]

Time for Completion: 40 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☒ Yes ☐ No
Alternate Path [INPO]: ☒ Yes ☐ No

Developed by:		
	Instructor	Date
Validated by:		
	Validation Instructor	Date
Reviewed by:		
	Plant Reviewer	Date
Approved by:		
	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 JPM P-1, Manually Initiation Cable Spreading Room Co_2, Rev. 0
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☐	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☐	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☐
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☐	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☐	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☐	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☐
8.	Is the Licensee level appropriate for the task being evaluated if required?	☐	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☐	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☐
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	☐	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☐
13.	Are all references identified, current, accurate, and available to the trainee?	☐	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☐	☐	☐
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	☐	☐	☐
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	☐	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel Date

Re-Validation Personnel Date

Re-Validation Personnel Date

Re-Validation Personnel Date

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions:

1. No simulator setup required.

SIMULATOR MALFUNCTIONS:

NOTE: The below malfunctions are suggested as a minimum to create the needed conditions for the JPM, if other JPM setups require these to be altered that is acceptable as long as the intent of this JPM is not changed.

TIME	MALFUNCTION #	MALFUNCTION TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Required Materials: OI 513, FIRE PROTECTION, **Section 5**

General References: OI 513, FIRE PROTECTION, Rev. 96

Task Standards:

1. Proceeds to alternate initiation method.
2. Breaks the glass and opens the Master Pilot Valve Controller SV-8521.
3. Verifies CABLE SPREADING ROOM SUPPLY and EXHAUST FANS have tripped.

TURNOVER SHEET

INITIAL CONDITIONS:
The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- You are the NSPEO.
- The plant is operating at full power.
- 1C40 annunciator F-6 (CARDOX PRE-INITIATION ALARM) was received and acknowledged. A report of smoke was received from the second floor admin bldg. After approximately 1 minute, annunciator 1C40 G-6 (CARDOX INITIATED) had still NOT been received.
- Cable Spreading Room has been verified to be unoccupied.

INITIATING CUES (IF APPLICABLE):

- Manually initiate Cable Spreading Room CO_2 using the normal initiation method in accordance with OI 513, FIRE PROTECTION, Section 5.3.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:
The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- You are the NSPEO.
- The plant is operating at full power.
- 1C40 annunciator F-6 (CARDOX PRE-INITIATION ALARM) was received and acknowledged. A report of smoke was received from the second floor admin bldg. After approximately 1 minute, annunciator 1C40 G-6 (CARDOX INITIATED) had still NOT been received.
- Cable Spreading Room has been verified to be unoccupied.

INITIATING CUES (IF APPLICABLE):

- Manually initiate Cable Spreading Room CO_2 using the normal initiation method in accordance with OI 513, FIRE PROTECTION, Section 5.3.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: **Critical N (SEQ-)**	Obtains Procedure
Standard:	Operator states that he/she would obtain procedure from Control Room, WCCS or approved printer depending on location when ordered to initiate Cardox.
Evaluator Cue:	**When the Operator states how to obtain procedure, hand him/her the copy provided.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Ensure all personnel are out of the Cable Spreading Room before operating either pilot selector valve
Procedure Step **OI 513 Step 5.3.1(1)**	
Standard:	Turnover item – No additional action required.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	At the Cable Spreading Room South door, pull out the locking pin and depress the green START pushbutton
Procedure Step **OI 513 Step 5.3.1(2)(a)**	
Standard:	Locking pin pulled out and START pushbutton depressed.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Verify the local horn sounds at Panel 1C179.
Standard:	Operator listens for horn sounding.
Evaluator Note:	**Operator may contact CRS at this time to state CO_2 initiation failure and obtain permission to go to Section 5.3.2. If so, then go to Performance Step 7. Steps 5 & 6 may be N/A'd.**
Evaluator Cue:	**When Operator listens for horn sounding at Panel 1C179, inform Operator that no horn sound is heard.** **If asked, inform Operator that no audible sound of CO_2 discharge is heard (even after 24 second time delay has expired).** **If Operator checks status of red light at 1C179, inform operator it is OFF.** **If asked, role play as Control Room to inform Operator that CRS permission is granted for OI 513, Section 5.3.2,Alternate Initiation.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)** **Procedure Step** **OI 513 Step 5.3.1(2)(c)**	Verify on Panel 1C26 in the control room that the CABLE SPREADING ROOM SUPPLY FAN 1V-AC-32 and CABLE SPREADING ROOM EXH FAN 1V-EF-33 have Auto tripped by observing the green OFF lights turn on.
Standard:	Operator attempts to verify Green OFF lights are ON by going to 1C26 or calls control room.
Evaluator Note:	**Operator may contact CRS at this time to state CO_2 initiation failure and obtain permission to go to Section 5.3.2. If so, then go to Performance Step 7. Step 6 may be N/A'd**
Evaluator Cue:	**If asked, inform Operator either** • **CABLE SPREADING ROOM SUPPLY and EXHAUST FANS are still running (role play as control room) or** • **Green lights are OFF and Red running lights are ON (panel 1C26).** **If asked, role play as Control Room to inform Operator that CRS permission is granted for OI 513, Section 5.3.2, Alternate Initiation.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)** **Procedure Step** **OI 513 Step 5.3.1(2)(d)**	Verify discharge using audible indication at Cable Spreading Room access or CO_2 tank pressure and level decrease.
Standard:	Operator attempts to verify CO_2 discharge by audible indications or tank pressure or level decrease.
Evaluator Note:	**Operator may contact CRS at this time to state CO_2 initiation failure and obtain permission to go to Section 5.3.2. If so, then go to Performance Step 7.**
Evaluator Cue:	**If asked, there is NO audible indication of CO_2 discharge, NO tank pressure decrease, and NO tank level decrease.** **If asked, role play as Control Room to inform Operators that CRS permission is granted for OI 513, Section 5.3.2, Alternate Initiation.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	If no discharge occurs, proceed to Section 5.3.2 (Alternate Initiation Method).
Procedure Step **OI 513 Step 5.3.1(2)(e)**	
Standard:	Operator proceeds with Alternate Initiation Method.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	At North Cable Spreading Room door, break or remove the glass cover on the Pilot box (SV-8522).
Procedure Step **OI 513 Step 5.3.2(1)(a)**	
Standard:	Pilot box located and glass simulated to be broken.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Place Pilot Control Valve SV-8522 handle in the OPEN position.
Procedure Step **OI 513 Step 5.3.2(1)(a)1.**	
Standard:	Simulates placing SV-8522 handle in the OPEN position.
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical N (SEQ-)**	If Cardox initiates (evidenced by the noise of CO_2 discharging into the Cable Spreading Room), perform the following (N/A if Cardox did not initiate):
Procedure Step **OI 513 Step 5.3.2(1)(a)2.**	
Standard:	Operator attempts to verify CO_2 discharge by audible indications; N/A's remaining portion of step when none is heard and proceeds to next step.
Evaluator Cue:	**If asked, there is no audible indication of CO_2 discharge.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Proceed to the Master Pilot Valve Controller SV-8521 at the CARDOX unit. Break the glass. Inform the control room that you are about to initiate Cardox.
Procedure Step **OI 513 Step 5.3.2(1)(b)**	
Standard:	Locates Master Pilot Valve Controller; simulates breaking or removing glass, and calls control room.
Evaluator Note:	**Only breaking or removal of glass is critical.**
Evaluator Cue:	**Role play as control room and acknowledge that Cardox is about to be initiated.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Place the pilot control valve SV-8521 handle in the OPEN position.
Procedure Step **OI 513 Step 5.3.2(1)(b)1.**	
Standard:	Simulates placing SV-8521 in OPEN position.
Evaluator Note:	**Note time SV-8521 was opened: _____**
Performance:	**SATISFACTORY UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Verify CO_2 discharge by observing CO_2 tank indicators.
Procedure Step **OI 513 Step 5.3.2(1)(b)2.**	
Standard:	Observes tank level and/or pressure gauges or listens for flow noise to verify discharge of Cardox.
Evaluator Cue:	**If asked, the Cardox tank level and/or pressure are lowering; sound of Cardox flow is heard.**
Performance:	**SATISFACTORY _____ UNSATISFACTORY _____**
Comments:	_____

Performance Step: **Critical Y (SEQ-)** **Procedure Step** **OI 513 Step 5.3.2(1)(b)3.**	Verify on Panel 1C26 in the control room that the CABLE SPREADING ROOM SUPPLY 1V-AC-32 and EXHAUST 1V-EF-33 FANS have auto tripped by observing the green OFF lights turn ON.
Standard:	Operator goes to 1C26 or calls Control Room to verify fans have tripped.
Evaluator Cue:	**If asked, inform operator either** • **CABLE SPREADING ROOM SUPPLY and EXHAUST FANS are NOT running (role play as control room) or** • **Green lights are ON and Red running lights are OFF (panel 1C26).**
Performance:	**SATISFACTORY UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)** **Procedure Step** **OI 513 Step 5.3.2(1)(b)4.**	After 3 minutes 30 seconds of Cardox release, place the pilot control valve SV-8521 handle in the CLOSED position.
Standard:	SV-8521 in CLOSED position in no less than 3 minutes 30 seconds of release.
Evaluator Note:	**Note time SV-8521 was closed: _____** **The critical portion is for the operator to wait at least 3.5 minutes prior to closing SV-8521.**
Evaluator Cue:	**If asked, the Cardox tank level and/or pressure has stabilized; sound of Cardox flow has stopped.**
Performance:	**SATISFACTORY UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical N (SEQ-)** **Procedure Step** **OI 513 Step 5.3.2(1)(b)5.**	Notify control room that the manual initiation process for the Cardox System is complete.
Standard:	Calls control room to report completion of manual initiation.
Evaluator Cue:	**Role play as control room and acknowledge completion of manual Cardox initiation.** **If asked about the status of the fire; state that the fire is out.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Terminating Cues: **When the Operator notifies the control room that the manual initiation process for the Cardox System is complete, inform the Operator that another operator will complete the procedure and that the JPM is complete.**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2011 NRC JPM P-2

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **INSTALL EOP DEFEAT 4 WITH A GROUP 7 ISOLATION**

JPM NUMBER: **NRC 2011 JPM P-2** **REV. 0**

TASK NUMBER(S) / TASK TITLE(S): **NSPEO 27.01 Startup the "A" RPS Generator Set**

K/A NUMBERS: **K2.01** **K/A VALUE: 3.2/3.3**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [X] Perform: [ ]

EVALUATION LOCATION: In-Plant: [X] Control Room: [ ]
Simulator: [ ] Other: [ ]
Lab: [ ]

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☒ Yes ☐ No

Alternate Path [INPO]: ☒ Yes ☐ No

Developed by:		
	Instructor	Date
Validated by:		
	Validation Instructor	Date
Reviewed by:		
	Plant Reviewer	Date
Approved by:		
	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 JPM P-2, Install EOP Defeat 4 with a Group 7 Isolation, Rev. 0
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☐	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☐	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☐
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☐	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☐	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☐	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☐
8.	Is the Licensee level appropriate for the task being evaluated if required?	☐	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☐	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☐
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	☐	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☐
13.	Are all references identified, current, accurate, and available to the trainee?	☐	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☐	☐	☐
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	☐	☐	☐
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	☐	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel	Date	Re-Validation Personnel	Date
Re-Validation Personnel	Date	Re-Validation Personnel	Date

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions:

None

SIMULATOR MALFUNCTIONS:

NOTE: The below malfunctions are suggested as a minimum to create the needed conditions for the JPM, if other JPM setups require these to be altered that is acceptable as long as the intent of this JPM is not changed.

TIME	MALFUNCTION #	MALFUNCTION TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Instructor Actions:

1. Read initial conditions and initiating cues to the operator.
2. This JPM will take place in the 1A3 switch gear room.
3. This JPM takes place around the “A” RPS MG set and associated EPA breakers. Extreme caution shall be exercised to preclude any unwanted trips or isolations.

Required Materials: OI 358 (in procedure holder in SWGR room)

General References: OI 358, Rev. 50, Section 3.2

Task Standards:

1. 1B3211 is closed.
2. On Panel 1G51 press and hold the MOTOR ON push-button.
3. EPA-A1 circuit breaker closed.
4. EPA-A2 circuit breaker closed.

TURNOVER SHEET

INITIAL CONDITIONS:
The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- The "A" RPS MG set was removed from service and tagged out for planned maintenance.
- RPS bus "A" has been placed on the alternate source IAW OI 358.
- The work has been completed and the tagout has been cleared and verified.

INITIATING CUES (IF APPLICABLE):

- The CRS directs you to perform the in-plant actions to start up the "A" RPS MG set IAW OI 358 Section 3.2.
- Notify the control room when the in-plant actions for "A" RPS MG set start-up have been completed.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:
The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- The "A" RPS MG set was removed from service and tagged out for planned maintenance.
- RPS bus "A" has been placed on the alternate source IAW OI 358.
- The work has been completed and the tagout has been cleared and verified.

INITIATING CUES (IF APPLICABLE):
- The CRS directs you to perform the in-plant actions to start up the "A" RPS MG set IAW OI 358 Section 3.2.
- Notify the control room when the in-plant actions for "A" RPS MG set start-up have been completed.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: **Critical Y (SEQ-)**	Verify the A[B] RPS MG set motor supply circuit breaker 1B3211 [1B4216] is closed by observing that the GREEN (MOTOR OFF) light on Panel 1G51 [1G61] is ON.
Standard:	1B3211 is closed.
Evaluator Cue:	**Instructor to cue that the GREEN light is ON.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	On the RPS MG Set Electrical Protection Assemblies EPA A1 and EPA A2 [EPA B1 and EPA B2], verify the following: The circuit breakers are in the OFF position.
Standard:	EPA A1 and A2 breakers are verified OFF (position would be down).
Evaluator Cue:	**Instructor to cue the student that the breakers are OFF (down).**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Verify the EPA A1 and EPA A2 [EPA B1 and EPA B2] MAINTENANCE/TEST keylock switches EPA A1 S1 and EPA A2 S1 [EPA B1 S1 and EPA B2 S1] are in the NORMAL position.
Standard:	Keylock switch verified in the NORMAL position.
Evaluator Note:	**Keylock switch should be in NORMAL, keys removed.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Verify the EPA A1 and EPA A2 [EPA B1 and EPA B2] TRIP/RESET keylock switches EPA A1 S2 and EPA A2 S2 [EPA B1 S2 and EPA B2 S2] are in the OPER position.
Standard:	Keylock switch verified in the OPER position.
Evaluator Note:	**Keylock switch should be in OPER**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	On Panel 1G51, press and momentarily hold the MG set “A” MOTOR ON push-button.
Standard:	At Panel 1G51, the MOTOR ON push-button is SIMULATED pressed and momentarily held.
Evaluator Cue:	**Instructor cue that the MG set is observed to start and is coming up to speed.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Verify the following indications: 1) RED (MOTOR ON) light turns ON. 2) GREEN (MOTOR OFF) light turns OFF. 3) MG set accelerates to set speed. 4) 120 VAC is indicated on the RPS MG SET "A". OUTPUT VOLTAGE meter EI-1G051.
Standard:	The following indications are verified: 1) RED light is ON. 2) GREEN light is OFF 3) MG set accelerates to set speed. 4) 120 VAC is indicated on EI-1G051.
Evaluator Note:	**There are no amps until output breaker is closed.**
Evaluator Cue:	**Cue examinee on proper indications.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	On EPA A1 observe the POWER IN light is ON
Standard:	POWER IN light is observed to be ON.
Evaluator Cue:	**Cue that the light is ON.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	On EPA A1 observe the following: 1) OVER-VOLTAGE light OFF. 2) UNDER-VOLTAGE light OFF. 3) UNDER FREQUENCY light OFF. 4) POWER OUT light OFF.
Standard:	Light verified to be OFF.
Evaluator Note:	**UNDER FREQUENCY light is ON, the others are off**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	If the OVER-VOLTAGE, UNDER-VOLTAGE, and/or UNDER-FREQUENCY trip status light(s) is/are ON, momentarily place the TRIP/RESET keylock switch EPA-A1-S2 [EPA-B1-S2] in the RESET position and verify the light(s) turn(s) OFF; then place the switch back to the OPER position.
Standard:	Momentarily places the TRIP/RESET keylock switch EPA-A1-S2 in the RESET position and verifies the light(s) turn(s) OFF; then place the switch back to the OPER position.
Evaluator Note:	**UNDER FREQUENCY light is OFF**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Close the EPA-A1 circuit breaker and observe that the POWER OUT light turns ON.
Standard:	EPA-A1 is turned ON (breaker handle UP) and power out light turns ON.
Evaluator Cue:	**Cue that the handle is up (breaker ON) and the POWER OUT light is ON.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical N (SEQ-)**	On EPA-A2 verify that the POWER IN light is ON.
Standard:	EPA -A2 POWER IN light verified ON.
Evaluator Cue:	**Cue examine that the light is on, if needed.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	On EPA-A2 , the following lights are verified OFF: 1) OVER-VOLTAGE 2) UNDER-VOLTAGE 3) UNDER-FREQUENCY 4) POWER OUT
Standard:	Lights are verified OFF.
Evaluator Note:	**UNDER FREQUENCY light is ON, the others are off add step**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	If the OVER-VOLTAGE, UNDER-VOLTAGE, and/or UNDER-FREQUENCY trip status light(s) is/are ON, momentarily place the TRIP/RESET keylock switch EPA-A2-S2 [EPA-B2-S2] in the RESET position and verify the light(s) turn(s) OFF; then place the switch back to the OPER position.
Standard:	Momentarily places the TRIP/RESET keylock switch EPA-A2-S2 in the RESET position and verifies the light(s) turn(s) OFF; then places the switch back to the OPER position.
Evaluator Note:	**UNDER FREQUENCY light is OFF**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Close the EPA-A2 circuit breaker and observe that the POWER OUT lights turns ON.
Standard:	The EPA A2 circuit breaker is turned on (handle UP) and POWER OUT light is verified ON.
Evaluator Cue:	**Cue that EPA-A2 breaker is ON (handle UP) and POWER OUT light is ON.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Terminating Cues: The next step of the OI is performed in the Control Room. It is to close a breaker on 1C-15. When the Student states that he will call the Control Room, State that the Control Room will finish the rest of this section and that the JPM is completed.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

NRC 2011 JPM P-2, Install EOP Defeat 4 with a Group 7 Isolation, Rev. 0

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2011 NRC JPM P-3

	JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: **MAXIMIZE CRD INJECTION IAW AIP 407**

JPM NUMBER: **NRC 2011 JPM P-3** **REV. 0**

TASK NUMBER(S) / TASK TITLE(S):

K/A NUMBERS: **201001 2.1.23** **K/A VALUE: 4.3/4.4**

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ **RO** ☒ **SRO** ☐ **STA** ☐ **NSPEO** ☒ **SRO CERT**

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [X] Perform: [ ]

EVALUATION LOCATION: In-Plant: [X] Control Room: [ ]

Simulator: [ ] Other: [ ]

Lab: [ ]

Time for Completion: _____ Minutes Time Critical: ☐ Yes ☐ No

Alternate Path [NRC]: ☒ Yes ☐ No

Alternate Path [INPO]: ☒ Yes ☐ No

Developed by:		
	Instructor	Date
Validated by:		
	Validation Instructor	Date
Reviewed by:		
	Plant Reviewer	Date
Approved by:		
	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
{C002} CA046394, Improvements needed for Operations Simulator JPMs.

NRC 2011 JPM P-3, Maximize CRD Injection IAW AIP 407, Rev. 0
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☐	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☐	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☐
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☐	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☐	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☐	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☐
8.	Is the Licensee level appropriate for the task being evaluated if required?	☐	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☐	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☐
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	☐	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☐
13.	Are all references identified, current, accurate, and available to the trainee?	☐	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☐	☐	☐
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	☐	☐	☐
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	☐	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel	Date	Re-Validation Personnel	Date
Re-Validation Personnel	Date	Re-Validation Personnel	Date

SIMULATOR SET UP: (*Modify table as necessary) (Only required for simulator JPMs)*

Simulator Setup Instructions: None

SIMULATOR MALFUNCTIONS: None

SIMULATOR OVERRIDES: None

SIMULATOR REMOTE FUNCTIONS: None

Required Materials: **AIP 407**

General References: **AIP 407**

Task Standards: CRD suction Filters Swapped
CRD Flow Controllers Swapped
Task completion communicated to the Control Room
CRD flow maximized

TURNOVER SHEET

INITIAL CONDITIONS:
The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- RPV level is lowering following an event. CRD System flow must be maximized as a means of injecting water into the RPV because normal injection systems are inadequate or unavailable.

INITIATING CUES (IF APPLICABLE):

- The CRS directs you to swap CRD Suction Filters and Flow Controllers IAW AIP 407

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

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

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:
The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- RPV level is lowering following an event. CRD System flow must be maximized as a means of injecting water into the RPV because normal injection systems are inadequate or unavailable.

INITIATING CUES (IF APPLICABLE):

- The CRS directs you to swap CRD Suction Filters and Flow Controllers IAW AIP 407

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

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

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

Performance Step: **Critical Y (SEQ-)**	(Begins at AIP 407 Step 6) OPEN V-17-93, CRD Pump Suction Filters 1F-15A/B BYPASS.
Standard:	Opens V-17-93, CRD Pump Suction Filters 1F-15A/B BYPASS
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Place the second CRD Suction Filter 1F-15B in service as follows:
Standard:	Places the second CRD Suction Filter 1F-15B in service as follows:
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	In the CRD pump room, verify isolation Valve V-17-108 is OPEN for the standby CRD Pump Suction Filter 1F-15B
Standard:	Verifies isolation Valve V-17-108 is OPEN for the standby CRD Pump Suction Filter 1F-15B.
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

IF CRD Pump 1P-209A[B] becomes air bound (indicated by motor current dropping to approximately 9 amps). **THEN immediately STOP the pump to prevent damage and vent CRD suction piping, suction filters, and pump casing.**

Performance Step: **Critical Y (SEQ-)**	Slowly OPEN Outlet Isolation Valve V-17-109 for the standby CRD Pump Suction Filter 1F-15B.
Standard:	Opens Outlet Isolation Valve V-17-109 for the standby CRD Pump Suction Filter 1F-15B.
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Place the second CRD Discharge Filter 1F-201B in service as follows:
Standard:	Places the second CRD Discharge Filter 1F-201B in service as follows:
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

CAUTION: Since the CRD Pump discharge Filters are normally pressurized to 1500 psig, valve operations should be performed carefully/slowly.

Performance Step: **Critical Y (SEQ-)**	At the CRD discharge filters on RB 1st floor South side, verify Isolation Valve V-17-14 is OPEN for the standby CRD Pump Discharge Filter 1F-201B.
Standard:	Verifies Isolation Valve V-17-14 is OPEN for the standby CRD Pump Discharge Filter 1F-201B.
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Coordinate with Control Room to ensure CRD pump amps are adequate and slowly OPEN Outlet Isolation Valve V-17-22.
Standard:	Coordinates with Control Room to ensure CRD pump amps are adequate and slowly OPEN Outlet Isolation Valve V-17-22.
Evaluator Cue:	**Acting as Control Room Operator coordinates with examinee to ensure CRD pump amps are adequate.** **This action is complete.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	Place the second Flow control Valve CV-1822 in service as follows:
Standard:	Places the second Flow Control Valve CV-1822 in service as follows.
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: **Critical N (SEQ-)**	At 1C05, verify FC-1814 CRD SYSTEM FLOW CONTROL in MANUAL.
Standard:	Verifies FC-1814 CRD SYSTEM FLOW CONTROL in MANUAL.
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

NOTE: Steps below are performed at the CRD Flow Control Station.

Performance Step: **Critical Y (SEQ-)**	Verify the standby Flow Control Valve V-17-29 Outlet Isolation for CV-1822 is closed.
Standard:	Verifies the standby Flow Control Valve V-17-29 Outlet Isolation for CV-1822 is closed.
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Verify inlet isolation V-17-27 for standby Flow Control Valve CV-1822 is open..
Standard:	Verifies inlet isolation V-17-27 for standby Flow Control Valve CV-1822 is open.
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Verify local AUTO/MAN transfer switch HC-1843B for the standby CV-1822 selected to MAN.
Standard:	Verifies local AUTO/MAN transfer switch HC-1843B for the standby CV-1822 selected to MAN.
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Raise and lower the air signal to CV-1822 with the manual control knob, and verify that the valve strokes normally.
Standard:	Raises and lower the air signal to CV-1822 with the manual control knob, and verifies that the valve strokes normally.
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Match manual and automatic air signals for CV-1822.
Standard:	Matches manual and automatic air signals for CV-1822.
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Coordinate with Control Room to ensure CRD pump amps are adequate for placing the standby Control Valve CV-1822 in service.
Standard:	Coordinates with Control Room to ensure CRD pump amps are adequate for placing the standby Control Valve CV-1822 in service.
Evaluator Cue:	**Acting as Control Room Operator coordinates ensure CRD pump amps are adequate for placing the standby Control Valve CV-1822 in service.** **This action is complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Slowly throttle open V-17-29 Outlet Isolation for CV-1822 to obtain CRD System flow as desired on FI-1815.
Standard:	Throttles open V-17-29 Outlet Isolation for CV-1822 to obtain CRD System flow as desired on FI-1815.
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Verify that the manual and automatic for air signals on HIC-1834B for CV-1822 are balanced.
Standard:	Verifies the manual and automatic for air signals on HIC-1834B for CV-1822 are balanced.
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

Performance Step: **Critical Y (SEQ-)**	Place the AUTO/MANUAL transfer switch HIC-1834B for CV-1822 in the AUTO position.
Standard:	Places the AUTO/MANUAL transfer switch HIC-1834B for CV-1822 in the AUTO position.
Evaluator Cue:	**This action is complete.**
Performance:	**SATISFACTORY** **UNSATISFACTORY**
Comments:	_____

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

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

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Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **NSPEO** ☐ **SRO CERT** **Date:** _____

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.