Facility: Cooper | Date of Examination: August 2002
Examination Level (circle one): **RO** | Operating Test Number: Cat A

		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Plant Parameter Verfication	**JPM: Admin JPM, PMIS Point Review (Section 12.0 of CONDUCT OF OPERATIONS PROCEDURE 2.0.2) (RO will obtain a daily listing of computer points that are "unhealthy", print, review the points and determine if any of the points are unexpected).** K/A: 2.1.19 (3.0/3.0)
	Logs	JPM: Perform RO Review of selected Daily Surveillance Logs per 6.LOG.601. (The RO will be required to enter relevant information from that provided onto 6.LOG.601 Attachment 3, Unidentified Leakage Log Sheet, and complete the associated calculations using this information. When the log sheet is completed, the RO will be required to review the information, identify the excessive leakage rate increase, enter it on a discrepancy sheet, and inform the CRS). K/A: 2.1.23 (3.9)
A.2	Surveillance Testing	JPM: Apply valve testing requirements when performing stroke timing. (The RO will be given the stroke time for the first valve/damper tested and directed to complete the applicable data sheet and determine how to proceed based upon the entry. Upon determining that the valve must be retested, the retest stroke time will be provided as a CUE. The RO will be required to enter the retest stroke time on the data sheet and determine whether or not to proceed and the associated administrative actions). K/A: 2.2.12 (3.0)
A.3	Significant Radiation Hazards / Reduce Excessive Levels Of Radiation And Guard Against Personnel Exposure	**Q.1. Given an accumulated TEDE and an expected additional exposure for outage work that results in exposure above the station administrative limit determine the requirements/approvals to perform the work.** **CLOSED REFERENCE**. **K/A: 2.3.1 (2.6), 2.3.4 (2.5)**
		Q.2. Given plant radiological conditions and an EOP support task that needs to be performed in the plant, evaluate the conditions and determine the maximum amount of time allowed using emergency exposure limits. K/A: 2.3.1 (2.6), 2.3.10 (2.9)

A.4	Emergency Facilities / Communications	**Q.1. Determine the emergency facilities activated at the ALERT emergency classification level if this is the initial emergency classification.** **CLOSED REFERENCE**. **K/A: 2.4.29 (2.6), 2.4.39 (3.3)**
		Q.2. Given the location and duties of a licensed operator in the plant, determine the evacuation requirement if an ALERT is declared and this is the initial emergency classification. **CLOSED REFERENCE**. K/A: 2.4.29 (2.6), 2.4.39 (3.3)

Facility: COOPER
Examination Level (circle one): **SRO**

Date of Examination: August 2002
Operating Test Number: Cat A

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Parameter Verification	**JPM: Perform a Time To Boil Determination (Loss of SDC) per 2.4 SDC (The SRO will be required to evaluate time to boil based on plant conditions that are provided at the start of the JPM. The SRO must use the relevant information to select the appropriate figures and then apply the information to the correct figure to determine time to boil).** K/A 2.1.23 (4.0), 2.1.25 (3.1)
	Logs	JPM: Perform SRO Review of Daily Surveillance Logs per 6.LOG.601. (The SRO will be required to review 6.LOG.601 Attachment 3, Unidentified Leakage Log Sheet. This includes recognition of TS non-compliance, identification of TS ACTIONS, and other administrative actions required as a result of the excessive leakage rate increase). K/A: 2.1.23 (4.0)
A.2	Equipment Control/ LCO Tracking	**JPM: Perform a log entry into the TS tracking system per 2.0.11. (The SRO will be required to make an entry for TS equipment removed from service for maintenance. Because the equipment will be restored to OPERABE within 24 hours, the SRO will make a narrative log entry and provide documentation to the SS).** K/A: 2.2.23 (3.8)
A.3	Significant Radiation Hazards / Reduce Excessive Levels Of Radiation And Guard Against Personnel Exposure	**Q.1. Given a valve to be stroked by operators, considering the station administrative limits and collective/individual exposure for ALARA performance recommendations, determine if shielding should be installed and whether one or two operators should be used. (The SRO must determine if less total dose will be received by using one or 2 operators. Then he must determine if less cumulative dose will be received if shielding is installed or not.)** **K/A: 2.3.1 (3.0), 2.3.4 (3.1)**

		Q.2. Given plant radiological conditions during an emergency, determine the emergency radiation exposure control requirements for the conditions. (The SRO will be required to determine the applicable emergency radiation exposure control requirements given plant conditions, including selection of the person to receive the emergency exposure based on descriptions of available personnel). **CLOSED REFERENCE**. K/A: 2.3.1 (3.0), 2.3.10 (3.3)
A.4	EAL and Classification, Communications	**Q.1. Given plant conditions, determine the reporting requirement(s) per 10CFR50.72 and 10CFR50.73.** **K/A: 2.4.30 (3.6)**
		Q.2. Given plant conditions at the completion of the scenario as the SRO, determine the emergency classification. K/A: 2.4.40 (4.0), 2.4.41 (4.1)

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: DEMAND A PMIS POINT REVIEW

==========

Trainee: _____ Examiner: _____

Pass:_____ Fail:_____ Examiner Signature: _____ Date: _____

Performed faulted/non-faulted: **NON-Faulted**

Additional Program Information:

1. Appropriate Performance Locations: CR, SIM, EOF
2. Appropriate Trainee level: RO
3. Evaluation Method: __ Simulate __ Perform
4. Performance Time: 10 minutes
5. NRC K/A 2.1.31 (4.2)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to obtain a daily listing of PMIS computer points that have "unhealthy" quality codes.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. All blanks must be filled out with either initials or an “NP” for “not performed”; an explanation may also be written in the space if desired by the examiner.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: DEMAND A PMIS POINT REVIEW

==========

Directions to Trainee:

When I tell you to begin, you are to complete documentation and apply applicable administrative requirements in response to the initial conditions provided. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them as applicable to applying controls and completion of documentation for valve testing, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

==========

General Conditions:

1. Today, at 06:20 during shift turnover, you are directed to obtain a daily listing of PMIS computer points that have "unhealthy" quality codes.

General References:

1. 2.0.2

General Tools and Equipment:

1. None.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: DEMAND A PMIS POINT REVIEW

==========

Special Conditions, References, Tools, Equipment:

1. Critical checks denoted by "*".
1. Simulator cues denoted by "#".
2. Faulted steps denoted by "⊕."

Task Standards:

1. Correctly interpret instrument and system responses and their interrelationships when assessing conditions indicative of a mispositioned control rod.
2. Satisfactory completion of TPE requires a minimum of:
   a. 100% of critical elements, as defined in the JPM, successfully completed without error.
   b. 100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) evaluated as satisfactory (SAT) or not applicable (N/A).

Initiating Cue(s):

You are to complete documentation and apply applicable administrative requirements in response to the initial conditions provided (action, unless specified otherwise by the examiner, will be simulated with cues provided by the examiner as necessary).

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: DEMAND A PMIS POINT REVIEW

==========

Performance Checklist		Standards	Initials
1.	Refer to 2.0.2	Refers to 2.0.2, Section 12 for guidance.	_____
2.	Demand SUMDSP on an IDT.	At a IDT Computer terminal demands SUMDSP.	_____*
3.	Enter quality code for search.	At the keyboard enters BAD, DEL, INVL, NCAL, RDER, SUB, and OTC.	_____*
4.	Answer "NO" for spare points.	When prompted enters NO for spare points.	_____
5.	Enter F2 to print (LA00 will print in DAR, LA01 will be the normal CR output).	Enters F2 to print out Point Summary for the Quality Codes demanded. (Candidate would now initiate a review based on past summaries and plant conditions). CUE: Obtain the Point Summary Printout, this JPM is Completed.	_____*

ATTACHMENT 1

Directions to Trainee:

When I tell you to begin, you are to complete documentation and apply applicable administrative requirements in response to the initial conditions provided. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them as applicable to applying controls and completion of documentation for valve testing, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

Today, at 06:20 during shift turnover as RO.

Initiating Cues:

Today, at 06:20 during shift turnover, you are directed to obtain a daily listing of PMIS computer points that have "unhealthy" quality codes.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: SURVEILLANCE 6.SC.201 REQUIREMENTS DURING PERFORMANCE OF THE TEST

==========

Trainee: _____ Examiner: _____

Pass:_____ Fail:_____ Examiner Signature: _____ Date: _____

Performed faulted/non-faulted: **NON-Faulted**

Additional Program Information:

1. Appropriate Performance Locations: CR, SIM, EOF
2. Appropriate Trainee level: RO
3. Evaluation Method: __ Simulate __ Perform
4. Performance Time: 10 minutes
5. NRC K/A 2.2.12 (3.o)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to apply administrative requirements during valve testing.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. Observe the trainee during performance of the JPM for proper use of self-checking methods.
4. All blanks must be filled out with either initials or an “NP” for “not performed”; an explanation may also be written in the space if desired by the examiner.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: SURVEILLANCE 6.SC.201 REQUIREMENTS DURING PERFORMANCE OF THE TEST

==========

Directions to Trainee:

When I tell you to begin, you are to complete documentation and apply applicable administrative requirements during valve testing (the actual testing will be simulated with cues will be provided by the examiner as necessary). Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them as applicable to applying controls and completion of documentation for valve testing, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

==========

General Conditions:

1. Surveillance 6.SC.201, Secondary Containment (Reactor Building H&V) Valve Operability Test, is in progress for the 92-day test. The first damper HV-AO-257, HV-R-1A, is CLOSED and TIMED at 10.0 seconds (step 5.5).

General References:

2. 6.SC.201

General Tools and Equipment:

1. None.

Special Conditions, References, Tools, Equipment:

3. Critical checks denoted by "*".
2. Simulator cues denoted by "#".
3. Faulted steps denoted by "".

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: SURVEILLANCE 6.SC.201 REQUIREMENTS DURING PERFORMANCE OF THE TEST

==========

Task Standards:

1. Correctly interpret instrument and system responses and their interrelationships when performing valve testing.
2. Satisfactory completion of TPE requires a minimum of:
   a. 100% of critical elements, as defined in the JPM, successfully completed without error.
   b. 100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) evaluated as satisfactory (SAT) or not applicable (N/A).

Initiating Cue(s):

You are to enter data provided on the appropriate data sheet and apply any requirements that are or become applicable during damper testing until all dampers have been tested. (The actual testing will be simulated with cues provided by the examiner as necessary).

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: SURVEILLANCE 6.SC.201 REQUIREMENTS DURING PERFORMANCE OF THE TEST

==========

Performance Checklist		Standards	Initials
1.	Refer to 6.SC.201.	Refers to 6.SC.201 Attachment 1, and Step 5.5.	_____
2.	HV-AO-257 stroke time.	Enters 10.0 in the CLOSING STROKE TIME block for HV-AO-257.	_____
		Determines within OPERABILITY LIMIIT and IST RETEST LIMIT; okay to CLOSE AND TIME the next damper	_____*
		Enters NA in the RESTEST STROKE TIME block for HV-A0-257.	_____
		CUE: If trainee states stroke time is acceptable and okay to test the next damper, state HV-AO-259 stroke time is 8.2 seconds.	

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: SURVEILLANCE 6.SC.201 REQUIREMENTS DURING PERFORMANCE OF THE TEST

==========

Performance Checklist		Standards	Initials
3.	HV-AO-259 stroke time.	Enters 8.2 in the CLOSING STROKE TIME block for HV-AO-259.	_____
		Determines within OPERABILITY LIMIT but NOT within IST RETEST LIMIT; references step 6.2 and 6.4 and determines damper must be re-tested.	_____*
		CUE: If the trainee wants to re-test HV-AO-259, state HV-AO-259 stroke time is 7.4 seconds.	
		Enters 7.4 in the RESTEST STROKE TIME block for HV-A0-259.	_____
		Determines within OPERABILITY LIMIT but NOT within IST RETEST LIMIT; informs the CRS.	_____*
		CUE: As the CRS, state that you will contact engineering for an evaluation; another operator will write the notification.	
		CUE: As the CRS, direct the operator to continue the Test.	
		CUE: State HV-AO-261 stroke time is 8.2 seconds.	

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: SURVEILLANCE 6.SC.201 REQUIREMENTS DURING PERFORMANCE OF THE TEST

==========

Performance Checklist		Standards	Initials
4.	HV-AO-261 stroke time.	Enters 8.2 in the CLOSING STROKE TIME block for HV-AO-261.	_____
		Determines NOT within OPERABILITY LIMIT; references step 6.1 and determines damper should NOT be re-tested (Per 0.26, Section 6.2.14)..	_____*
		Informs CRS HV-AO-261CLOSING STROKE TIME is above the OPERBILITY LIMIT.	_____
		CUE: As the CRS, inform the operator that the test is being placed on hold. This JPM is complete.	

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to complete documentation and apply applicable administrative requirements during valve testing (the actual testing will be simulated with cues will be provided by the examiner as necessary). Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them as applicable to applying controls and completion of documentation for valve testing, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. Surveillance 6.SC.201, Secondary Containment (Reactor Building H&V) Valve Operability Test, is in progress for the 92-day test. The first damper HV-AO-257, HV-R-1A, is CLOSED and TIMED at 10.0 seconds (step 5.5).

Initiating Cues:

You are to enter data provided on the appropriate data sheet and apply any requirements that are or become applicable during damper testing until all dampers have been tested. (The actual testing will be simulated with cues provided by the examiner as necessary).

Cooper Nuclear Station **Category "A" - Examination Outline Cross Reference**	
Operating Test Number	Cat "A" Test: 1
Examination Level	RO
Administrative Topic	A.3
Subject Description:	Radiation Protection
Question Number:	1

CLOSED REFERENCE!

Question:

You have an accumulated TEDE of 0.5 Rem for the year. Because of dose projections for work in the outage, you are expected to receive an additional TEDE of 0.8 Rem.

What authorization is required for you to receive the expected dose?

Answer:

Individual's Supervisor (SS), and ALARA Supervisor.

Justification:
The total expected dose is 1300 mrem. Approvals for dose above 1000 mrem are required by the ALARA Supervisor.

Technical Reference(s):
9.ALARA.1: 6.2.1

K/A #:	**Importance:**
2.3.1	2.6
2.3.4	2.5

Comments:

Cooper Nuclear Station **Category "A" - Examination Outline Cross Reference**	
Operating Test Number	Cat "A" Test: 1
Examination Level	RO
Administrative Topic	A.3
Subject Description:	Radiation Protection
Question Number:	2

Question:

An MSIV closure scram has occurred with an ATWS. The RPV was emergency depressurized due to exceeding the Heat Capacity Temperature Limit (HCTL). Current power level is 10% with RPV water level at TAF. The Plume Exposure pathway has been evacuated. The scram discharge volume must be manually drained to insert control rods to shut the reactor down. Dose rates in the area are 15 Rem/hr.

What is the time limit (if any) the Station Operator is allowed to spend on the draining evolution if the Emergency Director consents to the maximum dose he can authorize?

Answer:

1 hour and 40 minutes.

Justification:
25 Rem/15 Rem/hr = 1.6666 hours or 1 hour and 40 minutes.
5.7.12, step 3.1.2.2, 25 Rem is the maximum dose for "Undertaking corrective action on station equipment and systems to protect large populations from radiological exposure." If rods are not inserted, containment failure will result in large releases of radiation to the public, but not extensive dose to large populations (unlimited dose).

Technical Reference(s):
5.7.12; Section 2.6, Attachment 1

K/A #:	**Importance:**
2.3.1 2.3.10	2.6 3.3

Comments:

STUDENT HANDOUT

Question:

An MSIV closure scram has occurred with an ATWS. The RPV was emergency depressurized due to exceeding the Heat Capacity Temperature Limit (HCTL). Current power level is 10% with RPV water level at TAF. The Plume Exposure pathway has been evacuated. The scram discharge volume must be manually drained to insert control rods to shut the reactor down. Dose rates in the area are 15 Rem/hr.

What is the time limit (if any) the Station Operator is allowed to spend on the draining evolution if the Emergency Director consents to the maximum dose he can authorize?

Cooper Nuclear Station **Category "A" - Examination Outline Cross Reference**	
Operating Test Number	Cat "A" Test: 1
Examination Level	RO
Administrative Topic	A.4
Subject Description:	Emergency Facilities / Procedures
Question Number:	1

CLOSED REFERENCE!

Question:
What emergency facilities are activated for an ALERT emergency classification if this is the INITIAL emergency plan classification?

Answer:
TSC (0.4 pt.), OSC (0.4 pt.), and EOF (0.2 pt.) are activated for an Alert, Site Area Emergency, and General Emergency.

Technical Reference(s):
5.7.2, Att. 4 5.7.7: Section 1 5.7.8: Section 1 5.7.9: Section 1

K/A #:	**Importance:**
2.4.29	2.6
2.4.39	3.3

Comments:

Cooper Nuclear Station **Category "A" - Examination Outline Cross Reference**	
Operating Test Number	Cat "A" Test: 1
Examination Level	RO
Administrative Topic	A.4
Subject Description:	Emergency Facilities / Procedures
Question Number:	2

CLOSED REFERENCE!

Question:

You are a licensed Reactor Operator on day shift assigned to the RELIEF CREW. You are escorting two (2) visitors who are auditing clearances in the Work Control Center. A transient occurs that results in the initial declaration of an ALERT and a site evacuation.

What are your required actions regarding the location that you and the visitors physically report to?

Answer:

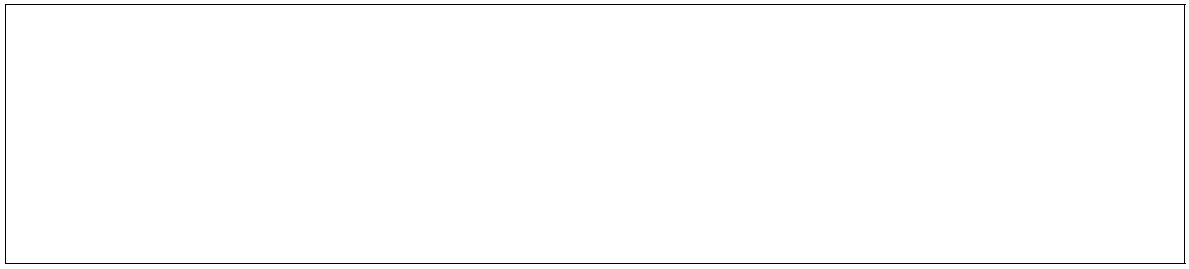
Escort the visitors to the exit turnstile and direct them to go to Training Building Classroom "J", "H" or "I" and then report to the Control Room.

Justification:
Personnel escorting visitors shall take them to the exit turnstile and direct them to report to the Training Building Classroom "j", "H", or "I" for assembly. Escorts then report to their own designated assembly area. Operations personnel acting as relief crew shall report to the Control Room.

Technical Reference(s):
5.7.10: 4.2, 4.3.2

K/A #:	**Importance:**
2.4.29	2.6
2.4.29	3.3

Comments:



JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299015O0301

==========

Task Title: PERFORM RO/SRO REVIEW OF DAILY LOG

==========

Trainee: _____ Examiner: _____

_____

Pass:_____ Fail:_____ Examiner Signature: _____

_____ Date: _____

Performed faulted/non-faulted: **Faulted**

Additional Program Information:

1. Appropriate Performance Locations: CR, SIM, EOF
2. Appropriate Trainee level: RO/SRO
3. Evaluation Method: __ Simulate __ Perform
4. Performance Time: 10 minutes
5. NRC K/A 2.1.23 (3.9/4.0)

Directions to Examiner:

1. This JPM evaluates the trainee’s ability to perform an RO(SRO) review of of the daily logs.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space if desired by the examiner.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299015O0301

==========

Task Title: PERFORM RO/SRO REVIEW OF DAILY LOG

==========

4. Brief the trainee, place the simulator in run, and tell the trainee to begin.
5. Hand the candidate the correct ATTACHMENT 3 example attached to this JPM. **ENSURE the RO Candidates are NOT provided the SRO attachment!**

Directions to Trainee:

When I tell you to begin, you are to perform an RO(SRO) review of the daily logs. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to perform an average drywell temperature calculation. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

==========

==========

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299015O0301

==========

Task Title: PERFORM RO/SRO REVIEW OF DAILY LOG

==========

General Conditions:

1. The plant is operating at 100% power.
2. Current reading on RW-FQ-527 is 3692.

General References:

1. Procedure 6.LOG.601

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

2. Critical checks denoted by "*".
2. Simulator cues denoted by "#".
3. Faulted steps denoted by "♦"

Task Standards:

1. Accurately locate, identify, operate and/or manipulate all component controls required to be utilized to perform an RO(SRO) review of the daily logs.
2. Accurately locate and identify all instrumentation required to be monitored to perform an RO(SRO) review of the daily logs.
3. Correctly interpret instrument and system responses and their interrelationships when performing an RO(SRO) review of the daily logs.
4. Satisfactory completion of TPE requires a minimum of:
   a. 100% of critical elements, as defined in the JPM, successfully completed without error.
   b. 100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) evaluated as satisfactory (SAT) or not applicable (N/A).

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299015O0301

==========

Task Title: PERFORM RO/SRO REVIEW OF DAILY LOG

==========

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299015O0301

==========

Task Title: PERFORM RO/SRO REVIEW OF DAILY LOG

==========

Initiating Cue(s):

(RO) You are to fill out Attachment 3, UNIDENTIFIED LEAK RATE CHECKS, using the data provided and complete an RO review of the log sheet per 6.LOG.601. Inform the CRS when the review is complete.

(SRO) You are to perform a SRO review of Attachment 3, UNIDENTIFIED LEAK RATE CHECKS, per 6.LOG.601 and determine applicable actions based upon your review. Inform the SS when the review is complete.

NOTE: Place the Simulator in RUN and tell the trainee to begin.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299015O0301

==========

Task Title: PERFORM RO/SRO REVIEW OF DAILY LOG

==========

Performance Checklist		Standards	Initials
NOTE: If performing as RO perform the following steps. If performing as SRO, go to page 6.			
1.	Refer to 6.LOG.601.	Refers to 6.LOG.601 Attachment 3.	_____
2.	Present Grand Total.	Record RW-FQ-527 reading of 3692 on Attachment 3.	_____*
3.	Previous Grand Total.	Record RW-FQ-527 reading of 2252 on Attachment 3.	_____*
4.	Calculate total gallons.	Subtract previous grand total from present grand total. Enter 1440 on Attachment 3.	_____*
5.	Time interval (minutes).	Calculates time interval (8 hours x 60 minutes/hour) and enters 480 on attachment 3.	_____*
6.	Calculate leak rate.	Calculates leak rate (1440 ÷ 480) and enters 3.0 on Attachment 3.	_____*

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299015O0301

==========

Task Title: PERFORM RO/SRO REVIEW OF DAILY LOG

==========

Performance Checklist		Standards	Initials
7.	Change in leak rate.	Subtracts previous day leak rate from calculated leak rate (3.0 - 0.8) and records 2.2 on attachment 3.	_____*
8.	Review and evaluate readings.	Identifies change in leak rate is above the OPERABILITY LIMIT.	_____*
9.	Informs CRS.	Informs CRS that the change in leak rate is above the OPERABILITY LIMIT. **CUE**: As the CRS, acknowledge the report. This JPM is complete	_____

NOTE: It is not necessary to sign the sign-off and review sheet.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299015O0301

==========

Task Title: PERFORM RO/SRO REVIEW OF DAILY LOG

==========

Performance Checklist		Standards	Initials
NOTE: If performing as SRO, perform the following steps.			
10.	Review data sheet.	Reviews Attachment 3 and identifies the change in leak rate is above the OPERABILITY LIMIT.	_____*
11.	References Attachment 20.	References Attachment 20 and NOTE 51. Determines the NOTE applies to SR 3.4.4.1 and LCO 3.4.4.	_____
12.	References Attachment 3 footnotes.	References Attachment 3 footnote (c). Determines TS 3.4.4 LCO statement is not met and the ACTIONS must be entered.	_____*
13.	Determines TS Required Action.	References TS 3.4.4 and determines entry into Condition B must be entered.	_____*
14.	Determines TS Required Action.	References TS 3.4.4 and determines unidentified leakage increase must be within the limits within 4 hours. **CUE:** If asked for DW Particulate Monitor reading, respond 200 cpm.	_____*

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299015O0301

==========

Task Title: PERFORM RO/SRO REVIEW OF DAILY LOG

==========

Performance Checklist	Standards	Initials
15. Informs the SS.	Informs the SS of that the unidentified leakage increase is not within the limit and TS 3.4.4 Condition B has been entered. **CUE:** As the SS, acknowledge the report. This task is complete.	_____

NOTE: It is not necessary to sign the sign-off and review sheet.

ATTACHMENT 1 (RO)

Directions to Trainee:

When I tell you to begin, you are to enter the data on the appropriate log sheet and complete the RO review of the daily log. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to enter the data on the appropriate log sheet and complete the RO review of the daily log. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. The plant is operating at 100% power.
2. Current reading on RW-FQ-527 is 3692.

Initiating Cues:

You are to fill out Attachment 3, UNIDENTIFIED LEAK RATE CHECKS, using the data provided and complete an RO review of the log sheet per 6.LOG.601. Inform the CRS when the review is complete.

ATTACHMENT 2 (SRO)

Directions to Trainee:

When I tell you to begin, you are to perform a SRO review of the daily logs. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to perform an SRO review of the daily logs. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. The plant is operating at 100% power.

Initiating Cues:

You are to perform a SRO review of Attachment 3, UNIDENTIFIED LEAK RATE CHECKS, per 6.LOG.601 and determine applicable actions based upon your review. Inform the SS when the review is complete.

RO DATA SHEET

ATTACHMENT 3, UNIDENTIFIED LEAK RATE CHECKS

Time Last Pumped (Previous Day): 1600

RW-FQ-527 [a]	0000 READING	0800 READING	1600 READING	OPERABILITY LIMIT	APPLICABLE MODES	ATT. 20 NOTES
Present Grand Total	1580	2252		N/A	N/A	N/A
(-) Previous Grand Total	1100	1580				
(=) Total Gallons	480	672				
(÷) Time Interval (minutes)	480	480				
(=) Leak Rate (gpm)	1.0	1.4		≤ 4 gpm [b]	1, 2, 3	51
(-) Previous Day Leak Rate (gpm)	0.7	0.7	0.8	N/A	N/A	N/A
(=) Change In Leak Rate (gpm)	+ 0.3	+ 0.7		≤ +1.5 gpm [c]	1	51

(a) If Sump F Totalizer has failed, determine Total Gallons per failed Sump F Totalizer table and ensure the Conditions and Required Actions of LCO 3.4.5 are entered.

(b) If leak rate > 4 gpm, enter Conditions and Required Actions of LCO 3.4.4, then contact Engineering to determine available instrument margin. If leak rate > 5 gpm, ensure Conditions and Required Actions of LCO 3.4.4 are entered.

(c) If change in leak rate > +1.5 gpm, enter Conditions and Required Actions of LCO 3.4.4, then contact Engineering to determine available instrument margin. If change in leak rate > +2 gpm, ensure Conditions and Required Actions of LCO 3.4.4 are entered. If change in leak rate > +2 gpm and drywell monitor particulate channel indicates ≥ 8.0E4 cpm rise in activity during previous 24 hours or subsequent 4 hours, source of leakage from Type 304 or Type 316 austenitic stainless steel can not be ruled out. If drywell monitor particulate channel indicates < 8.0E4 cpm rise in activity during previous 24 hours or subsequent 4 hours, source of leakage is not due to Type 304 or Type 316 austenitic stainless steel.

SRO DATA SHEET

ATTACHMENT 3, UNIDENTIFIED LEAK RATE CHECKS

Time Last Pumped (Previous Day): 1600

RW-FQ-527 [a]	0000 READING	0800 READING	1600 READING	OPERABILITY LIMIT	APPLICABLE MODES	ATT. 20 NOTES
Present Grand Total	1580	2252	3692	N/A	N/A	N/A
(-) Previous Grand Total	1100	1580	2252			
(=) Total Gallons	480	672	1440			
(÷) Time Interval (minutes)	480	480	480			
(=) Leak Rate (gpm)	1.0	1.4	3.0	≤ 4 gpm [b]	1, 2, 3	51
(-) Previous Day Leak Rate (gpm)	0.7	0.7	0.8	N/A	N/A	N/A
(=) Change In Leak Rate (gpm)	+ 0.3	+ 0.7	+ 2.2	≤ +1.5 gpm [c]	1	51

(a) If Sump F Totalizer has failed, determine Total Gallons per failed Sump F Totalizer table and ensure the Conditions and Required Actions of LCO 3.4.5 are entered.

(b) If leak rate > 4 gpm, enter Conditions and Required Actions of LCO 3.4.4, then contact Engineering to determine available instrument margin. If leak rate > 5 gpm, ensure Conditions and Required Actions of LCO 3.4.4 are entered.

(c) If change in leak rate > +1.5 gpm, enter Conditions and Required Actions of LCO 3.4.4, then contact Engineering to determine available instrument margin. If change in leak rate > +2 gpm, ensure Conditions and Required Actions of LCO 3.4.4 are entered. If change in leak rate > +2 gpm and drywell monitor particulate channel indicates ≥ 8.0E4 cpm rise in activity during previous 24 hours or subsequent 4 hours, source of leakage from Type 304 or Type 316 austenitic stainless steel can not be ruled out. If drywell monitor particulate channel indicates < 8.0E4 cpm rise in activity during previous 24 hours or subsequent 4 hours, source of leakage is not due to Type 304 or Type 316 austenitic stainless steel.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: PERFORM A TIME TO BOIL DETERMINATION (SRO ONLY)

==========

Trainee: _____ Examiner: __
_____

Pass:_____ Fail:_____ Examiner Signature: _____
_____ Date: _____

Performed faulted/non-faulted: **NON-Faulted**

Additional Program Information:

1. Appropriate Performance Locations: CR, SIM, EOF
2. Appropriate Trainee level: SRO
3. Evaluation Method: __ Simulate __ Perform
4. Performance Time: 10 minutes
5. NRC K/A 2.1.23 (4.0), 2.1.25 (3.1)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to perform a Time To Boil Determination.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: PERFORM A TIME TO BOIL DETERMINATION (SRO ONLY)

==========

2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.
3. All blanks must be filled out with either initials or an “NP” for “not performed”; an explanation may also be written in the space if desired by the examiner.
4. Brief the trainee, place the simulator in run, and tell the trainee to begin.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: PERFORM A TIME TO BOIL DETERMINATION (SRO ONLY)

==========

Directions to Trainee:

When I tell you to begin, you are to perform a Time To Boil Determination. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to perform a Time To Boil Determination. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

==========

==========

General Conditions:

1. The plant is shutdown for refueling. The reactor has been shutdown for 45 hours. The steam separator is being removed and flood up of the reactor cavity has begun. RHR HX

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: PERFORM A TIME TO BOIL DETERMINATION (SRO ONLY)

==========

inlet temperature indicates 110°F as read on RHR-TI-131. RPV water level just reaches the reactor vessel flange when RHR isolates on high pressure (instrument failure). The isolation signal cannot be reset, and no other method of decay heat removal can be established.

General References:

1. 2.4SDC

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Simulator Setup: See Attachment 1.
2. Critical checks denoted by "*".
3. Simulator cues denoted by "#".
4. Faulted steps denoted by "🕘."

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: PERFORM A TIME TO BOIL DETERMINATION (SRO ONLY)

==========

Task Standards:

1. Accurately locate, identify, operate and/or manipulate all component controls required to be utilized to perform a Time To Boil Determination
2. Accurately locate and identify all instrumentation required to be monitored to perform a Time To Boil Determination.
3. Correctly interpret instrument and system responses and their interrelationships when performing a Time To Boil Determination.
4. Satisfactory completion of TPE requires a minimum of:
   a. 100% of critical elements, as defined in the JPM, successfully completed without error.
   b. 100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: PERFORM A TIME TO BOIL DETERMINATION (SRO ONLY)

==========

written) evaluated as satisfactory (SAT) or not applicable (N/A).

Initiating Cue(s):

You are to perform a Time To Boil Determination. Inform the SS of the amount of time until reactor coolant temperature reaches 212°F.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: NEW

==========

Task Title: PERFORM A TIME TO BOIL DETERMINATION (SRO ONLY)

==========

Performance Checklist		Standards	Initials
1.	Refer to 2.4SDC.	Refers to 2.4SDC Attachment 5, Figure 2.	_____
2.	Determines which diagram to use.	Uses hours after shutdown diagram on Figure 2.	_____*
3.	Applies 45 hours after shutdown and 110°F RHR HX temp.	Plots intersect of 45 hours after shutdown and 110°F curve.	_____*
4.	Determines hours to boiling.	Relates the 45 hour – 110°F intersect to the hours to boiling axis and determines approximately 2.6 (2.3-2.9 hours is acceptable).	_____*
5.	Informs SS.	Informs SS that the time to boil is approximately 2.6 hours (2.3-2.9 hours is acceptable). CUE: As the SS, acknowledge the report.	_____

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to perform a Time To Boil Determination. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to perform a Time To Boil Determination. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. The plant is shutdown for refueling. The reactor has been shutdown for 45 hours. The steam separator is being removed and flood up of the reactor cavity has begun. RHR HX inlet temperature indicates 110°F as read on RHR-TI-131. RPV water level just reaches the reactor vessel flange when RHR isolates on high pressure (instrument failure). The isolation signal cannot be reset, and no other method of decay heat removal can be established.

Initiating Cues:

You are to perform a Time To Boil Determination. Inform the SS of the amount of time until reactor coolant temperature reaches 212°F.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 34103O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

Trainee: _____ Examiner: ____ _____

Pass:_____ Fail:_____ Examiner Signature: _____ _____ Date: ___ _____

Performed faulted/non-faulted: **NON-Faulted**

Additional Program Information:

1. Appropriate Performance Locations: CR, SIM, EOF
2. Appropriate Trainee level: SRO
3. Evaluation Method: __ Simulate __ Perform
4. Performance Time: 25 minutes
5. NRC K/A 2.2.23 (3.8)

Directions to Examiner:

1. This JPM evaluates the trainee's ability to log a TS entry.
2. If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.

3. All blanks must be filled out with either initials or an ANP@ for Anot performed@; an explanation may also be written in the space if desired by the examiner.
4. Brief the trainee, place the simulator in run, and tell the trainee to begin.

Directions to Trainee:

When I tell you to begin, you are to log an entry into the narrative logs. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to log a TS entry. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

==========
==========

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 34103O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

General Conditions:

1. The plant is at 100% power. HPCI has planned maintenance on the auxiliary oil pump planned to begin at 0000. The maintenance is scheduled for 12 hours.

2. Work Order #4000089.

3. T.S. Tracker and SAP are unavailable

General References:

1. 2.0.11
2. TS 3.5.1

General Tools and Equipment:

1. Computer that provides access to the narrative log and has print capability.

Special Conditions, References, Tools, Equipment:

1. Critical checks denoted by "*".

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 34103O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

2. Simulator cues denoted by "#".
3. Faulted steps denoted by "♦."
4. Ensure active log available for exam date.

Task No.: 34103O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

Task Standards:

1. Accurately locate, identify, operate and/or manipulate all component controls required to be utilized to log a TS entry.
2. Accurately locate and identify all instrumentation required to be monitored to log a TS entry.
3. Correctly interpret instrument and system responses and their interrelationships when logging a TS entry.
4. Satisfactory completion of TPE requires a minimum of:
    a. 100% of critical elements, as defined in the JPM, successfully completed without error.
    b. 100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) evaluated as satisfactory (SAT) or not applicable (N/A).

Initiating Cue(s):

You are to assess plant conditions and perform a log entry into the narrative log and provide a printed copy for the SS to review. **DO NOT** approve the log entry.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 34103O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 341030O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

Performance Checklist	Standards	Initials
6. Refer to Technical Specifications	Determine HPCI is inoperable during aux oil pump maintenance. (TS 3.5.1.C HPCI System inoperable; RA C.1, Verify by administrative means RCIC system is OPERABLE within 1 hour AND RA C.2 Restore HPCI to OPERABLE status within 14 days.) CUE: If asked, RCIC is OPERABLE.	_____*
7. Refer to 2.0.11.	Refers to 2.0.11 Step 3.1.7 for guidance.	_____
8. Accesses narrative log.	Accesses narrative log.	_____*
9. Date and time.	Enters date (todays date) and time (0000) of inoperability.	_____*
10. Condition, Required Action, and Completion Times	Enters LCO Condition (TS 3.5.1.C HPCI System inoperable; RA C.1, Verify by administrative means RCIC system is OPERABLE within 1 hour AND RA C.2 Restore HPCI to OPERABLE status within 14 days. CUE: If asked, RCIC is OPERABLE.	_____*
11. Work Order	Enters Work Order #4000089.	_____*
12. Prints a report.	Prints a report of the entry and provides it to the SS. CUE: This JPM is complete.	_____

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 34103O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 341030O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

Cooper Nuclear Station **Category "A" - Examination Outline Cross Reference**	
Operating Test Number	Cat "A" Test: 1
Examination Level	SRO
Administrative Topic	A.3
Subject Description:	Radiation Protection
Question Number:	1

Question:

A valve must be manually stroked repeatedly by operations personnel as part of corrective maintenance. The valve is in a high radiation area. Information pertinent to the work to be performed is as follows:

- Unshielded Dose Rate 350 mrem/hr
- Shielded Dose Rate 150 mrem/hr
- Time to install shielding (1 man) 20 minutes
- Time to complete valve stroking (1 operator) 1 hour 20 minutes
- Time to complete valve stroking (2 operators) 35 minutes

Considering the guidelines associated with radiological protection:

1. Should 1 or 2 operators be assigned to the task?

2. Should shielding be installed?

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 3410300303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

Answer:
(NOTE: Only the bolded portion is required for full credit) **1. Two operators** Explanation: The total man-hours to perform the work with 1 man is 1.33 man-hours. 2 men is 1.17 man-hours. Man-hours X dose = man-rem, irrespective of dose rate. Two men will receive less cumulative dose than one man performing the task. **2. YES** Explanation: The dose to install the shielding is 116.7 milli-rem. The dose savings for the task with shielding is 234 milli-rem when compared to the dose without shielding. (409.5 - 175.5) Total job dose is 117.3 milli-rem.

Technical Reference(s):
9.RADOP.1: 3.7.5 3.14, Temporary Shielding

K/A #:	**Importance:**
2.3.1	3.0
2.3.4	3.1

Comments:

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 34103O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 34103O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 34103O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

Cooper Nuclear Station **Category "A" - Examination Outline Cross Reference**	
Operating Test Number	Cat "A" Test: 1
Examination Level	SRO
Administrative Topic	A.3
Subject Description:	Radiation Protection
Question Number:	2

CLOSED REFERENCE!

Question:

During an emergency, it is necessary to enter a Very High Radiation Area to stop a discharge to prevent large release to the general public. The general area dose rate is 156 Rem/hr and time in the area for one worker to stop the discharge is estimated at 10 minutes.

What emergency exposure control requirements must be met for this individual before entering the area to stop the effluent discharge?

Answer:

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 34103O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

Note: Only the **BOLDED** information is required to answer the question. The other information supports the correct answer and justification for the response.

(156r/hr) x (1 hr/60 min) x (10 min) = 26 Rem exposure to the worker. Exposure above 25 Rem is permitted to save a life or to protect the general public. For emergency exposures above 25 Rem, several requirements must be met.

Be a volunteer.
NOT a declared pregnant worker.
NO previous emergency exposure.
Aware of the hazards associated with the emergency exposure.

Technical Reference(s):
5.7.12; Section 2.6, Attachment 1

K/A #:	**Importance:**
2.3.1	3.0
2.3.10	3.3

Comments:

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 34103O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

STUDENT HANDOUT

Question:

A valve must be manually stroked repeatedly by operations personnel as part of corrective maintenance. The valve is in a high radiation area. Information pertinent to the work to be performed is as follows:

- Unshielded Dose Rate 350 mrem/hr
- Shielded Dose Rate 150 mrem/hr
- Time to install shielding (1 man) 20 minutes
- Time to complete valve stroking (1 operator) 1 hour 20 minutes
- Time to complete valve stroking (2 operators) 35 minutes

Considering the guidelines associated with radiological protection:

1. Should 1 or 2 operators be assigned to the task?

2. Should shielding be installed?

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 341030O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

ATTACHMENT 1

Directions to Trainee:

When I tell you to begin, you are perform a log entry into the narrative logs. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to perform a log entry into the TS Tracking System. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. The plant is at 100% power. HPCI has planned maintenance on the auxiliary oil pump planned to begin at 0000. The maintenance is scheduled for 12 hours.

2. Work Order #4000089.

3. T.S. Tracker and SAP are unavailable

Initiating Cues:

You are to assess plant conditions and perform a log entry into the narrative log and provide a printed copy for the SS to review. **DO NOT** approve the log entry.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 34103O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 341030O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

Cooper Nuclear Station **Category "A" - Examination Outline Cross Reference**	
Operating Test Number	Cat "A" Test: 1
Examination Level	SRO
Administrative Topic	A.3
Subject Description:	Radiation Protection
Question Number:	2

CLOSED REFERENCE!

Question:

During an emergency, it is necessary to enter a Very High Radiation Area to stop a discharge to prevent large release to the general public. The general area dose rate is 156 Rem/hr and time in the area for one worker to stop the discharge is estimated at 10 minutes.

What emergency exposure control requirements must be met for this individual before entering the area to stop the effluent discharge?

Answer:

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 341030O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

Note: Only the **BOLDED** information is required to answer the question. The other information supports the correct answer and justification for the response.

(156r/hr) x (1 hr/60 min) x (10 min) = 26 Rem exposure to the worker. Exposure above 25 Rem is permitted to save a life or to protect the general public. For emergency exposures above 25 Rem, several requirements must be met.

Be a volunteer.
NOT a declared pregnant worker.
NO previous emergency exposure.
Aware of the hazards associated with the emergency exposure.

Technical Reference(s):
5.7.12; Section 2.6, Attachment 1

K/A #:	**Importance:**
2.3.1	3.0
2.3.10	3.3

Comments:

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 341030O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

Cooper Nuclear Station **Category "A" - Examination Outline Cross Reference**	
Operating Test Number	Cat "A" Test: 1
Examination Level	SRO
Administrative Topic	A.4
Subject Description:	EAL Classification / Communications
Question Number:	2

Question:
Based on the current plant conditions for the scenario you just completed, determine the highest emergency classification.

Answer:		
Scenario (circle applicable one)	**Classification required**	**Classification Made**
NRC Scenario #1	Site Area Emergency (based on EAL 3.3.4)	
NRC Scenario #2	Site Area Emergency (based on EAL 2.3.3)	
NRC Scenario #3	Site Area Emergency (based on EAL 2.3.3**)**	
NRC Scenario #4	ALERT (based on EAL 2.2.1)	

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 341030O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

Technical Reference(s):
5.7.1

K/A #:	**Importance:**
2.4.40	4.0
2.4.41	4.1

Comments:

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 341030O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

ES-301 Control Room Systems and Facility Walk-Through Test Outline Form ES-301-2

Facility: Cooper Nuclear Station Date of Examination: _____

Exam Level (circle one): RO / SROU / SROI

B.1 Control Room Systems		
System / JPM Title	Type Code*	Safety Function
PLANT AT POWER, CORE FLOW <40 LBM/HR, JPMs 1-1 AND 1-2 ARE CONCURRENT.		
1-13 Start and Load the Diesel Generator (SKL034-21-42) K/A 264000 A4.04 (3.7/3.7) ***ALTERNATE PATH: Respond to a DG trouble once loaded, requiring DG shutdown.***	M, S, A	6
1-2 Respond to One RFP in Track and Hold (SKL034-21-43) K/A 259001 A4.05 (4.0/3.9) ***ALTERNATE PATH: Subsequent malfunction while recovering from Track and Hold requires tripping RFP A.*** ***SRO UPGRADE***	N, S, A	2
LOCA CONDITIONS FOLLOWNG A SCRAM. JPMs 1-3 & 1-4 ARE CONCURRENT.		
1-3 Perform SBGT System Decay Heat Removal (SKL034-20-70) K/A 261000 A4.07 (3.1/3.2)	D, S Last NRC	9

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 341030O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

	System / JPM Title	Type Code*	Safety Function
1-4	Separation of REC Critical Loops (SKL34-21-44) K/A 295018 AA1.03 (3.3/3.4), K/A 295018 AK3.07 (3.1/3.2) ***ALTERNATE PATH: When first pump is started, it will trip, requiring starting of alternate pump.***	N, S, A	8
NORMAL RPV WATER LEVEL AFTER A SCRAM WITH MSIVS CLOSED. THREE CONTROL RODS [26-27, 30-23, 22-23] FAIL TO INSERT. JPMs 1-5 & 1-6 ARE CONCURRENT.			
1-5	Operate HPCI in Pressure Control (Hard Card) (SKL034-21-45) K/A 206000 K3.02 (3.8/3.8) and A4.01 (3.8/3.7) ***ALTERNATE PATH: HPCI controller will fail in automatic requiring the candidate to take manual control of HPCI.*** ***SRO UPGRADE***	D, S, A	4
1-6	Perform Alternate Control Rod Insertion Using Individual Rod Scram Switches per 5.8.3, ATT 1 (SKL034-21-41). K/A 201001 A2.04 (3.8/3.9) ***SRO UPGRADE***	N, S, L	1
LOCA CONDITIONS. JPM 1-7 WILL BE SIMULATED IN THE CONTROL ROOM. THE SIMULATOR DOES NOT SUPPORT THIS TASK.			
1-7	Transfer H2/O2 Monitoring System from Standby to Operation (SKL34-21-01) K/A 223001 A4.04 (3.5/3.6), K/A 223001 A4.05 (3.6/3.6)	D, C	5
B.2 Facility Walk-Through			

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 341030O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

	System / JPM Title	Type Code*	Safety Function
1-8	Transfer an MCC to the Alternate Power Supply (SKL034-40-28) K/A 262001 A1.05 (3.2/3.5) ***SRO UPGRADE***	D	6
1-9	Install and Remove PTMs (PTM #41 AND #42) K/A 295031 EA1.05 (4.3/4.3) ***SRO UPGRADE***	D	7
1-10	Conduct Alternate Rod Insertion (Vent Scram Air Header) (SKL034-10-65) K/A 295032 EA1.05(3.9/4.0)	D, R	2
Type Codes:	**(D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA**		

NOTE: RO and SRO(I) perform all 10 JPMS.
SRO(U) performs JPM 1-2, 1-5, 1-6, 1-8, and 1-9 as indicated.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 34103O0303

==========

Task Title: LOG ENTRY INTO THE NARRATIVE LOGS SYSTEM (SRO ONLY)

==========

Task No.: 226002O0101; 230002O0101

==========

Task Title: START AND LOAD THE DIESEL GENERATOR (Alternate Path)

==========

Trainee: _____ **Examiner:** _____

Score: _____ **Pass** _____ **Fail** **Examiner Signature:** _____ **Date:** _____

ALTERNATE PATH

Additional Program Information:

1. **Appropriate Performance Locations: SIM**
2. **Appropriate Trainee Levels: RO/SRO**
3. **Evaluation Method: Simulate**
4. **Performance Time: 15 minutes**
5. **NRC K/A 264000 A4.04 (3.7/3.7)**

Directions to Examiner:

1. **This JPM evaluates the trainee's ability to start and load the diesel generator.**
2. **If this JPM is to be performed on the Simulator, only the cues preceded by "#" should be given.**
3. **Brief the trainee IAW NTP 5.4, On-the-Job-Training and Task Performance Evaluation, (Attachments 1, 2, and 3).**
4. **Observe the trainee during performance of the JPM for proper performance IAW NTP 5.4 and the procedure.**
5. **All blanks must be filled out with either initials or an "NP" for "not performed, " and an explanation may also be written in the space if desired by the examiner.**
6. **Give the trainee his copy of the Directions to the Trainee (Attachment 2) when ready to start the JPM.**
7. **Brief the trainee, place the simulator in run, and tell the trainee to begin.**

Task No.: 226002O0101; 230002O0101

==========

Task Title: START AND LOAD THE DIESEL GENERATOR (Alternate Path)

==========

Directions to Trainee:

When I tell you to begin, you are to start and load the diesel generator using the FAST MODE. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to start and load the diesel generator.

==========

General Conditions:

1. **The #1 Diesel Generator is in a Standby lineup and all prerequisites are met for diesel generator operation.**
2. **The Turbine Building Station Operator has performed local preparations for running the #1 Diesel Generator and reports that he has completed steps 5.1 through 5.8.6.**

General References:

1. **Procedure 2.2.20**
2. **Procedure 2.2.20.1**

General Tools and Equipment:

None.

Special Conditions, References, Tools, Equipment:

1. **Simulator Setup: See Attachment 1.**
2. **Critical checks denoted by "*."**
3. **Simulator cues denoted by "#."**
4. **Alternate Path steps denoted by "◆."**

Task No.: 226002O0101; 230002O0101

==========

Task Title: START AND LOAD THE DIESEL GENERATOR (Alternate Path)

==========

Task Standards:

1. **Accurately locate, identify, operate and/or manipulate all component controls required to be utilized to start and load the #1 diesel generator.**
2. **Accurately locate and identify all instrumentation required to be monitored to start and load the #1 diesel generator.**
3. **Correctly interpret instrument and system responses and their interrelationships when starting and loading the #1 diesel generator.**
4. **Satisfactory completion of TPE requires a minimum of:**
   a. **100% of critical elements, as defined in the JPM, successfully completed without error.**
   b. **100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) evaluated as satisfactory (SAT) or not applicable (N/A).**

Initiating Cue(s):

You are the BOP operator and the CRS has directed you to start the #1 Diesel Generator and apply a 3200 KW load using SOP 2.2.20.1. Steps 5.1 through 5.8.6 have been completed. You are to inform the CRS when a 3200 KW load has been applied to #1 DG. A SO is available at DG1 Room.

NOTE: Tell the trainee to begin and NOT to make any plant announcements.

Task No.: 226002O0101; 230002O0101

Task Title: START AND LOAD THE DIESEL GENERATOR (Alternate Path)

Performance Checklist	Standards	Initials
1. Start DIESEL GEN 1.	**The operator places DG-1 STOP/START switch to START** **CUE: Stop light turns off**	_____*
2. Adjust Voltage.	**Using DIESEL GEN 1 VOLTAGE REGULATOR, adjust voltage to ~4200V** **CUE: Voltage is ~4200 Volts**	_____
3. Records.	**Record Date/Time DG1 started on Attachment 3** **#CUE: A second operator has recorded the required information.**	_____
4. Local Checks.	**Coordinate with the Station Operator and check the following before loading (all items in step 5.13)** **#CUE: Items 5.13.1 through 5.13.8 have been satisfactorily completed.** **#CUE: Five minutes have elapsed.**	_____
5. Synch Switch.	**Place SYNCH SWITCH EG1 OR 1FE TO EG1** **CUE: Switch is in EG1**	_____*
6. Adjust DG1 speed so SYNCHROSCOPE is rotating slowly in clockwise (fast) direction.	**The operator adjusts DG1 speed so SYNCHROSCOPE is rotating slowly in clockwise (fast) direction.** **CUE: The SYNCHROSCOPE is rotating slowly in the FAST direction.**	_____*

Task No.: 226002O0101; 230002O0101

Task Title: START AND LOAD THE DIESEL GENERATOR (Alternate Path)

Performance Checklist	Standards	Initials
7. Adjust DG-1 VOLTAGE REGULATOR.	**The operator adjusts DG-1 VOLTAGE REGULATOR switch so DG-1 VOLTS are slightly higher than BUS 1F VOLTS.** **CUE: Higher VOLTS obtained.**	_____*
8. CLOSE EG1.	**The operator CLOSES DIESEL GEN 1 BKR, EG1 when SYNCHROSCOPE at 11 o'clock.** **CUE: BKR EG1red light is lit and green light is out as SYNCHROSCOPE passed 11 o'clock and Synchroscope indicates 12:00.**	_____*
NOTE: When DG1 load is 900 KW, a trigger will activate the DIESEL GEN 1 TROUBLE alarm after a 1 minute time delay.		
9. Adjust kW & VARS.	**The operator raises load to 1000 kW (± 50kW) using DIESEL GEN 1 GOVERNOR switch and 500 kVAR (± 50 kVAR) using DIESEL GEN 1 VOLTAGE REGULATOR switch.** **CUE: The DG load is 1000 kW and 500 kVAR.** **NOTE: Critical step at steady state.**	_____*
NOTE: The following step may not be performed if the Diesel Trouble alarm is received before load is raised.		
10. Raises load to 3200 kW	**RO raises load at a rate ≤ 500 (± 50) kW averaged over any one minute until 3200 (± 100) kW is reached** **CUE: DG load is XX (500 kW increments, 1-minute wait).**	_____

Task No.: 226002O0101; 230002O0101

Task Title: START AND LOAD THE DIESEL GENERATOR (Alternate Path)

Performance Checklist	Standards	Initials
◆ 11. **Respond to DIESEL GEN 1 TROUBLE alarm.**	**The operator presses either OPERATOR NOTIFICATION button on Panel C.** **#CUE: Call as SO at DG1 in response to blue flashing light.**	_____*
◆ 12. **Direct Station Operator to report cause of DIESEL GEN 1 TROUBLE alarm.**	**The operator directs the Station Operator to report the cause of the DIESEL GEN 1 TROUBLE alarm.** **#CUE: As the SO, acknowledge request to report DG1 Control Panel alarms.** **#CUE: As the SO, report LUBE OIL LOW LEVEL alarm at DG1 Control Panel.** **#CUE: As the CRS, direct DG1 shutdown per SOP 2.2.20.1.**	_____*
◆ 13. **Adjust DG1 kW and KVARs.**	**The operator lowers load to 1000 kW (± 50 kW) using DIESEL GEN 1 GOVERNOR switch and maintains 500 kVAR (± 50 kVAR) using DIESEL GEN 1 VOLTAGE REGULATOR switch.** **CUE: The DG load is 1000 kW and 500 kVAR.** **CUE: When KW and KVAR at target, inform trainee 15 minutes have elapsed.** **NOTE: Critical step at steady state.**	_____*

Task No.: 226002O0101; 230002O0101

Task Title: START AND LOAD THE DIESEL GENERATOR (Alternate Path)

Performance Checklist	Standards	Initials
◆ **14. Adjust DG1 kW and KVARs.**	**The operator lowers load to 400 kW (± 50 kW) using DIESEL GEN 1 GOVERNOR switch and lowers kVAR to 0 (± 50 kVAR) using DIESEL GEN 1 VOLTAGE REGULATOR switch.** **CUE: The DG load is 400 KW and 0 KVAR.** **NOTE: Critical step at steady state.**	_____*
◆ **15. OPEN EG1.**	**The operator OPENS DIESEL GEN 1 BKR, EG1.** **CUE: BKR EG1 green light is lit and red light is out.**	_____*
◆ **16. Place DROOP PARALLEL switch to ISOCH.**	**Directs AO to place DROOP PARALLEL switch to ISOCH.** **CUE: Acknowledge request and report DROOP PARALLEL switch in ISOCH.**	_____*
◆ **17. Adjust DG1 speed.**	**The operator lowers DG1 speed to 600 rpm (± 50 rpm) using DIESEL GEN 1 GOVERNOR switch.** **CUE: The DG speed is 600 rpm.** **NOTE: Critical step at steady state.**	_____*

Task No.: 226002O0101; 230002O0101

Task Title: START AND LOAD THE DIESEL GENERATOR (Alternate Path)

Performance Checklist	Standards	Initials
◆ **18. Adjust DG1 voltage.**	**The operator adjusts DG1 voltage to 4200 VAC (± 50 VAC) using DIESEL GEN 1 VOLTAGE REGULATOR switch.** **CUE: The DG voltage is 4200 VAC.** **NOTE: Critical step at steady state.**	_____*
◆ **19. Stop DG1.**	**The operator PLACES and HOLDS DIESEL GEN 1 STOP/START switch to STOP for 1 to 2 seconds (-0 to +5 seconds).** **CUE: STOP light turns on.** **#CUE: If asked as CRS, mechanical testing of DG1 is not in progress. Continue with DG1 shutdown.** **#CUE: If asked inform the RO that the SO will preform steps 6.9 through 6.13 of 2.2.20.1**	_____*
◆ **20. Inform the CRS that DG1 is stopped.**	**The operator informs the CRS that DG1 is stopped.** **#CUE: The CRS acknowledges the report. This JPM is now complete.**	_____

Task No.: 226002O0101; 230002O0101

==========

Task Title: START AND LOAD THE DIESEL GENERATOR (Alternate Path)

==========

SIMULATOR SET-UP

A. Materials Required

None

B. Initialize the Simulator in any IC and place in RUN.

Batch File Name - JPM/342142

C. Change the simulator conditions as follows:

1. Triggers

Number	File Name	Description
E1	None	trgset 1 "zaodgwiwm1 .gt. 0.13" DG load >900 KW

2. Malfunctions

None

3. Remotes

Number	Title	Trigger	Value	Ramp
DG03	#1 DG Parallel / Isoch Switch	A	Parallel	N/A

4. Overrides

Instrument	Tag	Trigger	TD	Value	Ramp
Ann C-1/E-3	RA: MUX01C002	E1	1:00	ON	N/A

Task No.: 226002O0101; 230002O0101

==========

Task Title: START AND LOAD THE DIESEL GENERATOR (Alternate Path)

==========

5. Panel Setup

Perform steps 5.1 through 5.8.6 (including verifying the Droop Parallel switch in PARALLEL) of 2.2.20.1.

Note: If this JPM is to be performed more than once, snap the simulator into an IC after the panel setup is complete.

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to start and load the diesel generator using the FAST MODE. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to start and load the diesel generator.

General Conditions:

1. **The #1 Diesel Generator is in a Standby lineup and all prerequisites are met for diesel generator operation.**
2. **The Turbine Building Station Operator has performed local preparations for running the #1 Diesel Generator and reports that he has completed steps 5.1 through 5.8.6.**

Initiating Cues:

You are the BOP operator and the CRS has directed you to start the #1 Diesel Generator and apply a 3200 KW load using SOP 2.2.20.1. Steps 5.1 through 5.8.6 have been completed. You are to inform the CRS when a 3200 KW load has been applied to #1 DG. A SO is available at DG1 Room. For the purpose of this examination, do NOT make any plant announcements

Task No.: 259043P0401

==========

Task Title: RESPOND TO ONE RFP IN FW TRACK AND HOLD (Alternate Path)

==========

Trainee: _____ Examiner: _____

Pass _____ Fail _____ Examiner Signature: _____ Date: ____

ALTERNATE PATH

Additional Program Information:

1. **Appropriate Performance Locations: CR / SIM**
2. **Appropriate Trainee Levels: RO/SRO**
3. **Evaluation Method: _____Perform _____Simulate**
4. **Performance Time: 10 minutes**
5. **NRC K/A 259002A4.09, 3.4/3.1**

Directions to Examiner:

1. **This JPM evaluates the trainee's ability to respond to one RFP in Track and Hold.**
2. **If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.**
3. **Observe the trainee during performance of the JPM for proper use of self-checking methods.**
4. **All blanks must be filled out with either examiner's initials or an "NP" for "not performed, " and an explanation may also be written in the space if desired by the examiner.**
5. **Give the trainee his copy of the Directions to the Trainee (Attachment 2) when the trainee is ready to start the JPM.**
6. **Brief the trainee, place the Simulator in run, and tell the trainee to begin.**

Directions to Trainee:

When I tell you to begin, you are to perform the required actions as the Balance-Of-Plant Operator to respond to a RFP in FW Track and Hold. Before you start, I will state the general plant conditions, initiating cues, and answer any questions you may have. During performance, state the actions you are taking, e.g., repositioning control and observing instrumentation.

When simulating, physically point to any meters, gauges, recorders, and controls you would be using. State the position of controls as you would have manipulated them to respond to a RFP in FW Track and Hold.

==========

General Conditions:

Task No.: 259043P0401

==========

Task Title: RESPOND TO ONE RFP IN FW TRACK AND HOLD (Alternate Path)

==========

1. **The plant is operating at power, steady-state.**
2. **A failure of feedwater controller RFC-MA-84A has occurred, causing the "A" Reactor Feed Pump to lock up and shift to Track and Hold operation.**
3. **No operator actions have yet been taken in response to this condition.**
4. **I & C has replaced a faulty connector and the controller can be returned to service.**
5. **An SO is at the Lovejoy Monitor.**

General References:

1. **Procedure 2.4RXLVL, RPV Water Level Control Trouble**
2. **Procedure 2.2.28.1, Feedwater System Operations**
3. **Procedure 2.3_A.1/E-6**

General Tools and Equipment:

None

Special Conditions, References, Tools, Equipment:

1. **Critical checks denoted by "*."**
2. **Simulator cues denoted by "#."**
3. **Faulted steps denoted by "♦."**

Task Standards:

1. **Accurately locate, identify, operate and/or manipulate all component controls required to be utilized to respond to RFP in Track and Hold.**
2. **Accurately locate and identify all instrumentation required to be monitored to respond to RFP in Track and Hold.**
3. **Correctly interpret instrument and system responses and their interrelationships when responding to RFP in Track and Hold.**
4. **Satisfactory completion of TPE requires a minimum of:**
   a. **100% of critical elements, as defined in the JPM, successfully completed without error and**
   b. **100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) and management expectations for TPE evaluated as satisfactory (SAT) or not applicable (N/A).**

Task No.: 259043P0401

==========

Task Title: RESPOND TO ONE RFP IN FW TRACK AND HOLD (Alternate Path)

==========

Initiating Cue(s):

The Control Room Supervisor orders you to respond to "A" Reactor Feed Pump in Track and Hold in accordance with the applicable procedure(s).

NOTE: Place the Simulator in RUN and tell the trainee to begin.

Task No.: 259043P0401

==========

Task Title: RESPOND TO ONE RFP IN FW TRACK AND HOLD (Alternate Path)

==========

Performance Checklist	Standards	Initials
NOTE: Entry into 2.4RXLVL is made based upon alarm response procedure guidance.		
4. Enter procedure 2.4RXLVL.	**Locate and retrieve procedure 2.4RXLVL from the procedure rack.**	_____
5. Enter Attachment 3 of procedure 2.4RXLVL.	**Recognizes from the Subsequent Actions of 2.4RXLVL that Attachment 3 must be entered.**	_____
6. Ensure "B" RFP is controlling RPV level.	**Monitors Reactor Water level to determine if "B" RFP is maintaining set level.** **CUE: RPV water level is steady at 35" on the narrow range.**	_____
7. Contact Station operator to determine actual alarm at RFP A Signal Processor Cabinet.	**Contacts Station Operator to determine actual alarm.** **#CUE: As Station Operator LOSS OF FEEDWATER DEMAND SIGNAL is indicated locally.**	_____
8. Ensure RFC-MA-84A is in MAN.	**(If not already done) Place RFC-MA-84A function selector knob in MAN.** **CUE: The selector knob for RFC-MA-84A is lined up with MAN.**	_____ *
NOTE: RFC-M84A may have to be adjusted to bring the deviation meter on scale to monitor for proper resonse.		

Task No.: 259043P0401

Task Title: RESPOND TO ONE RFP IN FW TRACK AND HOLD (Alternate Path)

Performance Checklist	Standards	Initials
9. Evaluate whether cause of lockout must be corrected before moving on.	**Determine cause of lockout need not be corrected to move on in procedure.** **NOTE: Cause has been corrected.**	_____
10. Slowly adjust RFC-LC-83 and check RFC-MA-84A deviation meter responds.	**Adjust RFC-LC-83 and observe response on RFC-MA-84A deviation meter.** **CUE: As output signal from RFC-LC-83 is adjusted and the deviation meter for RFC-MA-84A is observed, the red pointer in the uppermost indicator on 84A is moving.** **#CUE: If asked long term operation is not anticipated.**	_____
11. Place RFPT A TURBINE CONTROL RESET to RESET.	**Place RFPT A TURBINE CONTROL RESET to RESET.** **CUE: The lockout device handle has rotated to the RESET position and remains there.**	_____ *
12. Adjust RFC-MA-84A until FW DEMAND is ≤ 4% higher than FW HOLD.	**Adjust manual output signal from RFC-MA-84A until FW DEMAND window for RFPT A STARTUP STATION reads ≤ 4% above the value in the FW HOLD window.** **CUE: When the correct displays are being monitored, indicate FW DEMAND is at a value ≤ 4% higher than the indicated value for FW HOLD.**	_____ *

Task No.: 259043P0401

==========

Task Title: RESPOND TO ONE RFP IN FW TRACK AND HOLD (Alternate Path)

==========

Performance Checklist	Standards	Initials
NOTE: The following step will reset the Track and Hold annunciator. After the Track and Hold annunciator resets, the Dual Power Supply Failure will occur causing A-1/E-6, RFP TURBINE A CONTROL TROUBLE to alarm.		
13. Reset the FW HOLD condition on RFPT A.	**Press FW HOLD RESET button (for RFPT A).** **CUE: Button is depressed.**	_____ *
14. Verify FW HOLD LED off.	**Check the amber FW HOLD LED and verify the light is off.** **CUE: Amber light above FW HOLD display window is OFF.**	_____
15. Verify A-1/F-6, RFP TURBINE A TRACK & HOLD, clear.	**Verify A-1/F-6, RFP TURBINE A TRACK & HOLD, clear. Reset alarm.** **CUE: A-1/F-6 is clear.**	_____
NOTE: The following step should be NOT applicable as the other RFP is maintaining reactor water level and no adjustment to the Startup Demand is required. The following 2 steps may not be performed due to the RFP Trouble annunciator.		
16. Raise STARTUP DEMAND to maximum with MANUAL STARTUP SPEED CONTROL.	**Raise STARTUP DEMAND to maximum with MANUAL STARTUP SPEED CONTROL.** **CUE: STARTUP DEMAND has been raised to maximum and the indication is no longer changing.**	_____

Task No.: 259043P0401

Task Title: RESPOND TO ONE RFP IN FW TRACK AND HOLD (Alternate Path)

Performance Checklist	Standards	Initials
17. Ensure the RFP is controlling RPV water level.	**Monitor RPV water level. Ensure that "B" RFP has control of it.** **CUE: RPV water level is under the control of the B RFP.**	_____
♦18. Respond to A-1/E-1 alarm.	**Reference the alarm response procedure for A-1/E-1 and direct a Station Operator to report cause of alarm.** **CUE: A-1/E-6, RFP TURBINE A CONTROL TROUBLE, alarms.** **#CUE: As the S.O. report the DUAL POWER SUPPLY FAILURE AT CONTROLLER is alarming at the Signal Processor Cabinet.**	_____
♦19. Enter Attachment 6 of 2.4RXLVL.	**References Attachment 6 of 2.4RXLVL.**	_____
♦20. Ensure core flow is below $40X10^6$ lb/hr.	**Checks core flow below $40X10^6$ lb/hr.** **CUE: Core flow is $39X10^6$ lb/hr.**	_____
♦21. Trip RFP "A."	**Press RFP "A" TRIP push button and observe RFP "A" tripped.** **CUE: RFP "A" TRIP push button is pressed.** **CUE: RFP "A" is tripped.**	_____ *

Task No.: 259043P0401

==========

Task Title: RESPOND TO ONE RFP IN FW TRACK AND HOLD (Alternate Path)

==========

Performance Checklist	Standards	Initials
22. Inform CRS of status.	**Informs CRS that the "A" RFP has been tripped because of the loss of power. The "B" RFP is controlling RPV level.** **CUE: Respond to the report as CRS. This JPM is complete.**	_____

Task No.: 259043P0401

==========

Task Title: RESPOND TO ONE RFP IN FW TRACK AND HOLD (Alternate Path)

==========

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials Required

None

B. Initialize the Simulator in any power IC with both Reactor Feed pumps in service.

Batch File Name - none.

C. Change the Simulator conditions as follows:

1. Triggers

Number	File Name	Description
E2	None	trgset 2 "zdirfcma84a(2) == 1 .and. ra:mux15c061 == 0" Trigger will go active when Track and Hold annunciator is reset and 84A is in MANUAL.

2. Malfunctions

Number	Title	Trigger	TD	Severity	Ramp	Initial
FW05A	"A" Reactor Feedwater Pump Individual Controller Failure	E1	0	0	0	As Is
FW23A	RFP Lovejoy Controller Failure RFP 1A	E2	10	10	5:00	17.5

Task No.: 259043P0401

==========

Task Title: RESPOND TO ONE RFP IN FW TRACK AND HOLD (Alternate Path)

==========

3. Remotes

None

4. Overrides

Instrument	Tag	Trigger	TD	Value	Ramp
A-1/E-6 RFP TURBINE A CONTROL TROUBLE	**RA: MUX15C060**	**E2**	**10**	**ON**	**N/A**

5. Panel Setup

a. Place the Simulator in RUN.

b. Load Bat file JPM/342143

c. Activate Trigger E1.

d. Acknowledge annunciators.

e. DELETE malfunction FW05A, "A" Reactor Feedwater Pump Individual Controller Failure.

f. Lower Recirculation Pump speed to 35%.

g. FREEZE the Simulator.

Note: If this JPM is to be performed more than once, take a SNAPSHOT or store in a spare IC after the panel setup is complete.

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to perform the required actions as the Balance-Of-Plant Operator to respond to a RFP in FW Track and Hold. Before you start, I will state the general plant conditions, initiating cues, and answer any questions you may have. During performance, state the actions you are taking, e.g., repositioning control and observing instrumentation.

When simulating, physically point to any meters, gauges, recorders, and controls you would be using. State the position of controls as you would have manipulated them to respond to a RFP in FW Track and Hold.

General Conditions:

1. **The plant is operating at power, steady-state.**
2. **A failure of feedwater controller RFC-MA-84A has occurred, causing the "A" Reactor Feed Pump to lock up and shift to Track and Hold operation.**
3. **No operator actions have yet been taken in response to this condition.**
4. **I & C has replaced a faulty connector and the controller can be returned to service.**
5. **An SO is at the Lovejoy Monitor.**

Initiating Cue(s):

The Control Room Supervisor orders you to respond to "A" Reactor Feed Pump in Track and Hold in accordance with the applicable procedure(s).

Task No.: 261009P0101

==========

Task Title: PERFORM STANDBY GAS TREATMENT SYSTEM DECAY HEAT REMOVAL

==========

Trainee: _____ **Examiner:** _____

Pass:_____ **Fail:**_____ **Examiner Signature:** _____ **Date:** _____

Additional Program Information:

1. **Appropriate Performance Locations: CR / SIM**
2. **Appropriate Trainee level: RO / SRO**
3. **Evaluation Method: __ Simulate __ Perform**
4. **Performance Time: 15 minutes**
5. **NRC K/A 261000 A4.07 (3.1/3.2) A3.04 (3.0/3.1)**

Directions to Examiner:

4. **This JPM evaluates the trainee's ability to perform Standby Gas Treatment system decay heat removal.**
5. **The examiner is to obtain the AJPM Comment Form@ (Attachment C of ODG 206) prior to administering the JPM.**
6. **Observe the trainee during performance of the JPM for proper performance IAW NTP 5.4 and the procedure.**
7. **If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.**
8. **Observe the trainee during performance of the JPM for proper use of self-checking methods.**
9. **All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space if desired by the examiner.**
10. **Brief the trainee, place the simulator in run, and tell the trainee to begin.**

Task No.: 261009P0101

==========

Task Title: PERFORM STANDBY GAS TREATMENT SYSTEM DECAY HEAT REMOVAL

==========

Directions to Trainee:

When I tell you to begin, you are to perform Standby Gas Treatment system decay heat removal. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to perform Standby Gas Treatment system decay heat removal. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

==========

General Conditions:

1. **The plant is in the post LOCA mode of operation.**
2. **SGT A is in service. SGT B is in STANDBY.**
3. **A Group 6 isolation signal is present.**

General References:

1. **Procedure 2.2.73**

General Tools and Equipment:

1. **None**

Special Conditions, References, Tools, Equipment:

11. **Simulator Setup: See Attachment 1.**
2. **Critical checks denoted by "*".**
3. **Simulator cues denoted by "#".**

Task No.: 261009P0101

==========

Task Title: PERFORM STANDBY GAS TREATMENT SYSTEM DECAY HEAT REMOVAL

==========

Task Standards:

1. **Accurately locate, identify, operate and/or manipulate all component controls required to be utilized to perform Standby Gas Treatment system decay heat removal.**
2. **Accurately locate and identify all instrumentation required to be monitored to perform Standby Gas Treatment system decay heat removal.**
3. **Correctly interpret instrument and system responses and their interrelationships when performing Standby Gas Treatment system decay heat removal.**
4. **Satisfactory completion of TPE requires a minimum of:**
   a. **100% of critical elements, as defined in the JPM, successfully completed without error.**
   b. **100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) evaluated as satisfactory (SAT) or not applicable (N/A).**

Initiating Cue(s):

The CRS has directed you to perform SGT subsystem A Decay Heat Removal per procedure 2.2.73. Inform the CRS when SGT subsystem A Decay Heat Removal is in progress.

NOTE: Place the Simulator in RUN and tell the trainee to begin.

Task No.: 261009P0101

Task Title: PERFORM STANDBY GAS TREATMENT SYSTEM DECAY HEAT REMOVAL

Performance Checklist	Standards	Initials
1. Start SGT B	**Place to RUN the Control Switch for SGT B EXHAUST FAN, EF-R-1F.** **CUE: RED light ON. GREEN light OFF.**	_____*
2. Verify SGT B Exhaust Fan Starts	**Check SGT B EXHAUST FAN, EF-R-1F runs.** **CUE: RED light ON. GREEN light OFF.**	_____
3. Verify OPEN SGT-AO-250	**Check SGT-AO-250, SGT B INLET Opens.** **CUE: RED light ON. GREEN light OFF.**	_____
4. Verify OPEN SGT-AO-252	**Check SGT-AO-252, SGT B DISCHARGE Opens.** **CUE: RED light ON. GREEN light OFF.**	_____
5. Stop SGT A	**Place to OFF the Control Switch for SGT A EXHAUST FAN, EF-R-1E.** **CUE: GREEN light ON. RED light OFF.**	_____*
6. Verify SGT A exhaust fan STOPS.	**Check SGT A, EXHAUST FAN EF-R-1E Stops.** **CUE: GREEN light ON. RED light OFF.**	_____
7. Verify CLOSED SGT-AO-249 .	**Check SGT-AO-249, SGT A INLET Closes.**	_____

Task No.: 261009P0101

Task Title: PERFORM STANDBY GAS TREATMENT SYSTEM DECAY HEAT REMOVAL

Performance Checklist	Standards	Initials
	CUE: GREEN light ON. RED light OFF.	
8. Verify CLOSED SGT-AO-251	**Check SGT-AO-251, SGT A DISCHARGE Closes.** **CUE: GREEN light ON. RED light OFF.**	_____
9. OPEN SGT-AO-270	**Place to AUTO control switch for SGT-AO-270, SGT A DILUTION AIR.** **CUE: GREEN light OFF. RED light ON.**	_____*
10. Verify reactor building differential pressure	**Check £ -0.25" WG on HV-DPR-835, RX BLDG/ATMOS DP (VBD-R).** **CUE: Rx Bldg HV-DPR-835 indicates -0.35" WG.**	_____
11. Check SGT A carbon outlet temp	**Check SGT A CARBON OUTLET TEMP, (SGT-T1-537A).** **CUE: Carbon Outlet Temperature is 210 F.**	_____
12. Inform the CRS that the task is Complete.	**Inform the Control Room Supervisor that SGT train A Decay Heat Removal is in progress.** **#CUE: The CRS acknowledges the report. This JPM is now complete.**	_____

Task No.: 261009P0101

==========

Task Title: PERFORM STANDBY GAS TREATMENT SYSTEM DECAY HEAT REMOVAL

==========

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials Required

None

B. Initialize the Simulator and load batch file.

Batch File Name - JPM 342070

C. Change the simulator conditions as follows:

1. Triggers

None

2. Malfunctions

None

3. Remotes

None

Task No.: 261009P0101

==========

Task Title: PERFORM STANDBY GAS TREATMENT SYSTEM DECAY HEAT REMOVAL

==========

ATTACHMENT 1 (continued)

4. Overrides

Instrument	Tag	Trigger	TD	Value	Ramp
18A2M06 SGT TI 537A	**ZAOSGTTI537A**	**A**	**0**	**253**	**N/A**
18A2M08 SGT TI 547	**ZAOSGTTI547**	**A**	**0**	**254**	**N/A**
K-1 A-01 Ann K-1 A-1	**RA:MUX13C017**	**E2**	**10**	**ON**	**N/A**

5. Panel Setup

a. Perform procedure 2.2.73, section for RESPONSE TO AUTOMATIC INITIATION.

b. Place the Simulator in FREEZE.

Note: If this JPM is to be performed more than once, snap the simulator into an IC after the panel setup is complete.

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to perform Standby Gas Treatment system decay heat removal. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to perform Standby Gas Treatment system decay heat removal. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. **The plant is in the post LOCA mode of operation.**
2. **SGT A is in service. SGT B is in STANDBY.**
3. **A Group 6 isolation signal is present.**

Initiating Cues:

The CRS has directed you to perform SGT subsystem A Decay Heat Removal per procedure 2.2.73. Inform the CRS when SGT subsystem A Decay Heat Removal is in progress.

Task No.: 200076I0502

==========

Task Title: ALTERNATE CONTROL ROD INSERTION - INDIVIDUAL ROD SCRAM SWITCHES

==========

Trainee: _____ Examiner: _____

Score: _____ Pass _____ Fail Examiner Signature: _____ Date: _____

Additional Program Information:

1. **Appropriate Performance Locations: CR / SIM**
2. **Appropriate Trainee Levels: RO/SRO**
3. **Evaluation Method: _____ Perform _____ Simulate**
4. **Performance Time: 15 minutes**
5. **NRC K/A 201001 A2.04 (3.8/3.9)**

Directions to Examiner:

1. **This JPM evaluates the trainee's ability to insert control rods during a failure to scram condition using the individual rod scram switches.**
2. **If this JPM is to be performed on the Simulator, only the cues preceded by "#" should be given.**
3. **Brief the trainee IAW NTP 5.4, On-the-Job-Training and Task Performance Evaluation, (Attachments 1, 2, and 3).**
4. **Observe the trainee during performance of the JPM for proper performance IAW NTP 5.4 and the procedure.**
5. **All blanks must be filled out with either initials or an "NP" for "not performed, " and an explanation may also be written in the space if desired by the examiner.**
6. **Give the trainee his copy of the Directions to the Trainee (Attachment 2) when ready to start the JPM.**
7. **Brief the trainee, place the simulator in run, and tell the trainee to begin.**

Task No.: 200076I0502

==========

Task Title: ALTERNATE CONTROL ROD INSERTION - INDIVIDUAL ROD SCRAM SWITCHES

==========

Directions to Trainee:

When I tell you to begin, you are to insert control rods 26-27, 30-23, and 22-23 using the individual rod scram switches. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to individually scram the control rods.

==========

General Conditions:

1. **The plant scrammed and 3 control rods (control rods 26-27, 30-23, and 22-23) failed to insert.**
2. **Attempts to drain the SDV and scram the reactor manually resulted in NO inward rod motion.**
3. **The last step performed was 5.8.3, Attachment 1, AR-16.**
4. **PTMs 31, 32, 33, 34, 61, and 62 have been installed.**

General References:

13. **Procedure 5.8.3, Section 4**
14. **Procedure 5.8.3, Attachment 1 (Path D)**

General Tools and Equipment:

None.

Special Conditions, References, Tools, Equipment:

1. **Simulator Setup: See Attachment 1.**
2. **Critical checks denoted by "*."**
3. **Simulator cues denoted by "#."**

Task No.: 200076I0502

==========

Task Title: ALTERNATE CONTROL ROD INSERTION - INDIVIDUAL ROD SCRAM SWITCHES

==========

Task Standards:

1. **Accurately locate, identify, operate and/or manipulate all component controls required to be utilized to insert control rods using the individual rod scram switches.**
2. **Accurately locate and identify all instrumentation required to be monitored to insert control rods using the individual rod scram switches.**
3. **Correctly interpret instrument and system responses and their interrelationships when inserting control rods using the individual rod scram switches.**
4. **Satisfactory completion of TPE requires a minimum of:**
   a. **100% of critical elements, as defined in the JPM, successfully completed without error.**
   b. **100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) evaluated as satisfactory (SAT) or not applicable (N/A).**

Initiating Cue(s):

You are the RO and the CRS has directed you to insert control rods 26-27, 30-23, and 22-23 using the individual rod scram switches per 5.8.3 Attachment 1 path D and Section 4. You are to inform the CRS when all control rods are fully inserted.

NOTE: Tell the trainee to begin.

Task No.: 200076I0502

==========

Task Title: ALTERNATE CONTROL ROD INSERTION - INDIVIDUAL ROD SCRAM SWITCHES

==========

Performance Checklist	Standards	Initials
15. Isolate SDV.	**The operator places SDV VENT AND DRAIN switch to ISOL.** **CUE: Switch is positioned to ISOL.**	_____
NOTE: This step will be Not Applicable as it would have been performed previously by the operators performing previous 5.8.3 steps.		
16. Bypass SDV high level.	**The operator places SDV HIGH WATER BYPASS switch to BYPASS.** **CUE: Switch is positioned to BYPASS.**	_____
17. Reset scram.	**The operator places REACTOR SCRAM RESET switch to Group 1 and 4, Group 2 and 3, then back to NORM and CHECKS SCRAM INDICATIONS GROUP A and GROUP B lights are ON.** **CUE: Switch placed to Group 1 and 4 and Group 2 and 3.** **CUE: SCRAM INDICATIONS GROUP A and GROUP B lights are on.**	_____ *
18. Wait for all scram valves to close.	**The operator checks all scram valves on full core display are CLOSED.** **CUE: Blue scram lights for all scram valves are off.**	_____ *

Task No.: 200076I0502

==========

Task Title: ALTERNATE CONTROL ROD INSERTION - INDIVIDUAL ROD SCRAM SWITCHES

==========

Performance Checklist	Standards	Initials
19. Drain SDV.	**The operator places SDV VENT AND DRAIN switch to NORM.** **CUE: Switch is positioned to NORM.** **CUE: SDV VENT AND DRAIN VALVES are Red lights are on and Green lights are off.**	_____*
20. Wait for SDV to drain.	**The operator observes SDV HI LEVEL alarm clear or waits 3 minutes.** **CUE: SDV HIGH LEVEL alarm is clear.**	_____*
21. Isolate SDV.	**The operator places SDV VENT AND DRAIN switch to ISOL.** **CUE: Switch is positioned to ISOL.**	_____
NOTE: The following step is only applicable and critical if the CRD-29 had been closed previously.		
22. Recharge HCUs.	**The operator directs a SO to OPEN CRD-29 to recharge HCUs.** **CUE: As the SO, report CRD-29 is open.** **CUE: All accumulator trouble lights are out.**	_____*
NOTE: The order that control rods 26-27, 30-23, and 22-23 are inserted is NOT critical. The critical element is the control rods are fully inserted. If the order in section 4 is NOT followed, this is a competency concern related to procedure compliance.		

Task No.: 200076I0502

==========

Task Title: ALTERNATE CONTROL ROD INSERTION - INDIVIDUAL ROD SCRAM SWITCHES

==========

Performance Checklist	Standards	Initials
23. Individually scram control rod 26-27.	**The operator places ROD SCRAM SWITCH for control rod 26-27 to SCRAM for 10 seconds then returns switch to NORMAL AND observe control rod inserted.** **CUE: ROD SCRAM SWITCH for selected control rod is positioned to SCRAM/NORMAL as actions are taken.** **CUE: Selected control rod is inserted.**	_____ *
24. Individually scram control rod 30-23.	**The operator places ROD SCRAM SWITCH for control rod 30-23 to SCRAM for 10 seconds then returns switch to NORMAL AND observe control rod inserted.** **CUE: ROD SCRAM SWITCH for selected control rod is positioned to SCRAM/NORMAL as actions are taken.** **CUE: Selected control rod is inserted.**	_____ *
25. Individually scram control rod 22-23.	**The operator places ROD SCRAM SWITCH for control rod 22-23 to SCRAM for 10 seconds then returns switch to NORMAL AND observe control rod inserted.** **CUE: ROD SCRAM SWITCH for selected control rod is positioned to SCRAM/NORMAL as actions are taken.** **CUE: Selected control rod is inserted.**	_____ *

Task No.: 200076I0502

==========

Task Title: ALTERNATE CONTROL ROD INSERTION - INDIVIDUAL ROD SCRAM SWITCHES

==========

Performance Checklist	Standards	Initials
26. Inform the CRS that all control rods are fully inserted.	**The operator informs the CRS all control rods are fully inserted.** **#CUE: The CRS acknowledges the report. This JPM is now complete.**	_____

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials Required

None

B. Initialize the Simulator in any power IC and place in RUN.

Batch File Name - JPM/342141

C. Change the simulator conditions as follows:

1. Triggers

Number	File Name	Description
E2	**None**	**trgset 2 "zdirpssws7s19 == 0" (Set up trigger 2 to activate when 26-27 scram test in test)** **trg 2 "dmf rd122627" (Set up trigger 2 to delete a malfunction)**
E4	**None**	**trgset 4 "zdirpssws8s20 == 0" (Set up trigger 4 to activate when 30-23 scram test in test)** **trg 4 "dmf rd123023" (Set up trigger 4 to delete a malfunction)**
E6	**None**	**trgset 6 "zdirpssws7s21 == 0" (Set up trigger 6 to activate when 22-23 scram test in test)** **trg 6 "dmf rd122223" (Set up trigger 6 to delete a malfunction)**

Task No.: 200076I0502

==========

Task Title: ALTERNATE CONTROL ROD INSERTION - INDIVIDUAL ROD SCRAM SWITCHES

==========

Task No.: 200076I0502

==========

Task Title: ALTERNATE CONTROL ROD INSERTION - INDIVIDUAL ROD SCRAM SWITCHES

==========

2. Malfunctions

Number	Title	Trigger	TD	Severity	Ramp	Initial
RD122627	**Stuck Control Rod 26-27**	**A**	**0**	**N/A**	**N/A**	**N/A**
RD123023	**Stuck Control Rod 30-23**	**A**	**0**	**N/A**	**N/A**	**N/A**
RD122223	**Stuck Control Rod 22-23**	**A**	**0**	**N/A**	**N/A**	**N/A**

3. Remotes

Number	Title	Trigger	Value	Ramp
RD18	**EOP PTM's #61 & #62**	**A**	**REMOVE**	**N/A**

4. Overrides

Instrument	Tag	Trigger	TD	Value	Ramp
"A1" Channel 5.8.3 jumpers	**ZDIRPSSCRMJA1**	**A**	**0**	**IN**	**N/A**
"A2" Channel 5.8.3 jumpers	**ZDIRPSSCRMJA2**	**A**	**0**	**IN**	**N/A**
"B1" Channel 5.8.3 jumpers	**ZDIRPSSCRMJB1**	**A**	**0**	**IN**	**N/A**
"B2" Channel 5.8.3 jumpers	**ZDIRPSSCRMJB2**	**A**	**0**	**IN**	**N/A**

Task No.: 200076I0502

==========

Task Title: ALTERNATE CONTROL ROD INSERTION - INDIVIDUAL ROD SCRAM SWITCHES

==========

5. Panel Setup

a. Run batch file.

b. Manually scram the reactor.

c. Perform initial scram actions and stabilize the plant.

d. Ensure Reactor Mode Switch is in Shutdown.

e. Place a key in the SDV high level trip bypass and place in override.

f. Reset annunciators.

g. Place simulator in freeze.

Note: If this JPM is to be performed more than once, snap the simulator into an IC after the panel setup is complete.

Task No.: 200076I0502

==========

Task Title: ALTERNATE CONTROL ROD INSERTION - INDIVIDUAL ROD SCRAM SWITCHES

==========

BATCH FILE

IOR ZDIRPSSCRMJA1 IN
IOR ZDIRPSSCRMJA2 IN
IOR ZDIRPSSCRMJB1 IN
IOR ZDIRPSSCRMJB2 IN

imf rd122627
imf rd123023
imf rd122223

irf rd18 remove

trgset 2 "zdirpssws7s19 == 0"
^set up trigger 2 to activate when 26-27 scram test in test

trgset 4 "zdirpssws8s20 == 0"
^set up trigger 4 to activate when 30-23 scram test in test

trgset 6 "zdirpssws7s21 == 0"
^set up trigger 6 to activate when 22-23 scram test in test

trg 2 "dmf rd122627"
trg 4 "dmf rd123023"
trg 6 "dmf rd122223"

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to insert control rods 26-27, 30-23, and 22-23 using the individual rod scram switches. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to start and load the diesel generator.

General Conditions:

1. **The plant scrammed and 3 control rods (control rods 26-27, 30-23, and 22-23) failed to insert.**
2. **Attempts to drain the SDV and scram the reactor manually resulted in NO inward rod motion.**
3. **The last step performed was 5.8.3, Attachment 1, AR-16.**
4. **PTMs 31, 32, 33, 34, 61, and 62 have been installed.**

Initiating Cues:

You are the RO and the CRS has directed you to insert control rods 26-27, 30-23, and 22-23 using the individual rod scram switches per 5.8.3 Attachment 1 path D and Section 4. You are to inform the CRS when all control rods are fully inserted.

Task No.: 206029P0201

==========

Task Title: OPERATE HPCI IN PRESSURE CONTROL (Hard Card) (Alternate Path)

==========

Trainee: _____ Examiner: _____

Pass:____ Fail:_____ Examiner Signature:_____Date:_____

ALTERNATE PATH

Additional Program Information:

1. **Appropriate Performance Locations: CR / SIM**
2. **Appropriate Trainee level: RO / SRO**
3. **Evaluation Method: Perform ___ Simulate ___**
4. **Performance Time: 8 minutes**
5. **NRC K/As 206000 K3.02 (3.8/3.8) and A4.01 (3.8/3.7)**

Directions to Examiner:

NOTE: THIS IS A ALTERNATE PATH JPM. THE FLOW CONTROLLER WILL FAIL TO OPERATE IN AUTOMATIC AND MUST BE PLACED IN MANUAL.

27. **This JPM evaluates the trainee's ability to perform the "pressure control mode" of operation of HPCI per the guidance of procedure 2.2.33.1, High Pressure Coolant Injection System Operations.**
28. **The examiner is to obtain the "JPM Comment Form" (Attachment C of ODG 206) prior to administering the JPM.**
29. **If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.**
30. **Observe the trainee during performance of the JPM for proper performance IAW NTP 5.4 and the procedure.**
31. **Observe the trainee during performance of the JPM for proper use of self-checking methods.**
32. **All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space, if desired, by the examiner.**
33. **Brief the trainee, place the Simulator in RUN, and tell the trainee to begin.**

Task No.: 206029P0201

==========

Task Title: OPERATE HPCI IN PRESSURE CONTROL (Hard Card) (Alternate Path)

==========

Directions to Trainee:

When I tell you to begin, you are to operate HPCI in the pressure control mode using the hard card. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to place HPCI in the pressure control mode. During performance, state the actions you are taking (e.g.: repositioning controls and observing instrumentation).

==========

General Conditions:

1. **The Reactor is shutdown following a scram.**
2. **The MSIVs have closed on a PCIS Group 1 signal, caused by improper operation of the Reactor Mode Switch following the scram.**
3. **Reactor water level is being controlled by another operator.**
4. **Reactor pressure is currently being maintained by Low-Low Set.**
5. **Suppression Pool Cooling will be placed in service by the another licensed operator.**

General References:

1. **Procedure 2.2.33.1, High Pressure Coolant Injection System Operation.**

Task No.: 206029P0201

==========

Task Title: OPERATE HPCI IN PRESSURE CONTROL (Hard Card) (Alternate Path)

==========

General Tools and Equipment:

1. None

Special Conditions, References, Tools, Equipment:

1. Simulator Setup: See Attachment 1.
2. Critical steps denoted by "*".
3. Simulator cues denoted by "#".
4. Faulted steps denoted by "♦."

Task Standards:

1. Accurately locate, identify, operate and/or manipulate all component controls required to be utilized in order to place HPCI in the pressure control mode per 2.2.33.1.
2. Accurately locate and identify all instrumentation required to be monitored in order to place HPCI in the pressure control mode per 2.2.33.1.
3. Correctly interpret instrument and system responses and their interrelationships while placing HPCI in the pressure control mode per 2.2.33.1.
4. Satisfactory completion of TPE requires a minimum of:
   a. 100% of critical elements, as defined in the JPM, successfully completed without error.
   b. 100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) evaluated as satisfactory (SAT) or not applicable (N/A).

Initiating Cue(s):

The Control Room Supervisor directs you to place HPCI in the pressure control mode using the hard card and maintain Reactor pressure from 800 to 1000 psig. Inform the CRS when HPCI is operating in the pressure control mode.

NOTE: Place the Simulator in RUN and tell the trainee to begin.

Task No.: 206029P0201

Task Title: OPERATE HPCI IN PRESSURE CONTROL (Hard Card) (Alternate Path)

Performance Checklist	Standards	Initials
1. Place GLAND SEAL CNDSR BLOWER control switch in START.	**The operator places the control switch for the GLAND SEAL CNDSR BLOWER in START.** **CUE: The red light for the GLAND SEAL CNDSR BLOWER is lit, the green light is out.**	_____
2. Open HPCI-MO-21, TEST BYPASS TO ECST.	**The operator places the control switch for the HPCI-MO-21 in OPEN.** **CUE: HPCI-MO-21 red light is on, green light is off.**	_____*
3. Open HPCI-MO-24, ECST TEST LINE SHUTOFF VLV.	**The operator places the control switch for the HPCI-MO-24 in OPEN.** **CUE: HPCI-MO-24 red light is on, green light is off.**	_____*
4. Open HPCI-MO-14, STM TO TURB VLV.	**The operator places the control switch for the HPCI-MO-14 in OPEN.** **CUE: HPCI-MO-14 red light is on, green light is off.**	_____*
5. Start AUXILIARY OIL PUMP by placing control switch in START.	**The operator places the control switch for the Auxiliary Oil Pump switch to START.** **CUE: HPCI Aux Oil pump red light is on, green light is off.**	_____*
♦ 6. Adjust FLOW CONTROLLER HPCI-FIC-108 setpoint to maintain desired RPV pressure, as necessary.	**Operator attempts to control HPCI flow with the Set Tape.** **CUE: HPCI flow remains almost zero, irrespective of Set Tape setting.**	_____
♦ 7. Operator recognizes and reports failed controller	**Operator reports to CRS that HPCI controller has failed in automatic.** **CUE: CRS acknowledges, directs operator to control HPCI with controller in manual.**	_____
♦ 8. Operator places HPCI controller in manual.	**Operator turns HPCI controller AUTO/BAL/MAN switch to MAN.** **CUE: HPCI controller AUTO/BAL/MAN switch is in MAN.**	_____*

Task No.: 206029P0201

Task Title: OPERATE HPCI IN PRESSURE CONTROL (Hard Card) (Alternate Path)

Performance Checklist	Standards	Initials
♦ **9. Operator adjusts HPCI controller in manual to control flow and cooldown rate.**	**Operator turns HPCI controller manual knob clockwise to raise flow, counter-clockwise to lower flow.** **CUE: HPCI flow responds to manual control knob adjustment as appropriate.**	_____*
10. Ensure REC-MO-711 or REC-MO-714 is open.	**Operator verifies that REC-MO-711 or REC-MO-714 is open.** **CUE: Both REC-MO-711 and REC-MO-714 are open.**	_____
11. Ensure SGT is in service.	**Operator verifies that SGT is in service.** **CUE: Both trains of SGT have automatically started and are operating normally.**	_____
12. Operator reports HPCI is in pressure control mode.	**Operator reports to the CRS that HPCI is in pressure control mode per the hard card.** **CUE: The CRS acknowledges the report. The JPM is complete.**	_____

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials required

None

- **Initialize the Simulator in any IC that will support HPCI pressure control mode after a scram (IC-18, 19 or 20 suggested)**

  Batch File name - none.

C. Change the Simulator conditions from those of the IC as follows:

1. Triggers

None

2. Malfunctions

None

3. Remotes

None

4. Overrides

Instrument	Tag	Trigger	TD	Value	Ramp
HPCI Set Tape	ZAIHPCIFC108[2]	A	0	200	0

5. Panel Set-up (suggested. Any setup is allowed that supports performance of the HPCI pressure control mode)

a. Place the Simulator in RUN.

b. Manually scram the Reactor using 9-5 pushbuttons. Leave the Reactor Mode Switch in RUN until low Reactor pressure Group 1 isolation is received, then place RMS in SHUTDOWN.

c. Trip both RFPs when RPV water level is rising.

d. Trip the CRD pump after RPV water level is rising.

e. Place MSIV control switches in CLOSE.

f. Maintain RPV water level below +20" on the Narrow Range and above -20" on the Wide Range.

g. Let the simulator run until the first SRV opens.

h. Reset all high level trip signals (if present).

i. Insert listed override.

j. Place the Simulator in FREEZE.

Note: If this JPM is to be performed more than once, snap the Simulator into an IC after the panel set-up is complete.

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to operate HPCI in the pressure control mode using the hard card. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them in order to place HPCI in the pressure control mode per the hard card. During actual performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. **The Reactor is shutdown following a scram.**
2. **The MSIVs have closed on a PCIS Group 1 signal, caused by improper operation of the Reactor Mode Switch following the scram.**
3. **Reactor water level is being controlled by another operator.**
4. **Reactor pressure is currently being maintained by Low-Low Set.**
5. **Suppression Pool Cooling will be placed in service by the another licensed operator.**

Initiating Cue(s):

The Control Room Supervisor directs you to place HPCI in the pressure control mode using the hard card and maintain Reactor pressure from 800 to 1000 psig. Inform the CRS when HPCI is operating in the pressure control mode.

Task No.:208028P0101

==========

Task Title: Separation of REC Critical Loops (Alternate Path)

==========

Trainee: _____ Examiner: _____

Pass:_____ Fail:_____ Examiner Signature: _____ Date: _____

ALTERNATE PATH

Additional Program Information:

1. **Appropriate Performance Locations: CR/SIM**
2. **Appropriate Trainee level: RO/SRO**
3. **Evaluation Method: __ Simulate __ Perform**
4. **Performance Time: 5 minutes**
5. **NRC K/A 295018; AA1.03 (3.3/3.4), AK3.07 (3.1/3.2)**

Directions to Examiner:

5.	**This JPM evaluates the trainee's ability to separate the REC Critical Loops.**
7.	**The examiner is to obtain the "JPM Comment Form" (Attachment C of ODG 206) prior to administering the JPM.**
9.	**If this JPM is performed on the Simulator, only the cues preceded by "#" should be given.**
11.	**Observe the trainee during performance of the JPM for proper use of self-checking methods.**
13.	**Observe the trainee during performance of the JPM for proper performance IAW NTP 5.4 and the procedure.**
15.	**All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space if desired by the examiner.**
17.	**Brief the trainee, place the simulator in run, and tell the trainee to begin.**

Directions to Trainee:

When I tell you to begin, you are to separate the REC Critical Loops. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated to separate the REC Critical Loops. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

==========

General Conditions:

1. **Reactor was operating at 100% rated power,when a transient occured in the REC system.**

Task No.:208028P0101

==========

Task Title: Separation of REC Critical Loops (Alternate Path)

==========

2. **Several alarms associated with the REC system have been recieved in the Control Room.**
2. **Emergency Procedure 5.2REC, Loss of REC, has been entered and actions taken up to separating the REC Critical Loops.**

General References:

1. **Procedure 5.2REC**
2. **Procedure 2.2.65.1**

General Tools and Equipment:

1. **None**

Special Conditions, References, Tools, Equipment:

1. **Simulator Setup: See Attachment 1.**
2. **Critical checks denoted by "*".**
3. **Simulator cues denoted by "#".**
4. **Faulted steps denoted by "♦."**

Task Standards:

1. **Accurately locate, identify, operate and/or manipulate all component controls required to be utilized to separate the REC Critical Loops.**
2. **Accurately locate and identify all instrumentation required to be monitored to separate the REC Critical Loops.**
3. **Correctly interpret instrument and system responses and their interrelationships when separating the REC Critical Loops.**
4. **Satisfactory completion of TPE requires a minimum of:**
   a. **100% of critical elements, as defined in the JPM, successfully completed without error.**
   b. **100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) evaluated as satisfactory (SAT) or not applicable (N/A).**

Initiating Cue(s):

The Control Room Supervisor directs you to separate the REC Criticial Loops per 2.2.65.1, using the NORTH Critical Loop. Inform the CRS when you have separated the REC Critical Loops.

Task No.:208028P0101

==========

Task Title: Separation of REC Critical Loops (Alternate Path)

==========

NOTE: Place the Simulator in RUN and tell the trainee to begin. (Delete malfunction SW12b).

Task No.:208028P0101

==========

Task Title: Separation of REC Critical Loops (Alternate Path)

==========

Performance Checklist	Standards	Initials
1. Close REC-MO-695.	**Close REC-MO-695, CRITICAL LOOP SUPPLY CROSSTIE** **CUE: GREEN light ON, RED light OFF.**	_____*
2. Close REC-MO-694.	**Close REC-MO-694, CRITICAL LOOP SUPPLY CROSSTIE** **CUE: GREEN light ON, RED light OFF.**	_____*
3. Close REC-MO-721.	**Close REC-MO-721, NON CRITICAL HEADER RETURN** **CUE: GREEN light ON, RED light OFF.**	_____*
4. Close REC-MO-722.	**Close REC-MO-722, NON CRITICAL HEADER RETURN** **CUE: GREEN light ON, RED light OFF.**	_____*
5. Ensure REC-19 is open.	**Directs the S.O. to ensure REC-19 is open. REC HX B INLET (R-931-N REC Hx area)** **#CUE: As the S.O., report REC-19 is open.**	_____
6. Ensure REC-21 is open.	**Directs the S.O. to ensure REC-21 is open. REC HX A INLET (R-931-N REC Hx area)** **#CUE: As the S.O., report REC-21 is open.**	_____
7. Close REC-18.	**Directs the S.O. to Close REC-18. REC HX A INLET (R-931-N REC Hx area)** **#CUE: As the S.O., report REC-18 is closed.**	_____*

Task No.:208028P0101

Task Title: Separation of REC Critical Loops (Alternate Path)

Performance Checklist	Standards	Initials
8. Close REC-20.	**Directs the S.O. to Close REC-20. REC HX B INLET (R-931-N REC Hx area)** **#CUE: As the S.O., report REC-20 is closed.**	_____*
9. Ensure REC-TCV-451A switch is in open.	**Ensure REC-TCV-451A, REC HX A SW OUTLET TEMPERATURE CONTROL, switch is in OPEN.** **CUE: Switch is in OPEN.**	_____
10. Throttle open SW-MO-650	**Throttle open SW-MO-650 to obtain 400 to 1200 gpm flow on SW-FI-387A, REC HX A SW OUTLET.** **CUE: SW-FI-387A indicates 600 gpm.**	_____
11. Ensure REC-MO-712 is closed	**Ensure REC-MO-712, HX A OUTLET VLV, is closed.** **CUE: GREEN light On, RED light Off.**	_____
12. Ensure REC-MO-711 is open	**Ensure REC-MO-711, NORTH CRITICAL LOOP SUPPLY is open** **CUE: GREEN light OFF, RED light ON.** **CUE: If asked as the Station Operator report that no visible leaks exist on the system.**	_____
NOTE: Student may make decision regarding REC Surge Tank availability by status of annunciator M1/A3, REC SURGE TANK LOW Level.		
13. Open REC-MO-722	**If REC Surge Tank is available, open REC-MO-722** **CUE: IF student chooses to open REC-MO-722, the red light is lit and green light is out.**	_____

Task No.:208028P0101

==========

Task Title: Separation of REC Critical Loops (Alternate Path)

==========

Performance Checklist		Standards	Initials
♦ **14.**	**Ensure REC PUMP C or D is running**	**STARTS REC PUMP C or D.** **CUE: REC PUMP C (D) red light is out and green light is lit. Annunciator M-1/B-3 REC PUMP C FAILURE (M-1/B-4 REC PUMP D FAILURE) is alarming**	_____
♦ **15.**	**Recognize and respond to REC pump trip.**	**Respond per annunciator M-1/B-3 REC PUMP C FAILURE (M-1/B-4 REC PUMP D FAILURE) and determine direction is to start another REC pump.** **CUE: If asked as CRS, direct the operator to start C (D) REC pump (the pump that did not trip).**	_____
♦ **16.**	**Start REC PUMP C or D.**	**STARTS REC PUMP C or D.** **CUE: REC PUMP C (D) red light is lit and green light is out and the JPM is complete.**	_____*

Task No.:208028P0101

==========

Task Title: Separation of REC Critical Loops (Alternate Path)

==========

ATTACHMENT 1

SIMULATOR SET-UP

A. Materials Required

None

B. Initialize the Simulator in any power IC.

DO NOT LOAD BATCH FILE UNTIL DIRECTED BY SETUP!!

Batch File Name - JPM/342144

C. Change the simulator conditions as follows:

1. Triggers

Number	File Name	Description
E2	None	Default to false
E18	None	trgset 18 "zdirecswrecpc[4]==1" ("C" REC in start)
E20	None	trgset 20 "zdirecswrecpc[4]==1" ("C" REC in start) trg 20 "dmf sw11d"
E22	None	trgset 22 "zdirecswrecpd[4]==1" ("D" REC in start)
E24	None	trgset 24 "zdirecswrecpd[4]==1" ("D" REC in start) trg 24 "dmf sw11c"

2. Malfunctions

Number	Title	Trigger	TD	Severity	Ramp	Initial

Task No.:208028P0101

==========

Task Title: Separation of REC Critical Loops (Alternate Path)

==========

SW12b	**REC HX 1B Tube Leak**	**2**	**N/A**	**60%**	**N/A**	**N/A**
SW11C	**"C" REC pump trip**	**18**	**2**	**N/A**	**N/A**	**N/A**
SW11D	**"D" REC pump trip**	**22**	**2**	**N/A**	**N/A**	**N/A**

3. Remotes

Number	Title	Trigger	Value	Ramp
SW02	**REC HX1B Inlet Isol Vlv (REC-V-18)**	**2**	**CLOSE**	**N/A**
SW04	**REC HX1A Inlet Isol Vlv (REC-V-20)**	**2**	**CLOSE**	**N/A**
RR03	**RRMG A DC Oil Pump**	**A**	**STOP**	**N/A**
RR04	**RRMG B DC Oil Pump**	**A**	**STOP**	**N/A**

4. Overrides

None

Task No.:208028P0101

==========

Task Title: Separation of REC Critical Loops (Alternate Path)

==========

5. Panel Setup

1. Place the Simulator in RUN.

b. Insert batch file (JPM/342144).

c. Activate Trigger 2.

d. Run the simulator long enough for the surge tank level to drop.

e. Perform actions of EP 5.2REC up to the point of splitting the REC Critical Loops (all REC pumps off). These actions include scramming the reactor, tripping the RR pumps, Stopping the RRMG oil pumps, and stopping the running CRD pump.

f. The batch file will make the first REC pump that is started trip and automatically delete the trip malfunction from the second pump, allowing the second pump to be started. No instructor actions are required for the alternate path after the batch file has been run.

g. FREEZE the simulator.

h. When JPM begins and simulator is taken to RUN, DELETE the malfunction SW12b.

Note: If this JPM is to be performed more than once, snap the simulator into an IC after the panel setup is complete.

ATTACHMENT 2

Directions to Trainee:

When I tell you to begin, you are to separate the REC Critical Loops. Before you start, I will state the general plant conditions, the Initiating Cues and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to separate the REC Critical Loops. During performance, state the actions you are taking, e.g.: repositioning controls and observing instrumentation.

General Conditions:

1. **Reactor was operating at 100% rated power, with the B REC HX in operation when a transient occured in the REC system.**
2. **Several alarms associated with the REC system have been recieved in the Control Room.**
3. **Emergency Procedure 5.2REC, Loss of REC, has been entered and actions taken up to separating the REC Critical Loops.**

Initiating Cues:

The Control Room Supervisor directs you to separate the REC Criticial Loops per 2.2.65.1, using the NORTH Critical Loop. Inform the CRS when you have separated the REC Critical Loops.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 223070A0101

==========

Task Title: Transfer H_2/O_2 Monitoring System Monitors From Standby to Operation (Div. 1)

==========

Trainee: _____ Examiner: _____

Score: ___ Pass ___ Fail Examiner Signature: _____ Date: _____

Performed faulted/non-faulted: NON-Faulted

Additional Program Information:

1. **Appropriate Performance Locations: Perform in the plant only.**
2. **Appropriate Trainee Levels: RO/SRO**
3. **Evaluation Method: __ Perform __ Simulate**
4. **Performance Time: 35 minutes**
5. **NRC K/A: 2.1.30 (3.9/3.4)**

Directions to Examiner:

1. **This JPM evaluates the trainee's ability to transfer H_2/O_2 monitoring system monitors from Standby to Operation.**
2. **Brief the trainee and tell the trainee to begin.**
3. **Observe the trainee during performance of the JPM for proper use of self-checking methods.**
4. **Observe the trainee during performance of the JPM for proper performance IAW NTP 5.4 and the procedure.**

5 **All blanks must be filled out with either initials or an "NP" for "not performed", and an explanation may also be written in the space if desired by the examiner.**

Directions to Trainee:

When I tell you to begin, you are to transfer Division 1 H_2/O_2 monitors from standby to operation. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to transfer H_2/O_2 monitoring system monitors from standby to operation.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 223070A0101

==========

Task Title: Transfer H_2/O_2 Monitoring System Monitors From Standby to Operation (Div. 1)

==========

==========

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 223070A0101

==========

Task Title: Transfer H_2/O_2 Monitoring System Monitors From Standby to Operation (Div. 1)

==========

General Conditions:

1. **Division II H_2/O_2 System is scheduled to be removed from service.**
2. **Division I H_2/O_2 System is in Standby.**

General References:

1. **Procedure 2.2.60.1**

General Tools and Equipment:

None

Special Conditions, References, Tools, Equipment:

1. **Critical checks denoted by "*".**

Task Standards:

1. **Accurately locate, identify, operate and/or manipulate all component controls required to be utilized to transfer H_2/O_2 monitoring system monitors from Standby to Operation.**
2. **Accurately locate and identify all the instrumentation required to be monitored to transfer H_2/O_2 monitoring system monitors from standby to operation.**
3. **Correctly interpret instrument and system responses and their interrelationships when transferring H_2/O_2 monitoring system monitors from Standby to Operation.**
4. **Satisfactory completion of TPE requires a minimum of:**
   a. **100% of critical elements, as defined in the JPM, successfully completed without error.**
   b. **100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) evaluated as satisfactory (SAT) or not applicable (N/A).**

Initiating Cue(s):

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 223070A0101

==========

Task Title: Transfer H_2/O_2 Monitoring System Monitors From Standby to Operation (Div. 1)

==========

The CRS has directed you to place the Division I monitoring system in Operation from standby. You are to notify the CRS when Division I H_2/O_2 monitoring system has been placed in operation.

NOTE: Tell the trainee to begin.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 223070A0101

==========

Task Title: Transfer H_2/O_2 Monitoring System Monitors From Standby to Operation (Div. 1)

==========

Note to Examiner: **The trainee may perform either Step 1 or Step 2 to satisfy the critical step.**

Performance Checklist	Standards	Initials
1. Place DIV I H_2/O_2 ANALYZER RESET switch to RESET and then to ON.	**The operator places Div I H_2/O_2 ANALYZER RESET switch to RESET and then to ON.** **CUE: Switch is positioned to RESET and then to ON.**	____*
2. Place POWER switch to RESET and release at PC-CS-H_2/O_2 I (Cable Spreading Room)	**The operator places POWER switch to RESET and release at PC-CS-H_2/O_2 I (Cable Spreading Room).** **CUE: Switch is positioned toward RESET and RELEASED.**	____*
3. Ensure power switch in ON	**The operator ensures power switch in ON.** **CUE: Switch is positioned toward ON.**	____
4. Check pump P-1 is running with PUMP switch in RUN.	**The operator checks pump P-1 is running with PUMP switch in RUN.** **CUE: Pump switch is in RUN, red light is lit for the P-1 pump.**	____
5. Ensure only one sample stream solenoid valve and H_2/O_2 Pump P-1 discharge valve indicates OPEN.	**The operator ensures only one sample stream solenoid valve and H_2/O_2 Pump P-1 discharge valve indicates OPEN.** **CUE: One sample stream solenoid valve light is red, the others are green. (Select and indicate one of the valves one away from the Div II monitor current sample point).**	____*

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 223070A0101

Task Title: Transfer H_2/O_2 Monitoring System Monitors From Standby to Operation (Div. 1)

Performance Checklist	Standards	Initials
6. Advance sample stream by pressing Key 7 until Div I and Div II are on different streams with one line between them.	**The operator advances the sample stream by pressing Key 7 until Div I and Div II are on different streams with one line between them.** **CUE: Provide response to match action taken by operator. (The sample stream should advance one for each press of Key 7.)**	____
7. Re-initialize the monitor by pressing Key 1.	**The operator presses Key 1.** **CUE: Key 1 has been pressed.**	____*
8. Place Div I H_2/O_2 ANALYZER RESET switch to OFF.	**The operator places Div I H_2/O_2 ANALYZER RESET switch to OFF.** **CUE: Switch is positioned toward OFF.**	____
9. Place PC-R-H_2 I, CONTAINMENT HYDROGEN, PRINT-HOLD switch in PRINT.	**The operator places PC-R-H_2 I, CONTAINMENT HYDROGEN, PRINT HOLD switch in PRINT.** **CUE: Switch is positioned toward PRINT.**	____*
10. Place PC-R-O_2 I, CONTAINMENT OXYGEN, PRINT-HOLD switch in PRINT.	**The operator places PC-R-O_2 I, CONTAINMENT OXYGEN, PRINT-HOLD switch in PRINT.** **CUE: Switch is positioned toward PRINT.**	____*

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 223070A0101

==========

Task Title: Transfer H_2/O_2 Monitoring System Monitors From Standby to Operation (Div. 1)

==========

Performance Checklist	Standards	Initials
11. Check PC-R-H_2 I and PC-R-O_2 I digital displays indicate number associated with stream being sampled as indicated on PC-CS-H_2/O_2 I.	**The operator checks that PC-R-H_2 I and PC-R-O_2 I digital displays indicator number associated with stream being sampled as indication on PC-CS-H_2/O_2 I.** **CUE: Recorders are synchronized** **CUE: One hour has elapsed after recorders were synchronized.**	____
12. LCD displays H_2 and O_2 values with no alarm messages.	**The operator ensures the LCD displays H_2 and O_2 values with no alarm messages.** **CUE: Only H_2 and O_2 values are indicated.**	____
13. Ensure no alarm indicating lights are on.	**The operator ensures no alarm indicating lights are on.** **CUE: No red lights are illuminated.**	____
14. Inform CRS Div I is in operation.	**The operator informs the CRS Div I is in operation.** **CUE: The CRS acknowledges the report. This JPM is now complete.**	____

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 223070A0101

==========

Task Title: Transfer H_2/O_2 Monitoring System Monitors From Standby to Operation (Div. 1)

==========

ATTACHMENT 1

Directions to Trainee:

When I tell you to begin, you are to transfer Division 1 H_2/O_2 monitors from standby to operation. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to transfer H2/O2 monitoring system monitors from standby to operation.

General Conditions:

1. Division II H2/O2 System is scheduled to be removed from service.

15. Division I H2/O2 System is in standby.

Initiating Cues:

The CRS has directed you to place the Division I monitoring system in operation from standby. You are to notify the CRS when Division I H2/O2 monitoring system has been placed in operation.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 223070A0101

==========

Task Title: Transfer H_2/O_2 Monitoring System Monitors From Standby to Operation (Div. 1)

==========

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 262018O0104

==========

Task Title: TRANSFER AN MCC TO THE ALTERNATE POWER SUPPLY

==========

Trainee: _____ Examiner: _____

Score: _____ Pass _____ Fail Examiner Signature: _____ Date: _____

Additional Program Information:

16. **Appropriate Performance Locations: Plant**
17. **Appropriate Trainee Levels: SO/RO/SRO**
18. **Evaluation Method: __ Perform __ Simulate**
19. **Performance Time: 30 minutes**
20. **NRC K/A: 2.1.30 (3.9/3.4) 262001 A4.03 (3.2/3.4)**

Directions to Examiner:

1. **This JPM evaluates the trainee's ability to transfer an MCC to the alternate power supply.**
2. **<u>If any steps of this JPM are to be performed and not simulated, inform the Shift Supervisor prior to commencing. Upon completion, inform the Shift Supervisor of any system restoration that may be required.</u>**
3. **Brief the trainee and tell the trainee to begin.**
4. **Observe the trainee during performance of the JPM for proper use of self-checking methods.**
5. **All blanks must be filled out with either initials or an "NP" for "not performed", and an explanation may also be written in the space if desired by the examiner.**

Directions to Trainee:

When I tell you to begin, you are to transfer an MCC to the alternate power supply. Before you start, I will state the general plant conditions, the initiating cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to transfer an MCC to the alternate power supply.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 262018O0104

==========

Task Title: TRANSFER AN MCC TO THE ALTERNATE POWER SUPPLY

==========

General Conditions:

1. **A Maintenance outage is in progress (Plant is in Mode 4).**
2. **MCC-T is to be deenergized for cleaning and inspection.**
3. **Diesel Generator #1 is operable.**

General References:

1. **Procedure 2.2.19**

General Tools and Equipment:

1. **Key 43**

Special Conditions, References, Tools, Equipment:

1. **Critical checks denoted by "*".**

Task Standards:

1. **Accurately locate, identify, operate and/or manipulate all component controls required to be utilized to transfer an MCC to the alternate power supply.**
2. **Accurately locate and identify all instrumentation required to be monitored to transfer an MCC to the alternate power supply.**
3. **Correctly interpret instrument and system responses and their interrelationships when transferring an MCC to the alternate power supply.**
4. **Satisfactory completion of TPE requires a minimum of:**
   a. **100% of critical elements, as defined in the JPM, successfully completed without error.**
   b. **100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) evaluated as satisfactory (SAT) or not applicable (N/A).**

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 262018O0104

==========

Task Title: TRANSFER AN MCC TO THE ALTERNATE POWER SUPPLY

==========

Initiating Cue(s):

The CRS has directed you to transfer MCC-X from normal to emergency power in accordance with SOP 2.2.19. You are to inform the CRS when MCC-X is powered from emergency power.

NOTE: Tell the trainee to begin.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 262018O0104

==========

Task Title: TRANSFER AN MCC TO THE ALTERNATE POWER SUPPLY

==========

	Performance Checklist	Standards	Initials
1.	**Obtain Key 43.**	**The operator obtains Key 43 from the Control Room.** **CUE: If asked at the MCC, only the right white light is ON, green light is ON.**	_____*
2.	**Unlock Emergency feeder breaker.**	**At MCC-L, the operator unlocks and removes the padlock from Breaker 2B, MCC-X EMERGENCY FEEDER.** **CUE: Padlock is removed.**	_____*
3.	**CLOSE Emergency feeder breaker.**	**At MCC-L, the operator CLOSES Breaker 2B, MCC-X EMERGENCY FEEDER.** **CUE: The top of the breaker handle is to the right, the bottom is to the left.**	_____*
4.	**Verify emergency power available.**	**At MCC-X Transfer Switch, the operator ensures the EMERGENCY POWER AVAILABLE light is ON.** **CUE: Both WHITE power available lights are ON.** **CUE: If asked, green light is ON, red light is OFF.**	_____
5.	**Transfer MCC to emergency source.**	**At MCC-X Transfer Switch, the operator momentarily presses the EMERGENCY button.** **CUE: Mechanical "clunking" sound is heard.**	_____*

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 262018O0104

==========

Task Title: TRANSFER AN MCC TO THE ALTERNATE POWER SUPPLY

==========

	Performance Checklist	Standards	Initials
6.	**Verify MCC transfer.**	**At MCC-X Transfer Switch, the operator ensures the MCC-X FED FROM MCC-L light is ON.** **CUE: RED light is ON, GREEN light is OFF.**	_____
7.	**OPEN Normal feeder breaker**	**At MCC-T, the operator OPENS Breaker 3C, MCC-X NORMAL FEEDER.** **CUE: The top of the breaker handle is to the left, the bottom is to the right.**	_____ *
8.	**LOCK OPEN Normal feeder breaker.**	**At MCC-T, the operator installs the padlock removed earlier on Breaker 3C, MCC-X NORMAL FEEDER.** **CUE: Padlock is installed.** **CUE: If asked, at MCC-X red light is ON, left power avail light is ON.**	_____
9.	**Return Key 43.**	**The operator returns Key 43 to the Control Room.** **CUE: The key has been returned.**	_____
10.	**Inform CRS**	**The operator informs the CRS that MCC-X is powered from it's emergency source and that proper operation of equipment is to be verified.** **CUE: I have been informed. I will verify proper operation of equipment powered from MCC-X. This JPM is now complete.**	_____

ATTACHMENT 1

Directions to Trainee:

When I tell you to begin, you are to transfer an MCC to the alternate power supply. Before you start, I will state the general plant conditions, the initiating cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to transfer an MCC to the alternate power supply.

General Conditions:

1. **A Maintenance outage is in progress. (Plant is in Mode 4)**
2. **MCC-T is to be deenergized for cleaning and inspection.**
3. **Diesel Generator #1 is operable.**

Initiating Cue(s):

The CRS has directed you to transfer MCC-X from normal to emergency power in accordance with SOP 2.2.19. You are to inform the CRS when MCC-X is powered from emergency power.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299051A0104

==========

Task Title: INSTALL & REMOVE PTMs (PTM #41 & 42)

==========

Trainee: _____ Examiner: _____

Score: ___ Pass ___ Fail Examiner Signature: _____ Date: _____

Additional Program Information:

1. **Appropriate Performance Locations: Plant**
2. **Appropriate Trainee Levels: SO/RO/SRO**
3. **Evaluation Method: ___ Simulate ___ Perform**
4. **Performance Time: 20 minutes**
5. **NRC K/A: 2.1.30 (3.9/3.4); 2.4.34 (3.8/3.6)**

Directions to Examiner:

1. **This JPM evaluates the trainee's ability to defeat RCIC low Reactor pressure isolation using PTM #41 and #42 per 5.8.20.**
2. **ENSURE THE OPERATOR COMPLIES WITH ALL ELECTRICAL SAFETY PRECAUTIONS.**
3. **Brief the trainee and tell the trainee to begin.**
4. **Observe the trainee during performance of the JPM for proper performance IAW NTP 5.4 and the procedure.**
5. **Observe the trainee during performance of the JPM for proper use of self-checking methods.**
6. **All blanks must be filled out with either initials or an "NP" for "not performed", and an explanation may also be written in the space if desired by the examiner.**

Directions to Trainee:

When I tell you to begin, you are to perform the steps necessary to defeat RCIC low Reactor pressure isolation using PTM #41 and #42 per 5.8.20. Before you start, I will state the general plant conditions, the initiating cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to complete EOP PTM #41 and #42.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299051A0104

==========

Task Title: INSTALL & REMOVE PTMs (PTM #41 & 42)

==========

==========

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299051A0104

==========

Task Title: INSTALL & REMOVE PTMs (PTM #41 & 42)

==========

General Conditions:

1. **The plant has scrammed.**
2. **The MSIVs are closed.**
3. **HPCI is being used for pressure control.**
4. **RCIC is being used for level control.**

General References:

5. **Emergency Support Procedure 5.8.20, EOP Plant Temporary Modifications**

General Tools and Equipment:

1. **Flat tipped screwdriver.**
2. **Key for Aux Relay Room (Grand Master will work)**
3. **Electrical tape.**
4. **Key for PTM Box in Aux Relay Room (Master Lock J423)**
5. **Flashlight.**

Special Conditions, References, Tools, Equipment:

1. **Critical checks denoted by "*".**

Task Standards:

1. **Accurately locate, identify, operate and/or manipulate all component controls required to be utilized to install EOP PTMs #41 and #42.**
2. **Accurately locate and identify all instrumentation required to be monitored when installing EOP PTMs #41 and #42.**

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299051A0104

==========

Task Title: INSTALL & REMOVE PTMs (PTM #41 & 42)

==========

3. **Correctly interpret instrument and system responses and their interrelationships when installing EOP PTMs #41 and #42.**
4. **Satisfactory completion of TPE requires a minimum of:**
   a. **100% of critical elements, as defined in the JPM, successfully completed without error.**
   b. **100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) evaluated as satisfactory (SAT) or not applicable (N/A).**

Initiating Cue(s):

The Reactor Operator has directed you to defeat RCIC low Reactor pressure isolation by installing EOP PTMs #41 and #42 per ESP 5.8.20. You are to inform the Reactor Operator when the EOP PTMs #41 and #42 have been installed.

NOTE: Tell the trainee to begin.

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299051A0104

==========

Task Title: INSTALL & REMOVE PTMs (PTM #41 & 42)

==========

Performance Checklist	Standards	Initials
1. Obtain flat-tipped screwdriver and electrical tape.	**The operator obtains flat-tipped screwdriver and electrical tape.**	_____ *
NOTE: Procedure 5.8.20 is staged in the Relay Room. **NOTE: Key J423 is required to open the PTM Box in the Aux Relay room.**	**NOTE: The student must show you a flat-tipped screwdriver and electrical tape. These are in the PTM box, but a Master Lock key is required. Any flat-tipped screwdriver and electrical tape will work.**	
2. Identify Wire RC27-4 on Terminal BB-43 in PNL 9-30 (C-903-AUX RELAY RM).	**The operator correctly identifies Wire RC27-4 on Terminal BB-43 in PNL 9-30.**	_____
3. Install EOP PTM Number 41 by lifting Wire RC27-4 from Terminal BB-43, PNL 9-30 (C-903-AUX RELAY RM).	**The operator loosens the screw and removes Wire RC27-4 from Terminal BB-43 in PNL 9-30.** **CUE: The lead is lifted.**	_____ *
4. Insulate the lifted lead	**The operator wraps tape around the end of the wire lifted.** **CUE: The end of the wire has electrical tape wrapped around it.**	_____

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299051A0104

==========

Task Title: INSTALL & REMOVE PTMs (PTM #41 & 42)

==========

Performance Checklist	Standards	Initials
5. Hang PTM tag.	**The operator hangs the PTM 41 tag on the lifted lead.** **CUE: The PTM 41 tag is attached to the lifted lead.**	_____
6. Identify Wire RC-35-3 on Terminal DD-28 in BAY-3 of PNL 9-33 (C-903-AUX RELAY RM). **NOTE: Panel 9-33 bays are numbered from right to left, bay 3 is the bay farthest to the left.**	**The operator correctly identifies Wire RC-35-3 on Terminal DD-28 in BAY-3 of PNL 9-33.**	_____
7. Install EOP PTM Number 42 by lifting Wire RC-35-3 from Terminal DD-28, BAY-3, PNL 9-33 (C-903-AUX RELAY RM).	**The operator loosens the screw and removes Wire RC-35-3 from Terminal DD-28 in BAY-3 of PNL 9-33.** **CUE: The lead is lifted.**	_____*
8. Insulate the lifted lead	**The operator wraps tape around the end of the wire lifted.** **CUE: The end of the wire has electrical tape wrapped around it.**	_____

JOB PERFORMANCE MEASURE FOR OPERATIONS

Task No.: 299051A0104

==========

Task Title: INSTALL & REMOVE PTMs (PTM #41 & 42)

==========

Performance Checklist	Standards	Initials
9. Hang PTM tag.	**The operator hangs the PTM 42 tag on the lifted lead.** **CUE: The PTM 42 tag is attached to the lifted lead.**	_____
10. Inform CRS that RCIC low reactor pressure isolation has been defeated.	**The operator informs the CRS (RO) that EOP PTM 41 and 42 has been installed.** **CUE: The CRS (RO) acknowledges. This JPM is complete.**	_____

ATTACHMENT 1

Directions to Trainee:

When I tell you to begin, you are to perform the steps necessary to defeat RCIC low Reactor pressure isolation using PTM #41 and #42 per 5.8.20. Before you start, I will state the general plant conditions, the initiating cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders and controls you would be using. State the position of controls as you would have manipulated them to complete EOP PTM #41 and #42.

General Conditions:

1. **The plant has scrammed.**
2. **The MSIVs are closed.**
3. **HPCI is being used for pressure control.**
4. **RCIC is being used for level control.**

Initiating Cue(s):

The Reactor Operator has directed you to defeat RCIC low Reactor pressure isolation by installing EOP PTMs #41 and #42 per ESP 5.8.20. You are to inform the Reactor Operator when the EOP PTMs #41 and #42 have been installed.

Task No.: 200076A0504

==========

Task Title: CONDUCT ALTERNATE ROD INSERTION (Vent Scram Air Header)

==========

Trainee: _____ **Examiner:** _____

Pass: ___ **Fail:** ___ **Examiner Signature:** _____ **Date:** _____

Additional Program Information:

1. **Appropriate Performance Locations: Plant**
2. **Appropriate Trainee Levels: SO / RO / SRO**
3. **Evaluation Method: Simulate**
4. **Performance Time: 15 minutes**
5. **Importance Factor 3.5**
6. **NRC K/A 2.1.30 (3.9/3.4); 295037 EA1.05(3.9/4.0)**

Directions to Examiner:

1. **This JPM evaluates the trainee's ability to conduct alternate rod insertion by venting the scram air header.**
2. **The examiner is to obtain the "JPM Comment Form" prior to administering the JPM.**
3. **Observe the trainee during performance of the JPM for proper use of self-checking methods.**
4. **All blanks must be filled out with either initials or an "NP" for "not performed"; an explanation may also be written in the space if desired by the examiner.**
5. **Brief the trainee and tell the trainee to begin.**

Directions to Trainee:

When I tell you to begin, you are to conduct alternate rod insertion by venting the scram air header. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders, and controls you would be using. State the position of controls as you would have manipulated them to conduct alternate rod insertion by venting the scram air header.

==========

Task No.: 200076A0504

==========

Task Title: CONDUCT ALTERNATE ROD INSERTION (Vent Scram Air Header)

==========

General Conditions:

3. **A failure of RPS and ARI to insert the control rods has occurred.**
4. **The Control Room operator has placed all keylock RPS test trip switches to TRIP.**
5. **All CRD HCU scram valves remain closed.**
6. **The TSC is not yet operational.**
7. **No ARMs are alarming.**
8. **The In-Containment Rad Monitors are reading 100 REM/HR.**

General References:

1. **Emergency Operating Procedure 5.8.3**

General Tools and Equipment:

1. **Crescent Wrench (attached by wire lanyard at IA-1601).**

Special Conditions, References, Tools, Equipment:

1. **Critical checks denoted by "*".**

Task Standards:

1. **Accurately locate, identify, operate and/or manipulate all component controls required to conduct alternate rod insertion by venting the scram air header.**
2. **Accurately locate and identify all instrumentation required to be monitored to conduct alternate rod insertion by venting the scram air header.**
3. **Correctly interpret instrument and system responses and their interrelationships when conducting alternate rod insertion by venting the scram air header.**
4. **Satisfactory completion of TPE requires a minimum of:**
   a. **100% of critical elements, as defined in the JPM, successfully completed without error.**
   b. **100% of core work practices (e.g., safety, housekeeping, control of tools, material control, proper use of tools, procedure steps performed in sequence and as written) evaluated as satisfactory (SAT) or not applicable (N/A).**

Initiating Cue(s):

Task No.: 200076A0504

==========

Task Title: CONDUCT ALTERNATE ROD INSERTION (Vent Scram Air Header)

==========

You have been assigned to conduct alternate rod insertion per Emergency Operating Procedure 5.8.3. The Control Room Supervisor directs you to manually vent the scram air header and to restore the scram air header when specifically directed to do so. Notify the CRS when the task is complete.

Note: Tell the trainee to begin.

Task No.: 200076A0504

==========

Task Title: CONDUCT ALTERNATE ROD INSERTION (Vent Scram Air Header)

==========

Performance Checklist	Standard	Initials
1. Close IA-985	**Close IA-985, SCRAM DISCHARGE VOLUME and SCRAM PILOT AIR SUPPLY ROOT (R-903-SE).** **CUE: The handwheel is fully clockwise and the valve stem is down.**	_____*
2. Ensure IA-244 Open.	**Ensure open IA-244, PI-229 and PS-230 ROOT.** **CUE: The handwheel is fully counter clockwise.**	_____
3. Remove pipe cap from IA-1601. **.**	**Remove pipe cap from IA-1601, PI-229 and PS-230 DRAIN line, utilizing the wrench attached by lanyard to IA-1601.** **CUE: The pipe cap is turning.** **CUE: The pipe cap is removed.**	_____*
4. Open IA-1601	**Open IA-1601, PI-229 and PS-230 DRAIN.** **CUE: Valve handwheel is turning counter-clockwise. There is the sound of rushing air.** **CUE: The valve handwheel is fully counter clockwise.**	_____*

Task No.: 200076A0504

==========

Task Title: CONDUCT ALTERNATE ROD INSERTION (Vent Scram Air Header)

==========

Performance Checklist	Standard	Initials
5. Inform Control Room that venting is in progress.	**Notify Control Room that venting is in progress.** **CUE: When notified:** • **Acknowledge venting is in progress and DIRECT operator to stay on the line.** • **(After ~1 minute) report that all control rods are inserted and DIRECT restoration of the scram air header.**	_____
6. Close IA-1601	**Close IA-1601, PI-229 & PS-230 DRAIN.** **CUE: The valve handwheel is fully clockwise.**	_____ *
7. Install pipe cap on IA-1601	**Install and tighten the pipe cap on IA-1601, PI-229 & PS-230 DRAIN.** **CUE: The pipe cap is in place and turning.** **CUE: The pipe cap is tight.**	_____ *
8. Open IA-985	**Open IA-985, CRD SCRAM DISCHARGE VOLUME & SCRAM PILOT AIR SUPPLY.** **CUE: The handwheel is fully counter clockwise and the valve stem is up.**	_____ *
9. Inform the CRS that the task is complete	**Inform the CRS that the scram air header has been manually vented and that the scram air header is restored.** **CUE: The CRS acknowledges the report. This JPM is complete.**	_____

ATTACHMENT 1

Directions to Trainee:

When I tell you to begin, you are to conduct alternate rod insertion by venting the scram air header. Before you start, I will state the general plant conditions, the Initiating Cues, and answer any questions you may have.

When simulating, physically point to any meters, gauges, recorders, and controls you would be using. State the position of controls as you would have manipulated them to conduct alternate rod insertion by venting the scram air header.

General Conditions:

1. **A failure of RPS and ARI to insert the control rods has occurred.**
2. **The Control Room operator has placed all keylock RPS test trip switches to TRIP.**
3. **All CRD HCU scram valves remain closed.**
4. **TSC is not yet operational.**
5. **No ARMs are alarming.**
6. **The In-Containment Rad Monitors are reading 100 REM/HR.**

Initiating Cues:

You have been assigned to conduct alternate rod insertion per Emergency Operating Procedure 5.8.3. The Control Room Supervisor directs you to manually vent the scram air header and to restore the scram air header when specifically directed to do so. Notify the CRS when the task is complete.

Cooper Station	**Scenario No. 1**	**Operating Test No. 1**
Examiners:		**Candidates:**

Objectives

The crew assumes the shift with the plant operating at 70% power with all systems operable except the Emergency Transformer and the "A" CRD Pump. The crew will perform a routine shifting of RBHVAC Fans. Shortly after the fan swap the "B" REC Pump will trip. This will require entry into 2.4REC and T.S. 3.7.3. After conditions are stabilized the load dispatcher will request raising main generator load 100 Mwe which requires raising reactor power with recirc flow. While raising load the "A" Average Power Range Monitor (APRM) will fail high, initiating a half scram. This will require resetting RPS, bypassing the APRM, and checking Technical Specifications (Tracking LCO only). Main Condenser vacuum will decrease as air in-leakage rises. Lowering condenser vacuum will result in a turbine trip and reactor scram. When a reactor scram is attempted, an ATWS requires entry into EOPs 1A, 6A and 7A. ARI will fail to insert Control Rods. When Vacuum lowers to the MSIV isolation setpoint, the MSIVs will fail to close and must be manually closed. Some Control Rods will insert on the first manual scram after the ATWS. A second manual scram will insert more Control Rods, and the third manual scram will insert the remaining Control Rods.

PRA: ATWS

Initial Conditions: 70% Full Power Operation, (EOC) (IC-20) with all systems operable except the Emergency Transformer and "A" CRD Pump

Turnover: The plant has just completed a rod pattern adjustment, continue at current power level, until Reactor Engineering has completed a plan for returning to 100% power. The "A" CRD Pump is inoperable because of a severe oil leak on the speed increaser. Maintenance is putting together a work package. The station is in Day 1 of 7 day LCO (3.8.1, condition A) due to Emergency Transformer being OOS for planned maintenance on 69KV line by OPPD. After assuming the shift, the crew will perform shifting of the RBHVAC fans.

Event No.	Malf. No.	Type	Event Description
1	N/A	N	Shift RB HVAC Fans
2	SW11B	C	REC Pump Trip.
3	N/A	R	Scheduled power increase
4	NM9A (100%)	I	(RO/SRO) "A" APRM fails high.

5	MC01	C	(SRO/RO/BOP) Loss of vacuum (High air in-leakage)
6	RD02 (90%)	M	(Crew) ATWS (Hydraulic Lock on HCUs).
7	MS07	C	(SRO/BOP) MSIVs fail to close following loss of vacuum. MSIVs must be manually CLOSED.

Simulation Facility: Cooper Nuclear Station Scenario No.: 1 Op Test No.: _____

Examiners: _____ Operators: _____ CRS

_____ _____ RO

_____ _____ BOP

Initial Conditions: 70% Full Power Operation, (EOC) (IC-20) with all systems operable except the Emergency Transformer and "A" CRD Pump.

Turnover: See attached turnover sheet

Event No.	Event Type*	Position	Event Description
Pre-insert	N/A		ATWS
Pre-insert	N/A		Group 1 isolation failure
Pre-insert	N/A		Loss of power, Emergency Transformer
1	N	BOP	Shift RB HVAC Fans
2	C	CRS/BOP	REC Pump Trip.
3	R	CRS/RO	Scheduled power increase
4	I	CRS/RO	"A" APRM fails high.
5	C	Crew	Loss of main condenser vacuum
6	M	Crew	ATWS (Hydraulic Lock on HCUs).
7	C	CRS/BOP	MSIVs fail to close following loss of vacuum.

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

SCENARIO #1 SUMMARY:

The crew assumes the shift with the plant operating at 70% power with all systems operable except the Emergency Transformer and the "A" CRD Pump. The crew will perform a routine shifting of RBHVAC Fans; shortly after the fan swap, the "B" REC Pump will trip. This will require entry into 2.4REC and T.S. 3.7.3. After conditions are stabilized, the load dispatcher will request raising main generator load 100 Mwe which requires raising reactor power with recirc flow. While raising load the "A" Average Power Range Monitor (APRM) will fail high, initiating a half scram. This will require bypassing the APRM, resetting RPS and checking Technical Specifications (tracking LCO only). Main Condenser vacuum will degrade as air in-leakage rises from a leak in the turbine/condenser boot. This will require a turbine trip and reactor scram. When a reactor scram is attempted, an ATWS requires entry into EOPs 1A, 6A and 7A. ARI will also fail to insert Control Rods. When Vacuum lowers to the MSIV isolation setpoint, the MSIVs will fail to close and must be manually closed. Some Control Rods will insert on the first manual scram after the ATWS. A second manual scram will insert more Control Rods, and the third manual scram will insert the remaining Control Rods.

Scenario No: 1		Event No. 1
Event Description:		Shift Reactor Building H & V Exhaust Fans
Time	Position	Applicant's Actions or Behavior
	CRS	Directs Shift Reactor Building H & V Exhaust Fans per Section 5.0 of OP 2.2.47.
	BOP	Place Controller HV-DPIC-835A, RX BLDG/ATMOS DP, to MANUAL (M) and adjust signal to stabilize Reactor Building pressure at -0.30" to -0.33" wg. Place control switch for SUPPLY FAN selected to AUTO to RUN.
		NOTE - Performance of the next step should be rapid and may result in RX BLDG LOW D/P alarm and entry into EOPs and T.S. if RX BLDG d/p goes above zero.
	BOP	Place control switch for EXHAUST FAN selected to STBY to RUN. Place control switch for fan to be removed from service to OFF and back to STBY. Ensure Reactor Building pressure is being maintained at -0.30" to -0.33" wg. Adjust HV-DPIC-835A, to stabilize Reactor Building pressure at -0.30" to -0.33" wg. Place control switch for SUPPLY FAN selected to RUN to AUTO. Place control switch for EXHAUST FAN selected to RUN to AUTO. Place Controller HV-DPIC-835A, RX BLDG/ATMOS DP, in AUTO (A). Ensure Reactor Building pressure continues to be maintained at -0.30" to -0.33"

Scenario No: 1		Event No. 2
Event Description:		REC Pump Trip
Time	Position	Applicant's Actions or Behavior
	BOP	Reports Annunciator: M-1/B-2, REC PUMP B FAILURE. and possibly LOW HEADER PRESSURE.
	BOP	Diagnoses the loss of the "B" REC Pump
	CRS	Directs the start of necessary REC pumps.
	BOP	Starts the "C" REC pump.
	BOP	Starts the "C" REC Pump and verifies normal system operation. Directs an SO to inspect the REC Pump area for unusual conditions and verify the "C" REC Pump is operating correctly. Verifies correct valve lineup and monitors REC Pump discharge pressures.
	CRS	Initiates investigation and repair of REC Pump "B" Enters T.S. 3.7.3.A1 and declares a 30 day LCO

Scenario No: 1		Event No. 3
Event Description: Power Increase		
Time	Position	Applicant's Actions or Behavior
	CRS	Direct the RO to increase station output by 100 MWe by raising recirc flow in accordance with station procedure 2.1.10. **NOTE:** CRS may act as Reactivity Manager.
	RO	Enters 2.1.10, STATION POWER CHANGES Raises power by increasing RR pump flow, maintaining loop flows balanced. Maintains rate of power change consistent with system capabilities as determined by Load Dispatcher. Discontinues power rise when directed or station output has risen 100 MWe.
	BOP	Monitors secondary plant parameters and reports Mwe changes to RO.

Scenario No: 1		Event No. 4
Event Description:		"A" APRM Fails High
Time	Position	Applicant's Actions or Behavior
	RO	Reports Annunciators 9-5-1/A-4, ROD WITHDRAWAL BLOCK 9-5-1/A-7 APRM RPS CH A UPSCALE TRIP OR INOP 9-5-2/A-1 RX SCRAM CHANNEL A alarm. Diagnoses half scram and APRM "A" High
	CRS	Directs BOP to back panels to check APRM drawers for indications and trouble shooting.
	BOP	Locates APRM "A" on back panels Reports APRM "A" failed upscale
	CRS	Directs RO to BYPASS APRM "A" and reset half scram. May check T.S. 3.3.1 (Minimum channel requirments are met) and declare a Tracking LCO on the failed APRM.
	RO	Bpasses APRM "A" Resets half scram per 2.1.5

Scenario No: 1		Event No. 5
Event Description: Loss of Main Condenser vacuum		
Time	Position	Applicant's Actions or Behavior
	BOP	Operator diagnoses loss of vacuum from Control Room indications or annunciator B-1/A-3, TG LOW VACUUM PRE-TRIP Announces degrading condenser vacuum.
	CRS	Enters ABNORMAL PROCEDURE 2.4.VAC, LOSS OF CONDENSER VACUUM Directs a reactor power reduction by reducing recirculation flow. Notifies Load Dispatcher. Directs BOP operator to keep him informed of vacuum When it is determined that vacuum cannot be recovered to >23" Hg, directs a Reactor Scram and Turbine Trip.
	RO	Lowers power by lowering RR pump flow. Maintains rate of power change consistent with system capabilities. When directed, manually scrams the reactor, reports failure to scram.

Scenario No: 1		Event No. 6
Event Description: ATWS (Hydraulic Lock)		
Time	Position	Applicant's Actions or Behavior
	CRS	Enters EOP-1A and transitions to 6A/7A. Directs: Place the Mode switch in S/D ARI initiated Manually runback RR pumps to minimum Trip Recirc pumps Insert control rods using 5.8.3 actions. Verify group isolations. Inhibit ADS Pressure be maintained 800 to 1000 psig. RPV Low Water Level Group 1 be defeated. (This step may not be taken if the MSIVs have closed or the CRS anticipates MSIV closure on the loss of vacuum.)
	RO	Mode switch to SHUTDOWN. Initiate ARI. Run Recirc pumps to minimum. Trip Recirc pumps. Insert control rods per 5.8.3 Begins actions to reset the scram and re-inserting additional scrams.
	BOP	Inhibit ADS. Verify Group isolations (MSIVs should isolate by 8" Hg vac). Maintain RPV pressure 800 to 1000 psig with Turbine Bypass Valves and SRVs. Initiates SLC (If directed at this time) and confirms injection. Provides initial SLC Tank level to the CRS.
	CRS	Directs terminating and preventing injection except for RCIC, CRD and Boron injection be terminated and prevented until RPV water level is < +100" (corrected FZ) Before BIIT, direct SLC be initiated. When RPV water level reaches +100" (corrected FZ), direct RPV water level be maintained between -25" and +100" (corrected FZ) (LL).

Scenario No: 1	Event No. 6

Event Description: ATWS (Hydraulic Lock)		
Time	Position	Applicant's Actions or Behavior
	BOP	Lowers RPV water level to +100" and reports to CRS. When and if directed, maintains RPV water level -25" to +100".
	CRS	When torus temperature reaches 95?F, enter and direct the activities of EOP-3A. Direct torus cooling be placed in service. When all rods have been inserted or HSBW injected, direct RPV water level be restored and maintained +15" to +40".
	RO	Direct SO to install EOP PTM 61 & 62. Install jumpers to defeat RPS. Reset scram. Allow SDV to drain. Insert manual scram, report rod movement. Reset scram and continue inserting manual scrams. Report when 26% (HSBW) of the SLC tank has been injected.
	BOP	Initiates RHR in Suppression Pool Cooling. When directed, maximizes Suppression Pool Cooling. Restore and maintain RPV water level +15" to +40".
	CRS	Classifies event as a Site Area Emergency (based on EAL 3.3.4) and implements EPIP 5.7.2, Shift Supervisor EPIP.

Scenario No: 1		Event No. 7
Event Description:		MSIVs failure to automatically isolate
Time	Position	Applicant's Actions or Behavior
	BOP	Report MSIVs have not isolated on low cond. vacuum (10").
	CRS	Direct maually closing the MSIVs.
	BOP	Place all MSIV control switches to CLOSE. Verify all MSIVs are closed.

Critical Tasks Scenario #1	Sat	Unsat
The Crew shall stop injection within 5 minutes of directing injection be stopped.		
The crew shall insert the control rods.		

Instructor Station Instructions

Scenario #1

SIMULATOR SET-UP

A. Initialize the simulator in IC 20, Full Power Operation (EOL).

1. Transfer to RUN.

2. Load batch file A:\nrc1

1-3 Lower Reactor power to 70% using recirc flow

1-4 Adjust generator to +100 MVARs.

1-5 Balance voltage regulator.

1-6 Balance all controllers.

1-7 Place breakers 1FS and 1GS in PTL

1-8 Ensure PMIS IDTs are blank

1-9 Red tag the "A" CRD Pump

1-10 Red tag breaker C/S for 1FS & 1GS.

1-11 Clear all annunciators

1-12 Turn recorder power ON

1-13 Adjust GAFs

B. Verify simulator conditions as follows:

1. **Triggers**

Number	File Name	Description
E1	None	Default to False
E2	None	Default to False
E3	None	Default to False
E4	None	Default to False
E5	None	Default to False

2. **Malfunctions**

Number	Title	Trigger	TD	Severity	Ramp	Initial
RP04	Group 1 Isolation Failure	Active	N/A	N/A	N/A	N/A

Instructor Station Instructions
Scenario #1

Number	Title	Trigger	TD	Severity	Ramp	Initial
RD02	ATWS	Active	N/A	90%	N/A	N/A
ED06	Loss of Power Emergency Transformer	Active	N/A	N/A	N/A	N/A
SW11B	Trip of “B” REC Pump	E1	0	N/A	N/A	N/A
NM09A	APRM Signal Failure	E3	0	100%	N/A	N/A
MC01	Main Condenser Air In-Leakage	E4	0	100%	10:00	N/A

3. **Remotes**

Number	Title	Trigger	Value	Ramp
RD18	Install ARI PTMs	E4	N/A	N/A
RD04	Manually Close CRD-29	E5	CLOSE	N/A

4. **Overrides**

Instrument	Tag	Trigger	TD	Value	Ramp
Control Switch for CRD Pump A (START, STOP)	zdicrdsws3a[1]	A	N/A	STOP	N/A
Control Switch for CRD Pump A green light	zdocrdsws3a[1]	A	N/A	OFF	N/A

Instructor Station Instructions
Scenario #1

Pre Events:

Allow the operators several minutes to review the panels and set up the controls and displays as they desire.

Event #1:Shift Reactor Building H & V Exhaust Fans

ROLE PLAY:
None

Event #2: REC Pump Trip

ACTION:
When the crew has swapped RBHVAC fans and Secondary Containment Parameters are normal and when directed by the lead examiner **Activate Trigger E1: REC Pump B Trip**

ROLE PLAY:
If asked as the Station Operator to investigate wait 1 minute and report that the pump motor is hot and it smells of hot insulation.

ROLE PLAY:
If asked to check the C REC Pump as the SO report that it is operating normally.

Event #3: Power Increase

ROLE PLAY:
Contact the Control Room via extension 5271 as the load dispatcher and direct that **net load be raised 100 MWe**. In addition direct that MVARs remain at +100 MVARs.

ROLE PLAY:
If contacted as the reactor engineer direct the crew to raise power using recirc flow.

Instructor Station Instructions
Scenario #1

Event #4: "A" APRM Fails High

ACTION:
After the crew has completed the power change and when directed by the lead examiner **Activate Trigger E3: APRM Signal Failure.**

ROLE PLAY:
If contacted as I & C report that you will get a tech and be up in the control room in about 15 minutes.

Event #5: Loss of Main Condenser vacuum

ACTION:
After the crew has reponded to the APRM failure and when directed by the lead examiner **Activate Trigger E4:Main Condenser Air In-Leakage.**

ROLE PLAY:
If called as the load dispatcher acknowledge the load reduction.

Event #6: ATWS

ROLE PLAY:
If asked as the Station Operator to install ARI PTMs, wait 2 minutes, then Insert REMOTE FUNCTION **RD18**, EOP PTMs 61 and 62 and inform the Control Room.

ACTION:
One minute after the first manual scram, modify malfunction **RD02**, ATWS to 80%
After the second scram modify malfunction **RD02**, ATWS to 60%
After the third scram delete malfunction **RD02**.

ACTION:
When the following conditions are reached, place the simulator in **FREEZE**:

1. The MSIV's are closed.
2. Reactor is shutdown under all conditions without boron.
3. When directed by the lead examiner.

Instructor Station Instructions
Scenario #1

Batch File

^NRC Scenario 1

imf rp04
imf rd02 90
imf ed06
ior zdicrdsws3a[1] stop
ior zlocrdsws3a[1] off
imf sw11b(1)
imf nm09a(2)
imf mc01(3) 100 10:00
irf rd18(4) remove
irf rd04(5) close

Turnover Information

Scenario #1

Plant Status:

1. The plant is operating at approximately 70% power near the end of the operating cycle.

2. Rod Sequence Information:

Step:	1
Rod:	18-27
Notch:	26

3. Tech. Spec. Limitations in effect:

   Day 1 of 7 day LCO (3.8.1, condition A) due to Emergency Transformer being OOS for planned maintenance on 69KV line by OPPD. All associated surveillances are current. SR6.EE.610 was performed one hour ago.

4. Significant problems/abnormalities:

   - "A" CRD Pump is tagged out. The speed increaser gearbox is being replaced after complete failure.
   - Emergency Transformer estimated return to service this shift.
   - Southeast Nebraska is in a severe thunderstorm warning and flash flood watch.

5. Evolutions/maintenance for the on-coming shift:

   - When contacted, raise power level.
   - Mechanics working on "A" CRD Pump.
   - OPPD expediting return of 69KV line due to weather
   - As soon as possible after assuming the shift, shift RBHVAC fans to permit maintenance to lubricate Exhaust Fan EF-R-1A

Instructor Station Instructions

Scenario #1

Instructor Station Instructions

Scenario #1

Cooper Station	Scenario No. 2	Operating Test No. 1
Examiners:	**Candidates:**	

Objectives:

The crew assumes the shift with the plant operating at 100% power with all systems operable except the Emergency Transformer and "A" CRD Pump. The crew will start the "A" CRD Pump and place it in service. After the CRD system is operating normally, Doniphan will notify Cooper that the south interface load has exceeded 1190 MVA and that Cooper must lower load 100 MWe immediately. After a sufficient power change is observed, the DEH oil pressure pilot valve spring will fail, causing DEH pressure oscillation, this will require stopping the power reduction. When conditions have stabilized, a 20% spurious runback signal will force the reactor into the Stability Exclusion Region and power oscillations will occur. Since these are large power oscillations with the auto scram function defeated, the crew must manually scram the reactor. When the reactor scrams off-site power will be lost and a small break will start on the B Recirc Loop discharge line. The DGs will start and provide power to emergency buses. A failure of the HPCI Auxiliary Oil Pump will prevent operation of HPCI. RCIC will fail to automatically start and must be manually started. After its started it will trip. It may be restarted, but will continue to trip. When RPV water level cannot be maintained, the crew must Emergency Depressurize and restore RPV water level with low pressure ECCS systems with power supplied by the DGs.

PRA Station Blackout and LOCA

Initial Conditions: 100% Full Power Operation (EOC) (IC-20). All systems operable except the Emergency Transformer and "A" CRD Pump.

Turnover: Continue power operations. All systems are operable except the Emergency Transformer and the "A" CRD Pump. The station is in day 1 of 7 day LCO (3.8.1, condition A) due to Emergency Transformer being OOS for planned maintenance on 69KV line by OPPD. The "A" CRD Pump had been out of service for an oil leak and has been repaired. Maintenance is standing by for the crew to start the pump and place it in service.

Event No.	Malf. No.	Type	Event Description
1	N/A	N	(SRO/BOP) Start the "A" CRD pump and place it in service. Secure the "B" CRD Pump.
2	N/A	R	(SRO/RO) Power reduction to lower load on the south interface.
3	TC04	I	(SRO/BOP) DEH Oil System Pressure Oscillation requires shifting DEH Pumps.

Instructor Station Instructions

Scenario #1

4	RR12A RR12BC R04	I	(SRO/RO) Recirculation Pump Runback to 20% with power oscillations.
5	ED05 ED07 ED15	C	(Crew) Loss of all off-site power.
6	RR20B HP10	M	(Crew) Small break LOCA with a failure of the HPCI Auxiliary Oil Pump, resulting in an inability to restore RPV water level, requiring Emergency Depressurization.
7	RC02	C	(SRO/BOP) RCIC fails to start then trips on high exhaust pressure after it is manually started.

Simulation Facility: Cooper Nuclear Station Scenario No. 2 Op. Test No. _____

Examiners: _____ Operators: _____ CRS

_____ _____ RO

_____ _____ BOP

Initial Conditions: 100% Full Power Operation, (EOC) (IC-20) with all systems operable except the Emergency Transformer.

Turnover: See attached turnover sheet.

Event No.	Event Type	Position	Event Description
Pre-insert	N/A		RRMG A Scoop Tube Lockout P/B failure
Pre-insert	N/A		RRMG B Scoop Tube Lockout P/B failure
Pre-insert	N/A		RCIC system failure to automatically start
Pre-insert	N/A		HPCI Auxiliary Oil Pump failure to start
Pre-insert	N/A		4160 Bus auto transfer failure
Pre-insert	N/A		Loss of power Emergency Transformer
1	N (CRS/BOP)		Start the "A" CRD pump and place it in service. Secure the "B" CRD Pump.
2	R (CRS/RO)		Power reduction to lower load on the south interface.
3	C (CRS/BOP)		DEH Oil System Pressure Oscillations.
4	I (CRS/RO)		Recirculation Pump Runback to 20% with power oscillations.
5	C (CRS/BOP)		(Crew) Loss of all off-site power.
6	M (CREW)		Small break LOCA with an HPCI Aux oil pump failure
7	C (CRS/BOP)		(CRS/BOP) RCIC fails to automatically start then trips.

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

SCENARIO # 2 SUMMARY:

The crew assumes the shift with the plant operating at 100% power with all systems operable except the Emergency Transformer and “A” CRD Pump. The crew will start the “A” CRD Pump and place it in service. After the CRD system is operating normally, Doniphan will notify Cooper that the south interface load has exceeded 1190 MVA and that Cooper must lower load 100 MWe immediately. After a sufficient power change is observed, the DEH oil pressure pilot valve spring will fail, causing DEH pressure oscillation, this will require stopping the power reduction. When conditions have stabilized, a 20% spurious runback signal will force the reactor into the Stability Exclusion Region and eventual power oscillations will occur. Entry into the Stability Exclusion Region will require entry into T.S. 3.4.1. The power oscillations will become large and may reach the APRM High setpoints with the auto scram function defeated. The crew must manually scram the reactor. When the reactor scrams off-site power will be lost and a small break will start on the B Recirc Loop discharge line. The DGs will start and provide power to emergency buses. A failure of the HPCI Auxiliary Oil Pump will prevent operation of HPCI. RCIC will fail to automatically start and must be manually started. After its started it will trip. It may be restarted, but will continue to trip. When RPV water level cannot be maintained, the crew must Emergency Depressurize and restore RPV water level with low pressure ECCS systems with power supplied by the DGs.

Scenario No: 2		Event No. 1
Event Description:		Start the “A” CRD Pump and secure the “B” CRD Pump
Time	Position	Applicants’ Actions or Behavior
	CRS	Directs the BOP to establish communication with the CRD Room, then start the “A” CRD pump and when proper operation is established shutdown the “B” CRD Pump.
	BOP	Establish communications between Control Room and CRD pump area.
	BOP	Check the “A” CRD pump is lined up for operation.
	BOP	At Panel 9-5, balance CRD-FIC-301, CRD FLOW CONTROL, and place to MANUAL. Start standby CRD pump.
	BOP	Shut down CRD pump to be removed from service. adjust manual control on CRD-FC-301 to obtain flow of 50 gpm. Balance CRD-FC-301 and place to BAL. At Panel 9-5, check charging water pressure and drive water DP and adjust if needed.

Scenario No: 2		Event No. 2
Event Description:		Power Reduction
Time	Position	Applicants' Actions or Behavior
		The Control Room is contacted by Doniphan and notified that the Cooper south interface load has exceeded 1190 MVA and that an immediate load reduction of 100 Mwe is required.
	CRS	Enters 5.3GRID. Direct an immediate power reduction of 100 Mwe using recirculation flow. Acts as Reactivity Manager.
	RO	Enters 2.1.10, STATION POWER CHANGES - Lowers power by lowering RR pump flow. Maintains rate of power change at 10 MWe per minute - Enters 5.3GRID.
	BOP	Monitors plant parameters. Evaluates which plant loads may be secured.
	CRS	Notifies station management and the system load dispatcher.

Scenario No: 2		Event No. 3
Event Description:		DEH Oil System Pressure Oscillation requires stopping power reduction.
Time	Position	Applicants' Actions or Behavior
		Annunciator B-1/A-6 TURB EH FLUID LOW PRESSURE alarms
	BOP	Determines standby pump starts (both pumps are running). Directs an SO to check the EHC pumps and piping Diagnoses oscillating DEH relief valve from oscillating pressure on DEH pressure indication. Requests SO to verify proper operation of pumps and check for leaks. Remove standby pump from service per 2.2.80.
	CRS	Directs stopping any power changes in progress Directs RO to monitor reactor pressure set Enters 2.4DEH Gives Scram Actions Directs securing one DEH Pump Directs restoring DEH to a normal lineup in accordance with 2.2.80. Initiates a work order for the oscillating DEH Valve.

Scenario No: 2		Event No. 4
Event Description:		Recirculation Pump Runback to 20% with power oscillations.
Time	Position	Applicants' Actions or Behavior
		Annunciators 9-4-3/D-3 RECIRC A FLOW LIMIT alarms 9-4-3/D-7 RECIRC B FLOW LIMIT alarms Followed by: Annunciators 9-5-1/A-4 ROD WITHDRAWAL BLOCK 9-5-1/B-7 LPRM UPSCALE 9-5-1/C-7 LPRM DOWNSCALE 9-5-1/B-8 APRM UPSCALE and others indicating core power oscillations.
	RO	Monitors recirculation flow and reactor power. Attempts to limit the transient by pressing the SCOOPTUBE LOCKOUT buttons. Press RR PUMP RUNBACK RESET button. Determines that feedwater flow is > 20% and RR-MO-53A/B are full open. Monitors for power oscillations. Informs CRS of entry into stability exclusion region. Inserts control rods per Attachment 7, Emergency Power Reduction Rods. When directed by the CRS or the RO determines reactor safety in jeopardy depresses both RX SCRAM buttons (Panel 9-5). Verifies all rods in Monitors nuclear instrumentation: - Insert SRM and IRM detectors. - Change APRM recorders to IRMs. - Range IRMs on scale. - Check reactor power is lowering. Verifies <u>all</u> SDV vent and drain valves are closed.
	CRS	Directs RO to press SCOOPTUBE LOCKOUT buttons. Enters 2.4RR, REACTOR RECIRCULATION ABNORMAL Enter Attachment 4 when entry in or near the stability exclusion region is determined. Enters T.S. 3.4.1 Increase speed of operating recirculation pump(s) per Procedure 2.1.10. Insert Emergency Power Reduction Rods per Procedure 10.13. When core power oscillations reach the APRM scram set point directs a MANUAL SCRAM.

Scenario No.	2	Event No.	4 (continued)
Event Description:	Recirculation Pump Runback to 20% with power oscillations		

Time	Position	Applicant's Actions or Behavior
	BOP	Monitors secondary plant response. After the reactor is scrammed: Trips one reactor feedwater pump Trips all but one condensate booster pump and condensate pump. Ensure Main turbine automatically trips or manually trip the turbine when main generator output is < 80 Mwe. Diagnoses Loss of Off-Site Power.

Scenario No: 2		Event No. 5
Event Description:		Loss of all off-site power.
Time	Position	Applicants' Actions or Behavior
		The following annunciators alarm: C-2/D-9 STARTUP XFMR SECONDARY UNDERVOLTAGE C-2/C-9 STARTUP XFMR LOW VOLATAGE C-2/A-1 4160V BUS 1A UNDERVOLTAGE. (and 1B, 1E, 1G, etc.)
	CRS	Enters EMERGENCY PROCEDURE 5.3EMPWR, EMERGENCY POWER and directs actions for a loss of off-site AC power. Establishes a pressure band of 800 to 1000 psig using SRVs. Establishes a RPV level band of 10" to 40". Enters EOP-5A is the loss of power causes a high temperature in the MS Tunnel.
	BOP	Verifies: 4160V Buses 1A, 1B, 1C, 1D, and 1E de-energized. Both DGs have started and loaded. 4160V Bus 1F/1G energized by emergency source. Monitors DG load to prevent exceeding maximum load (4000 kW and 694 amps; DG may be overloaded to 4400 kW and 763 amps for 2 hours in a 24 hour period). Places DRYWELL REC ISOL VALVE CONTROL switch to OPEN. Throttles open REC HX outlet valve for a HX that was in service, as necessary, to maintain REC-PI-452, REC HEADER PRESSURE, in green band: Ensures the emergency DC lube oil pumps have started Places Condensate and Condensate Booster Pump switches to TRIP. Places Air Compressor "A" or "B" switch to RUN.
	RO	Restores CRD System per Procedure 2.2.8.

Scenario No.: 2		Event No.: 6
Event Description:		Small break LOCA with inability to restore RPV water level
Time	Position	Applicants' Actions or Behavior
	RO/BOP	Monitors RPV water level and Primary Containment parameters. Diagnose LOCA by lowering RPV water level and rising Drywell pressure.
	BOP	Diagnoses HPCI Aux Oil Pump failure. Diagnoses RCIC failure to start. Initiates torus spray. Initiates drywell sprays - Shuts down drywell coolers (if operating) - Shuts down recirc pumps - Initiates drywell sprays Throttles drywell spray to prevent torus pressure from dropping to 0 psig. Controls low pressure ECCS to restore and maintain RPV water level between TAF and MSL. Monitors DG load to prevent exceeding maximum load (4000 kW and 694 amps; DG may be overloaded to 4400 kW and 763 amps for 2 hours in a 24 hour period.)
	RO	Inhibits ADS when timer initiates. Controls low pressure ECCS to restore and maintain RPV water level between 15" and 40". Restores REC Re-establishes drywell cooling by re-starting FCUs
	CRS	Enters EOP-1A and 3A Directs attempt to maintain RPV water level between 15" and 40". Directs restoring REC Directs re-establishing Drywell FCUs Directs maximizes CRD flow and initiating SLC pumps. Directs inhibiting ADS Before Torus pressure reached 10 psig directs initiating torus spray. When Torus pressure exceeds 10 psig directs initiating drywell spray. When RPV water level cannot be maintained >-25" enters EOP-2A, EMERGENCY DEPRESSURIZATION. Directs opening six SRVs and controlling low pressure injection to restore level.

Scenario No: 2		Event No. 7
Event Description:		RCIC fails to auto start.
Time	Position	Applicants' Actions or Behavior
	CRS	Directs attempting to manually restore RCIC.
	BOP	Uses RCIC SYSTEM OPERATION HARDCARD to start RCIC. Open RCIC-MO-132. Start GLAND SEAL VACUUM PUMP. Open RCIC-MO-21. Adjust RCIC-FIC-91, RCIC flow controller, as required, to maintain level. Diagnoses RCIC trip on high exhaust pressure.

CRITICAL TASKS	SAT	UNSAT
The Crew shall emergency depressurize when RPV water level cannot be restored and maintained >-25".		
The Crew shall initiate drywell sprays at >10 psig torus pressure and before PSP is exceeded.		
The Crew shall initiate a manual scram when oscillations reach the APRM Scram setpoint.		

1983.

Instructor Station Instructions
Scenario #2

SIMULATOR SET-UP

A. Initialize the simulator in IC 20, Full Power Operation (EOL).

1. Transfer to RUN.
2. Load batch file A:\nrc2.
3. Balance all controllers.
4. Place breakers 1FS and 1GS in PTL
5. Ensure PMIS IDTs are blank
6. Red tag breaker C/S for 1FS & 1GS.
7. Clear all annunciators
8. Turn recorder power ON
9. Adjust GAFs

Verify simulator conditions as follows:

B. Triggers

Number	File Name	Description
E1	None	Default to False
E2	None	Default to False
E3	nrc2	Activates when #1 TSV closes
E4	None	Default to False
E5	None	Default to False

C. Malfunctions

Number	Title	Trigger	TD	Severity	Ramp	Initial
RC01	RCIC System Failure to Auto Start	A	0	N/A	N/A	N/A
ED06	Loss of Power, Emergency Transformer	A	0	N/A	N/A	N/A
HP11	HPCI Aux Oil Pump Failure	A	0	N/A	N/A	N/A
ED03B	Transfer Failure	A	0	N/A	N/A	N/A
TC04	DEH Oil System Pressure Oscillation	E1	0	N/A	N/A	N/A
RR12A	“A” RR Pump Runback 20%	E2	0	N/A	N/A	N/A

Number	Title	Trigger	TD	Severity	Ramp	Initial
RR12B	"B" RR Pump Runback 20%	E2	0	N/A	N/A	N/A
CR04	Low-Flow Hi-Power Instability	E5	0	80%	3 min	N/A
ED05	Loss of Power Startup Transformer	E3	0	N/A	N/A	N/A
ED07	Loss of Power Normal Transformer	E3	0	N/A	N/A	N/A
ED15	Loss of 12.5 KV power	E3	0	N/A	N/A	N/A
RR20B	Coolant Leak inside the PC	E3	2 min	70	15	N/A
RC02	RCIC Turbine Trip	E4	0	N/A	N/A	N/A

D. Remotes

None

E. Overrides

Instrument	Tag	Trigger	TD	Value	Ramp
RRMG A Scoop Tube lockout P/B	ZDIRRMGSWS16A	A	N/A	OFF	N/A
RRMG B Scoop Tube lockout P/B	ZDIRRMGSWS16B	A	N/A	OFF	N/A
PTM #31 RPS Scram Bypass Jumper	ZDIRPSSCRM JA1 IN	A	N/A	IN	N/A
PTM #32 RPS Scram Bypass Jumper	ZDIRPSSCRM JA2 IN	A	N/A	IN	N/A
PTM #33 RPS Scram Bypass Jumper	ZDIRPSSCRM JB1 IN	A	N/A	IN	N/A
PTM #34 RPS Scram Bypass Jumper	ZDIRPSSCRM JB2 IN	A	N/A	IN	N/A

Instructor Station Instructions
Scenario #2

Pre Events

Allow the operators three to five minutes to review the panels and set up the controls and displays as they desire.

Event # 1: Start the "A" CRD Pump and place it in service. Secure the "B" CRD Pump.

ROLE PLAY:
As the AO in the CRD Room report you and a maintenance mechanic are standing by for the pump start.

ROLE PLAY:
Report the following:

- Suction valve full open.
- Minimum flow valve open.
- Discharge valve open.
- Pump and motor oil levels normal.
- Pump casing and suction filter vented.

ROLE PLAY:
From the CRD Pump room report that the "A" CRD Pump is operating normally.

Event #2: Power Reduction

ROLE PLAY:
When the crew has placed the A CRD Pump in service and secured the B CRD Pump contact the Control Room as Doniphan and notify the CRS the Cooper south interface load has exceeded 1190 MVA and that an immediate load reduction of 100 Mwe is required.

Event #3: DEH Oil System Pressure Oscillation requires stopping power reduction.

ACTION: When directed by the Chief Examiner Activate Trigger E1: DEH Oil Pressure Oscillation

ROLE PLAY:

As SO sent to DEH area; report that the discharge relief valve is periodically lifting.

Report that there are no leaks.

When the standby pump has been started and the oscillating pump shutdown, report all conditions are normal.

NOTE:

Delete the malfunction when the B DEH Pump is secured

Event #4: Recirculation Pump Runback to 20% with power oscillations.

ACTION: When directed by the Chief Examiner Activate Trigger E2: Recirculation Pump Runback

ROLE PLAY:

If contacted as Reactor Engineering, request the CRS to wait five minutes while you run some computer analysis to determine the correct rod sequence to use for a power reduction.

ACTION: After the CRS has determined the T.S. Entry (3.4.1) Active Trigger E5: Power Oscillations.

NOTE:

The LOOP and small break LOCA (LOCA is on a time delay and ramp) are automatically triggered by the Main Turbine Stop Valves leaving the full open position when the turbine is tripped following the reactor scram.

Event #5: Loss of Off-Site Power.

ROLE PLAY:

If sent to the Diesel Genrators as the SO to check the DGs report that they are operating normally.

Event #6: Small break LOCA resulting in an inability to restore RPV water level requiring Emergency Depressurization.

Event #7: RCIC fails to auto start then (when manually started) trips on high exhaust pressure.

ACTION:

When the following conditions are reached, place the simulator in **FREEZE.**

- RPV Water level is being controlled above + 3".
- Drywell pressure is being maintained below 10 psig.

imf rc01
imf ed06
imf hp11
imf tc04(1)
imf rr12a(2)
imf rr12b(2)
imf cr04(2 2:00)80 3:00 **Put this on a separate trigger (E5 and remove the TD)**
imf ed03b
imf ed05(3)
imf ed07(3)
imf ed15(3)
imf rr20b(3 2:00) 70 15:00
imf rc02(4)

IOR ZDIRPSSCRMJA1 IN
IOR ZDIRPSSCRMJA2 IN
IOR ZDIRPSSCRMJB1 IN
IOR ZDIRPSSCRMJB2 IN

ior zdirrmgsws16a off
ior zdirrmgsws16b off

trgset 3 "zlotcltsv1[2] == 1"
^set up trigger 3 to activate when the #1 TSV is closed

Turnover information

Scenario 2

Plant Status:

1. The plant is operating at 100% power, near the end of the current cycle.

2. Rod Sequence Information:
   Step: 01
   Rod: 26-27
   Notch: 36

3. Tech. Spec. Limitations in effect:

   Day 1 of 7 day LCO (3.8.1, condition A) due to Emergency Transformer being OOS for planned maintenance on 69KV line by OPPD. All associated surveillances are current.

4. Significant problems/abnormalities:

   0.1 "A" CRD Pump was tagged out. The tags (Clearance) have been cleared and maintenance and an AO are standing by for a pump start to verify proper operation.

   0.2 Emergency Transformer estimated return to service this shift.

5. Evolutions/maintenance for the on-coming shift:

   Start the "A" CRD Pump and if it is operating properly, place it in service and secure the "B" CRD Pump.

Instructor Station Instructions

Turnover Information

Scenario #2

Scenario 2

OPPD expediting return of 69KV line due to weather.

Turnover Information

Cooper Station	Scenario No. 3	Operating Test No. 1
	Examiners:	Candidates:

Turnover Information

Objectives:

The crew assumes the shift with the plant operating at 100% power. Core Spray Pump "B" is tagged out for maintenance while replacing the pump seal. SGT "B" was started earlier for the system engineer who requested a vibration measurement. The measurement was completed all data has been taken. The crew is to shutdown SGT "B" and place it in a standby lineup. When SGT is secured and in a standby lineup, the 125 VDC Panel AA3 will fail, requiring entry into 5.3DC125. The loss of this panel results in:

- Trip of the "A" Recirculation Pump
- Loss of trip capability for the "A" CRD Pump and "A" Air Compressor.
- Loss of control of the "A" and "C" SW Pumps.
- Inoperability of CS "A", RCIC, DG-1, RHR Subsystems "A" and "B" RHR SW Pumps "A" and "C" and SW Pumps "A" and "C".

The loss of AA3 will require the crew to enter T.S. 3.0.3 and determine a plant shutdown is required. When Cooper management is notified they will direct an immediate shutdown.

After the initial portion of the power reduction is completed, the Master Feedwater Controller will fail low. If the operator catches the failure, operation in manual is possible. After controlling feedwater in manual, if a decision to manually scram is not reached, then the feedwater pumps will trip. This will result in a loss of Feedwater and a Reactor Scram. HPCI will initiate (or be manually initiated) and must be shutdown manually. Group 6 will fail to automatically isolate and must be diagnosed and manually isolated. EOP-1A must be entered. During the HPCI initiation, HPCI will develop a steam line break and fail to isolate. EOP-5A must be entered. As Reactor Building temperatures rise, the crew will rapidly depressurize using the Turbine Bypass Valves and/or the SRVs, EOP-1A and/or 2A. In either case, the first method attempted will partially fail (up to five SRVs do not open or the Turbine Bypass valves fail closed). Alternate steps for emergency de-pressurization must be taken.

PRA Loss of Containment

Initial Conditions: 100% Full Power Operation (EOC) (IC-20). Core Spray Pump "B" is out of service.

Turnover Information

Scenario 2

Turnover: Continue power operations. Core Spray Pump "B" is tagged out for maintenance while replacing the pump seal. SGT "B" was started earlier for the system engineer who requested a vibration measurement. The measurement was completed all data has been taken. The crew is to shutdown SGT "B" and place it in a standby lineup.

Turnover Information

Scenario 2

Event No.	Malf. No.	Type	Event Description
1	N/A	N	(SRO/BOP) Shutdown SGT "B" and place it in a standby lineup.
2	ED19	C	(SRO/BOP/RO) 125 VDC Panel AA3 failure (Instrument power supplies).
3	N/A	R	(SRO/RO) Power reduction for T.S. 3.0.3 required shutdown.
4	FW09	I	(SRO/BOP/RO) Loss of Feedwater Master Controller, slowly failing low, requiring manual control of feedwater.
5	HP06 (5% over 20 Min) HP09	M	(CREW) HPCI un-isolatable steam line leak (and trip of running feedwater pumps).
6	RP09	I	(CRS/RO) Failure of the auto isolation of Group 6
7	AD06 (A,C,D,E ,H) TC07 (A, B, C)	C	(SRO/BOP) Failure of the Turbine Bypass Valves to remain open and/or failure of up to five SRVs to open.

Turnover Information

Cooper Station	Alternate Scenario (Scenario 4)	Operating Test No. 1
Examiners:	**Candidates:**	

Objectives:

The crew assumes the shift with the plant operating at 100% power with all systems operable except the "A" CRD Pump. The crew will perform a routine shifting of SW Pumps after maintenance has completed a breaker inspection on the "B" SW Pump Breaker. During this pump swap several Tech. Specs. considerations should be made. After the SW Pump swap the load dispatcher will request lowering main generator load 100 Mwe which requires lowering reactor power with recirc flow. While lowering load the "D" Main Steam Line Flow Transmitter will fail upscale. This will require stabilizing RPV water level, taking manual control of water level and placing feedwater in single element. After the actions are completed a steam leak will develop in the Drywell. Drywell pressure will rise and the crew will manually scram the reactor (If they don't the reactor will scram on high drywell pressure). After the reactor is scrammed the "B" Feedwater Pump will fail to trip on high level, additionally HPCI will initiate on high drywell pressure. These two large pumps injecting will cause a rapid level rise which will require the crew to close the MSIVs and/or trip the pumps. As Drywell pressure rises the "A" RHR loop containment spray valves will fail. When the "B" loop is used the containment spray switch will fail. At some time into the LOCA a downcomer will fail preventing the pressure suppression chamber from working. This failure will cause a rapid rise in drywell temperatures and pressures. Drywell pressure will reach PSP (Drywell temperature will also rise rapidly) requiring an Emergency Depressurization. After the reactor is depressurized. I & C will restore the "B" RHR loop containment spray and the crew will spray the torus and drywell. Drywell temperatures will be high enough to warrant determining that RPV water level instruments are operable.

PRA: Loss of Containment Heat Sink

Initial Conditions: 100% Power Operation (EOC) (IC-20) power with all systems operable except the "A" CRD Pump.

Turnover Information

Scenario 2

Turnover: Continue power operations. The "A" CRD Pump is inoperable because of a severe oil leak on the speed increaser. The crew is to perform a routine shift the Service Water Pumps.

Event No.	Malf. No.	Type	Event Description
1	N/A	N	(CRS/BOP) Shift Service Water Pumps
2	N/A	R	(CRS/RO) Scheduled power reduction of 100 Mwe
3	FW13D	I	(CRS/RO) Failure of the "D" Steam Line Flow Transmitter
4	FW01A	C	(CRS/BOP) "A" Feedwater Pump Trips

Turnover Information

Scenario 2

5	MS01D 50% 10 Min Ramp	M	(Crew) Steam leak in the Drywell
6	FW28B	I	(CRS/RO) Failure of the "B" Feedwater Pump High Level Trip.
7	ZDIRHRS WS17A & B PC12	I/C	(Crew) Failure of Containment Spray with torus downcomer failure.

Turnover Information

Scenario 2

Simulation Facility	Cooper Nuclear Station		Scenario No.:	3	Op Test No.:
Examiners:			Operators:		CRS
					RO
					BOP

Initial Conditions: 100% Full Power Operation (EOC) (IC-20).
Core Spray Pump "B" is out of service

Turnover: See attached turnover sheet

Event No.	Event Type*	Position	Event Description
Pre-insert	N/A		Five SRVs will NOT OPEN
Pre-insert	N/A		Turbine Bypass Valves 1-3 will NOT OPEN
Pre-insert	N/A		Failure of Group Six to automatically isolate
1	N	CRS/BOP	Shutdown SGT "B" and place it in a standby lineup.
2	C	CRS/BOP	125 VDC Panel AA3 failure (Instrument power supplies)
3	R	CRS/RO	Power reduction for T.S. 3.0.3 required shutdown.
4	I	CRS/RO	Loss of Feedwater Master Controller, slowly failing low, requiring manual control of feedwater.
5	M	Crew	HPCI un-isolatable steam line leak (and trip of running feedwater pumps).
6	I	Crew	Failure of the auto isolation of Group 6.
7	C	CRS/BOP	Failure of the Turbine Bypass Valves to remain open and/or failure of up to five SRVs to open.

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

Turnover Information

SCENARIO #3 SUMMARY:

The crew assumes the shift with the plant operating at 100% power. Core Spray Pump "B" is tagged out for maintenance to perform a 4160 V Breaker inspection. SGT "B" was started earlier for the system engineer who requested a vibration measurement. The measurement was completed all data has been taken. The crew is to shutdown SGT "B" and place it in a standby lineup. When SGT is secured and in a standby lineup, the 125 VDC Panel AA3 will fail, requiring entry into 5.3DC125. The loss of this panel results in:

- Trip of the "A" Recirculation Pump
- Loss of trip capability for the "A" CRD Pump and "A" Air Compressor.
- Loss of control of the "A" and "C" SW Pumps.
- Inoperability of CS "A", RCIC, DG-1, RHR Subsystems "A" and "B" RHR SW Pumps "A" and "C" and SW Pumps "A" and "C".

The loss of AA3 will require the crew to enter T.S. 3.0.3 and determine a plant shutdown is required. When Cooper management is notified they will direct an immediate shutdown.

After the initial portion of the power reduction is completed, the Master Feedwater Controller will fail low. If the operator catches the failure, operation in manual is possible. After controlling feedwater in manual, if a decision to manually scram is not reached, then the feedwater pumps will trip. This will result in a loss of Feedwater and a Reactor Scram. HPCI will initiate (or be manually initiated) and must be shutdown manually. Group 6 will fail to automatically isolate and must be diagnosed and manually isolated. EOP-1A must be entered. During the HPCI initiation, HPCI will develop a steam line break and fail to isolate. EOP-5A must be entered. As Reactor Building temperatures rise, the crew will rapidly depressurize using the Turbine Bypass Valves and/or the SRVs, EOP-1A and/or 2A. In either case, the first method attempted will partially fail (up to five SRVs do not open or the Turbine Bypass valves fail closed). Alternate steps for emergency de-pressurization must be taken.

Turnover Information

Scenario No: 3		Event No. 1
Event Description: Shutdown SGT "B" and place it in a standby lineup.		
Time	Position	Applicant's Actions or Behavior
	CRS	Directs the BOP operator to shutdown SGT B and place it in a standby lineup.
	BOP	Verifies RB HVAC is operating and RB pressure at -.25 in. wg. At VBD-R insures HV-DPIC-835B is in MANUAL set at 100 (0 on the Controller). Places EF-R-1F, SGT B EXH FAN C/S to AUTO **Verifies SGT B stops** •SGT INLET (AO-250) and OUTLET (AO-252) close **Verifies DPCV-546B, D/P Controller switch is in AUTO** Requests independent verification. (RO goes to back panel to verify)

Turnover Information

Instructor Station Instructions
Scenario #2
Scenario 2

Time	Position	Applicant's Actions or Behavior

Turnover Information

Scenario No: 1		Event No. 2
Event Description:		125 VDC Panel AA3 failure (Instrument power supplies).
Time	Position	Applicant's Actions or Behavior
	CREW	Recognize and report multiple alarms caused by the power loss. Diagnose loss of panel AA3. Respond to Loss of: •"A" RRMG **Air Compressor** •"A" CRD Pump
	CRS	Enters procedure 5.3DC125 Direct maintenance investigate the loss of AA3. Enters 2.4RR, REACTOR RECIRCULATION ABNORMAL Announces Scram actions to the Crew.
	RO	Determines reactor is NOT in the Stability Exclusion region, announces to the CRS. Closes RR-MO-53A, PUMP DISCHARGE VLV. After RR-MO-53A has been closed for 5 minutes, open valve for 6 seconds Direct SO to RRMG set "A" to throttle REC-49(51), MG SET A OIL HX OUTLET (R-931-SW), to maintain oil outlet temperature 90 F to 130 F. Enters Single Loop Operation per Procedure 2.2.68.1. Monitor temperature differential between bottom head drain and dome. Direct the SO to locally, open RRMG A drive motor field breaker.

Turnover Information

Scenario 2

Time	Position	Applicant's Actions or Behavior
	CRS	Declare the following equipment inoperable: • CS Pump A. • RCIC. • DG-1. • RHR Subsystems A and B, including RHR Pumps A and B. • RHR SWBPs A and C. • SW Pumps A and C. • 4160V Bus 1F. Enter T.S. 3.0.3 Determine a rapid shutdown is required per step 1.5 of 5.3DC125. Notify maintenance and station management.

Scenario No: 1		Event No. 2
Event Description:		125 VDC Panel AA3 failure (Instrument power supplies).
Time	Position	Applicant's Actions or Behavior
	BOP	Direct an SO to the air compressors to Start Air Compressor B or C and Transfer Tendamatic to B-C-A or C-A-B. Send an SO to open EE-CB-4160F to stop SW Pump A and SW Pump C

Turnover Information

Instructor Station Instructions
Scenario #2
Scenario 2

Time	Position	Applicant's Actions or Behavior

Turnover Information

Scenario No: 3		Event No. 3
Event Description: Power Reduction for T.S. 3.0.3 required shutdown		
Time	Position	Applicant's Actions or Behavior
	CRS	Direct a rapid shutdown per 2.1.4.1 When feedwater flow is 5.2 to 6.5×10^6 lbs/hr, direct securing one RFP. Contacts RE for control rods to use during shutdown.
	RO	While monitoring rod line and feedwater flow, reduce core flow to 35×10^6 lbs/hr using Reactor Recirculation.
	BOP	Monitor secondary plant parameters. When directed secure one RFP.

Turnover Information

Scenario No: 3		Event No. 4
Event Description:		Loss of Feedwater Master Controller, slowly failing low, requiring manual control of feedwater.
Time	Position	Applicant's Actions or Behavior
	BOP	While monitoring secondary plant parameters diagnose failure of Master Feedwater Controller.
	CRS	Direct entry into 2.4RXLVL, RPV WATER LEVEL CONTROL TROUBLE. Direct Stopping the power reduction while RPV water level is stabilized. Direct placing RFC-LC-83, MASTER LEVEL CONTROLLER in MANUAL. Direct I & C to investigate the Feedwater Controller failure.
	RO	Stop lowering Recirc Flow.
	BOP	Place RFC-LC-83, MASTER LEVEL CONTROLLER in MANUAL and restore RPV water level to its normal band.
		ACTION: If the decision to manually scram is made continue with the scenario. If not initiate the HPCI Steam line leak.

Turnover Information

Scenario No: 3		Event No. 5
Event Description: "HPCI steam line leak.		
Time	Position	Applicant's Actions or Behavior
	RO	Scram the reactor when RPV level cannot be maintained above +12" on narrow range instruments **OR** respond to automatic scram. Provide a scram report. Carry out scram actions per 2.1.5.
	CRS	Enter EOP 1A. Assign RPV level / pressure control
	RO	Restore and maintain RPV water level between +15 and +40".
		NOTE: It will take ~ 5 minutes from malfunction activation until the high temperature alarm.
	BOP	Maintain Rx pressure 600 to 800 psig. Ensure PCIS Group 2,3 and 6 isolations. Secure the HPCI turbine before RPV water level reaches +112". Diagnose rising secondary containment temperatures and radiation levels. Report: annunciator 9-3-1/E-10: AREA HIGH TEMP. Checks temperatures on the 9-21 panel. May diagnose HPCI steam line break by observing that indicated steam pressure to HPCI is less than indicated steam pressure to RCIC.
	CRS	Enter EOP-5A, SECONDARY CONTAINMENT CONTROL Direct HPCI isolation. Direct the Reactor Building be isolated (if high radiation signal is present). Direct all quad coolers be started. Direct verification of sump pump operation Direct HPCI be manually isolated.

Turnover Information

Scenario 2

Time	Position	Applicant's Actions or Behavior

Scenario No: 3		Event No. 5
Event Description: "HPCI steam line leak.		
Time	Position	Applicant's Actions or Behavior
	BOP	Attempt to manually isolate HPCI, report HPCI failure to isolate.
	CRS	Direct area temperatures be monitored.Dispatch personnel to investigate the steam leak Monitor for any secondary containment parameter reaches its maximum safe operating value: Temperatures (TABLE 9) Radiation (TABLE 10) Water levels (TABLE 11) Re-enter EOP-1A Declare a Site Area Emergency per EAL 2.3.3. Direct a cooldown be commenced at < 100 F/hr.
	BOP	Perform cooldown as directed.
	CRS	May anticipate emergency depressurization and direct rapid depressurization using bypass valves. If 2 areas exceed Maximum Safe Operating Values, direct an Emergency Depressurization be performed. Exit the pressure leg of 1A, Enter and direct 2A. Verify PC level is > 6'. Direct 6 SRVs be opened. Direct RPV water level be maintained above TAF.
	BOP	If directed to rapidly depressurizes RPV using Bypass valves but bypass valves will not open (DEH Pump trips).

Turnover Information

Instructor Station Instructions
Scenario #2
Scenario 2

Time	Position	Applicant's Actions or Behavior
		If directed to emergency depressurize RPV then open 6 SRV s. five SRVs will not open. Restores and maintains RPV level +15" to +40" band with limited low pressure ECCS systems.

Turnover Information

Scenario No: 3		Event No. 6
Event Description: Failure of the auto isolation of Group 6		
Time	Position	Applicant's Actions or Behavior
	RO	Diagnoses failure of Group 6 and a full Group 2 isolation from the isolation status panel on the 9-5 Panel. Reports failure to isolate to the CRS.
	SRC	Directs the RO to manually isolate Group 2 and 6.
	RO	Obtains Group Isolation Hard Card (2.1.22) Manually isolates the listed valves and dampers. Verifies SGT A and B operating Verifies the following valves OPEN **SW-MO-650** SW-MO-651 **REC-MO-711** REC-MO-714

Turnover Information

Time	Position	Applicant's Actions or Behavior

Scenario No: 3		Event No. 7
Event Description:		Failure of the Turbine Bypass Valves to remain open and/or failure of up to five SRVs to open.
Time	Position	Applicant's Actions or Behavior
	BOP	Diagnoses failure of SRVs. Notifies Crew
	CRS	Directs the use of alternate depressurization systems EOP-2A, TABLE 2. Main Steam and Turbine Bypass Vavles Main Steam Line Drains RCIC Gland Sealing Steam RFPTs "A" and "B" Steam Jet Air Ejectors RWCU AOG Steam Line Drains
	BOP	Lowers RPV pressure using alternate depressurization systems.

Turnover Information

Scenario 2

Critical Tasks	Sat	Unsat
The crew shall manually initiate a Reactor Building Isolation prior to exceeding 49mr on the Reactor Building Ventilation Radiation monitors.		
The crew shall either rapidly depressurize the reactor to prevent exceeding Maximum Safe Operating Temperature (MSOT) in 2 areas **OR** Emergency Depressurize if MSOT is exceeded in 2 areas.		
The crew shall manually isolate the Reactor Building, by performing a manual isolation of the Group 6 isolation valves.		

SIMULATOR SET-UP

A. Initialize the simulator in IC 20, Full Power Operation (EOL).

1. Transfer to RUN.

2. Load batch file A:\nrc3

1-3 Ensure PMIS IDTs are blank

1-4 Place “B” Core Spray in PTL

1-5 Place a red tag on “B” Core Spray pump switch.

1-6 Update the Safety System Status panel to reflect “B” Core Spray out of service.

1-7 Turn recorder power ON

1-8 Adjust GAFs

B. Verify simulator conditions as follows:

1. **Triggers**

Number	File Name	Description
E1	None	Default to False
E2	None	Default to False
E3	None	Default to False
E4	None	Default to False
E5	None	Default to False

2. **Malfunctions**

Number	Title	Trigger	TD	Severity	Ramp	Initial
AD06A	Reactor Pressure Relief Valve Failure	A	N/A	N/A	N/A	As-Is
AD06C	Reactor Pressure Relief Valve Failure	A	N/A	N/A	N/A	As-Is
AD06D	Reactor Pressure Relief Valve Failure	A	N/A	N/A	N/A	As-Is
AD06E	Reactor Pressure Relief Valve Failure	A	N/A	N/A	N/A	As-Is
AD06H	Reactor Pressure Relief Valve Failure	A	N/A	N/A	N/A	As-Is
TC07A	Bypass Valve #1 Failure	A	N/A	N/A	N/A	As-Is
TC07B	Bypass Valve #2 Failure	A	N/A	N/A	N/A	As-Is
TC07C	Bypass Valve #3 Failure	A	N/A	N/A	N/A	As-Is
ED19C	Loss of 125 VDC Power Panel AA3	E1	0	N/A	N/A	As Is
FW09	Master Feedwater Master Controller Failure	E3	0	50%	60 sec	As Is
HP06	HPCI Steam Line Break	E5	5:00	5%	10:00	1
FW01A	RFP Trip RFP 1A	E5	0	N/A	0	N/A
FW01B	RFP Trip RFP 1B	E5	0	N/A	0	N/A

3. **Remotes**

Number	Title	Trigger	Value	Ramp
RR15	RRMG A Field Breaker Local Manual Control	E7	Not Open	
1A01	Air Compressor Tendamatic Sequence Select	E7		
1A04	Air Compressor Reset	E7		
1A07	Air Compressor 1A 480V Breaker Local Manual	E7		
SW38	SW Pump 1A 4160V Breaker Local Manual Control	E9		
SW40	SW Pump 1C 4160V Breaker	E9		

Number	Title	Trigger	Value	Ramp
	Local Manual Control			
RP04	EOP PTM 53 thru 56	A	INSTALL	N/A
HP02	EOP PTM's #46 & #47, #65 & #66	A	LIFTED	N/A

4. **Overrides**

Instrument	Tag	Trigger	TD	Value	Ramp
Core Spray Pump (14P-1B)	ZLOCSSWS5B[1]	A	0	OFF	N/A
HPCI MO-15 switch (ASD)	ZDIHPCISWMO15[2]	A	0	OPEN	N/A
HPCI MO-16 switch (ASD)	ZDIHPCISWMO16[2]	A	0	OPEN	N/A

4. **Take the simulator out of FREEZE** and allow to run for several minutes to verify stable plant conditions. **FREEZE** the simulator.

Event #1: Shutdown SGT "B" and place it in a standby lineup.

ROLE PLAY:
If directed by the Control Room to walk down the SGT area and verify all conditions are normal reply that you have performed and area inspection and all conditions are normal.

Event #2: 125 VDC Panel AA3 failure (Instrument power supplies).

ACTION
After crew has secured the SGT and placed it in a standby lineup, and when directed by the Chief Examiner, INSERT **TRIGGER E1** to de-energize 125 VDC panel AA3.

ROLE PLAY:
If called as I & C to investigate the loss of 125 VDC report that you will get a technician and go to the panel and investigate.

ROLE PLAY:
If asked to investigate the loss of panel AA3:
As SO, report the supply fuse has blown.
As maintenance, report there is no apparent cause of the fuse blowing.

ACTION
If asked to replace the fuse for panel AA3, delete malfunction ED19C, then immediately reinsert the malfunction:

ROLE PLAY:
As SO sent to "A" RRMG set establish oil outlet temperature 90 F to 130 F.
Locally, open RRMG A drive motor field breaker.
As SO sent to air compressors Start Air Compressor B or C and Transfer Tendamatic to B-C-A or C-A-B.
As SO sent to EE-CB-480F open Breaker 4B, to stop CRD Pump A.
As SO sent to EE-CB-4160F open breakers to stop SW Pump A and SW Pump C

ROLE PLAY:
As the SO when directed to the air compressors report that you have started Air Compressor B or C and transferred Tendamatic to B-C-A or C-A-B.

ROLE PLAY:
As SO sent to open Breaker 4B, EE-CB-480F(CRDP-A), to stop CRD Pump A. Report you have opened Breaker 4B, EE-CB-480F and shutdown CRD Pump A.

ROLE PLAY:
As an SO sent to open EE-CB-4160F to stop SW Pump A and SW Pump C. Report that you have manually shutdown SW Pump A and SW Pump C

ROLE PLAY:
As Station Management when notified of the T.S. 3.0.3 entry direct an immediate shutdown per 2.1.4.1, RAPID SHUTDOWN.

Event #3: Power reduction for T.S. 3.0.3 required shutdown.

ROLE PLAY:

When contacted as RE to give a control rod insertion sequence. Direct the person calling to insert rods in accordance with the rapid shutdown rod patern.

ACTION:
After crew has completed the Tech Spec assessment, and the crew has performed a significant power reduction, and/or when directed by the Chief Examiner Insert **TRIGGER E2** to cause the feedwater Master Controller to fail low.

Event #4: Loss of Feedwater Controller

ROLE PLAY:
As I & C state you will investigate and you will call back in 20 minutes.

ACTION:
If the decision to manually scram is made continue with the scenario and insert Trigger E5 when the reactor is scrammed. If no decision to scram is made insert Trigger E5 when directed by the Chief Examiner.

Event #5: HPCI Steam Line Leak

ROLE PLAY:
If directed as the SO to determine the location of the steam leak report that the Reactor Buildign is filling with steam and that an exact location cannot be determined but that the steam appears to be coming from the HPCI area.

ROLE PLAY:
If directed as the SO to close HPCI MO-15 & 16 from the ASD room, wait 2 minutes, then turn the ASD panel ISOL switches for HPCI MO-15 & 16. Call the control room and report the valves will not close from the ASD room.

Instructor Station Instructions

Turnover Information

Scenario #3

Scenario 2

ROLE PLAY:

If directed as the SO to close HPCI MO-16 manually (local), wait 2 minutes, then report steam in the Rx Bldg prohibits access to the valve.

When the RPV has been depressurized and RPV water level is being controlled in the +15" to +40" band, **FREEZE** the simulator.

Instructor Station Instructions

Turnover Information

Scenario #3

Scenario 2

^ NRC Scenario 3

imf ia04c(1)
imf ed19c(2)
imf fw09(3) 1 00:15
imf hp06(5 5:00) 5 10:00
imf fw01a(5)
imf fw01b(5)
imf ad06a 0
imf ad06c 0
imf ad06d 0
imf ad06e 0
imf ad06h 0
imf tc07a 0
imf tc07b 0
imf tc07c 0

irf rp04 install
irf hp02 lifted
irf rr15(7) open

irf ia01
irf ia04
irf ia07

irf sw38(9) open
irf sw40(9) open

ior zdihpcisws2 open
ior zdihpcisws32 off
ior zdihpciswmo15[2] open
ior zdihpciswmo16[2] open

ior zlocssws5b[1] off

Turnover Information

Scenario #3

Plant Status:

1. The plant is operating at 100% power near the end of the operating cycle, steady state.

2. Rod Sequence Information: Step: 01
   Rod: 18-27
   Notch: 26

3. Tech. Spec. Limitations in effect:

   We are in Day 3 of a 7 day LCO under specification 3.5.1

4. Significant problems/abnormalities:

   "B" Core Spray is tagged out for 4160V breaker inspection. Electricians expect to complete inspection within 4 hours.

   SGT B is operating per 2.2.73, section 7 for vibration measurement.

5. Evolutions/maintenance for the on-coming shift:

   1. Continue full power operation.

   2. Shutdown "B" SGT and place in a normal standby lineup.

   3. Restore B Core Spray to service.

Instructor Station Instructions

Scenario #3

Simulation Facility: Cooper Nuclear Station

Scenario No.: 4 Op Test No.: ____

Examiners: _____

_____

_____

Operators: _____ CRS

_____ RO

_____ BOP

Initial Conditions: 100% Full Power Operation, (EOC) (IC-20) with all systems operable except the "A" CRD Pump.

Turnover: See attached turnover sheet

Event No.	Event Type*	Position	Event Description
Pre-insert	N/A		RHR "B" Loop Containment Spray Failure
Pre-insert	N/A		"B" Feedwater Pump High Level Trip Defeated
1	N	BOP	Shift Service Water Pumps
2	R	CRS/RO	Scheduled power reduction of 100 MWe
3	I	CRS/RO	Failure of the "D" Steam Line Flow Transmitter
4	C	CRS/BOP	“A” Feedwater Pump Trips
5	M	Crew	Steam leak in the Drywell
6	I	CRS/RO	Failure of the “B” Feedwater Pump High Level Trip.
7	C	CRS/BOP	Failure of Containment Spray

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

Instructor Station Instructions

Scenario #3

SCENARIO #4 SUMMARY:

The crew assumes the shift with the plant operating at 100% power with all systems operable except the "A" CRD Pump. The crew will perform a routine shifting of SW Pumps after maintenance has completed a breaker inspection on the "B" SW Pump Breaker. During this pump swap several Tech. Specs. considerations should be made. After the SW Pump swap the load dispatcher will request lowering main generator load 100 Mwe which requires lowering reactor power with recirc flow. While lowering load the "D" Main Steam Line Flow Transmitter will fail upscale. This will require stabilizing RPV water level, taking manual control of water level and placing feedwater in single element. After the actions are completed a steam leak will develop in the Drywell. Drywell pressure will rise and the crew will manually scram the reactor (If they don't the reactor will scram on high drywell pressure). After the reactor is scrammed the "B" Feedwater Pump will fail to trip on high level, additionally HPCI will initiate on high drywell pressure. These two large pumps injecting will cause a rapid level rise which will require the crew to close the MSIVs and/or trip the pumps. As Drywell pressure rises the "A" RHR loop containment spray valves will fail. When the "B" loop is used the containment spray switch will fail. At some time into the LOCA a downcomer will fail preventing the pressure suppression chamber from working. This failure will cause a rapid rise in drywell temperatures and pressures. Drywell pressure will reach PSP (drywell temperature will also rise rapidly) requiring an Emergency Depressurization. After the reactor is depressurized, I & C will restore the "B" RHR loop containment spray and the crew will spray the torus and drywell. Drywell temperatures will be high enough to warrant determining that RPV water level instruments are operable.

Instructor Station Instructions

Scenario #3

Scenario No: 4 Event No. 1

Event Description: Shift operating SW Pumps per 2.2.71

Time	Position	Applicant's Actions or Behavior
	CRS	Directs BOP operator to shift operating SW Pumps by placing "B" SW Pump in service and securing the "D" SW Pump per 2.2.71.
	BOP	Contacts SO at the "B" SW Pump to insure pump is ready to start. Place mode selector switch for the "B" SW Pump in MAN. Start "B" SW Pump by placing CS to START. Verify normal system pressures. Place mode selector switch for "B" SW Pump to STANDBY. Place mode selector switch for the "D" SW Pump in MAN. Stop "D" SW Pump by placing CS to STOP. Verify mode selector switch for pump "D" in AUTO. Verify mode selector switch positioned per 2.2.71. Report to CRS SW Pumps are shifted.
	CRS	Checks T.S. 3.7.2 for SW operability. Checks T.S. 3.8.1 for DG operability.

Instructor Station Instructions

Scenario #3

Scenario No: 4 Event No. 2

Event Description: Power Reduction

Time	Position	Applicant's Actions or Behavior
	CRS	When notified by the load dispatcher direct the RO to lower station output by 100 MWe by lowering recirc flow in accordance with station procedure 2.1.10.
	RO	Enters 2.1.10, STATION POWER CHANGES. Lowers power by decreasing RR pump flow, maintaining loop flows balanced. Maintains rate of power change consistent with system capabilities as determined by Load Dispatcher and 2.1.10 (10 MWe/Min). Discontinues power rise when directed or station output has risen 100 MWe.
	BOP	Monitors secondary plant parameters and reports MWe changes to RO.

Instructor Station Instructions

Scenario #3

Scenario No: 4 Event No. 3

Event Description: Failure of the "D" Steam Line Flow Transmitter

Time	Position	Applicant's Actions or Behavior
	RO	Responds to Annunciator: 9-5-2/G-1 REACTOR LOW WATER LEVEL Stop any power changes in progress. Diagnoses a failure of a steam line flow instrument. If level doesn't stabilize places Master Feedwater Controller in MANUAL to control RPV water level.
	CRS	Directs taking manual control of feedwater if required. Enters 2.4RXLVL.
	BOP	Dispatches an SO to the 903 level of the Reactor Building to locally check the steam flow instruments.
	RO	Places RFC-LC-83, MASTER LEVEL CONTROLLER in MAN. Places 1 OR 3 ELEMENT LVL CONT SELECT to 1. Returns RPV level controller to BAL per Procedure 2.2.28.1. Adjust manual control on RFC-MA-83 to null its deviation meter. Place RFC-MA-83 in BAL. Slightly vary settape on RFC-LC-83 to ensure control transferred (slight RFP speed change). Reports Feedwater control in Automatic, Single Element Control.
	CRS	Initiates a notification for repair of the Steam Line Flow Transmitter.

Instructor Station Instructions

Scenario #3

Scenario No: 4 Event No. 4

Event Description: "A" Reactor Feedwater Pump trips

Time	Position	Applicant's Actions or Behavior
	RO	Monitors RPV water level and responds to Recirculation Pump runback. Monitors reactor power. Monitors Recirc Flow and determines Stability Exclusion Region is NOT entered.
	BOP	Responds to A-1/A-4, RFP TURBINE A TRIP. Places Feedwater Master Controller in Man and controls RPV water level. Enters 2.4MC-RF, CONDENSATE AND FEEDWATER ABNORMAL and determines applicability. Directs an SO to the feedwater pump to diagnose conditions. Enters 2.2.28.1, Feedwater System Operation to restore "A" Feedwater Pump.
	CRS	Directs entry into 2.4MC-RF, CONDENSATE AND FEEDWATER ABNORMAL.

Instructor Station Instructions

Scenario #3

Scenario No: 4	Event No. 5	
Event Description:	Steam leak in the Drywell	
Time	Position	Applicant's Actions or Behavior
	RO/BOP	Monitors RPV water level and Primary Containment parameters. Diagnoses LOCA by rising Drywell pressure.
	RO	Provides a scram report. Carries out scram actions per 2.1.5. Diagnoses high RPV water level. Trips "B" feedwater pump.
	CRS	Enter EOP 1A.Assign RPV level / pressure control. Determine RPV water level and pressure and sets bands. May direct venting the Primary Containment. When drywell pressure exceeds 1.84 psig, re-enter EOP 1A and enter EOP 3A.. May direct re-starting drywell FCUs. Directs securing HPCI (if not tripped). May direct securing low pressure ECCS systems that are not needed. Directs an SO be sent to check the Emergency Diesel Generators.
	BOP	Maintain Rx pressure 800 to 1000 psig (RPV pressure may be lower because of the overfeed, pressure band may be 600 to 800 psig). Ensure PCIS Group 2, 3 and 6 isolations. If directed re-starts drywell FCUs. Verifies HPCI high water level trip. Diagnoses rising primary containment temperatures and pressure.
	RO	Directs an SO to the Emergency Diesel Generators.

Scenario No: 4	Event No. 5
Event Description:	Steam leak in the Drywell

Instructor Station Instructions

Scenario #3

Time	Position	Applicant's Actions or Behavior
	CRS	When torus pressure is between 2 and 10 psig, directs RHR be placed in Torus spray mode. When notified that RHR A Torus Spray valve would not open, directs using the B Loop of RHR. When torus pressure exceeds 10 psig, directs Drywell spray. Checks that operation is in the SAFE region of the DWSIL. Directs drywell coolers be secured. Directs Recirc pumps be tripped. When notified the B Loop of RHR is not available, directs using the A loop of RHR in Drywell Spay
	BOP	Attempts to line up RHR (A) in Torus Spray. Reports that Torus Spray Valve RHR-MO-39A will not open. Attempts to line up the other loop of RHR (B).. Determines Spray valve failure. Notifies CRS. When directed attempts to line up RHR A in Drywell Spray. Secures drywell fans. Secures recirc pumps. Attempts to Initiate Drywell spray as directed. Determines RHR-MO-26 will not open. Reports spray logic failure for RHR loop A (if not already reported). Directs SO to manually open Spray Valves.
	CRS	Monitors Drywell and Torus parameters. Determines PSP is exceeded. Directs Emergency Depressurization.. Instructs operators to monitor RPV water level instruments because drywell temperature will exceed RPV saturation pressure.

Instructor Station Instructions

Scenario #3

Scenario No: 4 Event No. 5

Event Description: Steam leak in the Drywell

Time	Position	Applicant's Actions or Behavior
	BOP	Opens six SRVs and emergency depressurizes the RPV. Monitors RPV water level indication for boiling characteristics. Controls RPV injection to maintain control of RPV water level.
	RO	Monitors RPV water level indication for boiling characteristics. Controls RPV injection to maintain control of RPV water level.
	CRS	When notified by I & C that the Containment Spray permissive switch has been repaired, directs BOP to initiate Drywell Sprays using the B RHR Loop.
	BOP	When directed lines up RHR B in Drywell Spray. Verifies drywell fans secured. Verifies recirc pumps secured. Initiates Drywell spray as directed.
	CRS	Classify the event as an ALERT IAW 5.7.1 section 2.2.1.

Instructor Station Instructions

Scenario #3

Scenario No: 4 Event No. 7

Event Description: RPV High Water Level

Time	Position	Applicant's Actions or Behavior
	RO	Report RPV water level above +60 to +100 inches. Determine MSIVs are not isolated.
	CRS	Direct manually closing the MSIVs.
	RO	Place all MSIV control switches to CLOSE. Verify all MSIVs are closed.

Critical Tasks Scenario #4	Sat	Unsat

The Crew shall Emergency Depressurize when Torus pressure cannot be maintained below Pressure Suppression Pressure (PSP) or Drywell temperature cannot be maintained below 280°F.		
The Crew shall manually close the MSIVs to prevent flooding the Main Steam Lines.		
The Crew shall initiate Drywell Sprays following an Emergency Depressurization before elevated Drywell temperatures cause RPV water level reference leg boiling.		

Instructor Station Instructions
Scenario #4

SIMULATOR SET-UP

A. Initialize the simulator in IC 20, Full Power Operation (EOL).

1. Transfer to RUN.

2. Load batch file A:\nrc4

3. Balance all controllers.

4. Ensure PMIS IDTs are blank

5. Red tag the "A" CRD Pump

6. Clear all annunciators

7. Turn recorder power ON

8. Adjust GAFs

B. Verify simulator conditions as follows:

1. **Triggers**

Number	File Name	Description
E1	None	Default to False
E2	None	Default to False
E3	None	Default to False
E4	None	Default to False
E5	None	Default to False

2. **Malfunctions**

Number	Title	Trigger	TD	Severity	Ramp	Initial
SW01B	Service Water Pump Trip B	1	N/A	N/A	N/A	N/A

Instructor Station Instructions

Scenario #4

Number	Title	Trigger	TD	Severity	Ramp	Initial
FW13D	Steam Flow signal failure to RVLC Sys.	2	N/A	100	N/A	N/A
FW01A	FRP Trip RFP1A	3	N/A	N/A	N/A	N/A
MS01D	Steam leak Inside Primary Containment	4	N/A	50	10:00	N/A
PC12	Primary Containment Downcomer Leak	6	N/A	100	N/A	N/A
FW28B	RFPB High level Trip Failure	A	N/A	N/A	N/A	N/A

3. **Remotes**

Number	Title	Trigger	Value	Ramp
irfRh29A	RHR-MO-39A power control	E5	de-energized	N/A

4. **Overrides**

Instructor Station Instructions

Scenario #4

Instrument	Tag	Trigger	TD	Value	Ramp
Control Switch for CRD Pump A (START, STOP)	zdicrdswS3a[1]	A	N/A	STOP	N/A
Control Switch for CRD Pump A green light	zdocrdswS3a[1]	A	N/A	OFF	N/A
Containment Spray Outboard V[10-26A]	zdirhrswS9a	A	N/A	CLOSE	N/A
Containment Spray Control Reset/Norm/Man	zdirhrswS17b	A	N/A	NAR	N/A
9-3-1D-04 RHR A MO-39A VALVE OVLD	RA:mux17c0111	5	N/A	ON	N/A

Instructor Station Instructions

Scenario #4

Pre Events:

Allow the operators several minutes to review the panels and set up the controls and displays as they desire.

Event #1: Shift operating SW Pumps per 2.2.71

ROLE PLAY:
As SO at the "B" SW Pump report the pump is ready for operation.

ROLE PLAY:
If contacted after the pump swap report that the "B" SW Pump is ready operating normally.

Event #2: Power reduction

ROLE PLAY:
Call the Control Room as the load dispatcher and notify the CRS that Cooper is scheduled for a load reduction to 680 MWe.

ROLE PLAY:
As Reactor Engineer if called report that power may be lowered using recirculation flow.

Event #3: Failure of "D" Main Steam Line Flow Transmitter

ACTION:
When directed by the Chief Examiner **Activate Trigger E1: Failure of "D" Main Steam Line Flow Transmitter.**

ROLE PLAY:
As SO sent to the 903 level of the Reactor Building, report that the "D" Main Steam Flow Instrument (FT-51D) appears normal.

ROLE PLAY:
If contacted as I & C and directed to investigate the MS Flow instrument failure, report that you will get a technician and investigate.

Event #4: "A" Reactor Feedwater Pump trips

ACTION:
When the CRS has complleted his Technical Specification call or when directed by the Chief Examiner **Activate Trigger E2: Feedwater Pump "A" Trip.**

Event #5: Steam leak in Drywell

Instructor Station Instructions

Scenario #4

ACTION:
When the Crew has re-established RPV water level control or when directed by the Chief Examiner Activate Trigger E3: Steam Leak in the Drywell.

ACTION:
Adjust leak rate as necessary to obtain high drywell temperatures and PSP

ROLE PLAY:
If called as an SO to investigate the RHR-MO-39A failure. Report that the valve actuator is very hot.

ROLE PLAY:
If asked as the SO to operate the valves manually, report they are bound and will not move.

ACTION:
After the Containment Spray Valve failures have been identified, **Activate Trigger E6: Downcomer Failure.**

ACTION:
After the crew has emergency depressurized report as I & C that you have repaired the RHR B Containment Spray permissive switch.

ACTION:
When the following conditions are reached, place the simulator in **FREEZE**:

1. The MSIV's are closed.
2. The reactor has been depressurized.
3. Drywell temperature is below RPV saturation temperature.
4. When directed by the lead examiner.

Instructor Station Instructions
Scenario #4

Batch File

^NRC Scenario 4

trgset 1 "zloswswswpbcs(3) == 1"
trgset 5 "zlorhrsws14a(2) == 1"

imf sw01b (1 2:00)
imf fw13d (2) 100
imf fw01a(3)
imf ms01d (4) 50 10:00
imf pc12 (6) 100
imf fw28b

irf rh29a(5)de-ener

ior zdirhrsws9a close
ior zdirhrsws17b nar
ior RA:mux17c011 (5) on

ior zdicrdsws3a[1]stop
ior zlocrdsws3a[1]off

Turnover Information

Scenario #4

Plant Status:

1. The plant is operating at approximately 100% power near the end of the operating cycle.

2. Rod Sequence Information:

Step:	1
Rod:	18-27
Notch:	26

3. Tech. Spec. Limitations in effect:

   Day 1 of 30 day LCO (3.7.2) due to the “B” SW Pump being inoperable while its breaker was out for inspection. The breaker was removed from service 8 hours ago.

4. Significant problems/abnormalities:

   - "A" CRD Pump is tagged out. The speed increaser gearbox is being replaced after complete failure.

5. Evolutions/maintenance for the on-coming shift:

   - When contacted, lower power level. Reactor Engineering has approved the power reduction (up to 150 MWe) using recirculation flow.
   - Mechanics working on "A" CRD Pump.
   - As soon as possible after assuming the shift, shift SW Pumps by starting the “B” SW Pump and securing the “D” SW Pump. Maintenance and an SO are standing by the pump and breaker.