JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Determine reactivity change for rod withdrawal

JPM Number: 2K13 NRC RO A.1.1 Revision: 0

Initiated:

William M. Forrestt 9/19/13

Developer Date

Reviewed:

Paul Scott 9/25/13

Technical Reviewer Date

Approved:

Trad Horner 10/1/13

Supervisor, Nuclear Training Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE

JPM WORKSHEET

Facility: MP3 Examinee: ____________

JPM Number: 2K13 NRC RO A.1.1 Revision: 0

Task Title: Determine reactivity change for rod withdrawal

System: NA

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 15 min.

Task Number(s): 009-01-004

Applicable To: SRO ______ RO **X** PEO ______

K/A Number: 2.1.37 K/A Rating: 4.3 / 4.6

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: X Simulator: ______ In-Plant: ______

Task Standards: Using RE Curve and Data Book and OP 3304C, calculate the amount of boric acid needed to perform a rod withdrawal.

Required Materials: (procedures, equipment, etc.)

OP 3304C, Primary Makeup and Chemical Addition

RE Curve and Data Book, Cycle 16

Calculator

General References:

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC RO A.1.1 Revision : 0

Initial Conditions: In order to mitigate intake problems, the crew reduced reactor power to 88% using 'Load Limit'. After the downpower, MB4C 3-9 "Rod Control Bank Limit Lo" annunciator became lit **requiring use of OP 3304C to restore rod position** to greater than alarm setpoint.

The current plant conditions are:

- Reactor power is at 88%
- Control Bank D is at 140 steps withdrawn
- Xenon is expected to build in over the next hour (i.e Xenon concentrations will rise). This will be effect core reactivity by 40 pcm in the next hour.
- Current RCS boron concentration is 1500 ppm
- Tavg is presently 584 F
- Pressurizer pressure is 2250 psia
- Pressurizer level is 60%
- The PPC is not functional
- Core burn-up is 150 MWD/MTU (BOL)
- Equilibrium Xenon curves should be used for the calculation

Initiating Cues:

In order to clear MB4C 3-9, the **US desires to withdraw Control Bank D to 160 steps withdrawn while maintaining RCS temperature and Reactor Power stable.**

The US directs you to determine the **quantity of boric acid OR primary grade water** needed to achieve this 20 step withdrawal of Control Bank D.

Specifically, OP 3304C, step 4.7.1 for boration (or step 4.9.1 for dilution) requires:

DETERMINE the quantity AND flow rate of boric acid (dilution water) using one of the following:

- Attachment 2, "Determining Boration or Dilution Volume and Rate"

The calculation should include:

- Amount of boric acid OR primary grade water **over the next hour**
- Expected fuel depletion **should not** be accounted for
- **A value of 1 may be used for K** (Correction Factor) in OP 3304C, Attachment 2

When done with the calculation, **record value** below **AND circle boric acid or primary grade water:**

___________ gallons (in next 1 hour) of boric acid / primary grade water

Simulator Requirements: NA

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC RO A.1.1 Revision: 0

Task Title: Determine reactivity change for rod withdrawal

START TIME: ______

	PERFORMANCE	STANDARD		
STEP #1	Calculate the total reactivity change in pcm.	Adds reactivity change from (1) rod withdrawal and (2) xenon (1) Rod withdrawal of 20 steps: **Integral Rod Worth= 63 pcm (allowable band of 60 to 66 pcm)** Options on how value was derived: • 62.5 pcm: Derives integral rod worth of 62.5 pcm from graph on page 1 of RE-D-02 "Integral Rod Worth vs Steps Withdrawn…Cycle 16, BOL-HFP, Equilibrium Xenon" • 65 pcm: Uses above RE-D-02 page 2 to calculate value of 65 pcm • 66 pcm: Uses above RE-D-02 page 3 to interpolate value of 66 pcm on table • 60 pcm: Uses Cycle 16 thumbrules for pcm per step above and below 200 steps to derive a value of 60 pcm (2) Xenon: - 40 pcm (given in initial conditions) **TOTAL REACTIVITY CHANGE = 23 pcm** positive reactivity (63 + -40 pcm = 23 pcm) **(allowable band of 20 – 26 pcm)**	Critical: Y [ ] N [x]	Grade S [ ] U [ ]

STEP #2	Determine a boron worth value.	**Boron worth = -6.1 pcm / ppm (allowable band of -6.0 to -6.1)** Options on how value was derived: • Derives from RE-F-02 "Differential Boron Worth vs Core Average Burnup…Cycle 16" (~-6.1 pcm/ppm) • Uses above RE-F-02 page 2 to interpolate value of -6.1 pcm / ppm on table • Uses Cycle 16 thumbrules to use a value of -6.0 pcm / ppm	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #3	Calculates reactivity worth of boron change.	Calculates reactivity worth by dividing total reactivity derived in Step #1 by boron worth derirved in Step #2. Total reactivity (pcm) / Boron worth (pcm / ppm) **23 pcm / 6.1 pcm / ppm = 3.8 ppm** **(allowable band of 3.2 – 4.4 pppm)**	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #4	Calculates the amount of boric acid needed for RCS addition.	• Determines a boration is required to offset the positive net positive reactivity calculated in step #3. • Uses step 4.7.1 of OP 3304C to go to Attachment 2 of OP 3304C. • Calculates amount of boric acid using equation in Attachment 2 $\left(\frac{M}{8.33}\right)\left[\ln\left(\frac{7000-C_i}{7000-C_f}\right)\right]K$ **Substituting values:** M= 507,127 (Att 2 of OP 3304C) Ci= 1500 ppm Cf= 1503.8 ppm (1500 ppm + 3.8 ppm (derived in step 3) K~ 1 (approx. based on near full power level) **Calculation equals:** **42 gallons of boric acid needed**	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #5	When done with calculation, record value below **AND** circle boric acid or primary grade water:	**Records 42 gallons and circles boric acid (allowable band is 35.4 gallons to 48.7 gallons)**	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: __________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC RO A.1.1 Revision: 0

Date Performed: ______________

Student: ______________________________

Evaluator: ______________________________

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **x**

Validated Time (minutes): 15 min.

Actual Time to Complete (minutes): ______

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT (Page 1 of 2)

JPM Number: 2K13 NRC RO A.1.1 Revision: 0

Initial Conditions: In order to mitigate intake problems, the crew reduced reactor power to 88% using 'Load Limit'. After the downpower, MB4C 3-9 "Rod Control Bank Limit Lo" annunciator became lit **requiring use of OP 3304C to restore rod position** to greater than alarm setpoint.

The current plant conditions are:

- Reactor power is at 88%
- Control Bank D is at 140 steps withdrawn
- Xenon is expected to build in over the next hour (i.e Xenon concentrations will rise). This will be effect core reactivity by 40 pcm in the next hour.
- Current RCS boron concentration is 1500 ppm
- Tavg is presently 584 F
- Pressurizer pressure is 2250 psia
- Pressurizer level is 60%
- The PPC is not functional
- Core burn-up is 150 MWD/MTU (BOL)
- Equilibrium Xenon curves should be used for the calculation

STUDENT HANDOUT (Page 2 of 2)

JPM Number: 2K13 NRC RO A.1.1 Revision: 0

Initiating Cues: In order to clear MB4C 3-9, the **US desires to withdraw Control Bank D to 160 steps withdrawn while maintaining RCS temperature and Reactor Power stable.**

The US directs you to determine the **quantity of boric acid OR primary grade water** needed to achieve this 20 step withdrawal of Control Bank D.

Specifically, OP 3304C, step 4.7.1 for boration (or step 4.9.1 for dilution) requires:

DETERMINE the quantity AND flow rate of boric acid (dilution water) using one of the following:

- Attachment 2, "Determining Boration or Dilution Volume and Rate"

The calculation should include:

- Amount of boric acid OR primary grade water **over the next hour**
- Expected fuel depletion **should not** be accounted for
- **A value of 1 may be used for K** (Correction Factor) in OP 3304C, Attachment 2

When done with the calculation, **record value** below **AND circle boric acid or primary grade water:**

___________ gallons (in next 1 hour) of boric acid / primary grade water

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Review and Approve Reactivity Calculation

JPM Number: 2K13 NRC SRO A.1.1 Revision: 0

Initiated:

William M. Forrestt 9/23/13

Developer Date

Reviewed:

Paul Scott 9/24/13

Technical Reviewer Date

Approved:

Trad Horner 10/1/13

Supervisor, Nuclear Training Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE

JPM WORKSHEET

Facility: MP3 Examinee: ____________

JPM Number: 2K13 NRC SRO A.1.1 Revision: 0

Task Title: Review and Approve Reactivity Calculation

System: NA

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 22 minutes

Task Number(s): 009-01-004

Applicable To: SRO X RO ____ PEO ____

K/A Number: 2.1.37 K/A Rating: 4.3 / 4.6

Method of Testing: Simulated Performance: ____ Actual Performance: X

Location: Classroom: X Simulator: ____ In-Plant: ____

Task Standards: Using RE Curve and Data Book and OP 3304C, calculate the amount of boric acid needed to perform a rod withdrawal.

Required Materials:
(procedures, equipment, etc.)

1. Attachment 2 of OP 3304C Rev 23-06, Primary Makeup and Chemical Addition **(handout)**
2. RE Curve and Data Book, Cycle 16 (**handout put on reference cart**)
3. Calculator

General References:

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC SRO A.1.1 Revision : 0

Initial Conditions: In order to mitigate intake problems, the crew reduced reactor power to 88% using 'Load Limit'. After the downpower, MB4C 3-9 "Rod Control Bank Limit Lo" annunciator became lit **requiring use of OP 3304C to restore rod position** to greater than alarm setpoint.

The current plant conditions are:

- Reactor power is at 88%
- Control Bank D is at 140 steps withdrawn
- Xenon is expected to build in over the next hour (i.e Xenon concentrations will rise). This will be effect core reactivity by 40 pcm in the next hour.
- Current RCS boron concentration is 1500 ppm
- Tavg is presently 584 F
- Pressurizer pressure is 2250 psia
- Pressurizer level is 60%
- The PPC is not functional
- Core burn-up is 150 MWD/MTU (BOL)
- Equilibrium Xenon curves should be used for the calculation

Initiating Cues: In order to clear MB4C 3-9, the plan is **to withdraw Control Bank D to 160 steps withdrawn while maintaining RCS temperature and Reactor Power stable.**

You have directed the RO to determine the **quantity of boric acid OR primary grade water** needed to achieve this 20 step withdrawal of Control Bank D.

Specifically, OP 3304C, step 4.7.1 for boration (or step 4.9.1 for dilution) requires:

DETERMINE the quantity AND flow rate of boric acid (dilution water) using one of the following:

- Attachment 2, "Determining Boration or Dilution Volume and Rate"
- Computer Program

The calculation from the RO should include:

- Amount of boric acid OR primary grade water **over the next hour**
- Expected fuel depletion **should not** be accounted for
- **A value of 1 may be used for K** (Correction Factor) in OP 3304C, Attachment 2

The RO has just completed the calculation, and he determined that 18.8 gallons of boric acid should be added.

You are to review and approve the attached calculation.

Simulator Requirements: NA

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC SRO A.1.1 Revision: 0

Task Title: Review and Approve Reactivity Calculation

START TIME: ________

STEP	PERFORMANCE	STANDARD	Critical:	Grade
STEP #1	Reviews attached reactivity calculation (Student Handout page 3 of 3)	Determines there are two errors: 1. In total reactivity calc (part 2), the RO incorrectly credited Xenon as positive reactivity. The initial conditions stated Xenon was building in. This would be causing negative reactivity and should have been subtracted from the rod worth: 62.5 pcm (Rods) – 40 pcm (Xenon)= 22.5 pcm 2. In the calculation on Att. 2 of OP 3304C $\left(\frac{M}{8.33}\right)\left[\ln\left(\frac{7000 - C_i}{7000 - C_f}\right)\right]K$ The RO mistakenly adds an additional '0' to the natural log value. This lowers the calculated value from 188.5 gallons to 18.8 gallons.	Y [**X**] N [ ]	S [ ] U [ ]
Comments:	The SRO must perform two critical actions to PASS this JPM. First they must recognize there is a mistake with the calculation. Secondly, they must perform the calculation correctly. The correct answer of 35.4 to 48.7 gallons of Boric Acid is proven in the attached steps.			
Cue:	After the SRO identifies a problem (identification of one of the two problems is ACCEPTABLE) with the calculation, ask them to perform the calculation.			

STEP #2	Calculate the total reactivity change in pcm.	Adds reactivity change from (1) rod withdrawal and (2) xenon (1) Rod withdrawal of 20 steps: **Integral Rod Worth= 63 pcm (allowable band of 60 to 66 pcm)** Options on how value was derived: • <u>62.5 pcm:</u> Derives integral rod worth of 62.5 pcm from graph on page 1 of RE-D-02 "Integral Rod Worth vs Steps Withdrawn…Cycle 16, BOL-HFP, Equilibrium Xenon" • <u>65 pcm:</u> Uses above RE-D-02 page 2 to calculate value of 65 pcm • <u>66 pcm:</u> Uses above RE-D-02 page 3 to interpolate value of 66 pcm on table • <u>60 pcm:</u> Uses Cycle 16 thumbrules for pcm per step above and below 200 steps to derive a value of 60 pcm (2) Xenon: - 40 pcm (given in initial conditions) **TOTAL REACTIVITY CHANGE = 23 pcm** positive reactivity (63 + -40 pcm = 23 pcm) **(allowable band of 20 – 26 pcm)**	Critical: Y [ ] N [x]	Grade S [ ] U [ ]

STEP #3	Determine a boron worth value.	**Boron worth = -6.1 pcm / ppm (allowable band of -6.0 to -6.1)** Options on how value was derived: • Derives from RE-F-02 "Differential Boron Worth vs Core Average Burnup…Cycle 16" (~-6.1 pcm/ppm) • Uses above RE-F-02 page 2 to interpolate value of -6.1 pcm / ppm on table • Uses Cycle 16 thumbrules to use a value of -6.0 pcm / ppm	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #4	Calculates reactivity worth of boron change.	Calculates reactivity worth by dividing total reactivity derived in Step #2 by boron worth derived in Step #3. Total reactivity (pcm) / Boron worth (pcm / ppm) **23 pcm / 6.1 pcm / ppm = 3.8 ppm** **(allowable band of 3.2 – 4.4 ppm)**	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #5	Calculates the amount of boric acid needed for RCS addition.	• Determines a boration is required to offset the net positive reactivity calculated in step #2. • Uses step 4.7.1 of OP 3304C to go to Attachment 2 of OP 3304C. • Calculates amount of boric acid using equation in Attachment 2 $\left(\frac{M}{8.33}\right)\left[\ln\left(\frac{7000-C_i}{7000-C_f}\right)\right]K$ **Substituting values:** M= 507,127 (Att 2 of OP 3304C) Ci= 1500 ppm Cf= 1503.8 ppm (1500 ppm + 3.8 ppm (derived in step 4) K~ 1 (approx. based on near full power level) **Calculation equals:** **42 gallons of boric acid needed**	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #6	When done with calculation, records value and reports to Examiner.	**Records 42 gallons and circles boric acid (allowable band is 35.4 gallons to 48.7 gallons)**	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: __________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC SRO A.1.1 Revision: 0

Date Performed: ______________

Student: ____

Evaluator: ____

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **x**

Validated Time (minutes): 22 minutes

Actual Time to Complete (minutes): ______

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

JPM Number: 2K13 NRC SRO A.1.1 Revision: 0

Initial Conditions: In order to mitigate intake problems, the crew reduced reactor power to 88% using 'Load Limit'. After the downpower, MB4C 3-9 "Rod Control Bank Limit Lo" annunciator became lit **requiring use of OP 3304C to restore rod position** to greater than alarm setpoint.

The current plant conditions are:

- Reactor power is at 88%
- Control Bank D is at 140 steps withdrawn
- Xenon is expected to build in over the next hour (i.e Xenon concentrations will rise). This will be effect core reactivity by 40 pcm in the next hour.
- Current RCS boron concentration is 1500 ppm
- Tavg is presently 584 F
- Pressurizer pressure is 2250 psia
- Pressurizer level is 60%
- The PPC is not functional
- Core burn-up is 150 MWD/MTU (BOL)
- Equilibrium Xenon curves should be used for the calculation

STUDENT HANDOUT (Page 2 of 3)

JPM Number: 2K13 NRC SRO A.1.1 Revision: 0

Initiating Cues: In order to clear MB4C 3-9, the plan is **to withdraw Control Bank D to 160 steps withdrawn while maintaining RCS temperature and Reactor Power stable.**

You have directed the RO to determine the **quantity of boric acid OR primary grade water** needed to achieve this 20 step withdrawal of Control Bank D.

Specifically, OP 3304C, step 4.7.1 for boration (or step 4.9.1 for dilution) requires:

DETERMINE the quantity AND flow rate of boric acid (dilution water) using one of the following:

- Attachment 2, "Determining Boration or Dilution Volume and Rate"
- Computer Program

The calculation from the RO should include:

- Amount of boric acid OR primary grade water **over the next hour**
- Expected fuel depletion **should not** be accounted for
- **A value of 1 may be used for K** (Correction Factor) in OP 3304C, Attachment 2

The RO has just completed the calculation, and he determined that 18.8 gallons of boric acid should be added.

You are to review and approve the attached calculation.

STUDENT HANDOUT (Page 3 of 3)

Reactor Operator's Calculation

1. Rod worth = **62.5 pcm**
2. Total reactivity = 62.5 pcm (Rods) + 40 pcm (Xenon) = **102.5 pcm**
3. Reactivity Worth of Boron Change =

   102.5 pcm / 6.0 pcm / ppm = **17 ppm (or Final Boron Concentration of 1517 ppm)**

   * 6.0 pcm from attached thumbrules

4. Calculates the amount of boric acid needed for RCS addition (per OP 3304C Att.2)

$$\left(\frac{M}{8.33}\right)\left[\ln\left(\frac{7000-C_i}{7000-C_f}\right)\right]K$$

Substituting values:
M= 507,127 (Att 2 of OP 3304C)
Ci= 1500 ppm
Cf= 1517 ppm
K= 1

Amount of Boric Acid Needed = 18.8 gallons

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Determine Reactor Vessel Venting Time

JPM Number: 2K13 NRC RO A.1.2 (A100-1) Revision: 0 chg 2

Initiated:

William M. Forrestt 9/19/13

Developer Date

Reviewed:

Paul Scott 9/25/13

Technical Reviewer Date

Approved:

Trad Horner 10/1/13

Supervisor, Nuclear Training Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE
9-28-09	New revision of old JPM 100 in new format with new numbering system for an admin JPM.	0
05/06/11	Updated procedure references, Corrected tyops, reformatted –CTRyan	0/1
9/19/13	Updated format. Modified initial conditions resulting in a changed, calculated vent time. - WMF	0/2

JPM WORKSHEET

Facility: MP3 Examinee: ______________________

JPM Number: 2K13 NRC RO A.1.2 Revision: 0 chg 2

Task Title: Determine Reactor Vessel Venting Time

System: NA

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 7

Task Number(s): 000-05-035

Applicable To: SRO X RO X PEO ____

K/A Number: GEN 2.1.25 K/A Rating: 3.9 / 4.2

Method of Testing: Simulated Performance: ____ Actual Performance: X

Location: Classroom: X Simulator: ____ In-Plant: ____

Task Standards: Satisfactorily complete the calculation of reactor vessel venting time iaw Attachment A of EOP 35 FR-I.3.

Required Materials: (procedures, equipment, etc.)

1.) Calculator

2.) Blank copy of Attachment A of EOP 35 FR-I.3

General References: EOP 35 FR-I.3 Rev. 013

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC RO A.1.1 Revision : 0 chg 2

Initial Conditions: The unit has experienced an event which resulted in an inadequate core cooling condition and a hydrogen void in the reactor vessel head. The control room team is carrying out the actions of EOP 35 FR-I.3., Response to Voids in Reactor Vessel, and has completed the first 16 steps. The containment hydrogen concentration has been verified as less than 3%. The following plant conditions exist:

- SI Terminated
- All RCPs are OFF
- Containment hydrogen concentration = 1.3%
- RCS pressure stable at 615 psia
- Pressurizer level stable at 50%
- Containment temperature is 100°F
- RCS subcooling is 100°F
- Containment pressure is 13.9 psia

Initiating Cues: The US has directed you to determine the maximum allowable reactor vessel venting time using Attachment A in EOP 35 FR-I.3.

Simulator Requirements: None

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC RO A.1.2 Revision: 0 chg 2

Task Title: ______________________

START TIME: ________

STEP	PERFORMANCE	STANDARD	Critical:	Grade
STEP #1	**Determine Calculated Containment Pressure (Pcalc)** a. Current Containment Pressure = __________ psia b. IF Current Containment Pressure is _14.7 psia then Pcalc = 14.7 psia c. IF Current Containment Pressure is _14.7 psia then Pcalc = Current Containment Pressure. d. Pcalc = ______________ psia (NOTE: Must be _14.7 psia)	Based on initial conditions of 13.9 psia for containment pressure, enters **13.9 psia** for P calc.	Y [ ] N [x]	S [ ] U [ ]
Comments:				
Cue:				

<table>
<tr><td>STEP #2</td><td>Determine Calculated Containment Temperature (Tcalc)
a. Current Containment Temperature (T) = __________ °F

b. Convert Containment Temperature to Rankine as follows:
(T) ________ °F+460 =
Tcalc)____________°R

c. Tcalc = ________°R</td><td>Based on initial conditions of 100 F for containment temperature, calculates Tcalc to be 560 °R.

(100 F + 460 = 560 °R)</td><td>Critical:
Y [ ]
N [x]</td><td>Grade
S [ ]
U [ ]</td></tr>
<tr><td>Comments:</td><td colspan="4"></td></tr>
<tr><td>Cue:</td><td colspan="4"></td></tr>
<tr><td>STEP #3</td><td>Determine the containment volume at STP: (A)

Formula
$A = (2.26 \times 10^6\ cu\ ft) \times \frac{P\ calc}{14.7\ psia} \times \frac{492°R}{T\ calc}$

$A = (2.26 \times 10^6\ \text{cu ft}) \times \frac{\quad}{14.7\ \text{psia}} \times \frac{492°R}{\quad}$

A = ____________ cu ft</td><td>Using the formula in step 3 of attachment A, enters 13.9 psia for containment pressure and 560°R for containment temperature to obtain containment volume of 1.878 x 10⁶ cu. ft.</td><td>Critical:
Y [ ]
N [x]</td><td>Grade
S [ ]
U [ ]</td></tr>
<tr><td>Comments:</td><td colspan="4"></td></tr>
<tr><td>Cue:</td><td colspan="4"></td></tr>
</table>

STEP #4	**Determine the maximum hydrogen volume that can be vented: (B)** Formula $B = \frac{(3.0\% - \text{Ctmt hydrogen concentration}) \times A}{100\%}$ $B = \frac{(3.0\% - \qquad) \times}{100\%}$ B = ______ cu ft	Using the formula in step 4 of attachment A, enters 1.3% for the current containment hydrogen concentration and the value obtained in JPM step 1 for the containment volume to obtain the maximum hydrogen volume of **3.19×10^4 cu. ft.**	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #5	**Determine hydrogen flow rate as a function of RCS pressure (C)** a. Enter RCS pressure : ______________ psia b. Use the attached graph of Hydrogen Flow Rate vs RCS Pressure to determine the maximum allowable flow. c. Maximum allowable flow C = ___________ scfm	Using the formula in step 5 of Attachment A, enters RCS pressure value of 615 psia. Uses the attached graph of Hydrogen Flow Rate vs. RCS Pressure to determine the maximum allowable flow (approximately **18,000 scfm**).	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #6	**Calculate maximum venting time in minutes(MVT)** Formula $\text{Maximum venting time} = \frac{B}{C}$ MVT = ______	Using the formula in step 6 of Attachment A, enters the values obtained in JPM steps 4 and 5 and calculates an MVT of **1.77 minutes.**	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #7	**Enter venting time (step 17.b.) ____________ minutes**	*1.68 min ≤ Vent Time ≤ 1.88 min*	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
Comments:	The allowable value was derived to allow up to for an interpolation band of 18,000 scfm hydrogen flow plus / minus 1,000 scfm.			
Cue:				

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: ________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC RO A.1.2 Revision: 0 chg 2

Date Performed: ____________

Student: ______________________________

Evaluator: ______________________________

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **X**

Validated Time (minutes): 7

Actual Time to Complete (minutes): ______

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number: 2K13 NRC RO A.1.2 Revision: 0 chg 2

Initial Conditions: The unit has experienced an event which resulted in an inadequate core cooling condition and a hydrogen void in the reactor vessel head. The control room team is carrying out the actions of EOP 35 FR-I.3., Response to Voids in Reactor Vessel, and has completed the first 16 steps. The containment hydrogen concentration has been verified as less than 3%. The following plant conditions exist:

- SI Terminated
- All RCPs are OFF
- Containment hydrogen concentration = 1.3%
- RCS pressure stable at 615 psia
- Pressurizer level stable at 50%
- Containment temperature is 100°F
- RCS subcooling is 100°F
- Containment pressure is 13.9 psia

Initiating Cues: The US has directed you to determine the maximum allowable reactor vessel venting time using Attachment A in EOP 35 FR-I.3.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Respond to Degrading Intake Conditions.

JPM Number: NRC SRO A.1.2 Revision: 0 chg 2

Initiated:

William M. Forrestt 9/23/13

Developer Date

Reviewed:

Paul Scott 9/25/13

Technical Reviewer Date

Approved:

Trad Horner 10/1/13

Supervisor, Nuclear Training Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE
8/20/09	Modified the cue to add that actions for the yellow condition are already in progress. Modified the cue to separate the direction given to the candidate into two discrete steps to avoid confusion. Removed the JPM steps associated with carrying out actions associated with section 4.6 of OP 3215 – the applicant need only identify that these actions apply to an environmental factor condition of "RED." These changes a result of NRC comments during prep week.	0 / 1
9/23/13	Modified initial conditions to include a change to plant factors (decreasing trash rack dp will cause plant factors to go from 6 to 3). Also, changed initiating cue to read "specify any changes to required actions" from "specified any new required actions". Both changes made to add complexity and make JPM less "leading". The downstream changes (factor totals) were changed in the JPM body. Additionally, instructions on setup (along with a surveillance copy, back of JPM) was added to aid in administration. WMF	0 / 2

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: NRC SRO A.1.2 Revision: 0 chg 2

Task Title: Respond to Degrading Intake Conditions.

System: N/A

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 15

Task Number(s): 341-01-107, Response to degrading intake conditions.

Applicable To: SRO **X** RO ______ PEO ______

K/A Number: 2.1.20 K/A Rating: 4.6 / 4.6

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: X Simulator: ______ In-Plant: ______

Task Standards: Respond to degrading intake conditions.
Review and disposition surveillance for Intake Structure Condition Determination.

Required Materials: (procedures, equipment, etc.)

1. Completed OPS form SP 3665.2-001Rev 9-03, Intake Structure Condition Determination with Vacuum in Condenser (**handout**)
2. SP 3665.2 Rev 8-03, Intake Structure Condition Determination (**handout**)
3. OP 3215 Rev 8-05, Response to Intake Structure Degraded Conditions (reference cart)

General References: N/A

*** READ TO THE EXAMINEE ***

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: NRC SRO A.1.2 Revision : 0 chg 2

Initial Conditions: You are the Shift Manager. It is October 15th and the unit is experiencing degrading conditions at the intake structure. The Shift Technical Advisor (STA) is keeping SP 3665.2, Intake Structure Condition Determination current. The last surveillance was done at 0800 and indicated a plant factor condition of YELLOW, and an environmental factor condition of YELLOW. Plant actions for the yellow condition are already in progress (OP 3215 sections 4.4 and 4.5).

Initiating Cues: At 0900 the following conditions changed:

- PEO's have finished raking trash racks
- Trash rack dp's are now stable at 6.5", 6.0", 2.0", 2.5", 2.0", and 1.5".
- Traveling screen dp's are now stable at 5.0", 5.0", 4.0", 3.5", 2.0", 2.0".
- Wind speed, from 33' Met. Tower data, has increased to a steady 27 mph and from a new direction of 250°, which is verified by the marine forecast.

You directed the STA to conduct a new Intake Structure Condition Determination which he just completed.

1. **Review and disposition the completed SP 3665.2-001 surveillance.**
2. **Specify any changes to required actions associated with the new plant and environmental conditions.**

Simulator Requirements: NONE

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: NRC SRO A.1.2 Revision: 0 chg 2

Task Title: Respond to Degrading Intake Conditions

START TIME: ________

PERFORMANCE **STANDARD**

Comments: (1) **Preparation of 3665.2-001 by Examiner.** Use the attached, marked up copy for guidance. In addition to highlighting (or circling) individual values the examiner will need to add factor totals. See below:
Page 3 "Plant Factors Section Total" = 6
Page 3 "Wind Correction" = 5
Page 4 "E9 Wave Height / Seas Factor" = 2
Page 4 "Environmental Factors Section Total = 21
Page 5 (top to bottom, "Sustained" / "Plant" / "Enviro" / "Intake Total") = NA / 6 / 21 / 27

After a copy of 3665.2-001 is marked up with embedded errors (wind correction should be 10 vice 5 and trash rack dp is 3 points vice 6 points), hand applicant the surveillance form.

(2) The applicant may request a copy of SP 3665.2, Intake Structure Condition Determination. If so, provide.

STEP #1 SP 3665.2 Step 4.3.5	**REQUEST SM review SP 3665.2-001.** **Review and assess conditions for current Plant Factors.**	Applicant reviews the correct portion of the surveillance form which is the 'Per SM/US column' for the denoted plant conditions for each of the plant factors.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]

3665.2-001 Pg 2 -3	**Reviews Plant Factors portion of surveillance.**	Applicant reviews the plant factor values for Circulating water Pumps and Screens (P1), Screen Wash Pumps (P2), Trash Racks (P3), Trash Rakes (P4), Traveling Screens (P5) and Debris Conveyor (P6**). Determines that P3 "Trash Racks" should be 3 points vice 6 points** (based on only 2 racks equal / above 6 in.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	This change (from 6 to 3 points) will still result in a yellow condition. The applicant missing this step will have no adverse effect. Therefore is not a critical step.			
Cue:				
		Applicant reviews the **Plant Factors Section Total** value and determines that a **total value of '6' was erroneously entered, instead of the correct value of '3'.**	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	This change (from 6 to 3 points) will still result in a yellow condition. The applicant missing this step will have no adverse effect. Therefore is not a critical step.			
Cue:				
STEP #2 3665.2-001 Pg 3 - 4	**Review and assess conditions for current Environmental Plant Factors.**	Applicant reviews the correct portion of the surveillance form which is the 'Per SM/US column' for the denoted environmental conditions for each of the environmental factors.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
		Applicant reviews the environmental factor values for Predicted Height of Next High Tide (E1) and Height of Tide in Last 48 Hours (E2), and determines that correct environmental factor values were denoted.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

		Applicant reviews the environmental factor value for **Wind Direction (E3)** and determines that a **value of '1' was erroneously circled, instead of the correct value of '2'.**	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:	The new wind direction, as given in the cue, is from 250°. SP 3665.2-001 specifies a Wind Speed factor value of '2' for directions from 120° to 270°.			
Cue:				
		Applicant reviews the environmental factor values for Wind Speed (E4) and Historical Wind Speed (E5) and determines that correct environmental factor values were denoted.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
		Applicant reviews the environmental factor value for **Wind Correction (E6)** and determines that **a value of '5' was erroneously entered, instead of the correct value of '10'.**	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:	Wind Correction (E6) is equal to Wind Speed (E4) plus Historical Wind Speed (E5) times Wind Direction (E3). E6 = E3 x (E4 + E5). Wind Direction (E3) should actually be a factor of '2' as opposed to '1'.			
Cue:				
		Applicant reviews the environmental factor values for Predicted Wave Height (E7), Historical Wave Height (E8), Wave Height / Seas Factor (E9), Barometric Pressure (E10), Season (E11), Historical Environmental Factor (E12) and Seaweed Loading (E13) and determines that correct environmental factor values were denoted.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

3665.2-001 Pg 5		Applicant reviews the **Environmental Factors Section Total** value and determines that a **total value of '21' was erroneously entered, instead of the correct value of '26'.**	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
3665.2-001 Pg 5		Applicant recognizes that the Plant Factors Section Total value is ≥3, and therefore Plant Factor Condition remains "YELLOW".	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
3665.2-001 Pg 5		Applicant recognizes that the **Environmental Factors Section Total** value is **> 23 (specifically 26)**, and therefore is an **Environmental Factor Condition of "RED"** *not "YELLOW".*	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:	This is an Environmental Factor Condition change from "YELLOW" to "RED'.			
Cue:				
3665.2-001 Pg 5		Applicant recognizes that the **Intake Condition Total is NOT > 29** (specifically 29).	Critical: Y [ ] N **[X]**	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP # 3	**Determine Required Actions**	Applicant recognizes that if any action level is exceeded, OP 3215 must be referred to. (SP 3665.2-001 Note 2)	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

	(SP 3665.2-001 Note 3)	Applicant recognizes that if 'RED' action level is exceeded (environmental total or Intake total), a risk review must be performed.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	The STA will refer to NF-AA-PRA-370, and PERFORM a risk review.			
STEP #4	Obtain proper procedure.	Applicant obtains a copy of OP 3215 and reviews the procedure steps to determine which are applicable with the plant factor condition "RED", OR the environmental factor condition "RED".	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #5 OP 3215 Step 4.4 step 4.5	OP 3215, Steps 4.4 and 4.5.	Applicant should recognize these steps are already in progress per initial condition.		
Comments:	OP 3215 step 4.4 and 4.5 are already in progress based on the 0800 surveillance results which indicated both a plant factor condition and an environmental factor condition of "YELLOW", as given in the initial conditions. If questioned by the applicant, provide the following cue:			
Cue:	The actions associated with OP 3215, steps 4.4 and 4.5 are already in progress.			
STEP #6 OP 3215 Step 4.6	IF environmental factor OR unplanned plant factor condition is "RED," PERFORM the following as appropriate:	Applicant recognizes that **step 4.6 is applicable for the new environmental conditions.**	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:	It is not necessary for the applicant to discuss the specific actions associated with section 4.6 of OP 3215 – but only identify or otherwise recognize that these actions apply to an environmental factor condition of "RED." Additional actions in SP 3665.2 or OP 3215 may be identified by the applicant. However, these are actions are not critical.			
Cue:				

Termination Cue: The Evaluation For This JPM is Complete. STOP TIME: ________

VERIFICATION OF JPM COMPLETION

JPM Number: NRC SRO A.1.2 Revision: 0 chg 2

Date Performed: ____________

Student: ______________________________

Evaluator: ______________________________

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **X**

Validated Time (minutes): 15

Actual Time to Complete (minutes): ______

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number: NRC SRO A.1.2 Revision: 0 chg 2

Initial Conditions: You are the Shift Manager and the unit is experiencing degrading conditions at the intake structure. The Shift Technical Advisor (STA) is keeping SP 3665.2, Intake Structure Condition Determination current. The last surveillance was done at 0800 and indicated a plant factor condition of YELLOW, and an environmental factor condition of YELLOW. Plant actions for the yellow condition are already in progress (OP 3215 sections 4.4 and 4.5).

Initiating Cues: At 0900 the following conditions changed:

- PEO's have finished raking trash racks
- Trash rack dp's are now stable at 6.5", 6", 2", 2.5", 2.0", and 1.5".
- Traveling screen dp's are now stable at 5.0", 5.0", 4.0", 3.5", 2.0", 2.0".
- Wind speed, from 33' Met. Tower data, has increased to a steady 27 mph and from a new direction of 250°, which is verified by the marine forecast.

You directed the STA to conduct a new Intake Structure Condition Determination which he just completed.

1. **Review and disposition the completed SP 3665.2-001 surveillance.**
2. **Specify any changes to required actions associated with the new plant and environmental conditions.**

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Recommend a clearance boundary for 3CCI*P1A

JPM Number: NRC RO A.2 Revision: 3

Initiated:

William M. Forrestt 8/19/13

Developer Date

Reviewed:

Paul Scott 9/25/13

Technical Reviewer Date

Approved:

Trad Horner 10/1/13

Supervisor, Nuclear Training Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE
6/15/09	Updated JPM to use OP-AA-200, *Equipment Clearance* as the governing reference. WC 2 was superceded by OP-AA-200. Modified JPM to conform to the new fleet JPM format. Changed 'red' tags to danger tags, and 'yellow' tags to caution tags.	1/0
7/16/09	Modified the JPM to tagout a different component at the NRC's request. Specifically, from 3GWS-P1B, to 3LWS-P6A, "A" Waste Test Tank Pump.	2/0
8/21/09	Added '(red)' and '(yellow)' after danger and caution tags respectively to remove any ambiguity involving the correct nomenclature of tag type. This change a result of NRC comments during prep week.	2 / 1
8/19/13	Changed equipment tagout to 'A' CCI pump.	3/0

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: NRC RO A.2 Revision: 3

Task Title: Recommend a clearance boundary for 3CCI*P1A

System: Tagging and Clearance

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 15 min.

Task Number(s): 341-01-079

Applicable To: SRO ______ RO **X** PEO ______

K/A Number: GEN 2.2.13 K/A Rating: 4.1 / 4.3

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: X Simulator: ______ In-Plant: ______

Task Standards: Develop and review a tag clearance.

Required Materials: (procedures, equipment, etc.)

1) Team Lead Tag-Out Request (**Attachment 5** to OP-AA-200) **(See beginning of JPM, this needs to be filled in PRIOR TO START)**
2) P&IDs, EM-113B, EM-114A
3) EE One-Line diagrams
4) ESK Power Supply Book
5) OP 3330E, *Safety Injection Pump Cooling System*
6) OP 3308-006, *Electrical Checklist for High Pressure Safety Injection*

General References:

1) OP-AA-200 Rev. 18, *Equipment Clearance*
2) OP 3250 Rev. 14-05, *Removing Equipment from Service for Maintenance*

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: NRC RO A.2 Revision : 3

Initial Conditions: The mechanical seal on 3CCI*P1A, "SI PP A Cooling Pp", has to be replaced. Repair efforts are planned and the maintenance first line supervisor has made a work package tag-out request for the repair.

Initiating Cues: Your task is to develop a clearance boundary for this repair activity. **Using page 2 of this handout, RECORD the components to be tagged, the required tagged position(s), and the tag color.** Tag is sequence is not required.

Simulator Requirements: None

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: NRC RO A.2 Revision: 3

Task Title: Recommend a clearance boundary for 3CCI*P1A

START TIME: ________

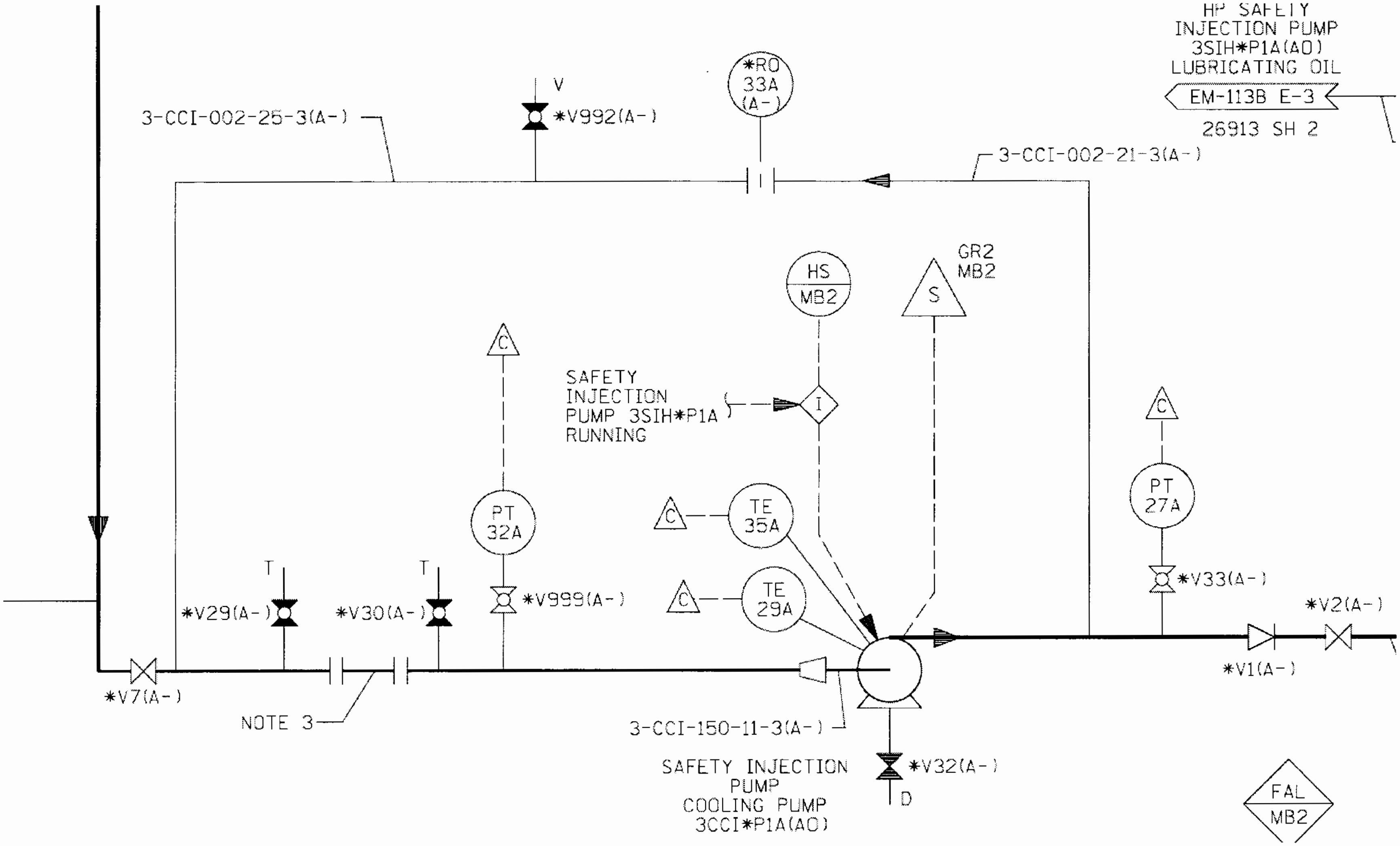
	PERFORMANCE	STANDARD		
Examiner Actions Before Start	Prior to start, mark-up OP-AA-200 Att. 5 "Tag-Out Request" with the following information: Issued to: Unit 3 OPS, x6200 Unit: 3 Reason: Corrective Maintenance & write in AWO number: 53102476838 Equip Affected: 3CCI*P1A Work to be Done: pump seal replacement on 3CCI*P1A Assist in Defining Work Scope…: Full Tagout Tagout Request Submitted By: John Franklin Tagout Request Verified By: Jeff Moore **Attachment 5 is on page 3 of the STUDENT HANDOUT. Once marked up with the above information, it may be passed out.** At this point, the JPM may begin.			
STEP #1	Identifies correct piping isolation boundary for 3CCI*P1A, "SI PP A Cooling Pp".	Candidate uses P&ID EM-114A and other appropriate references (listed in required materials) and identifies the correct isolation boundary: • Pump Discharge (3CCI*V2) CLOSED and danger (red) tagged • Pump Suction (3CCI*V7) CLOSED and danger (red) tagged	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #2	Identifies correct vent configuration for 3CCI*P1A, "SI PP A Cooling Pp".	Candidate uses P&ID EM-114A and identifies **at least ONE** of the following vent valves: • Vent valve (3CCI*V992) OPEN and danger (red) tagged • Pump Suction Test Valve (3CCI*V29) OPEN and danger (red) tagged • Pump Suction Test Valve (3CCI*V30) OPEN and danger (red) tagged	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #3	Identifies correct drain configuration for 3CCI*P1A, "SI PP A Cooling Pp".	Candidate uses P&ID EM-114A and identifies the following drain valve: • Pump Casing Drain (3CCI*V32) OPEN and danger (red) tagged	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #4	Identifies correct electrical isolation boundary for 3CCI*P1A, "SI PP A Cooling Pp".	Candidate uses EE-1AH or other appropriate references and identifies the correct electrical isolation point: • At MCC 32-4T (F2F), OFF and danger (red) tagged	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
	Identifies correct electrical isolation boundary for 3CCI*P1A, "SI PP A Cooling Pp".	Candidate uses EE-1AH or other appropriate references and identifies the correct electrical isolation point: • 3CCI*P1A Control Switch OFF (or blank) and danger (red) or caution (yellow) tagged (at MB2)	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	Tagging the pump control switch is not required to meet the critical nature of this step.			
Cue:				

STEP #5	Identifies correct electrical isolation boundary for 3SIH*P1A, "SI PP A Cooling Pp".	Candidate uses OP 3308-006 or other appropriate references and identifies the correct electrical isolation point: • 3SIH*P1A Control Switch in PTL and danger (red) tagged (at MB2)	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
Comments:	1.) Isolating cooling water (3CCI*P1A) to the 'A' Safety Injection Pump (3SIH*P1A) lube oil system will inop 3SIH*P1A. In order to prevent damage to this pump (should it auto start), the control switch for 3SIH*P1A should be placed in Pull to Lock (PTL). 2.) OP 3250, *Removing Equipment from Service for Maintenance,* step 1.6.3 discusses use of pull to lock for non-electrical isolation. If the candidate chooses to rack down the breaker for 3SIH*P1A, it would also be considered acceptable. The associated breaker for 3SIH*P1A is 34C8-2. The associated pump control switch is not critical.			
Cue:				
STEP #5		Candidate submits completed Page 2 of the STUDENT HANDOUT to the examiner. (Tagout should include all critical components previously identified.)	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

TERMINATION CUE: Acknowledge the Candidate's tagout submittal. **The evaluation for this JPM is complete.**

STOP TIME: ________



Boundary for 3CCI*P1A. Provided for examiner review.

VERIFICATION OF JPM COMPLETION

JPM Number: NRC RO A.2 Revision: 3

Date Performed: ____________

Student: ____________

Evaluator: ____________

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **X**

Validated Time (minutes): 15 min.

Actual Time to Complete (minutes): ____

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT (page 1 of 3)

JPM Number: NRC RO A.2 Revision: 3

Initial Conditions: The mechanical seal on 3CCI*P1A, "SI PP A Cooling Pp", has to be replaced. Repair efforts are planned and the maintenance first line supervisor has made a work package tag-out request for the repair.

Initiating Cues: Your task is to develop a clearance boundary for this repair activity. **Using page 2 of this handout, RECORD the components to be tagged, the required tagged position(s), and the tag color.** Tag is sequence is not required.

Component	Tagged Position	Tag Color

Dominion

Tag-Out Request

OP-AA-200 - Attachment 5 **Page 1 of 1**

Issued To (Name)	Extension	Department

Tag-Out Requested On Unit: ☐ 1 ☐ 2 ☐ 3 ☐ Common

Reason For Tag-Out	Initiating Document
☐ Corrective Maintenance ☐ Preventive Maintenance ☐ Trouble Shooting ☐ Testing ☐ Engineering Work Package ☐ Other ______	Work Order Number ______ Design Change Package Number ______ Other ______ ______ ______

Equipment Affected

Work To Be Done

Assist in Defining Work Scope and establishing safe work boundaries, review the following and check all that apply:

- ☐ "NO ROTATION" Tags (Equipment de-energized and prevented from turning; Non-intrusive maintenance.)
- ☐ "NO FLOW" Tags (System isolated to allow equipment to be manipulated without affecting the plant. Non-intrusive maintenance.)
- ☐ "FULL TAGOUT" Tags (Equipment isolated from all energy sources and depressurized. Intrusive maintenance.)
- ☐ "ELECTRICAL ONLY" (Equipment electrically isolated, the craft will use LOCKOUT, if required, for all other energy sources.)
- ☐ Controlling Procedure, which defines energy sources (OP, MOP, PT, ICP, MCM, etc. List in remarks.)
- ☐ Personnel entering a piping system or plant equipment (List in remarks.) (Operations will assist in determining applicable OPS procedures.)
- ☐ Auxiliary Components associated with equipment:
  - ☐ Seal Water
  - ☐ Oil sub-system
  - ☐ Cooling Water (i.e., BC, SW, CD, CC)
- ☐ Heat Trace (consider if removing insulation)
- ☐ Purge Path Required (Describe Below)
- ☐ System in-service for Freon removal
- ☐ Steam removed from air handler
- ☐ Hazardous Chemicals involved
- ☐ Control Power fuses removal required
- ☐ Grounds required
- ☐ Motor Heater fuses
- ☐ MOV motor/grease heater fuse
- ☐ MOV internal power supplies on LS/Rotor Contacts
- ☐ PMT requires Danger Tags (MOV testing, Flow Scan)

Tag-Out Request Submitted By (Name)	Date	Time
Tag-Out Request Verified By (Name)	Date	Time

Recommended Isolations or Remarks (If possible, include tag type and position.)

Form No. 721716(Aug 2011)

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Response to Door Inoperability

JPM Number: 2K13 NRC SRO A.2 Revision: 0 chg 3

Initiated:

William M. Forrestt — 9/23/13

Developer — Date

Reviewed:

Paul Scott — 9/25/13

Technical Reviewer — Date

Approved:

Trad Horner — 10/1/13

Supervisor, Nuclear Training — Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE
5/6/11	Corrected tyops, reformatted. –CTRyan	0/1
8/16/12	Updated JPM number to A207. Verified JPM updated through Rev 009-02 to OP 3261. Modified JPM step 10 (OP 3261, step 1.4.5) to be a critical step since it is appropriate to enter T/S 3.6.6.2 with the door blocked open. Minor editorial corrections. DLM	0/2
9/23/13	Minor editorial changes to cues. Modified to five column JPM format. - WMF	0/3

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: 2K13 NRC SRO A.2 Revision: 0 chg 3

Task Title: Response to Door Inoperability

System: NA

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 20

Task Number(s): 341-01-014

Applicable To: SRO **X** RO ______ PEO ______

K/A Number: GEN 2.2.21 K/A Rating: 2.9 / 4.1

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: X Simulator: ______ In-Plant: ______

Task Standards: Correctly determine the required actions for an INOPERABLE MP3 door.

Required Materials: (procedures, equipment, etc.)

1. OP 3261 Rev. 009-04, Response to Door Inoperability **(handout)**
2. Unit 3 Technical Specifications (reference cart)
3. Unit 3 Technical Requirements Manual (reference cart)

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC SRO A.2 Revision : 0 chg 3

Initial Conditions: The plant is at 100 % power and you are the Work Control SRO on shift. An emergent repair is required on the "A" RPCCW Heat Exchanger. Maintenance requires door A-24-4 be blocked open and have its center post removed, to move in equipment and scaffolding. Door work will be performed under W.O. 53102111111. It is estimated that the door will need to be blocked open for approximately four (4) hours.

Initiating Cues: You are asked to determine any compensatory actions necessary before blocking open door A-24-4. All Service Building and Auxiliary Building fire detectors are operable. Sliding tornado door A-24-4A will remain undisturbed. Maintain a rough log with all actions needed to authorize this work (such as applicable Tech Spec actions, TRM actions and necessary compensatory actions).

Simulator Requirements: NA

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC SRO A.2 Revision: 0 chg 3

Task Title: Response to Door Inoperability

START TIME: ________

	PERFORMANCE	STANDARD		
STEP #1	Obtains copy of OP 3261 "Response to Door Inoperability".	Obtains proper procedure.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #2 OP 3261 Step 1.1	Obtain the following information for each affected door: • Door ID number and location • Nature of inoperability (blocked open, doesn't latch, etc.) • If door is being blocked open, AWO/clearance number/activity. • If known, expected duration of inoperability.	Reviews initial conditions for required information.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP # 3 OP 3261 Step 1.2	Refer To Attachment 2, "Unit 3 Door Attributes," and DETERMINE applicable attributes to door in question.	Examinee refers to Attachment 2 and determines and logs that for door A-24-4, the following attributes apply: • TRM Fire Door • Locked TRM Fire Door • SLCRS Door • Radiation Door • Security Door	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP # 4 OP 3261 Step 1.3	IF door is a Dual---Train (D) door, PERFORM the following:	Examinee recognizes that door A-24-4 is **NOT** a Dual Train Protection Door, and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP # 5 OP 3261 Step 1.4	**IF one of the following types of doors is not capable of performing itsintended function, PERFORM the specified actions:** IF door is a security door, PERFORM the following: • Refer To Attachment 1 for list of security door number cross references. • NOTIFY Security Department of problems with doors or expected maintenance.	• Examinee recognizes that door A-24-4 is a security door, refers to Attachment 1 and determines that the security door number is 306. • Examinee annotates rough log with Security notification for door 306 being blocked open.	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #6	IF door is a "TRM Related Fire Door," PERFORM the following: • Refer To TRM 3.7.13, "Plant Systems, Fire Rated Assemblies," and PERFORM applicable actions. • NOTIFY Site Fire Marshal.	• Examinee recognizes that door A-24-4 is a TRM Related Fire Door and obtains and refers to TRM 3.7.13, "Fire Protection Systems, Fire Rated Assemblies," • Recognizes that TRM 3.7.13 applies and logs into LCO 3.7.13, ACTION a. (1 hour allowed outage time to establish fire rove) • Examinee notifies Site Fire Marshall that door A-24-4 will be blocked open (via rough log entry).	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #7	IF door is a "Locked TRM Related Fire Door," PERFORM the following: a. Refer To TRM 3.7.13, "Plant Systems, Fire Rated Assemblies," and PERFORM applicable actions. b. IF the only action performed is to unlock door to provide temporary access, Refer To SP 3670.3, "Control of Temporary Logs," and INITIATE approved temporary log requiring verification that door is closed every 24 hours. c. NOTIFY Site Fire Marshal.	Examinee recognizes door A-24-4 is a Locked TRM Related Fire Door, and that the door will NOT be just unlocked to provide temporary access. Also recognizes that the other actions specified are redundant to the previous step.	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP # 8	IF door is a non---TRM fire door AND IF door will not berestored before shift turnover, PERFORM the following:	Examinee recognizes that door A-24-4 is **not** a non-TRM Fire Door and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP # 9	IF door is a SLCRS door, PERFORM the following: a. IF the only problem with the door is that it does not latch, Refer To Attachment 2 and DETERMINE if door closes in the SLCRS air flow direction (Reference Note 15). b. IF door closes in the SLCRS air flow direction, Go To step 1.4.6. c. Refer To T/S 3.6.6.2, "Containment Systems Secondary Containment," and PERFORM applicable actions. d. IF SLCRS door A---24---6 is inoperable AND crediting stairwell boundaries is desired, Refer To Attachment 3 and PERFORM listed actions to credit alternate barriers. e. IF alternate barriers are successfully credited, Refer To T/S 3.6.6.2, "Containment Systems Secondary Containment," for continued applicability and actions.	• Recognizes **not** a latch only problem. • Door **does** close in the SLCRS air flow direction, however, the door is to be BLOCKED open. (See Note 15 of Attachment 2) This step should be marked N/A. • Examinee recognizes that door A-24-4 is a SLCRS Door and obtains and refers to T/S 3.6.6.2, "Containment Systems Secondary Containment." • Recognizes that T/S 3.6.6.2 applies and logs into LCO 3.6.6.2 ACTION. (24 hour allowed outage time) • Alternate barriers are not applicable for this door.	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
Comments:	If the examinee does not mark step b N/A, he or she may proceed to step 1.4.6 without logging into T/S 3.6.6.2. The examinee needs to realize that the door will be blocked open and the T/S needs to be entered.			
Cue:				

STEP #10	IF door is a Control Room Habitability Leakage door, PERFORM the following:	Examinee recognizes that door A-24-4 is **not** a Control Room habitability leakage door and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Cue:				
Comments:				
STEP #11	IF door is a CO2 boundary door, PERFORM the following:	Examinee recognizes that door A-24-4 is **not** a CO2 boundary door and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #13	IF door is a Technical Support Center Habitability (A) door, NOTIFY Onsite Emergency Planning group.	Examinee recognizes that door A-24-4 is **not** a Technical Support Center Habitability (A) door and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #14	IF door is a Fuel Building Integrity Boundary (B) door, PERFORM the following:	Examinee recognizes that door A-24-4 is **not** a Fuel Building Integrity Boundary door and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #15	IF door is a Cold Weather (CW) door AND air temperatures are OR are expected to be below 40°F, PERFORMthe following:	Examinee recognizes that door A-24-4 is **not** cold weather door and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #16	IF door is a Flooding (F) door, PERFORM the following:	Examinee recognizes that door A-24-4 is **not** a Flooding (F) door and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #17	IF door is a High Energy Line Break (H) door AND is required to be OPERABLE, PERFORM the following:	Examinee recognizes that door A-24-4 is **not** a HELB boundary door and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #18	IF door is a PRA HELB (HPRA) door AND IF in MODEs 1 through 4, PERFORM the following:	Examinee recognizes that door A-24-4 is **not** a PRA HELB boundary door and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #19	IF door is a HELB Blowout (HBO) door, PERFORM the following:	Examinee recognizes that door A-24-4 is **not** a HELB Blowout (HBO) door and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #20	IF door is a Radiation (R) door, NOTIFY Health Physics.	Examinee recognizes that door A-24-4 is a radiation boundary door and notifies (via rough log entry) Health Physics Department that door A-24-4 will be blocked open.	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #21	IF door is a Tornado (T) door, INITIATE actions to restore door to service in an expeditious manner.	Examinee recognizes that door A-24-4 is **not** a tornado door and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #22	IF door is a Halon door, PERFORM the following:	Examinee recognizes that door A-24-4 is **not** a Halon Door.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:	The candidate is not required to document any additional requirements (signage, wedge use, and shift turnover log).			
Cue:				

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: ________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC SRO A.2 Revision: 0 chg 3

Date Performed: ______________

Student: ______________________________

Evaluator: ______________________________

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **X**

Validated Time (minutes): 20

Actual Time to Complete (minutes): ______

Overall Result of JPM: SAT UNSAT

KEY

NOTE: Critical steps are denoted in **bold**.

Security door

Refers to Attachment 1 that the security door number is 306.

Notifies Security Department.

TRM Fire Door

TRM LCO 3.7.13, ACTION a. applies ("Fire Protection Systems, Fire Rated Assemblies.")

Notifies Site Fire Marshall

Locked TRM Fire Door

Effectively same actions as for a TRM Fire Door

SLCRS Door

T/S LCO 3.6.6.2 ACTION applies ("Containment Systems Secondary Containment.")

Radiation Door

Notifies Health Physics Department

STUDENT HANDOUT

JPM Number: 2K13 NRC SRO A.2 Revision: 0 chg 3

Initial Conditions:

The plant is at 100 % power and you are the Work Control SRO on shift. An emergent repair is required on the "A" RPCCW Heat Exchanger. Maintenance requires door A-24-4 be blocked open and have its center post removed, to move in equipment and scaffolding. Door work will be performed under W.O. 53102111111. It is estimated that the door will need to be blocked open for approximately four (4) hours.

Initiating Cues:

You are asked to determine any compensatory actions necessary before blocking open door A-24-4. All Service Building and Auxiliary Building fire detectors are operable. Sliding tornado door A-24-4A will remain undisturbed. Maintain a rough log with all actions needed to authorize this work (such as applicable Tech Spec actions, TRM actions and necessary compensatory actions).

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Review Radiological Work Procedure for Regenerative Heat Exchanger Room Entry

JPM Number: NRC RO A.3 Revision: 1

Initiated:

William M. Forrestt — 9/25/13

Developer — Date

Reviewed:

Paul Scott — 9/25/13

Technical Reviewer — Date

Approved:

Trad Horner — 10/1/13

Supervisor, Nuclear Training — Date

SUMMARY OF CHANGES:

A/I & DATE	DESCRIPTION	REV/CHANGE
8/21/09	Modified this JPM to review the survey map for the 'A' RHR cubicle. This removes the ambiguity of the applicant needing to determine whether the mezzanine in 'B' RHR cubicle area was encompassed in the assigned task (higher radiation level). As a result, radiation levels, contamination levels, stay time, etc., changed as well. This change a result of NRC comments during prep week.	0/1
9/25/13	Changed survey map to CTMT 11 ft. MIDS area. Changed RWP. Changed questions to include locked high radiation area questions and calculation of minimum stay time.	1/0

Facility: MP3 Examinee: ____________________

JPM Number: RO A.3 Rev. 1

Title: Review Radiological Work Procedure for Regenerative Heat Exchanger Room Entry

System: Radiation Control

Time Critical Task: Yes ____ No **X**

Validated Time (minutes): 20 min.

Task No.(s): 119-03-070, Approve entry and/or enter/exit the various radiation areas located within Millstone Station

Applicable To: SRO **X** RO **X** PEO ____

K/A No. 2.3.7 K/A Rating 3.5/3.6

Method of Testing:

Simulated Performance: ____ Actual Performance: **X**

Location:

Classroom: **X** Simulator: ____ In-Plant: ____

Task Standards: At the completion of this JPM the examinee has reviewed the applicable RWP and survey map to determine the radiological requirements to perform the assigned task.

Required Materials (procedures, equipment, etc.): Operations blanket RWP No. 3130205. Survey map for CTMT 11' MIDS Area

General References: RPM 5.2.2 Rev16, Basic Radiation Worker Responsibilities
RPM 2.5.10 Rev01, Health Physics Central Monitoring

*** * * * READ TO THE EXAMINEE * * * ***

I will explain the initial conditions, which step(s) to simulate or discuss, and provide

initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied. You may use any approved reference materials normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgments, and log entries as if the evolution was actually being performed.

Initial Conditions: A refueling outage is in progress at Millstone Unit 3. Preparations are being made to vent and drain the Regenerative Heat Exchanger (3CHS*E1).

Initiating Cues: You have been directed to make preparations to vent and drain the Regenerative Heat Exchanger. Your task will be limited to the Regenerative Heat Exchanger room in the CTMT 11' MIDS Area.

- Your remaining available dose is 800 mR for the year
- Your technical review (i.e. flowpaths, tagging boundaries, etc) is complete
- Your expectant work will be throughout the Regenerative Heat Exchanger Room. In this room, **you will NOT have to access the mezzanine**.
- The examiner will act as Health Physics for any related questions.
- **After reviewing BOTH**:
  1. Attached Survey Map for CTMT 11' MIDS Area
  2. Radiation Work Permit, no. 3130205

Complete the attached PRE-JOB Brief Questionnaire

Simulator Requirements: N/A

*** * * NOTES TO EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: RO A.3 Revision: 1

Task Title: Review Radiological Work Procedure for Regenerative Heat Exchanger Room Entry

START TIME: ________

	PERFORMANCE	**STANDARD**		
1.	Questionnaire step 1. Which RWP task (job step) will be used for this job?	Reviews CTMT 11' MIDS Area survey map and determines area is a locked high radiation area. After reviewing RWP, determines appropriate **job step is 2** for a locked high rad area.	Critical: **Y[X]** N [ ]	Grade S [ ] U [ ]
Cue:	• **Provide examinee with Operations Blanket RWP No. 3130205 and CTMT 11' MIDS Area survey map.**			
Comments:				
2.	Questionnaire step 2. What is the Dose Limit Alarm for this task (including units of measure)?	Reviews RWP Job Step 2 and determines Dose Limit Alarm is **100 mrem.**	Critical: **Y[X]** N [ ]	Grade S [ ] U [ ]
Cue:				
Comments:				
3.	Questionnaire step 3. What is the Dose Rate alarm for this task (including units of measure)?	Reviews RWP Job Step 2 and determines Dose Rate Alarm is **950 mrem/Hr.**	Critical: **Y[X]** N [ ]	Grade S [ ] U [ ]
Cue:				
Comments:				

4.	Questionnaire step 4. What type of radiation area Is the Regenerative Heat Exchanger Room (i.e. normal, high radiation area, locked high radiation area)?	Reviews CTMT 11' MIDS Area survey map and determines the area is a **locked high radiation area.**	Critical: **Y[X]** N[ ]	Grade S[ ] U[ ]
Cue:				
Comments:				
5.	Questionnaire step 5. List **all** the dosimetry requirements for this job	Determines must wear **all** of the following: **1. ED (Electronic Dosimeter)** **2. Teledosimetry** **3. TLD**	Critical: **Y[X]** N[ ]	Grade S[ ] U[ ]
Cue:				
Comments:				
6.	Questionnaire step 6. Using the survey map's high general area radiation level (for the Regen Heat Exchanger Room), what is your expected stay time?	Reviews CTMT 11' MIDS Area survey map and determines highest dose rate is 900 mrem/hr and recognizes dose limit alarm is 100 mrem. Calculates 900 mrem per hour / 100 mrem And determines **min stay time is .11 hours or 6.6 minutes** **ALLOWABLE BAND of +/- 10% is:** **0.10 hours to 0.12 hours OR** **6 min to 7.2 min .**	Critical: **Y[X]** N[ ]	Grade S[ ] U[ ]
Cue:				
Comments:				

7.	Questionnaire step 7. Is the work area contaminated? If YES, what is the highest contamination level (using the survey map) in the work area (including units of measure)?	Reviews CTMT 11' MIDS Area survey map and determines **YES** area is contaminated and highest contamination level is **50,000 dpm / 100 cm2.**	Critical: **Y[X]** N [ ]	Grade S [ ] U [ ]
Cue:				
Comments:				

TERMINATION CUE: The evaluation for this JPM is concluded. **STOP TIME: ______________**

VERIFICATION OF JPM COMPLETION

JPM Number: NRC RO A.3 Revision: 1

Date Performed: ______________

Student: ______________________________

Evaluator: ______________________________

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **X**

Validated Time (minutes): 20 min.

Actual Time to Complete (minutes): ______

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT **(page 1 of 2)**

Initial Conditions: A refueling outage is in progress at Millstone Unit 3. Preparations are being made to vent and drain the Regenerative Heat Exchanger (3CHS*E1).

Initiating Cues: You have been directed to make preparations to vent and drain the Regenerative Heat Exchanger. Your task will be limited to the Regenerative Heat Exchanger room in the CTMT 11' MIDS Area.

- Your remaining available dose is 800 mR for the year
- Your technical review (i.e. flowpaths, tagging boundaries, etc) is complete
- Your expectant work will be throughout the Regenerative Heat Exchanger Room. In this room, **you will NOT have to access the mezzanine**.
- The examiner will act as Health Physics for any related questions.
- **After reviewing BOTH**:
  3. Attached Survey Map for CTMT 11' MIDS Area
  4. Radiation Work Permit, no. 3130205

Complete the attached PRE-JOB Brief Questionnaire

STUDENT HANDOUT (page 2 of 2)

Pre-Job Brief Questionnaire

1. Which RWP task (job step) will be used for this job? ______________________

2. What is the Dose Limit Alarm for this task (including units of measure)? ___________

3. What is the Dose Rate alarm for this task (including units of measure)? ___________

4. What type of **radiation area** Is the Regenerative Heat Exchanger Room (i.e. normal (RCA), high radiation area, locked high radiation area, etc.)? __________________

5. List **all** the dosimetry requirements for this job:_________________________

6. Using the survey map's **highest general area radiation level** (for the Regen Heat Exchanger Room), what is your expected stay time? ______________________

7. Is the work area contaminated? __________If YES, what is the highest contamination level (using the survey map) in the work area (including units of measure)? ________

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: 3DAS-RE50, "Turbine Floor Drains Radmonitor", is inoperable

JPM Number: 2K13 NRC SRO A.3 Revision: 0

Initiated:

William M. Forrestt 9/23/13

Developer Date

Reviewed:

Paul Scott 9/24/13

Technical Reviewer Date

Approved:

Trad Horner 10/1/13

Supervisor, Nuclear Training Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE

JPM WORKSHEET

Facility: MP3 Examinee: ____________________

JPM Number: 2K13 NRC SRO A.3 Revision: 0

Task Title: 3DAS-RE50, “Turbine Floor Drains Radmonitor”, is inoperable

System: ____________________

Time Critical Task: ( ) YES (x) NO

Validated Time (minutes): 20 min.

Task Number(s): 119-03-208

Applicable To: SRO X RO ______ PEO ______

K/A Number: 2.3.14 K/A Rating: 3.4 / 3.8

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: X Simulator: ______ In-Plant: ______

Task Standards: Review narrative log and properly determine that DAS-RE50 is inoperable. As a result, log into appropriate REMODCM action.

Required Materials: (procedures, equipment, etc.)

Full cart of reference material, to include:

1. OP 3353.MB2B-002-09 “RMS Trouble” ARP (reference cart)
2. OP 3362, “Radiation Monitor System Display and Control System” (reference cart, have **2 additional copies** w/ Examiner)
3. MP-22-REC-BAP01, “REMODCM” **(generate 3 references and place on reference cart)**

General References: N/A

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC SRO A.3 Revision : 0

Initial Conditions: You are an SRO and have been asked to relieve the on shift US who has fallen ill 4 hours into the shift.

Initiating Cues: Review the attached narrative log entries and identify any situation that needs to be addressed. If action(s) are required to be taken, include the action to be taken.

Record any identified problem(s) below along with proposed action.

Simulator Requirements: N/A

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC SRO A.3 Revision: 0

Task Title: 3DAS-RE50, "Turbine Floor Drains Radmonitor", is inoperable

START TIME: ________

	PERFORMANCE	STANDARD		
STEP #1	Reviews narrative log.	Identifies two problems. 1. 3SWT-SSC1F-CS was not returned to AUTO following daily PEO rounds cleaning of Screen Wash Spray Header Strainers (OP 3327 sec. 4.16). This is **NOT CRITICAL.** 2. Identifies 3DAS-RE50 is **inoperable AND enters REMODCM Table V.C.1 Action B**. This is **CRITICAL.** The candidate made this determination by referencing the ARP (MB2B 2-9 "RMS Trouble"). This ARP directed referencing OP 3362 "Radiation Monitor System Display and Control". Section 4.13 of OP 3362 ("Equipment Failure Alarms") directs reference to Attachment 6. On Attachment 6 of OP 3362, comment 8 states "If momentary aux failure alarm is received frequently (several times a day), the rad monitor should be declared inoperable until the cause of the alarm is corrected."	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
Comments:	The component positioning problem (item 1 above) is not critical as there is no significant plant impact with leaving this control switch in manual SLOW 1 for an extended period of time.			
Cue:				

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: ________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC SRO A.3 Revision: 0

Date Performed: ______________

Student: ______________________________

Evaluator: ______________________________

> To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **X**

Validated Time (minutes): 20 min.

Actual Time to Complete (minutes): ______

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number: 2K13 NRC SRO A.3 Revision: 0

Initial Conditions:

You are an SRO and have been asked to relieve the on shift US who has fallen ill 4 hours into the shift.

Initiating Cues:

Review the attached narrative log entries and identify any situation that needs to be addressed. If action(s) are required to be taken, include the action to be taken.

Record any identified problem(s) below along with proposed action.

Today 06:00	Assumed the watch as Shift Manager: * Plant is in Mode 1 * Reactor Power is 100% * Gross Generator Output is 1268 MWe * 'A' Train Protected * Additional Protected Equipment: - NONE * Time to Spent Fuel Pool 200 °F on loss of all cooling is greater than 72 hours * Spent Fuel Pool Temperature: 93.7°F * Active LCO Action's requiring lower Mode within 7 days: NONE * Abnormal plant conditions / Key equipment OOS with expected resolution date (ERD) (responsible work group): - 'A' Screen Wash Pump high vibrations. Minimize use status. CR521924 (mech mntc) - Condenser Air Ejector flow rate is high (~21 scfm) (Chemistry) - Degasifier to be restored to service following repair of 3GWS-V013 and 3GWS-V015 (mech mntc)
Today 06:01	The reactivity plan for the shift developed by the RO estimates approximately 30 to 40 gallons of dilution water required to maintain reactor power. This is to be performed with 2 to 3, light blended make-ups to the VCT adding 11-13 extra gallons of water each. This plan has been independently reviewed by the STA and is acceptable. The Boric Acid Flow Controller, 3CHS-FK110, potentiometer setting is 4.21 turns and has been verified by the RO, STA & US. [RO]
Today 06:18	Commenced CPE Operations,will respond to Demineralizer Control Panel and Condensate Demineralizer Waste Treating Panel alarms. [Chemist]
Today 07:10	Received MB2B 2-9 "RMS Trouble". Alarm was due momentary aux equipment failure for 3DAS-RE50, Turbine Building Floor Drains Radmonitor. Alarm is clear and channel check is SAT for 3DAS-RE50.
Today 07:40	Placed 'F' traveling water screen, 3SWT-SSC1F-CS, in SLOW-1 to start 'A' Screen Wash Pump for strainer blowdown IAW OP3327 Section 4.16. [BOP]
Today 08:00	Performed 80 gallon total blended make up to the VCT while decreasing RCS Boron concentration, added an additional 11 gallons of dilution water IAW OP 3304C step 4.5. [RO] Initial Conditions Reactor Power = 3648.0 MWth Tave = 587.0°F

Today 08:20	Shutdown Boric Acid System IAW OP3304C section 4.18 to support scheduled work on 3CHS*MV8104 [RO]
Today 08:40	Final Conditions: [RO] Reactor Power = 3649.9 MWth (CVQRPA) ; Tavg = 587.4°F.
Today 08:41	Received several more annunciators (MB2B 2-9 "RMS Trouble") for recurring aux equipment failure alarms on 3DAS-RE50. Alarm is momentarily occurring and clearing. Channel check is SAT for 3DAS-RE50.
Today 0845	3CCI*P1A and 3CCI*P1B, SAFETY INJECTION PUMP COOLING PUMPS, started, run for 2 minutes and stopped for Chemistry sampling. [RO]
Today 09:40	Reactor Coolant System Sampled From Letdown. Boron Concentration is 1454 PPM Boron. [Chemist]
Today 09:45	Adjusted 3CHS-FK110 Controller Pot Setting iaw OP 3304C, Primary Makeup and Chemical Addition.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Emergency Plan Classification and PAR

JPM Number: SRO A.4 Revision: 0

Initiated:

William M. Forrestt — 9/24/13

Developer — Date

Reviewed:

Paul Scott — 9/25/13

Technical Reviewer — Date

Approved:

Trad Horner — 10/1/13

Supervisor, Nuclear Training — Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: SRO A.4 Revision: 0

Task Title: Emergency Plan Classification and PAR

System: N/A

Time Critical Task: (X) YES ( ) NO

Validated Time (minutes) 10 min. classify /12 min PAR

Task Number(s): 301-05-366, 301-05-449

Applicable To: SRO **X** RO ______ PEO ______

K/A Number:		K/A Rating:	
	2.4.41		2.9 / 4.6
	2.4.44		2.4 / 4.4

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: X Simulator: ______ In-Plant: ______

Task Standards: Determine the EAL and State Posture Code
Determine the minimum required PAR

Required Materials:

- MP-26-EPI-FAP06-003 Rev 8, MILLSTONE UNIT 3 EMERGENCY ACTION LEVELS
- MP-26-EPI-FAP06 Rev 8, CLASSIFICATION AND PARs
- MP-26-EPI-FAP06-005 Rev 4, CONTROL ROOM PROTECTIVE ACTION RECOMMENDATIONS
- Incident Report Form (MP-26-EPI-FAP07-001)- Rev1-03

(all required materials are on the reference cart in book labeled "CR DSEO", need two additional books)

General References: MP-26-EPI-FAP-01-001, CONTROL ROOM DIRECTOR OF STATION EMERGENCY OPERATION, Rev 10-1 (CR DSEO)

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: SRO A.4 Revision : 0

Initial Conditions: The plant is at 100% power on a 107 day run. All systems functioning normally. The 'B' Safety Injection pump has been out of service for 8 hours for maintenance and is expected to be returned to service in 6 hours. The following events occur:

1. (0800) Small Break LOCA occurs coincident with a failure of the running Charging Pump.
2. (0804) The 'A' Safety Injection Pump trips.
3. (0805) The standby Charging Pump will not start.
4. (0806) Core Cooling Status Tree is yellow based on a loss of RCS subcooling.
5. (0810) Core Cooling Status Tree is orange based on low RVLMS plenum level.
6. (0815) Crew exits E-0 and enters FR-C.1
7. (0828) RE-04A/05A reading 5.2 R/hr and increasing
8. (0830) Core Cooling Status Tree is red based on CET's reading 1210 F and rising.
9. (0835) RE-04A/05A reading 230 R/hr and increasing
10. (0846) CET's are 1450 F and rising.
11. (0847) RE-04A/05A reading 31,000 R/hr and increasing
12. (0900) Offsite dose rates downwind of MP3 CTMT indicate ~15mR/hr
13. (0915) The Control Room is using the Containment Vacuum System to vent Containment to the Aux Building for fifteen minutes

The current wind speed is fifteen (15) miles per hour. The current wind direction is from 140°.

Initiating Cues: Determine the applicable emergency action level and make any appropriate protective action recommendations.

Perform the following 2 tasks. Both of these tasks are time critical.

(1) Record your Highest Classification response (EAL Major and Minor Heading) on the space provided below. **Report to the Examiner when your Classification is made (FOR PROPER TIMING).**

EAL MAJOR HEADING__________ MINOR HEADING ____________

(2) After the classification is made and the Examiner is notified: If a PAR is required, RECORD the PAR recommendation on the space provided below. **As applicable, notify the Examiner when complete with the PAR determination (FOR PROPER TIMING).**

ARE THERE ANY QUESTIONS? **You may see the Examiner to obtain the book labeled "CR DSEO" and START the TIMING.**

Simulator Requirements: NONE

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: SRO A.4 Revision: 0

Task Title: Emergency Plan Classification and PAR

START TIME: ________

PERFORMANCE **STANDARD**

For timing purposes, both of the following tasks have time limits:

1. 15 minutes to determine Emergency Action Level and State Posture Code.
2. 15 minutes after classifying event to determine minimum required PAR.

The timing for the EAL determination (item 1 above) will begin ONCE the book labeled "CR DSEO" is handed to the candidate (this will be after the STUDENT HANDOUT is read and understood)

Record the JPM start time:

STEP #1	Obtain Proper procedure.	Applicant obtains or requests copy of MP-26-EPI-FAP06-003, MP3 Emergency Action Levels.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	Provide the Candidate a blank copy of an Incident Report Form and a Control Room PAR Process Flowchart (Handout #1). Applicant may also request copies of: • MP-26-EPI-FAP-01-001, CR-DSEO Checklist • MP-26-EPI-FAP06, Classification and PARs • MP-26-EPI-FAP06-005, CR PARs • MP-26-EPI-FAP07, Notifications & Comms • MP-26-EPI-FAP07-001, Incident Report Form The **CR DSEO Notebook** contains all these procedures.			
Cue:	The examiner should pass out the CR DSEO book and inform the candidate that timing has begun.			

STEP #2	**Classify the Event**	Applicant recognizes a **LOSS** of the **Fuel Clad Barrier**, based on EITHER one of following: • **FCB1** - Core Cooling RED • **FCB2** - CET > 1200 F • **FCB3** - > 200 R/hr on RE04/05, ≤2hrs after shutdown. (FCB3 AND Table 1 values)	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
	Classify the Event	Applicant recognizes a **LOSS** of the **RCS Barrier** based on **RCB2** RCS Subcooling < 32 F Due to RCS Leak	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
	Classify the Event	Applicant recognizes a **POTENTIAL LOSS** of the **CTMT Barrier** based on EITHER one of the following: • **CNB2** – Entry in FR-C.1 with conditions met • **CNB5** – > 800 R/hr on RE04/05, ≤2hrs after shutdown. (FCB3 AND Table 1 values)	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

		Applicant reviews MP-26-EPI-FAP06-003 and determines that a NRC EAL of **GENERAL EMERGENCY** based on EITHER one of the following: • Barrier Table (BG1) described above (BG1 exists. Fuel Clad Barrier (L), RCS Barrier (L) and CTMT Barrier (Potential L)). • IN PLANT RADIATION (RG1) Based on sustained RE04A/05A reading > 800 R/hr	Critical: **Y [X]** N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #3	**Determine State Posture Code**	Applicant reviews MP-26-EPI-FAP06-003 and determines that the block for BG1 or RG1 is the same color as **State Posture ALPHA**.	Critical: **Y [X]** N [ ]	Grade S [ ] U [ ]
Comments:	Tables are color coded to reflect the State Posture.			
NOTE	**1. Record the Time Classification is Completed: (must be within 15 minutes of JPM start)** **2. CUE Candidate: "Is a PAR required?"** **3. If the Candidate correctly answers YES, then inform them to complete a PAR and record start time _________**			
STEP #4	**Determine the State Protective Action Recommendation**	Applicant uses MP-26-EPI-FAP06-005, Section B, Control Room PAR Process Flowchart, to determine the PAR.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #5	**Determine the State Protective Action Recommendation**	Applicant reviews flowchart and diagnoses that all only 2 barriers ARE lost (No) and transitions to "Does CTMT Radiation Exceed Table 1 Values?"	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #6	**Determine the State Protective Action Recommendation**	Applicant reviews Table 1 and determines that 31,000 R/hr exceeds Table 1 Values (Yes). Transition is made to "Is There a Release in Progress".	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #7	**Determine the State Protective Action Recommendation**	Applicant reviews flowchart and determines that a release IS in progress (Yes). Transitions to "Is the Release Controlled."	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	Although not specifically stated in initial conditions, the applicant should determine that a release is in progress based on the cue that the Containment Vacuum System is being used to vent containment.			
Cue:				
STEP #8	**Determine the State Protective Action Recommendation**	Applicant reviews flowchart and determines that the release is controlled (Yes).	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	Although not specifically stated in initial conditions, the applicant should determine that the release is controlled based on MP-26-EPI-FAP06 definition for <u>controlled release:</u> "Short term release (less than one hour), which is a controlled evolution and the release duration can be accurately determined (such as containment venting)."			
Cue:				

STEP #9	**Determine the State Protective Action Recommendation**	Applicant reviews flowchart and makes the determination to **SHELTER ALL ZONES**.	Critical: **Y [X]** N [ ]	Grade S [ ] U [ ]
Comments:	It is possible AND acceptable, that the Candidate will stop here. If so: **Record the Time PAR is Completed: (this must be done within 15 minutes of completing Classification)**			
Cue:				
STEP #10	**Communication of the State Protective Action Recommendation**	Applicant reviews flowchart and transitions to Section A, Step 2 of MP-26-EPI-FAP06-005 (Control Room PAR) for the notification.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	Steps 10 and 11 are not required for successful completion. These are added notifications.			
Cue:				
STEP #11	If a General Emergency ALPHA is declared with actions necessary out to 10 miles, PARs are verbally transmitted to the 24 hour DEP Dispatcher in Hartford.	Applicant verbalizes or otherwise notes that the DEP dispatcher in Hartford should be contacted to communicate the applicable evacuation and sheltering recommendations, and KI strategy implementation.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
NOTE:	**Record the Time PAR is Completed: (this must be done within 15 minutes of completing Classification)**			
Cue:	**The evaluation for this JPM is complete.**			

STOP TIME: ________

VERIFICATION OF JPM COMPLETION

JPM Number: SRO A.4 Revision: 0

Date Performed: ______________

Student: ____

Evaluator: ____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within specified time to achieve a satisfactory grade.

Time Critical Task? Yes **X** No ______

Validated Time (minutes): 10 min. classify /12 min PAR

Actual Time to Complete (minutes): ______

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT

Initial Conditions: The plant is at 100% power on a 107 day run. All systems functioning normally. The 'B' Safety Injection pump has been out of service for 8 hours for maintenance and is expected to be returned to service in 6 hours. The following events occur:

14. (0800) Small Break LOCA occurs coincident with a failure of the running Charging Pump.
15. (0804) The 'A' Safety Injection Pump trips.
16. (0805) The standby Charging Pump will not start.
17. (0806) Core Cooling Status Tree is yellow based on a loss of RCS subcooling.
18. (0810) Core Cooling Status Tree is orange based on low RVLMS plenum level.
19. (0815) Crew exits E-0 and enters FR-C.1
20. (0828) RE-04A/05A reading 5.2 R/hr and increasing
21. (0830) Core Cooling Status Tree is red based on CET's reading 1210 F and rising.
22. (0835) RE-04A/05A reading 230 R/hr and increasing
23. (0846) CET's are 1450 F and rising.
24. (0847) RE-04A/05A reading 31,000 R/hr and increasing
25. (0900) Offsite dose rates downwind of MP3 CTMT indicate ~15mR/hr
26. (0915) The Control Room is using the Containment Vacuum System to vent Containment to the Aux Building for fifteen minutes

The current wind speed is fifteen (15) miles per hour. The current wind direction is from 140°.

Initiating Cues: Determine the applicable emergency action level and make any appropriate protective action recommendations.

Perform the following 2 tasks. Both of these tasks are time critical.

(1) Record your Highest Classification response (EAL Major and Minor Heading) on the space provided below. **Report to the Examiner when your Classification is made (FOR PROPER TIMING).**

EAL MAJOR HEADING__________

MINOR HEADING ____________

(2) After the classification is made and the Examiner is notified: If a PAR is required, RECORD the PAR recommendation on the space provided below. **As applicable, Notify the Examiner when complete with the PAR determination (FOR PROPER TIMING).**

____

____

____

ARE THERE ANY QUESTIONS? **You may see the Examiner to obtain the book labeled "CR DSEO" and START the TIMING.**

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: CONTROL ROD OUT OF ALIGNMENT

JPM Number: 2K13 NRC S.1 (S130)

Revision: 1 chg 7

Initiated:

William M. Forrestt — 9/26/13

Developer — Date

Reviewed:

Paul Scott — 9/26/13

Technical Reviewer — Date

Approved:

Trad Horner — 10/1/13

Supervisor, Nuclear Training — Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE
Change 1	Update to procedure rev 4. Barry Pinkowitz	08/04/2003
Change 2	Update to procedure rev 5 01. John Deveau	09/24/2003
Change 3	Update to procedure rev 007-00 and other minor enhancements. R.J. Acquaro	05/30/2006
Change 4	Updated to procedure rev 008-00, updated reference task, updated reference to OP-AP-300. PGM	5/31/2007
Change 5	Updated for TRex and use of schedule to set up misaligned rod	7/23/2009
Change 6	Updated to new JPM numbering (S130 vs 130) and JPM format	1/23/13
Change 7	Added sim set-up step (pg 4) to remove malfunction, RD 0457, prior to starting JPM. Updated to 5 column JPM format. - WMF	9/26/13

JPM WORKSHEET

Facility: MP3 Examinee: ____________

JPM Number: 2K13 NRC S.1 Revision: 1 chg 7

Task Title: CONTROL ROD OUT OF ALIGNMENT

System: 001

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 20

Task Number(s): 344-05-030

Applicable To: SRO **X** RO **X** PEO ____

K/A Number: 001 A2.03 K/A Rating: 3.5 / 4.2

Method of Testing: Simulated Performance: ____ Actual Performance: X

Location: Classroom: ____ Simulator: X In-Plant: ____

Task Standards: Satisfactorily recover from a misaligned control rod using AOP 3552 Attachment A

Required Materials: AOP 3552, Rev. 011-001
(procedures, equipment, etc.)

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC S.1 Revision : 1 chg 7

Initial Conditions:

A problem in the EHC circuit caused a momentary runback of the turbine/generator. During the subsequent insertion of the reactor control rods, rod D4 in Control Bank D was observed to be misaligned. The control room team entered AOP 3552 and has decided that Attachment A will be used to recover the misaligned rod.

The lift coil fuse for rod D4 was blown, and has been replaced.

MB4C 6-5 "Tref / Auct Tave Deviation" is lit. Another Operator will perform SP 3601G.3 "Tavg monitoring" and address this ARP.

Initiating Cues:

The US has directed you to complete Attachment A of AOP 3552 step 1 through step 7.f.

Simulator Requirements:

Preferred: 5 minute set-up

1. Reset to IC 13 or any 100% IC.
2. Insert schedule JPM130R2
3. Allow rod D4 to misalign by greater than 12 steps, then place Rod Bank SEL switch to MAN.
4. Remove malfunction RD0457 to allow recovery of the rod.
5. Verify Rod Disconnect Box unlocked

Optional: 12 minute set-up

1. Reset to any 100% IC.
2. Enter malfunction **RD0457** Control Band "D" stuck rod "D4"
3. Place the master silence switch in the "Master Silence" position and place the simulator in "RUN".
4. Reduce turbine load by about 20 MWe using the Load Limit potentiometer to cause Control Bank D to insert by greater than 12 steps, then place Rod Bank SEL switch to MAN.

5. Allow rod D4 to misalign
6. Allow the simulator time to stabilize prior to performing the next step.
7. Remove malfunction **RD0457** to allow recovery of the rod.
8. Verify Rod Disconnect Box unlocked.

* * * * **NOTES TO TASK PERFORMANCE EVALUATOR** * * * *

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC S.1 Revision: 1 chg 7

Task Title: Control Rod Out Of Alignment

START TIME: ________

	PERFORMANCE	STANDARD		
STEP #1 3552 Att.A	**CAUTION** • Improper rod alignment can cause fuel damage either directly or in conjunction with plant transients. • Resetting ROD CONTROL URGENT FAILURE (MB4C 4-8) alarm without correcting the cause may result in dropping a group of control rods. **NOTE** • A ROD CONTROL URGENT FAILURE (MB4C 4-8) alarm will inhibit both manual and automatic motion for all rods controlled from the affected power cabinet.	Reads caution and note.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #2 3552 Att.A Step 1	**Check Plant Conditions** • Verify operational mode – MODE 1	Verifies that the plant is in Mode 1 based on current power level.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #3	**Identify misaligned rod(s) using:** • DRPI display • Rod Supervision on plant process computer	Checks the DRPI display and calls up PPC "Rod Supervision" display (NSSS menu, Rod Supervision button) and identifies rod D4 as the only affected rod.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #4	Check ROD CONTROL URGENT FAILURE (MB4C 4-8) annunciator - LIT	Checks Main Board annunciator MB4C 4-8 **NOT LIT**. Takes RNO action and proceeds to step 1 o.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #5 3552 Att.A Step1o	Using Attachment G, request I&C Verify affected rod lift coil fuse --- NOT BLOWN	Recognizes from Initial Conditions that the lift coil fuse for rod D4 was blown and has been replaced by I&C.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	As needed, inform the examinee that the lift coil fuse for rod D4 was blown and has been replaced by I&C.			
STEP #6 3552 Att.A Step 2	**Verify Reactivity Control Systems Limits** Using TRM, Appendix 8.1,COLR, Check all shutdown rods --- WITHDRAWN TO GREATER THAN OR EQUAL TO THE SHUTDOWN INSERTION LIMIT	Refers TRM and verifies that the shutdown rods are greater than the listed insertion limit of 220 steps.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #7	Check rods --- AT LEAST ONE ROD MISALIGNED BY MORE THAN ±12 STEPS FROM ITS GROUP STEP COUNTER	Checks DRPI and/ or the PPC "Rod Supervision" display and verifies that rod D4 is out of alignment by more than 12 steps.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #8	Check rods --- A MAXIMUM OF ONE ROD MISALIGNED BY MORE THAN ±12 STEPS FROM ITS GROUP STEP COUNTER	Checks DRPI and/or the PPC "Rod Supervision" display, and verifies that ONLY rod D4 is out of alignment by more than 12 steps	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #9	Notify Reactor Engineering	Notifies Reactor Engineering that D4 is misaligned more than 12 steps from its group.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #10	Within 1 hour, Using OP 3209B, "Shutdown Margin," Determine Shutdown Margin in MODES 1 and 2 with an inoperable rod	Completed Shutdown Margin calculation shows that SDM is adequate in present plant mode of operation.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	Inform examinee that Shutdown Margin is adequate for present plant conditions.			
STEP #11 3552 Att.A Step 3	**Verify Power Distribution Limits** Check reactor power --- GREATER THAN 50%	Checks the power range meters on MB4 and determines that reactor power is greater than 50%	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #12	Determine QPTR using: Plant computer --- Tilting Factors OR SP 31012, Quadrant Power Tilt Ratio	Examinee may start to determine QPTR. Examiner should provide cue below.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	Inform the examinee that the QPTR is less than 1.02.			
STEP #13	Check QPTR --- LESS THAN OR EQUAL TO 1.09	Recognizes that QPTR < 1.09, and proceeds to next step.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #14	Check QPTR --- LESS THAN OR EQUAL TO 1.02	Recognizes that QPTR provided indicates < 1.02, and proceeds to next step.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #15	Using TRM, Appendix 8.1, COLR, Check AFD --- WITHIN LIMITS	AFD within limits, examinee proceeds to next step.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	Inform the examinee that AFD is within the limits specified in the TRM.			
STEP #16 3552 Att. A Step 4	**Check If Power Should Be Reduced** If necessary, Request Reactor Engineering determine time rod has been misaligned Check rod misaligned – GREATER THAN 1 hour	Examinee proceeds to 4b RNO based on rod not misaligned greater than 1 hour.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	Inform examinee that rod has been misaligned less than one hour.			

STEP #17	Perform the applicable action: IF performing rod alignment within 1 hour is Desired (T/S 3.1.3.1 ACTION b.1. or T/S 3.1.3.5 ACTION a.), THEN Proceed to NOTE prior to step 5. and, IF the rod is NOT aligned within 1 hour, THEN Perform steps 4.c. through 4.h.	Examinee proceeds to NOTE prior to step 5.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #18	**NOTE** • A ROD CONTROL URGENT FAILURE (MB4C 4---8) alarm will occur during recovery unless the affected rod is in Shutdown Bank C, D, or E. • If the affected rod is in a Control Bank, a ROD CONTROL BANKS LIMIT LO (MB4C 3---9) alarm and ROD CONTROL BANKS LIMIT LO LO (MB4C 4---9) alarm may occur during recovery and remain in alarm until the P/A converter is reset. Therefore, response to these alarms is not appropriate during this period.		Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #19 3552 Att.A Step 5	**Establish Conditions For Rod Alignment** Verify cause of misaligned - CORRECTED	Recognizes that cause has been corrected from information provided in the Initial Conditions.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #20	Record affected group step counter position ___________	Notes the position of the control bank D group 1 step counter and records that number in Step 5.b.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #21	Align control rod disconnect switches: 1) Unlock and Open control rod disconnect switch box (3RDS---HDSBOX1) using CAT 60, Key #18 in CO key locker) 2) Place each rod disconnect switch for the affected bank, *except the misaligned rod*, to the ROD DISCONNECTED position	1.) Locates and opens control rod disconnect switch box. 2.) Positions all of the disconnect switches for the control bank D rods with the exception of rod D4 "up" to the ROD DISCONNECT position (Both Group 1 and 2 of Control Bank D).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:	Inform examinee that the rod control disconnect box is unlocked.			
STEP #22	Place control rod bank SEL switch to the affected bank position	Places the control bank SEL switch to the CBD position.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #23 3552 Att.A Step 6	**Align Rod** Using DRPI display, Check misaligned rod --- HIGHER THAN ASSOCIATED BANK	Checks the DRPI display and verifies that rod D4 is higher than the remaining rods in control bank D.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #24	Insert misaligned rod until next lower position DRPI LED just changes state	Takes the In-Hold-Out switch to the "IN" position until the next lower position LED for rod D4 comes on, then releases the switch.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	This action will cause main board annunciator MB4C 4-8 to alarm. The examinee should acknowledge the alarm. This is not required to satisfy the critical nature of the step.			
Cue:	Per OP-AP-300, the examinee is expected to notify the control room team when a reactivity change is going to occur. However, this is not required to complete the critical task of this JPM.			

STEP #25	Reset affected group step counter to a value of 2 steps higher than affected rod's indicated DRPI position	Resets the control bank D group 1 step counter to a position that corresponds to 2 steps higher than the DRPI indication for rod D4.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #26	Proceed to step 6.g.	Proceeds to step 6.g.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #27	Verify rod misaligned --- LESS THAN 16 hours	Acknowledges cue and continues to next step.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	Inform the candidate "The rod has been misaligned for 30 minutes".			
STEP #28	Move misaligned rod until affected group step counter indicates value recorded in step 5.b.	Takes the In-Hold-Out switch to the "IN" position until the control bank D group 1 step counter is at the number that was previously recorded and then releases the switch.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	Per OP-AP-300, the examinee is expected to notify the control room team when a reactivity change is going to occur. However, this is not required to complete the critical task of this JPM.			
Cue:				
STEP #29 3552 Att.A Step 7	**Restore Rod Control System** Place all lift coil disconnect switches for affected bank to ROD CONNECTED position	Returns all lift coil disconnect switches to the "Connected" position (Both Group 1 and 2 of Control Bank D).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #30	Check ROD CONTROL URGENT FAILURE (MB4C 4---8) annunciator --- LIT	Observes that annunciator MB4C 4-8 IS LIT.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #31	Press ROD DRIVE RESET	Presses the ROD DRIVE RESET pushbutton on MB4.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	This action will cause annunciator MB4C 4-8 to clear. The examinee should reset this alarm. This is not required to complete the critical task of the step			
Cue:				
STEP #32	Place control rod bank SEL switch in MAN	Rotates the control bank SEL switch to the MAN position.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #33	Check affected rod in a --- CONTROL BANK	Examinee determines that rod D4 is in a control bank.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #34	Check affected rod in --- GROUP 1	Examinee determines that D4 is a Group 1 rod.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

TERMINATION CUE: The evaluation for this JPM is complete.

STOP TIME: ________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC S.1 Revision: 1 chg 7

Date Performed: ____________

Student: ____________

Evaluator: ____________

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **X**

Validated Time (minutes): 20

Actual Time to Complete (minutes): ____

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number:	2K13 NRC S.1	Revision:	1 chg 7

Initial Conditions: A problem in the EHC circuit caused a momentary runback of the turbine/generator. During the subsequent insertion of the reactor control rods, rod D4 in Control Bank D was observed to be misaligned. The control room team entered AOP 3552 and has decided that Attachment A will be used to recover the misaligned rod.

The lift coil fuse for rod D4 was blown, and has been replaced.

MB4C 6-5 “Tref / Auct Tave Deviation” is lit. Another Operator will perform SP 3601G.3 “Tavg monitoring” and address this ARP.

Initiating Cues: The US has directed you to complete Attachment A of AOP 3552 step 1 through step 7.f.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Manual CIA

JPM Number: 2K13 NRC S.2 (076-1)

Revision: 1 chg 6

Initiated:

William M. Forrestt — 9/26/13

Developer — Date

Reviewed:

Paul Scott — 9/26/13

Technical Reviewer — Date

Approved:

Trad Horner — 10/1/13

Supervisor, Nuclear Training — Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE
10/21/02	Updated task number, knowledge per NUREG 1122 and minor editorial and format changes. DELETED tables in JPM and provided direction for evaluator to use copies of latest revision of E-0 Attachment "A" for CIA valves. Verified through rev 021-01 of E-0 CM	1 /1
9/26/06	Update to E-0 rev 22 MJS	1/ 2
6/5/09	Fleet format and E-0 rev 25 BMP	1/ 3
8/31/09	Added new IC# and removed reference to Train A. (Att A is no longer segregated by Train.) RJM	1/ 4
1/6/11	Update to E-0 Rev 26 JSY	1/ 5
9/26/13	Update to new 5 column JPM format. Revised cue to perform E-0 steps 13 and 14. Added failure of 3 valves to re-position making this an alt path JPM. Changed to setup to IC-120 - WMF	1/ 6

JPM WORKSHEET

Facility: MP3 Examinee: ____________________

JPM Number: 2K13 NRC S.2 Revision: 1 chg 6

Task Title: Manual CIA

System: 013 (ESFAS)

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 9

Task Number(s): 000-05-084

Applicable To: SRO **X** RO **X** PEO ______

K/A Number: 013 A4.01 K/A Rating: ____________

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: ______ Simulator: X In-Plant: ______

Task Standards: Complete a manual CIA, using EOP 35 E-0

Required Materials: (procedures, equipment, etc.) E-0, Rev. 26-01 Attachment "A"

General References: NA

*** READ TO THE EXAMINEE ***

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC S.2 Revision : 1 chg 6

Initial Conditions: The plant has just experienced a Reactor Trip and Safety Injection. The crew has performed E-0, Reactor Trip or Safety Injection, and is currently at step 13, Verify CIA.

Initiating Cues: The US directs you to perform E-0 steps 13 and 14.

Simulator Requirements: **Preferred:**
Reset to IC-120

OR

Optional:
1. Reset to any 100% power IC
2. Insert Malfunctions:
   a. MS01A – 1 E 6
   b. RP11K - Failure of "CIA" to actuate
3. Insert I/O overrides for manual CIA:
   a. PB1-3ISC-CIA, RPDI0066 NISOLATE
   b. PB2-3ISC-CIA, RPDI0067 NISOLATE
   c. CHDI0082 "3FPW*CTV48" (open/auto)
   d. CHDI0060 "3CDS-CTV39B" (open/auto)
   e. CHDI0062 "3CDS-CTV40B" (open/auto)
4. Take the master silence switch to the SILENCE position
5. Place simulator in "RUN"
6. A reactor trip and safety injection will occur. Allow ESF Status Panel to finish changing state (CIA) components will remain "as is")
7. Place the simulator in "FREEZE"
8. Place simulator in "RUN", after the examinee has received the initial conditions and initiating cues

Approximate simulator setup time is 15 minutes.

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking “Y”. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC S.2 Revision: 1 chg 6

Task Title: Manual CIA

START TIME: ________

	PERFORMANCE	STANDARD		
STEP #1 E-0 Step 13	**Verify CIA** Check ESF Group 2, columns 2 through 10 - LIT	Observes Status Panel indication on MB2 and observes not all lights are lit (Group 2, columns 2 through 10). Proceeds to RNO.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments	This begins alt path portion of the JPM.			
Cue:				
STEP #2 E-0 Step 13 RNO	**Initiate CIA.** IF ESF Group 2, columns 2 through 10 are NOT lit, THEN Using Attachment A, Reposition valves as necessary for minimum safety function	Initiates CIA by depressing pushbutton on MB2. Determines CIA did NOT actuate and obtains Attachment A.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments				
Cue:				

<table>
<tr><td>STEP
#3
E-0
Step
13 RNO</td><td>Using Attachment A, Reposition valves as necessary for minimum safety function.

- SEE ATTACHMENT ‘A’ ON FOLLOWING PAGE</td><td>Obtains copy of E-0, Attachment A.
1.) For each containment penetration isolation valve depresses the close push button or rotates control switch to the “close” position and observes indicating lights shift to green illuminated, red extinguished.
2.) Recognizes three valves (in comment 2 below) will not go closed.</td><td>Critical:
Y [X]
N [ ]</td><td>Grade
S [ ]
U [ ]</td></tr>
<tr><td>Comments:</td><td colspan="4">1.) The examinee should attempt to close all valves on Attachment ‘A’. However, only one valve per block is needed to meet minimum safety function. Some penetrations only have single valve isolation. In these penetrations there is only one valve in a block and it must be closed to meet minimum safety function.
2.) All valves will operate as expected with the exception of: a.) 3FPW*CTV48, Fire Water b.) 3CDS*CTV39B, Train B Return c.) 3CDS*CTV40B, Train B Return (all of these valves have failed in the OPEN position). These failures make JPM alt path.
3.) Critical nature of step is that the examinee isolates penetrations to meet minimum safety function (see comment 1 above). This will be possible in all penetrations except the faulted CDS penetration.</td></tr>
<tr><td>Cue:</td><td colspan="4"></td></tr>
<tr><td>STEP
#4
E-0
Step
14</td><td>Verify Proper ESF Status Panel Indication
• Verify ESF Group 1 lights – OFF
• Verify ESF Group 2 lights – LIT

RNO- Align component(s) as necessary for minimum safety function.</td><td>Observes status panel indication on MB2 and makes the following determination / report:
1.)All valves are closed with the exception of 3FPW*CTV48, 3CDS*CTV39B, and 3CDS*CTV40B.
2.) MINIMUM SAFETY FUNCTION is NOT MET as a CDS penetration is not isolated.</td><td>Critical:
Y [X]
N [ ]</td><td>Grade
S [ ]
U [ ]</td></tr>
<tr><td>Comments:</td><td colspan="4">(1) The critical aspect of this step is that the examinee recognizes that the CDS penetration is not isolated and does NOT meet minimum safety function. In order to make this decision, the examinee may reference a P&ID.
(2) The candidate may have to be prompted for a determination of Minimum Safety Function.
(3) For the SRO candidates ONLY:
After he / she determines that Minimum Safety Function is NOT met, ask the following:
“What actions, if any, should be performed to address the valve failures?”
Answer: An Operator and or Maintenance should be sent to investigate and manually close at least on the CDS valves (3CDS*CTV39B and 3CDS*CTV40B). This SRO follow-up question is NOT critical.</td></tr>
<tr><td>Cue:</td><td colspan="4"></td></tr>
</table>

TERMINATION CUE: The evaluation for this JPM is concluded. STOP TIME: ________

Attachment A "Containment Isolation Phase A Valves"

COMPONENT	DESCRIPTION	POSITION
3SSP*CTV7	PASS Isolation	Closed
3SSP*CTV8	PASS Isolation	Closed
3SSR*CTV26 3SSR*CTV27	Rx Hot Leg Rx Hot Leg	Closed Closed
3SSR*CTV29 3SSR*CTV30	Rx Cold Leg Rx Cold Leg	Closed Closed
3SSR*CTV20 3SSR*CTV21	PZR Vapor PZR Vapor	Closed Closed
3SSR*CV8026 3SSR*CV8025	PRT Gas PRT Gas	Closed Closed
3SSR*CTV32 3SSR*CTV33	SI Accumulator SI Accumulator	Closed Closed
3IAS*PV15 3IAS*MOV72	Instrument Air Instrument Air	Closed Closed
3GSN*CTV105 3GSN*CV8033	Nitrogen to PRT Nitrogen to PRT	Closed Closed
3CMS*CTV20 3CMS*CTV21	Ctmt Atmospheric Monitor Ctmt Atmospheric Monitor	Closed Closed
3CMS*CTV23 3CMS*MOV24	Ctmt Atmospheric Monitor Ctmt Atmospheric Monitor	Closed Closed
3VRS*CTV20 3VRS*CTV21	Gas Vent Gas Vent	Closed Closed
3DGS*CTV24 3DGS*CTV25	Reactor Plant Drains Gaseous Reactor Plant Drains Gaseous	Closed Closed
3DAS*CTV24 3DAS*CTV25	Reactor Plant Drains Aerated Reactor Plant Drains Aerated	Closed Closed

Main Board 1 (Vertical) (Continued)

COMPONENT	DESCRIPTION	POSITION
3PGS*CV8046 3PGS*CV8028	Primary Water Primary Water	Closed Closed
3FPW*CTV48 3FPW*CTV49	Fire Water Fire Water	Closed Closed
3CVS*CTV20A 3CVS*CTV21A	Ctmt Vacuum Pump Ctmt Vacuum Pump	Closed Closed
3CVS*CTV20B 3CVS*CTV21B	Ctmt Vacuum Pump Ctmt Vacuum Pump	Closed Closed

Main Board 1 (Horizontal)

COMPONENT	DESCRIPTION	POSITION
3CDS*CTV38A 3CDS*CTV91A	Train A Supply Train A Supply	Closed Closed
3CDS*CTV38B 3CDS*CTV91B	Train B Supply Train B Supply	Closed Closed
3CDS*CTV39A 3CDS*CTV40A	Train A Return Train A Return	Closed Closed
3CDS*CTV39B 3CDS*CTV40B	Train B Return Train B Return	Closed Closed
3CDS*AOV45C/46C	Coil 1A (Train A)	Closed
3CDS*AOV45B/46B	Coil 1B (Train B)	Closed
3CCP*AOV10A/19A 3CCP*AOV197A/194A	Train A Supply/Return Isolation Train A Supply/Return Isolation	Closed Closed
3CCP*AOV10B/19B 3CCP*AOV197B/194B	Train B Supply/Return Isolation Train B Supply/Return Isolation	Closed Closed
3CCP*MV223/225	CDS/CCP Train A cross–connect	Open
3CCP*MV222/224	CDS/CCP Train A cross–connect	Open
3CCP*MV226/228	CDS/CCP Train B cross–connect	Open
3CCP*MV227/229	CDS/CCP Train B cross–connect	Open

COMPONENT	DESCRIPTION	POSITION
3SIH*CV8823	Cold Legs	Closed
3SIH*CV8824	1/3 Hot Legs	Closed
3SIH*CV8881	2/4 Hot Legs	Closed
3SIH*CV8843	Chg Cold Legs	Closed
3SIH*CV8888	SI Accumulator Master Fill	Closed
3SIH*CV8964 3SIH*CV8871	SI Test Header SI Test Header	Closed Closed
3SIL*CV8890A	1/2 Cold Legs	Closed
3SIL*CV8890B	3/4 Cold Legs	Closed
3SIL*CV8825	2/4 Hot Legs	Closed
3SIL*CV8968 3SIL*CV8880	Nitrogen Supply Nitrogen Supply	Closed Closed

Main Board 3 (Horizontal)

COMPONENT	DESCRIPTION	POSITION
3CHS*MV8100 3CHS*MV8112	RCP Seal Isolation RCP Seal Isolation	Closed Closed
3CHS*CV8160 3CHS*CV8152	Letdown Hdr Isolation Letdown Hdr Isolation	Closed Closed

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC S.2 Revision: 1 chg 6

Date Performed: ____________

Student: ____________

Evaluator: ____________

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **X**

Validated Time (minutes): 9

Actual Time to Complete (minutes): ____

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number: 2K13 NRC S.2 Revision: 1 chg 6

Initial Conditions: The plant has just experienced a Reactor Trip and Safety Injection. The crew has performed E-0, Reactor Trip or Safety Injection, and is currently at step 13, Verify CIA.

Initiating Cues: The US directs you to perform E-0 steps 13 and 14.

STUDENT HANDOUT

JPM Number: 2K13 NRC S.2 Revision: 1 chg 6

Initial Conditions: The plant has just experienced a Reactor Trip and Safety Injection. The crew has performed E-0, Reactor Trip or Safety Injection, and is currently at step 13, Verify CIA.

Initiating Cues: The US directs you to perform E-0 steps 13 and 14.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Transfer To Cold Leg Recirculation

JPM Number: 2K13 NRC S.3 (S022A-3) Revision: 2 chg 1

Initiated:

William M. Forrestt 9/18/13

Developer Date

Reviewed:

Paul Scott 9/26/13

Technical Reviewer Date

Approved:

Trad Horner 10/1/13

Supervisor, Nuclear Training Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE
5/5/09	ES 3.1 rev 15 and updates to fleet template. BMP	1/1
8/31/09	Added IC# and minor changes. RJM	1/2
9/25/10	Corrected old JPM step 3, in that it was not marked critical (it is a critical step), and corrected the status of 3RHS*P1B in that it has auto-stopped on lo-lo level. Also corrected the status of all RSS pumps in that 'A' train pumps fail to auto-start, 'B' train RSS pumps do auto start. Modified old JPM step 3 into 3 separate steps. Renumbered steps. Verified updated to Rev 015 of ES-1.3. Added Pass/Fail criteria for the JPM as specified in TR-AA-410. DLM	1/3
5/2/11	Verified update to Rev 015-01 of ES-1.3 Updated JPM number and format JSY	1/4
8/18/12	This is a new revision 2. The last revision, revision 1 change 4, was found in the approved directory, but with no approval signatures. In addition, no hardcopy of an approved revision 1 change 4 could be found. Verified update to Rev 015-01 of ES-1.3. Changed JPM number from 022B to S022A-3. DLM	2/0
9/18/13	Updated to new 5 column JPM format. Added new imbedded failure, 3SIH*MV8807B. Clarified performance steps throughout. - WMF	2/1

JPM WORKSHEET

Facility:	MP3	Examinee:	
JPM Number:	2K13 NRC S.3	Revision:	2 chg 1

Task Title: Transfer To Cold Leg Recirculation

System: 006 (ECCS)

Time Critical Task: (X) YES ( ) NO

Validated Time (minutes): 22 min. overall

Task Number(s): 000-05-051, 600-05-015, 600-05-016

Applicable To: SRO X RO X PEO ____

K/A Number: 006 A4.05 / EPE:011-EA1.11 K/A Rating: 3.9 / 3.8 4.2 / 4.2

Method of Testing: Simulated Performance: ____ Actual Performance: X

Location: Classroom: ____ Simulator: X In-Plant: ____

Task Standards: JPM consists of two timed Operator Credited Actions (C OP 200.18, Time Critical Action Validation and Verification)

(1) Stop RHR pumps within 5 minutes of receiving RWST LO LO signal

(2) Successfully align RHR and Recirculation Spray System for Cold Leg Recirculation IAW EOP 35 ES - 1.3, Transfer to Cold Leg Recirculation. The time credited Operator action is 25 minutes from RWST LO LO to achieve this sump recirculation alignment.

Required Materials: EOP 35 ES-1.3 Rev. 015-01
(procedures, equipment, etc.)

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC S.3 Revision : 2 chg 1

Initial Conditions: A Loss of Coolant Accident has occurred which resulted in a Reactor Trip and SI. The Control Room team has implemented the applicable EOPs through E-1 step 13. All emergency equipment operated as designed when the Reactor tripped and Safety Injection Initiated. SI has been reset.

Initiating Cues: The "RWST LO LO LEVEL RHR PUMP OFF" annunciator has just illuminated. RWST level is ~ 520,000 gallons. You are to perform ES-1.3, Transfer To Cold Leg Recirculation," beginning at step 1.

Simulator Requirements:

Reset to IC 245 **(preferred)**

OR

1. Reset to any 100% IC and disable annunciators
2. Insert the following malfunctions:
    a. RH06A, "RHR PUMP P1A FAILURE TO TRIP ON LOW RWST LEVEL" (also prevents auto start of RSS)
    b. RC02A, 7E4 lbm/sec "RCS HL1 RUP"
    c. SIDI0017 "3SIHMV8807B" to close
1. Go to run and complete all EOP actions through step 13a of EOP 35 E-1 (including Att. "A".)
2. When RWST level decreases to the LO-LO setpoint, verify RHS*P1A does not trip and RSS*P1A & P1C do not start.
3. Acknowledge and clear all alarms
4. FREEZE the simulator
5. After the examinee has read the initial conditions and initiating cues, place the simulator in "RUN"

Approximate simulator setup time is 45 minutes.

*** * * * <u>NOTES TO TASK PERFORMANCE EVALUATOR</u> * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **<u>ALL</u>** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **<u>NO</u>** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC S.3 Revision: 2 chg 1

Task Title: Transfer To Cold Leg Recirculation

START TIME: ________

STEP	PERFORMANCE	STANDARD	Critical:	Grade
STEP #1 ES-1.3 Step 1	CAUTION: • SI recirculation flow to RCS must be maintained at all times. • After SI reset, manual action to restart safeguards equipment may be required, if offsite power is lost. • High radiation levels may be experienced in the Auxiliary and ESF buildings following the transfer to cold leg recirculation. NOTE: • Foldout page must be open. • CSF Status Trees should be monitored for EAL classification. • DO NOT implement Functional Response procedures until completion of step 5.	Reads cautions and notes.	Y [ ] N [X]	S [ ] U [ ]
Comments:	**This JPM will start with a 5 minute Operator credited action (stop RHR pump(s)). Therefore, it is important to ensure that the Examinee is fully ready to begin before starting the JPM. Once the candidate is ready to begin, mark the start time (will be used for 5 minute and a 25 minute Operator credited action).**			
Cue:	If the candidate asks to perform two handed operation, report "The SM allows you to perform two handed operation". If the candidate asks for a peer check, report "No peer check will be provided".			

STEP #2	RESET ESF Actuation Signals, If Required • RESET SI RESET the following: • CDA • LOP • CIA • CIB	Locates RESET push buttons on MB2 and depresses push buttons (two buttons per signal, 'A' and 'B' train). IAW standards, should use single hand manipulation with RESET action. Examinee acknowledges clearing of alarms (as applicable) after SAT reset.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	Pushing reset for signal that is not active (SI) is optional. Critical attribute is satisfactory reset of signals that are active (CDA, CIA & CIB)			
Cue:	SI has been reset.			
STEP #3 ES-1.3 Step 2	**Verify RWST Low---Low Level Automatic Actions** Check RHR pumps - STOPPED Place RHR pump control switches in Pull-To-Lock	Observes that RHS*P1A is NOT stopped by observing bkr indicating lights, and/or amps, flow, pressure Rotates RHS*P1A to the stop position. Observes pump stops by bkr indicating red light OFF, green ON, and/or amps, flow etc. Rotates RHS*P1A & P1B control switches to stop and places in PTL. Observes green bkr indicating lights OFF	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	**(1) Booth operator record time "A" RHS pump stopped and verify pump is stopped within 5 minutes of JPM start time (See Task Standard discussion of Operator credited action).** (2) This begins the ALT PATH portion of JPM.			
Cue:				

STEP #4	Check RSS pumps A and B - RUNNING RNO: START pump(s).	Observes breaker indicating lights and or amps, flow etc and determines RSS*P1B running, P1A off. Rotates RSS*P1A to the start position. Observes pump starts by breaker indicating red light ON, green OFF, and/or amps, flow etc.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #5	Check RSS pumps C and D - RUNNING RNO: IF CTMT pressure is GREATER THAN 17.5 psia THEN START pumps.	Observes breaker indicating lights and or amps, flow etc and determines RSS*P1D running, P1C off. Observes Ctmt pressure > 17.5 psia, Rotates RSS*P1C to the start position. Observes pump starts by bkr indicating red light ON, green OFF, and/or amps, flow etc.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP			Critical:	Grade
STEP #6	CAUTION: • All ECCS pumps taking a suction from the RWST should be stopped if RWST level decreases to 100,000 gal. • Consult with the ADTS and RMT prior to performing any local RHR and Recirculation Spray System operations. NOTE: • Either train of recirculation spray can supply water to the core.	Reads the Cautions and Notes.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #7 ES-1.3 Step 3	**Align RHR And Recirculation Spray Systems For Cold Leg Recirculation** Verify cold leg recirculation capability (*if previously performed, proceed to step 3.b.*) 1) Recirculation spray pumps --- AVAILABLE 2) Using Attachment A, Verify power for cold leg recirculation valves --- AVAILABLE	Acknowledges, after cue, that this has been completed and proceeds to next step.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	Inform examinee that "Recirculation capability has previously been verified".			

STEP #8	Verify recirculation spray heat exchanger SW inlet isolation valves --- OPEN • 3SWP*MOV54A • 3SWP*MOV54B	Locates valves (3SWP*MV54A & 3SWP*MV54B) and verifies both valves are OPEN (red light on with green light off).	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #9	Verify recirculation spray header isolation valves --- OPEN • 3RSS*MOV20A • 3RSS*MOV20B	Locates valves (3RSS*MOV20A & 3RSS*MOV20B) and verifies both valves are OPEN (red light on with green light off).	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Cue:				
Comments:				
STEP #10	Verify recirculation spray pumps A AND B --- RUNNING	Locates pumps (3RSS*P1A & 3RSS*P1B) and verifies both are ON (red light on with green light off). Examinee may also choose to monitor pump amps, discharge pressure, and flow using MB instruments.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #11	CLOSE RHR cold leg injection valves • 3SIL*MV8809A • 3SIL*MV8809B	Locates valves (3SIL*MV8809A & 3SIL*MV8809B) and depresses CLOSE P/B(s) while monitoring for closure (green light on with red light off).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #12	CLOSE RWST/RHR pump suction valves • 3SIL*MV8812A • 3SIL*MV8812B	Locates valves (3SIL*MV8812A & 3SIL*MV8812B) and depresses CLOSE P/B(s) while monitoring for closure (green light on with red light off).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #13	CLOSE RHR pump cross---over valves • 3RHS*MV8716A • 3RHS*MV8716B	Locates valves (3RHS*MV8716A & 3RHS*MV8716B) and depresses CLOSE P/B(s) while monitoring for closure (green light on with red light off).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #14	CLOSE SI pump recirculation valves to RWST • 3SIH*MV8813 • 3SIH*MV8814 • 3SIH*MV8920	Locates valves (3SIH*MV8813, 3SIH*MV8814 & 3SIH*MV8920) and depresses CLOSE P/B(s) while monitoring for closure (green light on with red light off).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #15	CLOSE charging pump miniflow isolation valves to RWST • 3CHS*MV8511A • 3CHS*MV8511B • 3CHS*MV8512A • 3CHS*MV8512B	Locates valves 3CHS*MV8511A, 3CHS*MV8511B, 3CHS*MV8512A & 3CHS*MV8512B) and depresses CLOSE P/B(s) while monitoring for closure (green light on with red light off).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #16	Verify RSS pumps have been in operation --- AT LEAST 3 MINUTES	The examinee may start a timer to ensure the three minute minimum run time is achieved. Other methods, such as a check of the computer, are acceptable.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #17	OPEN recirculation spray RHR isolation valves • 3RSS*MV8837A • 3RSS*MV8837B	Locates valves (3RSS*MV8837A & 3RSS*MV8837B) and depresses OPEN P/B(s) while monitoring for open indication (red light on with green light off).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #18	OPEN RHR to CHG and SI suction isolation valves • 3SIL*MV8804A • 3SIL*MV8804B	Locates valves (3SIL*MV8804A & 3SIL*MV8804B) and depresses OPEN P/B(s) while monitoring for open indication (red light on with green light off).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #19	OPEN SI/CHG pump cross---connect valves • 3SIH*MV8807A • 3SIH*MV8807B	Locates valves (3SIH*MV8807A & 3SIH*MV8807B) and depresses OPEN P/B(s) while monitoring for open indication (red light on with green light off). Identifies that 3SIH*MV8807B will not open. After consideration (no RNO, flowpath still exists), the examinee proceeds to next step.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	The imbedded failure of 3SIH*MV8807B should be handled based on EOP rules of usage and knowledge of system design. First, there is no RNO to address this . Based on this, EOP rules of usage requires moving to next step. Additionally, this valve is in parallel with 3SIH*MV8807A which is open.			
Cue:				

STEP #20	Verify a flow path from the Ctmt sump to the RCS --- AT LEAST ONE PATH ESTABLISHED	Traces flow path from the RSS sumps to the RCS using MB mimic.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	Failure to establish 2 flow paths from the sump through ECCS is a failure of the JPM			
Cue:				
STEP #21	Verify at least one charging AND one SI pump --- RUNNING	Locates each pump (3CHS*P3A& B AND 3SIH*P1A & B) and monitors running indication of red light on and green light off. Additional indication may be used including pump amps, discharge pressure, and flow.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #22	NOTE: If a Loss of Offsite Power occurs in the Recirculation Mode, the EDG sequencer automatically restarts cold leg recirculation components.	Reads note.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #23 ES-1.3 Step 4	**Complete Cold Leg Recirculation Alignment** CLOSE RWST/SI pump suction (SIH*MV8806)	Examinee locates valve (3SIH*MV8806) and depresses CLOSE P/B while monitoring for closure (green light on with red light off).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #24	In cabinets 3RPS*RAKOTA2 and 3RPS*RAKOTB2, Separate the gray boot connectors for the VCT level input to 3CHS*LCV112D and 3CHS*LCV112E	Continues on once told another Operator will complete this step.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	Inform the examinee that another operator has been dispatched and the task is complete.			

STEP #25	CLOSE RWST/CHG pump suction valves • 3CHS*LCV112D • 3CHS*LCV112E	Locates valves (3CHS*LCV112D & 3CHS*LCV112E) and depresses CLOSE P/B(s) while monitoring for closure (green light on with red light off).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	**Booth operator record time step number 25 is completed and verify time is within 25 minutes of JPM start time (See Task Standard discussion of Operator credited action).**			
Cue:				
STEP #26 ES-1.3 Step 5	**Verify Cold Leg Recirculation** Check injection flow to RCS from charging pumps AND SI pumps --- ESTABLISHED	Traces flow path using MB mimic.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	Failure to establish 2 flow paths from the sump through ECCS is a failure of the JPM.			
Cue:				
STEP #27	Verify at least one recirculation spray pump *in* *each train* --- ALIGNED FOR COLD LEG RECIRC AND RUNNING	Traces flow path using MB mimic.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	Failure to establish 2 flow paths from the sump through ECCS is a failure of the JPM.			
Cue:				

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: __________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC S.3 Revision: 2 chg 1

Date Performed: ______________

Student: ______________________________

Evaluator: ______________________________

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes **X** No ____

Validated Time (minutes): 22 min

Actual Time to Complete (minutes): ____

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number: 2K13 NRC S.3 Revision: 2 chg 1

Initial Conditions: A Loss of Coolant Accident has occurred which resulted in a Reactor Trip and SI. The Control Room team has implemented the applicable EOPs through E-1 step 13. All emergency equipment operated as designed when the Reactor tripped and Safety Injection Initiated. SI has been reset.

Initiating Cues: The "RWST LO LO LEVEL RHR PUMP OFF" annunciator has just illuminated. RWST level is ~ 520,000 gallons. You are to perform ES-1.3, Transfer To Cold Leg Recirculation," beginning at step 1.

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC S.3 Revision: 2 chg 1

Date Performed: ______________

Student: ____

Evaluator: ____

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes X No ____

Validated Time (minutes): 22 min

Actual Time to Complete (minutes): ______

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number: 2K13 NRC S.3 Revision: 2 chg 1

Initial Conditions: A Loss of Coolant Accident has occurred which resulted in a Reactor Trip and SI. The Control Room team has implemented the applicable EOPs through E-1 step 13. All emergency equipment operated as designed when the Reactor tripped and Safety Injection Initiated. SI has been reset.

Initiating Cues: The "RWST LO LO LEVEL RHR PUMP OFF" annunciator has just illuminated. RWST level is ~ 520,000 gallons. You are to perform ES-1.3, Transfer To Cold Leg Recirculation," beginning at step 1.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Aligning RHR for SDR Inventory Control

JPM Number: 2K13 NRC S.4 Revision: 0 chg 2

Initiated:

William M. Forrestt 9/26/13

Developer Date

Reviewed:

Paul Scott 9/26/13

Technical Reviewer Date

Approved:

Trad Horner 10/1/13

Supervisor, Nuclear Training Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE
8/18/09	Updated this new JPM (2K9 NRC S.4) to new fleet JPM format. Incorporated comments from NRC Prep week. dlm	0 chg 1
9/26/13	Added hanging Mode 5 tags in sim set-up to improve realism. Modified JPM step 8 for expectant condition of 3CCP*FV66A being closed. Modified JPM step 10 to have evaluator remove caution tag.	0 chg 2

JPM WORKSHEET

Facility: MP3 Examinee: ____________

JPM Number: 2K13 NRC S.4 Revision: 0 chg 2

Task Title: Aligning RHR for SDR Inventory Control

System: 005

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 8

Task Number(s): 005-01-002/019

Applicable To: SRO **X** RO **X** PEO ______

K/A Number: 005 A4.01 / 4.02 K/A Rating: 3.6 / 3.4; 3.4 / 3.1

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: ______ Simulator: X In-Plant: ______

Task Standards: Satisfactorily align RHR Train A for shutdown risk inventory control.

Required Materials: (procedures, equipment, etc.)

1. OP 3310A, Sec 4.21 **(handout)**
2. MP3 Simulator

General References: OP3310A Rev 17/06

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC S.4 Revision : 0 chg 2

Initial Conditions:	The plant is in MODE 5 post refueling, with various maintenance activities being completed prior to plant heat up. All RCS loops are full, the B RHR pump is OPERABLE and all steam generators have adequate level.
Initiating Cues:	The US has directed you to align RHR Train A for shutdown risk inventory control using OP3310A section 4.21.
Simulator Requirements:	Set for **IC-235** Ensure that key no. 7 is in at least one RHR suction valve. (MB2) Ensure Caution tag on 3SIL*MV8812A reading: *"Maintain valve closed unless needed for inventory control."* Ensure 3CCP*FV66A is closed Hang Mode 5 tags

* * * * **NOTES TO TASK PERFORMANCE EVALUATOR** * * * *

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC S.4 Revision: 0 chg 2

Task Title: Aligning RHR for SDR Inventory Control

START TIME: ________

PERFORMANCE **STANDARD**

Comments:	Candidate may review OP 3310A precautions prior to starting the task. This is acceptable.			
Cue:				
STEP #1 3310A section 4.21 NOTE	**Aligning RHR Train A for Shutdown Risk Inventory Control** Paraphrased Note: This section aligns Train A of RHR for injection from the RWST to satisfy the Inventory Control requirement of OU-M3-201 "Shutdown Safety Assessment Checklist". This alignment assumes RHR Train A is initially in the cooldown alignment.	Candidate reviews NOTE	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	RHR A is initially in cooldown alignment. If asked about COPPS, provide the following cue:			
Cue:	Both trains of COPPS are being credited for cold overpressure protection.			

STEP #2 3310A step 4.21.1	VERIFY one of the following conditions met: • Plant in MODE 5 with at least two RCS loops filled and T/S 3.4.1.4.1 LCO satisfied without crediting RHR Train A • Plant in MODE 6 with water level greater than or equal to 23 feet above the top of the RV flange	RO will request of US whether 3.4.1.4.1 is satisfied. SRO will check TS and verify from the initial prompt information that 3.4.1.4.1 is met.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	If requested, report "RCS has been filled in accordance with applicable procedures".			
Cue:	To RO only: TS 3.4.1.4.1 is satisfied without crediting RHR train A.			
STEP #3 3310A step 4.21.2	PLACE 3RHS*P1A, "RHR PP A," in "STOP" and then in "PULL-TO-LOCK" (MB2).	3RHS*P1A is taken to stop, green light is observed, and then taken to P-T-L, and all lights observed to extinguish.	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #4 3310A step 4.21.3	CLOSE 3RHS*V20, RHR loop A CVCS letdown isolation.	Request made to US, or directly to PEO to close 3RHS*V20.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	Examiner: Have the candidate page the PEO. BOOTH: When requested, Close RHS*V20 using **RHR01 to CLOSE.**			
Cue:	BOOTH: Report 3RHS*V20 is closed once the remote is entered.			

STEP #5 3310A step 4.21.4	Using key lock switch, CLOSE 3RHS*MV8701B, "A ISOL (OUT)" (MB2):	Operates valve switch to the CLOSE direction for 3RHS*MV8701B observing for only GREEN light lit.	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:	Switch to be available on MB2. At this point there is no suction source for the 'A' RHR pump. Thus performance step 3 is critical.			
Cue:				
STEP #6 3310A step 4.21.5.a	PERFORM the following (MB2): PLACE 3RHS-FK618, "RHR HDR FLOW," in "MAN."	MANUAL selected on controller 3RHS-FK618.	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #7 3310A step 4.21.5.b	CLOSE the following: • 3RHS-FK618, "RHR HDR FLOW" (100% output) • 3RHS-HC606, "HX A FLOW"	3RHS-FK618 taken to 100% output, 3RHS-HC606 taken to 0 output.	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #8 3310A step 4.21.6	ADJUST 3CCP-HK66A1, "RPCCW HX FLOW" (MB2) as necessary to maintain RPCCW Train A flow requirements.	Recognizes that 3CCP*FV66A is closed (no actions are necessary).	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	3CCP*FV66A was closed as an initial condition.			
Cue:				

STEP #9 3310A step 4.21.7.a	To align 3SIL*MV8809A, "PP A COLD LEG INJ," PERFORM the following: IF RCS pressure is greater than 100 psia, PERFORM the following: 1) ENSURE 3SIL*MV8809A, "PP A COLD LEG INJ," open (MB2). 2) Go to step 4.21.8.	Verifies pressure > 100 psia and that 3SIL*MV8809A is OPEN (red light lit, green light off). Proceeds to step 4.21.8.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	Pressure is greater than 100 psia			
Cue:				
STEP #10 3310A step 4.21.8.a	To open 3SIL*MV8812A, "RWST/PP A SUCT ISOL," PERFORM the following (MB2): REMOVE the following Caution Tag from 3SIL*MV8812A, "RWST/PP A SUCT ISOL," control switch.	Candidate requests that tag is removed.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	**Inform candidate authorization has been given to remove the tag AND THEN the evaluator should remove the Caution Tag** on 3SIL*MV8812A.			
Comments:				
STEP #11 3310A step 4.21.8.b	OPEN 3SIL*MV8812A, "RWST/PP A SUCT ISOL."	Candidate OPENs 3SIL*MV8812A observing for RED light lit, GREEN light out.	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #12 3310A step 4.21.9	PLACE 3RHS*P1A, "RHR PP A," in "AUTO" after "STOP" (MB2).	3RHS*P1A is removed from P-T-L, which places it in the AUTO after STOP position. Only green light is illuminated.	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: _________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC S.4 Revision: 0 chg 2

Date Performed: ______________

Student: ______________________________

Evaluator: ______________________________

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **X**

Validated Time (minutes): 8

Actual Time to Complete (minutes): ____

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number:	2K13 NRC S.4	Revision:	0 chg 2

Initial Conditions:

The plant is in MODE 5 post refueling, with various maintenance activities being completed prior to plant heat up.

All RCS loops are full, the B RHR pump is OPERABLE and all steam generators have adequate level.

Initiating Cues:

The US has directed you to align RHR Train A for shutdown risk inventory control using OP3310A section 4.21.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Natural Circulation Cooldown using GA-26

JPM Number: 2K13 NRC S.5 Revision: 0

Initiated:

William M. Forrestt 9/26/13

Developer Date

Reviewed:

Paul Scott 9/26/13

Technical Reviewer Date

Approved:

Trad Horner 10/1/13

Supervisor, Nuclear Training Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: 2K13 NRC S.5 Revision: 0

Task Title: Natural Circulation Cooldown using GA-26

System: 039 Main Steam

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 20 min.

Task Number(s): 000-05-101

Applicable To: SRO X RO X PEO ______

K/A Number: 039 A1.05 K/A Rating: 3.2* / 3.3

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: ______ Simulator: X In-Plant: ______

Task Standards: Initiate an RCS cooldown, using Atmospheric Relief Bypass Valves, iaw step 5 of ES-0.2, Natural Circulation Cooldown.

Required Materials: (procedures, equipment, etc.) ES-0.2, Natural Circulation Cooldown

GA-26, Dumping Steam to Condenser or Atmosphere

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC S.5 Revision : 0

Initial Conditions:

A loss of offsite power has occurred and the reactor tripped. Its reported that offsite power will not be restored for an extended period of time. The following conditions exist:

- The control room team has completed through step 4 of ES-0.2, Natural Circulation Cooldown.
- GA - 15, Establishing Boron Concentration For Natural Circulation Cooldown, has been completed and RCS boron concentrations are satisfactory.
- GA – 1, Energizing 32-3T, has been completed and the PPC is available. This included the reset of 'LOP'.
- All four MSIV's are closed
- AFW flow has been throttled to ~ 100 gpm per SG (w/ SG levels 40% and rising slowly)

Initiating Cues:

The US has directed you to commence a natural circulation cooldown using the Atmospheric Relief Valves per ES-0.2 Step 5.

The US directs you to:

- Review step 5 of ES-0.2 and then initiate a cooldown of the RCS at approximately 30 F /hr **(NOT TO EXCEED 50 F/hr)**
- Maintain SG NR level at 40 – 60%

Report when you have established a controlled cooldown of all SG's

A floor instructor will be responsible for all annunciators **EXCEPT** for **MB5**

Simulator Requirements:

1. Reset to IC 152 **OR**
1. Reset to IC 13 or any 100% power IC
2. Place Simulator in RUN
3. Insert ED01 (Loss of Offsite Power)
4. Insert IA02B (IAS-C1B trip)
5. Reset LOP at MB2
6. Perform all actions in ES-0.1 and ES-0.2 (through step 4) (excluding performance of GA-26)
7. Restart PPC by inserting the following remotes
   - EDR 18 (MCC1A3 Reset)
   - EDR 44 (Battery 6 inverter 6 trouble reset)
   - PCR01 (Restart Realtime) (start)
   - PCR02 (Ready to start Rtime 58 sec)
   - PCR03 (Rtime start delay) (final value 0)

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC S.5 Revision: 0

Task Title: Natural Circulation Cooldown using GA-26

START TIME: __________

	PERFORMANCE	STANDARD		
Comments:				
Cue:				
STEP #1	**CAUTION** RCS cold leg WR temperature must NOT be reduced below 520 F until main steam line low pressure SI is blocked (P---11). **NOTE** If this procedure is being performed during a loss of offsite power with the wind speed GREATER THAN 90 mph anticipated, the following conditions should be established using this procedure: • RCS cold leg WR temperature of LESS THAN 400_F • RCS pressure of GREATER THAN 850 psia • SI accumulator isolation valves all open	Reads caution and note.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #2 ES-0.2 Step 5	**Initiate RCS Cooldown To Cold Shutdown** Verify boration as specified by GA---15 --- COMPLETED	Recognizes that GA-15 has been completed from initiating cue (or cue below) and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:	As needed, report "GA-15 has been completed. Cooldown can commence with current RCS boron concentrations".			
STEP #3	Maintain cooldown rate in RCS cold legs --- LESS THAN 50 F/hr	Reads step and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:	This limit will be met by the US direction to maintain cooldown rate at approx. 30 F/hr (initiating cue). If needed, ensure examinee understands desired cooldown rate is per US direction.			
Cue:				
STEP #4	Using GA---26, Dump steam to initiate RCS cooldown	Reads step and proceeds to GA-26.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #5	NOTE • Auxiliary feed flow directly impacts RCS heatup and cooldown rates and must be considered along with dumping steam. • Steam line pressure changes more rapidly if fewer than four SGs are used. • After Low Steamline Pressure Safety Injection signal is BLOCKED, MSI will occur if the High Steam Pressure Rate setpoint is exceeded. • Instrument air compressor B is tripped by SI, CDA and LOP.	Reads note and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #6 GA-26 Step 5	**Verify Plant Conditions** Check instrument air compressors - AT LEAST ONE RUNNING	At MB1, observes 3IAS-C1B is not running (Green light 'On', Red light 'Off')	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #7	Perform the following: IF SI or CDA present, <u>THEN</u> Place both trains of steam dump interlock selector switches in OFF and Proceed to step 6.	Observes the following annunciators not lit: • MB2B 5-5 "CDA" • MB2B 5-9 "SI" Proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #8	RESET LOP if required.	Recognizes that 'LOP' has been reset from initiating cue (or cue below) and proceeds to next step.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:				
Cue:	As needed, report "LOP has been reset".			
STEP #9	START one instrument air compressor. <u>IF</u> instrument air can <u>NOT</u> be restored, <u>THEN</u> Place both trains of steam dump interlock selector switches in OFF and Proceed to step 6.	At MB2, closes breaker for 3IAS-C1B and observes breaker remaining open (Green light 'ON' and Amber light 'ON'). Recognizes failure of 3IAS-C1B and proceeds to step 6.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
Comments:	This begins the alternate path portion of the JPM.			
Cue:				

STEP #10 GA-26 Step6	**Dump Steam to Atmosphere Using SG Atmospheric Relief Bypass Valves** Place the desired SG atmospheric relief bypass valves' CONTROL LOCKOUT switches in NORMAL (MB5R) • 3MSS*MOV74A • 3MSS*MOV74B • 3MSS*MOV74C • 3MSS*MOV74D	Places Control Lockout switches (MB5R) in Normal for: • 3MSS*MOV74A • 3MSS*MOV74B • 3MSS*MOV74C • 3MSS*MOV74D	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #11	Throttle the desired SG atmospheric relief bypass valves to reduce or maintain RCS temperature or SG pressures as specified by the procedure in effect • 3MSS*MOV74A • 3MSS*MOV74B • 3MSS*MOV74C • 3MSS*MOV74D	Throttles open (momentarily depresses Open pushbutton, observes dual light indication) the following valves: • 3MSS*MOV74A • 3MSS*MOV74B • 3MSS*MOV74C • 3MSS*MOV74D - Monitors RCS temperatures (may use MB indications for RCS Tcold or PPC trends for RCS Tcold). - Makes adjustments to atmospheric relief bypass valves (as necessary) to obtain approx. 30 F per hour cooldown rate. - Monitors SG levels. Adjusts AFW throttle valves to maintain SG levels between 40 – 60%. **If P19 actuates on MB4D 4-5, the floor instructor should reset both trains of "Steam Line Isol SI" signals on MB2.**	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
Comments:	1. The critical nature of step is not to exceed a 50 F/hr cooldown rate (as measured using individual loop Tcold temperatures) over a 15 minute period. If the candidate does exceed this rate over 15 minutes, he / she may still PASS if they take action to reduce the cooldown such that the 50 F/hr limit would not be exceeded. Otherwise, a JPM failure will occur. 2. Under these plant conditions (MSIV's closed, Natural Circulation), it will be very difficult to achieve exactly 30 F/hr cooldown per SG. The goal is establish a controlled cooldown less than 50 F/hr (head voiding concerns). The JPM does not have to continue until a cooldown of exactly 30 F/hr is established. When the examiner has observed a controlled cooldown, he or she may end the JPM. A PASS will be given for any cooldown rate, provided: 1.) 50 F/hr is not exceeded (see earlier discussion) AND 2.) All RCS temperatures are trending down. 3.) SG inventory control is maintained within an allowable band of greater than 8% NR and less than 80% NR.			
Cue:				

TERMINATION CUE: The evaluation for this JPM is concluded. STOP TIME: ________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC S.5 Revision: 0

Date Performed: ______________

Student: ______________________________

Evaluator: ______________________________

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No X

Validated Time (minutes): 20 min.

Actual Time to Complete (minutes): ______

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number: 2K13 NRC S.5 Revision: 0

Initial Conditions:

A loss of offsite power has occurred and the reactor tripped. Its reported that offsite power will not be restored for an extended period of time. The following conditions exist:

- The control room team has completed through step 4 of ES-0.2, Natural Circulation Cooldown.
- GA - 15, Establishing Boron Concentration For Natural Circulation Cooldown, has been completed and RCS boron concentrations are satisfactory.
- GA – 1, Energizing 32-3T, has been completed and the PPC is available. This included the reset of 'LOP'.
- All four MSIV's are closed
- AFW flow has been throttled to ~ 100 gpm per SG (w/ SG levels 40% and rising slowly)

Initiating Cues:

The US has directed you to commence a natural circulation cooldown using the Atmospheric Relief Valves per ES-0.2 Step 5.

The US directs you to:

- Review step 5 of ES-0.2 and then initiate a cooldown of the RCS at approximately 30 F /hr **(NOT TO EXCEED 50 F/hr)**
- Maintain SG NR level at 40 – 60%

Report when you have established a controlled cooldown of all SG's

A floor instructor will be responsible for all annunciators **EXCEPT** for **MB5**

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: RESPOND TO A LOSS OF ALL AC POWER AND ENERGIZE AN AC EMERGENCY BUS

JPM Number: 2K13 NRC S.6 Revision: 0

Initiated:

William M. Forrestt	9/18/13
Developer	Date

Reviewed:

Paul Scott	9/27/13
Technical Reviewer	Date

Approved:

Trad Horner	10/1/13
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE
9/18/13	Modified JPM's, S-30 & S-212, to form this new JPM. Added alt path with failure of letdown isolation valves. Also, this JPM was made to complete actions, steps 4 – 6 of ECA-0.0, that were not previously covered. - WMF	0/ 0

JPM WORKSHEET

Facility:	MP3	Examinee:	
JPM Number:	2K13 NRC S.6 (S212)	Revision:	0

Task Title: RESPOND TO A LOSS OF ALL AC POWER AND ENERGIZE AN AC EMERGENCY BUS

System: 062 AC Electrical Distribution

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 5

Task Number(s): 000-05-097

Applicable To: SRO **X** RO **X** PEO ____

K/A Number:	062.A2.05 EPE EA1.07	K/A Rating:	2.9 / 3.3 4.3 / 4.5

Method of Testing:	Simulated Performance:		Actual Performance:	X

Location:	Classroom:		Simulator:	X	In-Plant:	

Task Standards: Respond to a Loss of All AC Power

Required Materials: (procedures, equipment, etc.)

ECA-0.0, *Loss of All AC Power*, Rev. 023

EOP 35 General Attachment, GA-3; *Energizing 4.16 KV Bus From Offsite Power*, Rev. 002

General References: None

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC S.6 Revision : 2 chg 2

Simulator Requirements:

1. Reset to IC 198.... **OR**

1. Reset to any 100% power IC, and Reset to IC-10, 100% steady state.
2. Insert the following malfunctions and I/Os:
   a. EG07A - "A" Diesel Generator Trip.
   b. EG06B - "B" Diesel Generator fails to start.
   c. RP10A and RP10B Reactor fails to Auto trip.
   d. I/O 1A-3ENSACB-A-A, "OFF" (green indicating light).
   e. CVDI0012- 3CHS*AV8149C fails to close

4. Hang a yellow tag on "A" Diesel Generator control switch and breaker. The following annunciators should be present when the simulator is in "RUN" and the next malfunction entered:
   - DG "A" Local Panel Trouble
   - DG "A" Emergency Shutdown
   - DG "A" Not Ready For Auto Start

4. Place the simulator in "RUN" and then insert malfunction ED01 - Loss of Offsite Power.

5. Leave the simulator in "RUN" until indicated total AFW flow is >525 GPM.

6. Place the master silence switch to silence but do not acknowledge any alarms. Place the simulator in "FREEZE".

7. After the examinee has received the initial conditions and initiating cues, place the simulator in "RUN".

Approximate setup time is 10 minutes.

Initial Conditions:	The plant has experienced a Loss of Offsite Power. The 'A' EDG is tagged out for maintenance. The 'B' EDG failed to start. The crew responded using E-0 and ECA-0.0 and has completed ECA-0.0 through step 2. CONVEX has reported there was a momentary loss of offsite power; however, offsite power has been restored.
Initiating Cues:	The Unit Supervisor directs you to restore power to bus 34C using the RSST. You are to begin at step 3 of ECA-0.0.

**** **NOTES TO EVALUATOR** ****

1. Critical steps for this JPM are indicated by an "X" after the step number. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue."
3. If necessary, question the student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC S.6 Revision: 0

Task Title: RESPOND TO A LOSS OF ALL AC POWER AND ENERGIZE AN AC EMERGENCY BUS

START TIME: ________

	PERFORMANCE	STANDARD		
STEP #1 ECA-0.0 Step 3	**Check If RCS Is Isolated** CLOSE letdown orifice isolation valves RNO: CLOSE Ctmt letdown isolation valves: • 3CHS*CV8152 • 3CHS*CV8160	Depresses CLOSE pushbutton for the in service letdown isolation valve and observes no change in valve position. Performs RNO action: Depresses CLOSE pushbutton(s) for 3CHS*CV8152 & 3CHS*CV8160 and observes valve closure (green light on / red light off).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #2	Verify PZR PORVs --- CLOSED	Locates both valves (3RCS*PCV455A & 3RCS*PCV456) and verifies both valves are closed (green light on with red light off).	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #3	Verify excess letdown and reactor head vent isolation valves --- CLOSED	Locates valves (3RCS-AV8153, 3RCS*SV8095A & B, 3RCS*SV8096A & B) and verifies valves are closed (green light on with red light off).	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #4 ECA-0.0 Step 4	**Verify Total AFW Flow To Intact SGs --- GREATER THAN 530 gpm**	Monitors MB5 AFW flow to all 4 S/G's and determines total AFW is greater than 530 gpm.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #5	CAUTION If power is NOT restored to Bus 34C within 30 minutes, Inverter 6 de---energizes and the process computer will be unavailable. Use GA---12 as required to determine core cooling parameters.	Reads CAUTION.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #6 ECA-0.0 Step 5	**Try To Restore Power To Any AC Emergency Bus** START at least one EDG (MB8) RNO: Proceed to step 6	Recognizes from Initial Cue that no EDG is available ('A' is RTO & 'B' failed to start). Proceeds to RNO (Step 6 of ECA-0.0)	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	If Examinee doesn't recall initial conditions, provide prompt "'A' EDG is RTO and 'B' EDG has failed to start".			

STEP #7	CAUTION: • Maintain one service water pump available to automatically load on its AC emergency bus to provide emergency diesel generator cooling. • If a SI signal is actuated during this procedure, it must be reset to permit manual loading of equipment on an AC emergency bus. • Spurious fire alarms may occur in areas where the temperatures exceed 120_F due to a loss of ventilation. The locking out of CO2 protected areas which have spurious fire alarms is recommended. NOTE: • When power is restored to any AC emergency bus from offsite or an emergency diesel generator, recovery actions should continue starting with step 26.	Reads Caution / Note.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #8 ECA-0.0 Step 6	**Block Automatic Loading Of AC Emergency Busses** RESET the following if necessary: • SI • CDA • Aux FW Train A for Lo---Lo SG Level • Aux FW Train B for Lo---Lo SG Level	Monitors for plant conditions and determines that only the Aux FW LO –LO signals need to be reset. On MB5 depresses: • Aux FW Train A for Lo---Lo SG Level • Aux FW Train B for Lo---Lo SG Level	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	Critical nature is that Aux FW gets reset. If Examinee resets SI and CDA, it is acceptable as there are no adverse effects. Annunciator, MB5A 5-1 “Aux FW Auto Init Reset” will light when Aux FW is reset.			
Cue:				

<table>
<tr><td>STEP
#9</td><td>Place the following control switches in PULL---TO---LOCK:
Charging pumps
One service water pump per train (follow pumps preferred in PTL)
RPCCW pumps
Quench spray pumps
Recirculation spray pumps
SI pumps
RHR pumps
MD AFW pumps
CAR fans
Control Building HVAC chillers
CRDM cooling fans
Auxiliary Building filter exhaust fans
SLCRS fans</td><td>Locates and Places the listed component control switches in PULL-TO-LOCK.

For each component, the Examinee should first place the control switch in stop and verify the breaker opens (as applicable). After this, the control switch is placed in pull-to-lock.</td><td>Critical:
Y [X]
N [ ]</td><td>Grade
S [ ]
U [ ]</td></tr>
<tr><td>Comments:</td><td colspan="4">It's critical that the Examinee open any breakers prior to placing the component in pull-to-lock.</td></tr>
<tr><td>Cue:</td><td colspan="4"></td></tr>
<tr><td>STEP
#10</td><td>Place the following control switches in OFF:
CHG & CCW PP area supply fans
Train A and B Control Building filter units</td><td>Locates listed fan control switches on VP1:
3HVR-FN14A & B
3HVC*FN1A & B</td><td>Critical:
Y [X]
N [ ]</td><td>Grade
S [ ]
U [ ]</td></tr>
<tr><td>Comments:</td><td colspan="4"></td></tr>
<tr><td>Cue:</td><td colspan="4"></td></tr>
<tr><td>STEP
#11

ECA-0.0
Step 7</td><td>Locally Attempt To Restore AC Power

Check offsite power - AVAILABLE</td><td>At MB8 verifies offsite power using any of the following:
Grid frequency meter (upright)
Grid voltage meter (upright)
RSST "available" white lights (apron)</td><td>Critical:
Y [ ]
N [X]</td><td>Grade
S [ ]
U [ ]</td></tr>
<tr><td>Comments:</td><td colspan="4">This information was also given in initial conditions. Candidate may choose not to verify.</td></tr>
<tr><td>Cue:</td><td colspan="4"></td></tr>
</table>

STEP #12	Using GA-3, Energize emergency bus 34C or 34D	Candidate locates and opens GA binder to GA-3.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	The applicant should question the US which emergency bus is desired to be energized and from which offsite source. When questioned, respond as the US and provide the following cue: "Restore power to Bus 34C with the RSST"			
STEP #13 GA-3 Step 1	NOTE An electrical train aligned for the SBO diesel using ECA-0.0, Attachment H or I is NOT available for energizing by this procedure. **Check Energizing Bus 34C - DESIRED**	Reads Note and recognizes it is not applicable (as the SBO hasn't been aligned for service using Attach H or I). Candidate Proceeds to step 2 based on previous cue.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	If needed, provide following cue to clarify note / circumstances of JPM: "Attachment H or I has not been used to align the SBO diesel for service".			

STEP #14 GA-3 Step 2	**Energize Bus 34C.** Place the following control switches in PULL-TO-LOCK • One Train A Service Water Pump • RPCCW Pump A • RPCCW Pump C (Train A) • Quench Spray Pump A • Recirc Spray Pump A • Recirc Spray Pump C • SI Pump A • RHR Pump A • Control Building Chiller A • Aux Building Filter A • Charging Pump A • Charging Pump C (Train A) • MD AFW Pump A	This step (for both trains) was already completed in Step 6 of ECA-0.0. Examinee may walk down components again OR review list against previous activity.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #15	Reset LOP (MB2)	Locates LOP Reset pushbuttons on MB2, pushes the Train A and Train B LOP Reset pushbuttons. Observes annunciators MB2B 2-4, "SEQUENCER A/B TROUBLE" lit, and MB8, "DG A/B AUTO START" clear.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	Resetting the 'A' Train LOP Reset pushbutton is the critical nature of this step.			
Cue:				
STEP #16	Verify annunciator, "Bus 34C UNDERVOLTAGE" (MB8A 3-12) - NOT LIT	Observes annunciator MB8A 3-12, "Bus 34C UNDERVOLTAGE" not lit on MB8A.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #17	Press "BYPASS" for 34C undervoltage block pushbutton. (MB8R)	Locates pushbutton on MB8R, pushes button and observes white light go <u>off</u>.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	The 34C undervoltage block pushbutton is the pushbutton on the **<u>left</u>**.			
Cue:				
STEP #18	Check undervoltage block white light - <u>NOT</u> LIT.	Observes white light <u>NOT</u> LIT on pushbutton on MB8R.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #19	Check energizing Bus 34C from Bus 34A - DESIRED	Candidate Proceeds to step 2.f.RNO based on previous cue.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	IF questioned, respond as the US and provide the following cue: "Restore power to Bus 34C with the RSST".			
STEP #20	Energize Bus 34C from RSSA: 1) Place RSSA sync selector switch in ON.	Places or checks sync selector handle in synchronizing selector for RSSA to bus 34C and turns to ON position.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #21	2) CLOSE RSSA supply breaker (RSSA*34C-2).	Locates and turns RSSA*34C-2, RSSA supply breaker to the close position and releases. Observes breaker green light go OFF and red light go ON. Also, may choose to observe voltage on bus 34C at approx. 4000 v.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:	Lights come on in the Control Room			
Cue:				

STEP #22	3) Place RSSA sync selector switch in OFF.	Places sync selector handle in synchronizing selector for RSSA to bus 34C and turns to OFF position.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

TERMINATION CUE: The evaluation for this JPM is concluded. **STOP TIME:** ________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC S.6 Revision: 0

Date Performed: ______________

Student: ____

Evaluator: ____

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **X**

Validated Time (minutes): 5

Actual Time to Complete (minutes): ______

Overall Result of JPM: SAT UNSAT

JPM Work Practice Evaluation*: SAT UNSAT N/A

* As per TR-AA-410, the Pass/Fail criteria for the JPM is that the trainee must 1) Perform the task correctly and IAW procedure use and adherence requirements, 2) Never put anyone's safety at risk, 3) Never put equipment reliability at risk, 4) Never violate radiological work practices, 5) Demonstrate effective use of event-free human performance tools. If a failure occurs, indicate why the failure occurred and which of these 5 task performance criteria contributed to the failure.

Areas for Improvement / Comments:

____

____

____

STUDENT HANDOUT

JPM Number: 2K13 NRC S.6 Revision: 0

Initial Conditions:

The plant has experienced a Loss of Offsite Power. The 'A' EDG is tagged out for maintenance. The 'B' EDG failed to start. The crew responded using E-0 and ECA-0.0 and has completed ECA-0.0 through step 2. CONVEX has reported there was a momentary loss of offsite power; however, offsite power has been restored.

Initiating Cues:

The Unit Supervisor directs you to restore power to bus 34C using the RSST. You are to begin at step 3 of ECA-0.0.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Respond To High Containment Pressure

JPM Number: 2K13 NRC S.7 (JPM-128) Revision: 2 chg 2

Initiated:

William M. Forrestt 9/18/13

Developer Date

Reviewed:

Paul Scott 9/26/13

Technical Reviewer Date

Approved:

Trad Horner 10/1/13

Supervisor, Nuclear Training Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
2/17/11	Updated JPM to revision 016-02 to FR-Z.1. This involved a substantial rewrite of this JPM. Modified JPM format to be consistent with the NRC 2K11 JPM set. DLM	2 / 0
6/20/11	Modified the standard associated with JPM step 27 to be a direct order from the RO to the PEO for specific field actions. Incorporated as a result of NRC comments made the week of 6/13/11 (Prep Week). Corrected a typographical error in the comment associated with JPM step 30.	2 / 1
9/18/13	Renamed S.7 for 2K13 NRC submittal. WMF	2/2

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: 2K13 NRC S.7 Revision: 2 chg 2

Task Title: Respond To High Containment Pressure

System: 005 – 026 (CTMT Spray System)

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 10

Task Number(s): 000-05-052

Applicable To: SRO X RO X PEO ______

K/A Number: EPE: E14 – EA1.1 K/A Rating: 3.7 / 3.7

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: ______ Simulator: X In-Plant: ______

Task Standards: Start a containment spray pump by completing the first 5 steps of FR-Z.1.

Required Materials: (procedures, equipment, etc.)
1. FR-Z.1, *Response To High Containment Pressure*
2. MP3 Simulator

General References: N/A

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC S.7 Revision : 2 chg 2

Simulator Requirements:

1. **Reset to IC 301…. OR**
2. Reset to IC-18, or equivalent 100% power IC.
3. Insert the following malfunctions:
   - CS01B - "B" Quench Spray Pump trip.
4. Insert the following I/O overrides:
   - RPDI0004 (PB1 CDA Actuate Train A) – 'NACTUATE'.
   - RPDI0006 (PB3 CDA Actuate Train B) – 'NACTUATE'.
5. Place the **"A" Quench Spray Pump** in "PULL-TO-LOCK" and place a **yellow caution tag** on the control switch.
6. Place the simulator in "RUN."
   - Take the MASTER SILENCE SWITCH to "SILENCE."
   - Insert malfunction MS01A - S/G "A" faulted inside containment, at 100% severity.
7. Allow the simulator to run for 1-2 minutes. (Adverse CTMT will be met due to CTMT temperature.) During this time perform the following:
   - Stop the "C" CAR fan.
   - Stop the kitchen exhaust fan.
   - Stop AFW flow to "A" S/G.
   - Throttle AFW flow to 200 gpm to each of the other S/Gs.
8. When the above actions are complete and the Containment HI-3 setpoint is reached, perform the following:
   - Acknowledge/clear all alarms
   - Come out of Master Silence
   - Place the simulator in 'FREEZE."

9. When the examinee has received the initial conditions and initiating cues, place the simulator in "RUN."

Approximate simulator setup time is 6-8 minutes.

Initial Conditions:	A steam-line break inside containment has occurred. Based on plant conditions, a manual reactor trip and safety injection were initiated. The Control Room Team is progressing through the EOPs and during the transition to E-2, *Faulted Steam Generator Isolation,* a CDA signal was received and an "orange" path for containment integrity. The "A" Quench Spray Pump is tagged out for maintenance.
Initiating Cues:	The US has directed you to perform FR-Z.1, *Response To High Containment Pressure,* in an attempt to initiate containment spray.

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC S.7 Revision: 2 chg 2

Task Title: Respond To High Containment Pressure

START TIME: ________

PERFORMANCE STEP		STANDARD		
STEP #1	Obtains copy of FR-Z.1.	Obtains a copy of FR-Z.1, refers to Step 1, Caution.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #2 FR-Z.1, step 1 CAUTION	CAUTION: If RWST level decreases to LESS THAN 520,000 gal, Go to ES-1.3, Transfer to Cold Leg Recirculation, to align the ECCS system.	Applicant reviews CAUTION, and at MB2 observes that RWST level is greater than 520,000 gallons.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #3 FR-Z.1, step 1.a	**Check IF CDA Required** Check Ctmt pressure --- GREATER THAN 23 psia	Applicant observes CTMT pressure is greater than 23 psia by checking <u>any</u> of the following: Meters at MB2: LMS*PI934, 935, 936 or 937, or recorder 3LMS*PR934.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #4 FR-Z.1, step step 1.b	Verify annunciator "CONTAINMENT DEPRES ACTUATION" (MB2B 5-5) --- LIT	Observes that annunciator MB2B:5-5 IS lit.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #5 FR-Z.1, step 1.c	Check RPCCW pumps – STOPPED	Observes that RPCCW pumps 3CCP*P1A & P1B have no running amps indicated and the indicating lights are green ON, red OFF.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #6 FR-Z.1, step 1.d	STOP all RCPs	Rotates the 3RCS-P1A control switch to "STOP" and observes amperage indication go to zero; and indicating lights shift to green ON, red OFF.	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
		Rotates the 3RCS-P1B control switch to "STOP" and observes amperage indication go to zero; and indicating lights shift to green ON, red OFF.	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
		Rotates the 3RCS-P1C control switch to "STOP" and observes amperage indication go to zero; and indicating lights shift to green ON, red OFF.	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
		Rotates the 3RCS-P1D control switch to "STOP" and observes amperage indication go to zero; and indicating lights shift to green ON, red OFF.	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
Comments:	The RCPs may be stopped in any order.			
Cue:				

STEP #7 FR-Z.1, step 1.e	Check CAR fans - STOPPED	Observes at VP1 that the 'A', 'B' and 'C' CAR fans are stopped.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #8 FR-Z.1, step 1.f	Check CRDM fans - STOPPED	Observes at VP1 that the 'A' and 'B' CRDM fans are stopped, but recognizes the 'C' CRDM fan is still running by indicating lights red ON, green OFF. Transitions to the RNO column.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #9 FR-Z.1, step 1.f RNO	STOP CRDM fans.	Rotates the 3HVU-FN2C control switch to "STOP" and observes the flag shifts to "green;" and indicating lights shift to green ON, red OFF.	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #10 FR-Z.1, step 2 CAUTION	If ECA-1.1, Loss of Emergency Coolant Recirculation, is in progress, Ctmt spray should be operated as directed in ECA-1.1	Applicant reviews CAUTION,	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	If the applicant questions the status of procedure ECA-1.1 due to the caution in FR-Z.1, provide the following cue:			
Cue:	The Control Room Team has not yet entered ECA-1.1.			

STEP	Standard	Expected Response	Critical	Grade
STEP #11 FR-Z.1, step 2.a	**Verify Quench Spray System Operation** Check annunciator RWST EMPTY QSS PP OFF (69,331 gal) (MB2A 5-2) - NOT LIT	Observes that annunciator MB2A 5-2 is not lit (dark).	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #12 FR-Z.1, step 2.b	Verify quench spray pumps – RUNNING.	Observes that no amperage is indicated and the indicating lights are green ON, red OFF for the 'B' QSS pump. The pump is not running. Applicant transitions to the RNO column.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	Pump 3QSS*P3A is tagged out.			
Cue:				
STEP #13 FR-Z.1, step 2.b RNO	START pumps. IF no QSS pump is running, THEN Proceed to step 4.	Rotates the control switch for 3QSS*P3B to "START" and observes that no amperage is indicated and the indicating lights shift to green ON, amber ON, red OFF. The pump did not start. Applicant proceeds to step 4.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #14 FR-Z.1, step 4.a	**Verify CIA** Check ESF Group 2, columns 2 though 10 - LIT	Observes that the ESF Group 2 Status Lights in columns 2 through 10 are lit.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #15 FR-Z.1, step 5.a	**Verify Recirculation Spray System Operation** Check recirculation spray pump suction isolation valves – OPEN • 3RSS*MOV23A • 3RSS*MOV23B • 3RSS*MOV23C • 3RSS*MOV23D	Observes the indicating lights for 3RSS*MOV23A - D are green OFF, red ON. The valves are open.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #16 FR-Z.1, step 5.b	Check recirculation spray pumps – ANY RUNNING	Recognizes that NO RSS pumps are running by no running amps indicated and the indicating lights are green ON, red OFF. Transitions to the RNO column.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #17 FR-Z.1, step 5.b RNO	Perform the following: 1) IF RWST level is GREATER THAN 520,000 gal, THEN Proceed to step 5.d.	Applicant observes that RWST level is greater than 520,000 gallons by checking level on any of the meters at MB2: QSS*LI930, 931, 932 or 933. Applicant proceeds to step 5.d.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #18 FR-Z.1, step 5.d	Check Ctmt WR sump level (3RSS*LI22A, 3RSS*LI22B) - GREATER THAN 7.5 feet	Applicant observes that CTMT Wide Range sump level is LESS than 7.5 feet by checking meters 3RSS*LI22A and / or 3RSS*LI22B level on Meters at MB2. Transitions to the RNO column.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #19 FR-Z.1, step 5.d RNO	Perform the applicable action: • IF QSS flow is NOT indicated, THEN Proceed to NOTE prior to step 6.	Applicant observes that QSS flow is not indicated by checking meters QSS-FI32A and FI32B at MB2. Applicant proceeds to Note prior to step 6.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #20 FR-Z.1, step 6 NOTE	NOTE: • The Locked Valve Key is required for performance of some of the local actions in the following step. • The preferred priority for selecting a recirculation spray pump is as follows: 1. Pump C or D 2. Pump A or B	Applicant reviews NOTE.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	After reading the notes, the examinee may ask about which pump to use. If asked, or if the Candidate selects the 'C' RSS pump, provide the following cue:			
Cue:	The US directs you to align recirculation spray pump "D."			

STEP #21 FR-Z.1, step 6.a	**Check If Spray Using An RSS Pump From The RWST Should Be Established** Check the following: • RWST level - GREATER THAN 100,000 gal • Quench Spray pumps - NONE RUNNING • ADTS/CR DSEO recommends – USING ONE RSS PUMP FROM RWST TO SPRAY THE CONTAINMENT	Applicant observes that RWST level is greater than 520,000 gallons by checking level on any of the meters at MB2: QSS*LI930, 931, 932 or 933.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
		Observes that the indicating lights are green ON, red OFF for the 'B' QSS pump. The pump is not running. Pump 3QSS*P3A is tagged out.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	When the applicant asks for a ADTS/CR DSEO recommendation, provide the following cue:			
Cue:	The CR DSEO recommends using one RSS pump from the RWST to spray containment.			

STEP #22 FR-Z.1, step 6.b	RESET SI	Applicant depresses the MB2 SI RESET pushbuttons.	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
Comments:	This action will cause several annunciators to clear and alarm. The examinee should acknowledge and reset these annunciators as appropriate. However, this action is not required to complete the critical nature of this step.			
Cue:				
STEP #23 FR-Z.1, step 6.c	Determine the RSS pump to be placed in service	The applicant should recognize that the 'D' RSS pump will be placed in service.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	The "D" recirculation spray pump will be used (cue provided in JPM step 20)			
Cue:				
STEP #24 FR-Z.1, step 6.d	Place the selected recirculation spray pump in PULL TO LOCK	Rotates the 3RSS*P1D control switch to the PULL TO LOCK position and then pulls the switch handle up into "PULL-TO-LOCK".	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #25 FR-Z.1, step 6.e	For the selected RSS pump, START the associated RECIRC SPRAY ACU (3HVQ*ACUS2A or 3HVQ*ACUS2B)	At VP1, the applicant rotates the 3HVQ*ACU2B control switch to "START" and observes indicating lights shift to green OFF, red ON.	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #26 FR-Z.1, step 6.f	OPEN RWST recirculation suction valves (MB1) • 3QSS*AOV27 • 3QSS*AOV28	Depresses the 3QSS*AOV27 OPEN pushbutton, observes the indicating lights shift to green OFF, red ON, then releases the pushbutton.	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
Comments:	3QSS*AOV27 and 3QSS*AOV28 may be operated in any order.			
Cue:				

		Depresses the 3QSS*AOV28 OPEN pushbutton, observes the indicating lights shift to green OFF, red ON, then releases the pushbutton.	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #27 FR-Z.1, step 6.g	Using Attachment B, locally align the selected RSS pump	Contacts a PEO and directs, "locally align the 'D' recirculation spray pump for CTMT spray from the RWST, in accordance with Attachment B to FR-Z.1."	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	As PEO acknowledge the request.			
Cue:	BOOTH: At the instructor station enter the following: • Remote Functions: CSR05 to "OPEN" I/O override: CSLO0047 (3RSS*MOV23D red light) to 'OFF'.			
Comments:	BOOTH: Once these remotes are active, provide the following cue:			
Cue:	The 'D' recirculation spray pump has been locally aligned for CTMT spray from the RWST, in accordance with Attachment B to FR-Z.1.			
STEP #28 FR-Z.1, step 6.h	Check the selected recirculation spray pump RHR isolation – CLOSED • For pump D - 3RSS*MV8838B	Observes the indicating lights for 3RSS*MV8838B are green ON, red OFF. The valve is closed.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #29 FR-Z.1, step 6.i	Check the selected recirculation spray pump spray header isolation valve - OPEN • For pump D - 3RSS*MOV20D	Observes the indicating lights for 3RSS*MOV20D are green OFF, red ON. The valve is open.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #30 FR-Z.1, step 6.j	Check local system alignment - COMPLETED	Verifies that the local system alignment is complete.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:	The examinee was informed when lineup was completed (JPM step 27).			
Cue:				
STEP #31 FR-Z.1, step 6.k	START the selected RSS pump	Pushes down on the "D" recirculation spray pump control switch to take it out of "PULL-TO-LOCK." Rotates the control switch to "START" and observes that amperage is indicated and the indicating lights shift to green OFF, red ON.	Critical: Y [**X**] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
		The applicant should also check that flow is present by observing flow indication on 3RSS-FI40D.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #32	Notify the US that containment spray has been initiated	Applicant informs the US that containment spray has been initiated using the "D" recirculation spray pump.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	**TERMINATION CUE: The evaluation for this JPM is concluded.**			

STOP TIME: __________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC S.7 Revision: 2 chg 2

Date Performed: ____________

Student: ____

Evaluator: ____

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **X**

Validated Time (minutes): 10

Actual Time to Complete (minutes): ____

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number: 2K13 NRC S.7 Revision: 2 chg 2

Initial Conditions:

A steam-line break inside containment has occurred. Based on plant conditions, a manual reactor trip and safety injection were initiated. The Control Room Team is progressing through the EOPs and during the transition to E-2, *Faulted Steam Generator Isolation,* a CDA signal was received and an "orange" path for containment integrity. The "A" Quench Spray Pump is tagged out for maintenance.

Initiating Cues:

The US has directed you to perform FR-Z.1, *Response To High Containment Pressure,* in an attempt to initiate containment spray.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: EOP 3502 Fuel Handling Accident

JPM Number: 2K13 NRC S.8 Revision: 0

Initiated:

William M. Forrestt 9/18/13

Developer Date

Reviewed:

Paul Scott 9/27/13

Technical Reviewer Date

Approved:

Trad Horner 10/1/13

Supervisor, Nuclear Training Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: 2K13 NRC S.8 Revision: 0

Task Title: EOP 3502 Fuel Handling Accident

System: 034 Fuel Handling Equipment System

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes): 10 min.

Task Number(s): 344-05-053

Applicable To: SRO X RO X PEO ______

K/A Number: 034 A2.01 K/A Rating: 3.6 / 4.4

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: ______ Simulator: X In-Plant: ______

Task Standards: Respond to a dropped fuel element in accordance with EOP 3502, Fuel Handling Accident (Steps 1 through 6 of EOP 3502).

Required Materials: (procedures, equipment, etc.) EOP 3502, Fuel Handling Accident

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC S.8 Revision : 0

Initial Conditions: The plant is in a refueling outage and is currently in Mode 6. A core offload is in progress. A call to the Control Room has just been made to report a dropped fuel assembly inside containment. The fuel assembly is resting on its side on top of the reactor core. The assembly appears damaged based upon reports of high radiation levels.

Initiating Cues: You are to respond to this event using EOP 3502, starting at Step 1.

Simulator Requirements: Reset to IC 203

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC S.8 Revision: 0

Task Title: EOP 3502 Fuel Handling Accident

START TIME: __________

	PERFORMANCE	STANDARD		
Comments:				
Cue:				
STEP #1 3502 Step 1	**Check Accident Location - IN CONTAINMENT**	Based on initial conditions, recognizes accident is in Containment and proceeds to Step 2.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	As necessary, report "The dropped fuel assembly is in Containment".			
STEP #2 3502 Step 2	**Notify Personnel** Announce the following twice over the site paging system: "Attention Millstone Station personnel, a fuel handling accident has occurred in the Unit 3 Containment, all personnel evacuate the Unit 3 Containment"	Locates phone and dials 810 and makes the following announcement over the site paging system: "Attention Millstone Station personnel, a fuel handling accident has occurred in the Unit 3 Containment, all personnel evacuate the Unit 3 Containment"	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #3 3502 Step3	**Stop Containment Purge** STOP Ctmt purge and exhaust fans: 3HVR-HVU1A 3HVR-HVU1B 3HVR-FN4A 3HVR-FN4B	Determines only 'A' train containment purge is operating and performs the following: 1. Places 3HVR-HVU1A & 3HVR-FN4A in 'Stop" 2. Observes both fans are stopped by monitoring red light 'Off' and green light 'On'	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #4	Unlock and Close Ctmt purge air isolation valves: 3HVR*CTV32A and 3HVR*CTV32B (Key #54) 3HVR*CTV33A and 3HVR*CTV33B (Key #54)	Determines only 'A' train containment purge is aligned for service and performs the following (one at a time for 3HVR*CTV32A & 3HVR*CTV33A): 1. Unlocks valve 2. Places valve in close 3. Observes closure indication (Red light 'Off' and Green light 'On')	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #5 3502 Step4	**Check Containment Air Filtration System Operation** 3HVU-FN3A or 3HVU-FN3B- RUNNING	Locates fans (3HVU-FN3A & 3HVU-FN3B on VP1 and determines that they are not running (Red light 'Off' and Green light 'On'). Continues to RNO column.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #6	RNO a. START one containment air filtration unit: • 3HVU-FN3A • 3HVU-FN3B	Locates fan (chooses EITHER 3HVU-FN3A or 3HVU-FN3B) on VP1 and performs the following: 1. Places fan to start 2. Observes for fan operation (Red light 'On' and Green light 'Off')	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #7	Verify associated annunciator CTMT FILTER DP HIGH (VP1B 2-1 or VB1B 2-10) - NOT ACTUATED	For the associated fan started in Step #6, verifies associated annunciator not lit • VP1B 2-1 "CTMT FILTER A DP HI" • VP1B 2-10 "CTMT FILTER B DP HI"	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #8 3502 Step 5	**Check Status Of Containment** Verify Ctmt closure – BEING MAINTAINED USING SP 3613F.3-001,"Containment Boundary During Core Alterations or Movement of Irradiated Fuel"	Requests status of CTMT closure. Upon hearing cue, proceeds to RNO.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	When asked about the status of containment closure, report "The OCC reports Containment exceptions exist".			
STEP #9	RNO Establish Ctmt closure using SP 3613F.3-001, "Containment Boundary During Core Alterations or Movement of Irradiated Fuel."	Requests the OCC to establish Containment closure using SP 3613F.3-001.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #10	Verify Ctmt personnel access hatch doors - AT LEAST ONE CLOSED.	Requests status of CTMT closure. Upon hearing cue, proceeds to RNO.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	When asked about the status of the personnel hatch, report "No, both doors are currently open".			
STEP #11	RNO-Request the designated individual, Using OP 3312A, "Containment Personnel Air Lock Operation," Close one Ctmt personnel access hatch door.	Requests the designated individual to close one Containment personnel access hatch door iaw OP 3312A.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #13	Check Security has verified - ALL PERSONNEL HAVE EXITED CTMT.	Requests Security determines status of Containment evacuation. Upon hearing cue, proceeds to RNO.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:	When asked about the status of Containment evacuation, report "There are still 12 people in Containment".			
STEP #14	RNO-Establish personnel access hatch conditions to allow evacuation of Ctmt.	Requests assistance in evacuating containment.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:	After request for assistance, report "The OCC will establish conditions to evacuate containment".			
STEP #15	Notify Health Physics of the situation.	Notifies HP of the emergency.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #16 3502 Step6	**Initiate Control Building Isolation** -Initiate CBI	Initiates CBI from MB2 or VPI by depressing either 'CBI' pushbutton	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #17	Check Train A Control Building filter fan (3HVC*FN1A) -RUNNING	Observes 3HVC*FN1A did not start. Proceeds to RNO column	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #18	<u>IF</u> Train B Control Building filter fan is running (3HVC*FN1B running), <u>THEN</u> proceed to step 6.c.	Monitors 3HVC*FN1B for running indication and identifies the fan is 'ON' (Red light 'On' and Green light 'Off'). Proceeds to step 6.c.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #19	Check recirc damper for the running Control Building filter fan (3HVC*AOD119A or B) - OPEN	Recognizes 3HVC*AOD119B is open (Red light 'On' & Green light 'Off')	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #20	Verify ESF Group 2 CBI lights - LIT	At MB2, monitors associated CBI lights and determines that associated CBI lights are lit.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				
STEP #21	Verify Control Building purge supply fan and purge exhaust fan - NOT RUNNING	At VP1, monitors 3HVC-FN4 & 3HVC-FN5 and determines both fans are off (Red light 'Off' & Green light 'On').	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

STEP #22	STOP kitchen exhaust fan	Places kitchen exhaust fan, 3HVC-FN6, to 'Off' (Red light 'Off' & Green light 'On')..	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
Comments:				
Cue:				

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: _________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC S.8 Revision: 0

Date Performed: ______________

Student: ______________________________

Evaluator: ______________________________

To achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes ____ No **X**

Validated Time (minutes): 10 min.

Actual Time to Complete (minutes): ______

Overall Result of JPM: SAT UNSAT

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number: 2K13 NRC S.8 Revision: 0

Initial Conditions: The plant is in a refueling outage and is currently in Mode 6. A core offload is in progress. A call to the Control Room has just been made to report a dropped fuel assembly inside containment. The fuel assembly is resting on its side on top of the reactor core. The assembly appears damaged based upon report area radiation levels.

Initiating Cues: You are to respond to this event using EOP 3502, starting at Step 1.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Locally Starting An Emergency Diesel Generator (ECA-0.0)

JPM Number: 2K13 P.1 (P211-1) Revision: 0 chg 1

Initiated:

William M. Forrestt 9/23/13

Developer Date

Reviewed:

Paul Scott 9/27/13

Technical Reviewer Date

Approved:

Trad Horner 10/1/13

Supervisor, Nuclear Training Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE
08/01/13	Minor editorial enhancements--WMF	0/1

JPM WORKSHEET

Facility: Millstone Unit 3 Examinee: ______________________

JPM Number: 2K13 P.1 Revision: 0 chg 1

Task Title: Locally Starting An Emergency Diesel Generator (ECA-0.0)

System: 064

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes) 10

Task Number(s): 000-05-097
064-01-023

Applicable To: SRO **X** RO **X** PEO **X**

K/A Number:		K/A Rating:	
	064 K.105		3.4 / 3.9
	EA1.02		4.3 / 4.4

Method of Testing: Simulated Performance: X Actual Performance: ____

Location: Classroom: ____ Simulator: ____ In-Plant: X

Task Standards: Satisfactorily start an EDG locally.

Required Materials: (procedures, equipment, etc.)
1. EOP 35 ECA-0.0, Attachment E **(handout)**

General References: EOP 35 ECA-0.0, Rev. 023

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 P.1 Revision : 0 chg 1

Initial Conditions: The plant has experienced a Station Blackout. The Crew is implementing ECA-0.0. Neither EDG started automatically.

Initiating Cues: The US has directed you to perform EOP 35 ECA-0.0, Attachment E Locally Starting An Emergency Diesel Generator. You are to start the 'A" EDG.

You have Shift Manager's key ring #87.

Simulator Requirements: NA

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 P.1 Revision: 0 chg 1

Task Title: Locally Starting An Emergency Diesel Generator (ECA-0.0)

START TIME: __________

If the examinee asks what is seen at the EDG, there is no visible problem with the EDG. The EDG is as the examinee sees it.

If the examinee asks what is seen at the EGP, the following alarms are lit:

- Window 1-1 Diesel Not Ready for Auto Start
- Window 2-2 Fail to Start

STEP #1	Performance: NOTE A key (Shift Manager's key ring #87) is required to reposition the diesel generator LOCAL/REMOTE switch to LOCAL. There is one key for each diesel generator: Yale 12B554 for the A EDG, ILCO 999NY1E for the B EDG.	Standard: Examinee reads note	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue:			
	Comments:			
STEP #2 Att. E (ECA-0.0) STEP 1	Performance: **Verify The Diesel Service Water Outlet Valve – OPEN** • For EDG A, 3SWP*AOV39A	Standard: 1. Locates 3SWP*AOV39A (climbs up platform). 2. Uses local position indicator to verify valve is open.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue: Valve position indicator is pointing to "OPEN".			
	Comments:			

<table>
<tr><td rowspan="3">STEP #3</td><td>Performance:
NOTE
The actions specified in steps 2 through 6 are performed at EGPA or EGPB depending on the diesel generator being started.</td><td>Standard:
Examinee reads note.</td><td>Critical:
Y [ ] N [x]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #4
Att.E (ECA-0.0) STEP 2</td><td>Performance:
Place The UNIT PARALLEL Switch In UNIT</td><td>Standard:
Locates the Unit/Parallel Switch (EGPA) and determines that the switch is already in UNIT.</td><td>Critical:
Y [ ] N [x]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:
Switch position is a shown.</td></tr>
<tr><td colspan="4">Comments:
Switch is on left hand panel of EGPA.</td></tr>
<tr><td rowspan="3">STEP #5
Att.E (ECA-0.0) STEP 3</td><td>Performance:
Place The CONTROL MODE Switch In LOCAL</td><td>Standard:
Locates CONTROL MODE selector switch and simulates inserting key into switch and rotating switch to LOCAL</td><td>Critical:
Y [ ] N [x]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:
• Key is inserted in lock and turned.
• Control Mode Switch is in LOCAL. Alarm window 4-8 on EGPA blinks and an audible alarm is heard.</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

STEP				
STEP #6 Att.E (ECA-0.0) STEP 4	Performance: **Press ENGINE SHUTDOWN RESET Pushbutton**	Standard: Locates the Engine Shutdown Reset pushbutton (EGPA) and simulates pressing it to reset the engine shutdown.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue: The Engine Shutdown Reset pushbutton has been pressed. Alarm window 1-1 and 2-2 on EGPA blink and an audible alarm is heard.			
	Comments: Examinee should simulate silencing and resetting the alarm.			
STEP #7 Att.E (ECA-0.0) STEP 5	Performance: **START The Diesel**	Standard: Locates the Engine Control switch (EGPA) and simulates rotating it to the Start position.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue: No response from the EDG			
	Comments: 1. If the examinee states that they would contact the US, then respond as the US that the examinee should continue with the procedure. 2. This begins the alternate portion of the JPM.			
STEP #8	Performance: Press the lever on either air start control valve.	Standard: Locates either air start valve and simulates the actions of installing the valve lever and pressing down on the lever. Releases lever after cue is given that diesel has started.	Critical: Y **[x]** N [ ]	Grade S [ ] U [ ]
	Cue: Engine noise is heard and builds up to a steady level.			
	Comments: 3EGA*ASV1A is at cylinder #14 next to the fuel injector for cylinder #14. Access is via the walkway along the EDG. 3EGA*ASV2A is at cylinder #1 next to 3EGF*FLT1A, Engine Mounted Duplex Fuel Oil Filter. Access is via walkway			

STEP #9 Att.E (ECA-0.0) STEP 6	Performance: **Check Remote Control - DESIRED**	Standard: Contacts US and asks if Remote Control is desired.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue: US replies that "Remote Control is desired".			
	Comments:			
STEP #10	Performance: Place CONTROL MODE switch in REMOTE	Standard: Locates CONTROL MODE selector switch and rotates switch to REMOTE.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue: Control Mode Switch is in Remote. Alarm window 4-8 on EGPA blinks and an audible alarm is heard.			
	Comments: The examinee should remove the key from the switch after restoring the switch to REMOTE.			
STEP #11 Att.E (ECA-0.0) STEP 7	Performance: **Notify The Control Room Of EDG(s) Status And Provide Support As Requested**	Standard: Reports to the US that the EDG has been started locally and the controls restored to Remote.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue:			
	Comments:			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: __________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 P.1 Revision: 0 chg 1

Date Performed: ______________

Student: ______________________________

Evaluator: ______________________________

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes _____ No **X**

Validated Time (minutes): 10

Actual Time to Complete (minutes): ________

JPM Work Practice Evaluation*: SAT UNSAT N/A

Overall Result of JPM: SAT UNSAT

* The Pass/Fail criteria for the JPM is that the trainee must 1) Perform the task correctly and IAW procedure use and adherence requirements, 2) Never put anyone's safety at risk, 3) Never put equipment reliability at risk, 4) Never violate radiological work practices, 5) Demonstrate effective use of event-free human performance tools. If a failure occurs, indicate why the failure occurred and which of these 5 task performance criteria contributed to the failure.

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number: 2K13 P.1 Revision: 0 chg 1

Initial Conditions: The plant has experienced a Station Blackout. The Crew is implementing ECA-0.0. Neither EDG started automatically.

Initiating Cues: The US has directed you to perform EOP 35 ECA-0.0, Attachment E Locally Starting An Emergency Diesel Generator. You are to start the ‘A” EDG.

You have Shift Manager’s key ring #87.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Locally Restore AFW Flow (Includes Opening 3MSS*MSV5)

JPM Number: 2K13 P.2 Revision: 9 ch 3

Initiated:

William M. Forrestt — 9/23/13

Developer — Date

Reviewed:

Paul Scott — 9/27/13

Technical Reviewer — Date

Approved:

Trad Horner — 10/1/13

Supervisor, Nuclear Training — Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE
11/04/03	Include standards for valve operation and verification per WC-6 and OP3260B	Chg. 1
9/13/04	Updated to new revision of FR-H.1. Corrected tasks and K/As.	Chg. 2
12/9/05	Updated to FR-H.1, Rev 16-01 (Gov. speed setting changed) RJM	Chg. 3
6/20/06	Updated to FR-H.1, Rev 17-00. (Gov. speed setting changed) PGM	Chg. 4
01/28/08	Added cue to step 8 and various formatting changes. CTR	Chg. 5
9/28/2010	Updated to Rev 20 of FR-H.1. Updated to latest format. Included JPM Work Practice Evaluation. Deleted local checks of MSS*MOV17A, B and D positions. Previous revision allowed position check using stem height as the only indication of position which is not consistent with OP 3250. Instead an initiating cue has been provided that MSS*MOV17A,B and D have been verified to be open using control room indications.TPG	9 ch 0
2/18/2011	Updated to Rev 020-01 of FR-H.1. Valves previously listed as OPEN on page 2 of Attachment A were changed to LOCKED OPEN. Title of 3MSS*SV5 changed to TD AFW Pump Trip Throttle Valve. TPG	9 ch 1
6/7/13	Updated to Rev 021 of FR-H.1. Gov. speed setting changed JSY	9 ch 2
9/23/13	Changed to opening 3MSS*MSV5 and creating an alternate path to open 3FWA*V32. -WMF	9 ch 3

JPM WORKSHEET

Facility: Millstone Unit 3 Examinee: ____________________

JPM Number: 2K13 P.2 Revision: 9 ch 3

Task Title: Locally Restore AFW Flow (Includes Opening 3MSS*MSV5)

System: AFW

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes) 15 min.

Task Number(s): 000-05-063

Applicable To: SRO X RO X PEO ______

K/A Number: 061 A2.04 K/A Rating: 3.4 / 3.8

Method of Testing: Simulated Performance: X Actual Performance: ______

Location: Classroom: ______ Simulator: ______ In-Plant: X

Task Standards: Satisfactorily complete the local checks to restore AFW flow using Attachment A of FR-H.1.

Required Materials: (procedures, equipment, etc.)
1. Att. A (pages 2 -4) of EOP 35 FR-H.1, Rev 021 **(handout)**

General References:
1. SOER 82-8 (TDAFW Pump Steam Isolation Indication)
2. SOER 86-1 (Reliability of PWR AFW Systems)

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 P.2 Revision : 9 ch 3

Initial Conditions:	A Loss of Secondary Heat Sink event is in progress and the control room team is carrying out the actions of EOP 35 FR-H.1. AFW flow could not be established from the control room. The Control Room has indications that the Turbine Driven AFW Pump has tripped.
Initiating Cues:	The US directs you to inspect 3MSS*MSV5, TD AFW Pump Trip Throttle Valve. **If 3MSS*MSV5 is found closed, locally reset and open 3MSS*MSV5** per Attachment A pages 3 and 4. **Call the Control Room when done.**
Simulator Requirements:	NA

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 P.2 Revision: 9 ch 3

Task Title: Locally Restore AFW Flow (Includes Opening 3MSS*MSV5)

START TIME: ______

STEP #1	Performance:	Standard:	Critical:	Grade
	Check TD AFW Pump Trip Throttle Valve, 3MSS*MSV5, OPEN. (*SOER 82-2 related*)	**IMPORTANT: PROVIDE FOLLOWING BRIEF TO CANDIDATE ONCE THEY HAVE LOCATED 3MSS*MSV5: Avoid bump hazards while in the area of the 3MSS*MSV5. This may be done by pointing from a distance and using the diagram on Attachment A page 4.** Locates valve 3MSS*MSV5 and asks for indication (see cue below). Based on cues provided, determines that 3MSS*MSV5 has tripped closed. Likely, the examinee will notify the Control Room prior to proceeding (& opening the valve). However, this is not necessary based on Initial JPM Cue.	Y [x] N []	S [ ] U [ ]
	Cue: Ask examinee what he (she) would look for. Provide response only to what is being monitored. The valve indications are: • Latch pall disengaged from trip hook • Limit switch pointing up with position rod down • Terry turbine is not rotating • Hand wheel remains fully counter-clockwise			
	Comments: **AVOID BUMP HAZARDS. PROVIDE BRIEF TO CANDIDATE (See note under Standard above).**			

STEP #2	Performance:	Standard:	Critical:	Grade
	Open 3MSS*MSV5 1. Move connecting rod toward 3MSS*MSV5 until the trip tappet is fully down. 2. Verify the trip tappet is fully down. 3. Release connecting rod. 4. Turn handwheel for 3MSS*MSV5 clockwise until the trip hook engages with the latch-up lever. 5. Press trip hook and remove any gap between latch-up lever and trip hook. 6. Open 3MSS*MSV5, trip throttle valve.	**IMPORTANT: Avoid bump hazards while in the area of the 3MSS*MSV5. This may be done by pointing from a distance and using the diagram on Attachment A page 4.** Simulates: 1. Moves connecting rod toward 3MSS*MSV5 until the trip tappet is fully down. 2. Verifies the trip tappet is fully down. 3. Releases connecting rod. 4. Turns handwheel for 3MSS*MSV5 clockwise until the trip hook engages with the latch-up lever. 5. Presses trip hook and removes any gap between latch-up lever and trip hook. 6. Opens 3MSS*MSV5, trip throttle valve, by turning handwheel in counter-clockwise direction (open direction).	Y [**x**] N [ ]	S [ ] U [ ]

Cue:

1. Connecting rod moves toward 3MSS*MSV5 until the trip tappet is fully down.
2. Trip tappet is fully down.
3. Connecting rod is released.
4. 3MSS*MSV5 handwheel turns clockwise until the trip hook engages with the latch-up lever.
5. No gap between latch-up lever and trip hook.
6. 3MSS*MSV5, trip throttle valve, handwheel rotates in counter-clockwise direction, valve stem rises, and the pump rotates.

Comments:

AVOID BUMP HAZARDS. See note under Standard above.

STEP #3	Performance: Call Control Room to notify of completed actions.	Simulates calling the Control Room and informs them that 3MSS*MSV5 was found closed and has since been reset and opened.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	• Cue: **During the simulated phone call, report to the candidate "We have indications of proper rpm; however, there is still no AFW flow to the Steam Generators. Perform EOP 35 FR-H.1 Attachment A page 2 AND locally restore any valve that is found out of position. 3MSS*MOV17A, B and D have been verified open by control room indication."**			
	Comments: This begins the alternate path portion of the JPM.			
STEP #4	Performance: Checks SG A TD AFW Pump Steam Isolation valve, 3MSS*AOV31A, OPEN.	Standard: Locates valve 3MSS*AOV31A and checks the position indicator.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue: Position indication plate is aligned to OPEN.			
	Comments:			
STEP #5	Performance: Checks SG B TD AFW Pump Steam Isolation valve, 3MSS*AOV31B, OPEN.	Standard: Locates valve 3MSS*AOV31B and checks the position indicator.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue: Position indication plate is aligned to OPEN.			
	Comments:			
STEP #6	Performance: Checks SG D TD AFW Pump Steam Isolation valve, 3MSS*AOV31D, OPEN.	Standard: Locates valve 3MSS*AOV31D and checks the position indicator.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue: Position indication plate is aligned to OPEN.			
	Comments:			

STEP #7	Performance: Checks SG A TD AFW Pump Non-Return Valve 3MSS*MOV17A OPEN.	Standard: Acknowledges that Control Room has verified position of 3MSS*MOV17A OR	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
		Manually checks valve position by: 1. Engaging the manual handwheel, 2. Rotate the valve in the closed direction, 3. Reopen the valve until hard stop. 4. Rotate the handwheel by ¼ in the clockwise (close) direction.		
	Cue: (as needed) 1. The MOV clutch is disengaged. 2. Valve handwheel rotates in the clockwise direction. 3. Valve handwheel rotates in the counterclockwise direction, eventually some resistance is met and the valve comes to a hard stop. 4. Valve rotates ¼ turn in clockwise direction.			

STEP #8	Performance: Checks SG B TD AFW Pump Non-Return valve 3MSS*MOV17B OPEN.	Standard: Acknowledges that Control Room has verified position of 3MSS*MOV17B OR	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
		Manually checks valve position by: 1. Engaging the manual handwheel, 2. Rotating the valve in the closed direction, 3. Reopen the valve and placing ¼ turn off open seat. 4. Rotate the handwheel by ¼ turn in the clockwise (close) direction.		
	Cue: 1. The MOV clutch is disengaged. 2. Valve handwheel rotates in the clockwise direction. 3. Valve handwheel rotates in the counterclockwise direction, eventually some resistance is met and the valve comes to a hard stop. 4. Valve rotates ¼ turn in clockwise direction.			

STEP #9	Performance: Checks SG D TD AFW Pump Non-Return Valve 3MSS*MOV17D OPEN.	Standard: Acknowledges that Control Room has verified position of 3MSS*MOV17D OR Manually checks valve position by: 1. Engaging the manual handwheel, 2. Rotating the valve in the closed direction, 3. Reopen the valve and placing ¼ turn off open seat. 4. Rotate the handwheel by ¼ turn in the clockwise (close) direction.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue: 1. The MOV clutch is disengaged. 2. Valve handwheel rotates in the clockwise direction. 3. Valve handwheel rotates in the counterclockwise direction, eventually some resistance is met and the valve comes to a hard stop. 4. Valve rotates ¼ turn in clockwise direction.			
	Comments:			

STEP #10	Performance:	Standard:	Critical:	Grade
	Check TD AFW Pump DWST Supply Isolation valve, 3FWA*V30, LOCKED OPEN.	(A) Checks locking device intact, lock hinders operation, and valve stem position indicates valve is open.	Y [ ] N [x]	S [ ] U [ ]
	(A) Cue: The locking device is intact, it inhibits valve motion, and valve stem position is as shown. (open) ---THIS STEP IS COMPLETE---			
	Comments: Either Method A or Method B is acceptable. Both methods are not required.			
	OR			
	Check TD AFW Pump DWST Supply Isolation valve, 3FWA*V30, LOCKED OPEN.	(B) 1. Unlocks and removes the locking device on valve. 2. Rotates the handwheel in the clockwise direction and observes valve stem travel. 3. Rotates the handwheel in the counterclockwise direction until the valve is fully open (hard stop). 4. Rotates the handwheel 1/4 turn in the clockwise direction. 5. Installs the locking device and locks the lock.		
	Cue: (B) 1. The lock is unlocked and the locking device is removed. 2. The valve handwheel rotates in the clockwise direction. 3. Valve handwheel rotates in the counterclockwise direction and then comes to a hard stop. 4. The valve handwheel has been rotated 1/4 turn in the clockwise direction. 5. The locking device is installed and locked.			
	Comments: Either Method A or Method B is acceptable. Both methods are not required.			

<table>
<tr><td>STEP #11</td><td>Performance:
Check TD AFW Pump Discharge Isolation valve, 3FWA*V32, LOCKED OPEN.</td><td>Standard:
(A) Recognizes valve is closed based on visual observation. Continues to simulate
(B) Opening 3FWA*V32:
1. Rotates the handwheel in the counterclockwise direction until the valve is fully open (hard stop).
2. Rotates the handwheel 1/4 turn in the clockwise direction.
3. Installs the locking device and locks the lock.</td><td>Critical:
Y [x] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td></td><td colspan="4">(A) Cue:
The locking device is not intact, and the valve stem position is down in valve body. (closed) ---
(B) Cue:
1. Valve handwheel rotates in the counterclockwise direction and then comes to a hard stop.
2. The valve handwheel has been rotated 1/4 turn in the clockwise direction.
3. The locking device is installed and locked.</td></tr>
<tr><td></td><td colspan="4">Comments:
The candidate may report that he / she opened 3FWA*V32. If they do, have the candidate continue to verify the alignment.</td></tr>
</table>

STEP #12	Performance: Check TD AFW Pump to SG D Isolation valve, 3FWA*V45, LOCKED OPEN.	Standard: (A) Checks locking device intact, lock hinders operation, and valve stem position indicates valve is open.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	(A) Cue: The locking device is intact, it inhibits valve motion, and valve stem position is as shown. (open) ---THIS STEP IS COMPLETE---			
	Comments: Either Method A or Method B is acceptable. Both methods are not required.			
	OR			
	Check TD AFW Pump to SG D Isolation valve, 3FWA*V45, LOCKED OPEN.	(B) 1. Unlocks and removes the locking device on valve. 2. Rotates the handwheel in the clockwise direction and observes valve stem travel. 3. Rotates the handwheel in the counterclockwise direction until the valve is fully open (hard stop). 4. Rotates the handwheel 1/4 turn in the clockwise direction. 5. Installs the locking device and locks the lock.		
	Cue: (B) 1. The lock is unlocked and the locking device is removed. 2. The valve handwheel rotates in the clockwise direction. 3. Valve handwheel rotates in the counterclockwise direction and then comes to a hard stop. 4. The valve handwheel has been rotated 1/4 turn in the clockwise direction. 5. The locking device is installed and locked.			
	Comments: Either Method A or Method B is acceptable. Both methods are not required.			

<table>
<tr><td>STEP #13</td><td>Performance:
Check AFW TD Pump Isolation to SG D valve, 3FWA*V839, LOCKED OPEN.</td><td>Standard:
(A) Checks locking device intact, lock hinders operation, and valve stem position indicates valve is open.</td><td>Critical:
Y [ ] N [x]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td></td><td colspan="4">(A) Cue:
The locking device is intact, it inhibits valve motion, and valve stem position is as shown. (open) ---THIS STEP IS COMPLETE---</td></tr>
<tr><td></td><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
<tr><td></td><td colspan="4">OR</td></tr>
<tr><td></td><td>Check AFW TD Pump Isolation to SG D valve, 3FWA*V839, LOCKED OPEN.</td><td colspan="3">(B)
1. Unlocks and removes the locking device on valve.
2. Rotates the handwheel in the clockwise direction and observes valve stem travel.
3. Rotates the handwheel in the counterclockwise direction until the valve is fully open (hard stop).
4. Rotates the handwheel 1/4 turn in the clockwise direction.
5. Installs the locking device and locks the lock.</td></tr>
<tr><td></td><td colspan="4">Cue:
(B)
1. The lock is unlocked and the locking device is removed.
2. The valve handwheel rotates in the clockwise direction.
3. Valve handwheel rotates in the counterclockwise direction and then comes to a hard stop.
4. The valve handwheel has been rotated 1/4 turn in the clockwise direction.
5. The locking device is installed and locked.</td></tr>
<tr><td></td><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
</table>

<table>
<tr><td rowspan="8">STEP #14</td><td>Performance:
Check TD AFW Pump to SG A Isolation valve, 3FWA*V41, LOCKED OPEN.</td><td>Standard:
(A) Checks locking device intact, lock hinders operation, and valve stem position indicates valve is open.</td><td>Critical:
Y [ ] N [x]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">(A) Cue:
The locking device is intact, it inhibits valve motion, and valve stem position is as shown. (open) ---THIS STEP IS COMPLETE---</td></tr>
<tr><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
<tr><td colspan="4">OR</td></tr>
<tr><td>Check TD AFW Pump to SG A Isolation valve, 3FWA*V41, LOCKED OPEN.</td><td colspan="3">(B)
1. Unlocks and removes the locking device on valve.
2. Rotates the handwheel in the clockwise direction and observes valve stem travel.
3. Rotates the handwheel in the counterclockwise direction until the valve is fully open (hard stop).
4. Rotates the handwheel 1/4 turn in the clockwise direction.
5. Installs the locking device and locks the lock.</td></tr>
<tr><td colspan="4">Cue:
(B)
1. The lock is unlocked and the locking device is removed.
2. The valve handwheel rotates in the clockwise direction.
3. Valve handwheel rotates in the counterclockwise direction and then comes to a hard stop.
4. The valve handwheel has been rotated 1/4 turn in the clockwise direction.
5. The locking device is installed and locked.</td></tr>
<tr><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
</table>

<table>
<tr><td rowspan="8">STEP
#15</td><td>Performance:
Check TD AFW Pump to SG A Isolation valve, 3FWA*V836, LOCKED OPEN.</td><td>Standard:
(A) Checks locking device intact, lock hinders operation, and valve stem position indicates valve is open.</td><td>Critical:
Y [ ] N [x]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">(A) Cue:
The locking device is intact, it inhibits valve motion, and valve stem position is as shown. (open) ---THIS STEP IS COMPLETE---</td></tr>
<tr><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
<tr><td colspan="4">OR</td></tr>
<tr><td>Check TD AFW Pump to SG A Isolation valve, 3FWA*V836, LOCKED OPEN.</td><td colspan="3">(B)
1. Unlocks and removes the locking device on valve.
2. Rotates the handwheel in the clockwise direction and observes valve stem travel.
3. Rotates the handwheel in the counterclockwise direction until the valve is fully open (hard stop).
4. Rotates the handwheel 1/4 turn in the clockwise direction.
5. Installs the locking device and locks the lock.</td></tr>
<tr><td colspan="4">Cue:
(B)
1. The lock is unlocked and the locking device is removed.
2. The valve handwheel rotates in the clockwise direction.
3. Valve handwheel rotates in the counterclockwise direction and then comes to a hard stop.
4. The valve handwheel has been rotated 1/4 turn in the clockwise direction.
5. The locking device is installed and locked.</td></tr>
<tr><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
</table>

<table>
<tr><td rowspan="7">STEP
#16</td><td>Performance:
Check TD AFW Pump to SG B, 3FWA*V37, LOCKED OPEN.</td><td>Standard:
(A) Checks locking device intact, lock hinders operation, and valve stem position indicates valve is open.</td><td>Critical:
Y [ ] N [x]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">(A) Cue:
The locking device is intact, it inhibits valve motion, and valve stem position is as shown. (open) ---THIS STEP IS COMPLETE---</td></tr>
<tr><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
<tr><td colspan="4">OR</td></tr>
<tr><td>Check TD AFW Pump to SG B, 3FWA*V37, LOCKED OPEN.</td><td colspan="3">(B)
1. Unlocks and removes the locking device on valve.
2. Rotates the handwheel in the clockwise direction and observes valve stem travel.
3. Rotates the handwheel in the counterclockwise direction until the valve is fully open (hard stop).
4. Rotates the handwheel 1/4 turn in the clockwise direction.
5. Installs the locking device and locks the lock.</td></tr>
<tr><td colspan="4">Cue:
(B)
1. The lock is unlocked and the locking device is removed.
2. The valve handwheel rotates in the clockwise direction.
3. Valve handwheel rotates in the counterclockwise direction and then comes to a hard stop.
4. The valve handwheel has been rotated 1/4 turn in the clockwise direction.
5. The locking device is installed and locked.</td></tr>
<tr><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
</table>

<table>
<tr><td rowspan="8">STEP
#17</td><td>Performance:
Check AFW TD Pump Isolation to SG B, 3FWA*V837, LOCKED OPEN.</td><td>Standard:
(A) Checks locking device intact, lock hinders operation, and valve stem position indicates valve is open.</td><td>Critical:
Y [ ] N [x]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">(A) Cue:
The locking device is intact, it inhibits valve motion, and valve stem position is as shown. (open) ---THIS STEP IS COMPLETE---</td></tr>
<tr><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
<tr><td colspan="4">OR</td></tr>
<tr><td>Check AFW TD Pump Isolation to SG B, 3FWA*V837, LOCKED OPEN.</td><td colspan="3">(B)
1. Unlocks and removes the locking device on valve.
2. Rotates the handwheel in the clockwise direction and observes valve stem travel.
3. Rotates the handwheel in the counterclockwise direction until the valve is fully open (hard stop).
4. Rotates the handwheel 1/4 turn in the clockwise direction.
5. Installs the locking device and locks the lock.</td></tr>
<tr><td colspan="4">Cue:
(B)
1. The lock is unlocked and the locking device is removed.
2. The valve handwheel rotates in the clockwise direction.
3. Valve handwheel rotates in the counterclockwise direction and then comes to a hard stop.
4. The valve handwheel has been rotated 1/4 turn in the clockwise direction.
5. The locking device is installed and locked.</td></tr>
<tr><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
</table>

<table>
<tr><td rowspan="7">STEP #18</td><td>Performance:
Check TD AFW Pump to SG C Isolation valve, 3FWA*V33, LOCKED OPEN.</td><td>Standard:
(A) Checks locking device intact, lock hinders operation, and valve stem position indicates valve is open.</td><td>Critical:
Y [ ] N [x]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">(A) Cue:
The locking device is intact, it inhibits valve motion, and valve stem position is as shown. (open) ---THIS STEP IS COMPLETE---</td></tr>
<tr><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
<tr><td colspan="4">OR</td></tr>
<tr><td>Check TD AFW Pump to SG C Isolation valve, 3FWA*V33, LOCKED OPEN.</td><td colspan="3">(B)
1. Unlocks and removes the locking device on valve.
2. Rotates the handwheel in the clockwise direction and observes valve stem travel.
3. Rotates the handwheel in the counterclockwise direction until the valve is fully open (hard stop).
4. Rotates the handwheel 1/4 turn in the clockwise direction.
5. Installs the locking device and locks the lock.</td></tr>
<tr><td colspan="4">Cue:
(B)
1. The lock is unlocked and the locking device is removed.
2. The valve handwheel rotates in the clockwise direction.
3. Valve handwheel rotates in the counterclockwise direction and then comes to a hard stop.
4. The valve handwheel has been rotated 1/4 turn in the clockwise direction.
5. The locking device is installed and locked.</td></tr>
<tr><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
</table>

<table>
<tr><td rowspan="8">STEP #19</td><td>Performance:
Check AFW TD Pump Isolation to SG C, 3FWA*V838, LOCKED OPEN.</td><td>Standard:
(A) Checks locking device intact, lock hinders operation, and valve stem position indicates valve is open.</td><td>Critical:
Y [ ] N [x]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">(A) Cue:
The locking device is intact, it inhibits valve motion, and valve stem position is as shown. (open) ---THIS STEP IS COMPLETE---</td></tr>
<tr><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
<tr><td colspan="4">OR</td></tr>
<tr><td>Check AFW TD Pump Isolation to SG C, 3FWA*V838, LOCKED OPEN.</td><td colspan="3">(B)
1. Unlocks and removes the locking device on valve.
2. Rotates the handwheel in the clockwise direction and observes valve stem travel.
3. Rotates the handwheel in the counterclockwise direction until the valve is fully open (hard stop).
4. Rotates the handwheel 1/4 turn in the clockwise direction.
5. Installs the locking device and locks the lock.</td></tr>
<tr><td colspan="4">Cue:
(B)
1. The lock is unlocked and the locking device is removed.
2. The valve handwheel rotates in the clockwise direction.
3. Valve handwheel rotates in the counterclockwise direction and then comes to a hard stop.
4. The valve handwheel has been rotated 1/4 turn in the clockwise direction.
5. The locking device is installed and locked.</td></tr>
<tr><td colspan="4">Comments:
Either Method A or Method B is acceptable. Both methods are not required.</td></tr>
<tr><td colspan="4"></td></tr>
</table>

STEP #20	Performance: Check the Governor Speed Droop set at zero.	Standard: **JPM WILL BE STOPPED HERE DUE TO BUMP HAZARDS. SEE CUE BELOW.**	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue: **Before the candidate gains access to the governor controls, TERMINATE JPM by reporting "This JPM is complete. The remainder of the governor checks are not going to be performed due to the bump hazard."**			
	Comments:			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: ________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 P.2 Revision: 9 ch 3

Date Performed: ______________

Student: ______________________________

Evaluator: ______________________________

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes _____ No **X**

Validated Time (minutes): 15 min.

Actual Time to Complete (minutes): ______

JPM Work Practice Evaluation*: SAT UNSAT N/A

Overall Result of JPM: SAT UNSAT

* As per TR-AA-410, the Pass/Fail criteria for the JPM is that the trainee must 1) Perform the task correctly and IAW procedure use and adherence requirements, 2) Never put anyone's safety at risk, 3) Never put equipment reliability at risk, 4) Never violate radiological work practices, 5) Demonstrate effective use of event-free human performance tools. If a failure occurs, indicate why the failure occurred and which of these 5 task performance criteria contributed to the failure.

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number: 2K13 P.2 Revision: 9 ch 3

Initial Conditions: A Loss of Secondary Heat Sink event is in progress and the control room team is carrying out the actions of EOP 35 FR-H.1. AFW flow could not be established from the control room. The Control Room has indications that the Turbine Driven AFW Pump has tripped.

Initiating Cues: The US directs you to inspect 3MSS*MSV5, TD AFW Pump Trip Throttle Valve**. If 3MSS*MSV5 is found closed, locally reset and open 3MSS*MSV5** per Attachment A pages 3 and 4. **Call the Control Room when done.**

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: ALIGN "C" RPCCW PUMP AND HEAT EXCHANGER TO THE "A" TRAIN

JPM Number: 2K13 NRC P.3 (P113) Revision: 4 chg 10

Initiated:

William M. Forrestt 9/24/13

Developer Date

Reviewed:

Paul Scott 9/27/13

Technical Reviewer Date

Approved:

Trad Horner 10/1/13

Supervisor, Nuclear Training Date

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE
9/29/03	Updated to OP 3330A Rev. 15	1
9/14/04		2
6/20/05	Updated to OP 3330A Rev 16, revised task number, added module reference	3
10/17/06	Updated to OP 3330A Rev 16-04, corrected valve position verification steps to non-critical, RJM	4
08/21/2010	Updated to OP 3330A Rev 17-05, MJSiebert	5
10/09/2010	Updated to OP 3330A Rev 17-07. Updated to latest format. TPG	6
02/09/2012	Updated to OP 3330A Rev 17-09. Revised JPM number to P113 vice 113 to align with numbering system. TPG	7
9/7/12	Updated to OP 3330A Rev 018-00. Reversed the order of the initial conditions and initiating cue to put initial conditions first. DLM	8
1/18/13	Updated to OP 3330A Rev 18-02. JSY	9
9/24/13	Updated to OP 330A Rev 018-06. WMF	10

JPM WORKSHEET

Facility: Millstone Unit 3 Examinee: ____________________

JPM Number: 2K13 NRC P.3 Revision: 4 chg 10

Task Title: ALIGN "C" RPCCW PUMP AND HEAT EXCHANGER TO THE "A" TRAIN

System: CCW

Time Critical Task: ( ) YES (X) NO

Validated Time (minutes) 15

Task Number(s): 344-05-024

Applicable To: SRO **X** RO **X** PEO **X**

K/A Number: 008-A.201 K/A Rating: 3.3 / 3.6

Method of Testing: Simulated Performance: X Actual Performance: ____

Location: Classroom: ____ Simulator: ____ In-Plant: X

Task Standards: Satisfactorily align the "C" RPCCW pump and heat exchanger to the "A" train of RPCCW using OP 3330A Section 4.9.

Required Materials: (procedures, equipment, etc.)
1. OP 3330A, Rev. 018-06 Section 4.9 **(handout)**

General References: N/A

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2K13 NRC P.3 Revision : 4 chg 10

Initial Conditions:	Train "A" RPCCW pump has been lost and the Control Room team is carrying out the actions in AOP 3561 for a loss of RPCCW. The CTMT headers have been cross-connected.
Initiating Cue:	The US has directed you to align the "C" RPCCW pump and heat exchanger to the "A" train of RPCCW using OP 3330A Section 4.9. Both RPCCW pump "C" control switches are in the PULL-TO-LOCK position. (Step 4.9.5) • Another PEO will complete steps 4.9.12 through 4.9.16 in OP 3330A and will provide you with the appropriate Kirk key when he has completed his actions. • The vents on 'C' CCP heat exchanger have been closed to allow performing section 4.9 as written. This was done to comply with long term tagging section 3C16 3SWP20-0005. This tag section requires the 'C' CCP vents be closed prior to opening 3SWP*V037 or 3SWP*V69 (due to valve leak by of 3SWP*V38).
Simulator Requirements:	NA

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2K13 NRC P.3 Revision: 4 chg 10

Task Title: ALIGN "C" RPCCW PUMP AND HEAT EXCHANGER TO THE "A" TRAIN

START TIME: ________

<table>
<tr><td></td><td colspan="4">Comments:
The position indicators for several of the valves that are manipulated during this JPM cannot be observed without a ladder. For the purposes of this JPM it is not required that a ladder be obtained to check the position indications. The examiner shall provide the appropriate cues as to valve positions.</td></tr>
<tr><td></td><td colspan="4">Comments:
Location for Performance Steps 1 through 4 is Aux. Bldg. 24'6", near HX and pumps.</td></tr>
<tr><td rowspan="4">STEP #1

3330A

4.9.1</td><td rowspan="2">Performance:
CLOSE 3SWP*V69, RPCCW HX C SW B sply stop</td><td rowspan="2">Standard:
1. Locates 3SWP*V69.
2. Simulates rotating the handwheel for 3SWP*V69 in the clockwise direction until the valve is closed (hard stop).
3. Uses attached position indication for verification.</td><td>Critical:
Y [x] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td>Critical:
Y [x] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:
1. The valve handwheel rotates in the clockwise direction. Eventually some resistance is met and the valve comes to a hard stop.
2. The position indicator points to the "closed" position (not observable).</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

<table>
<tr><td rowspan="4">STEP
#2

3330A

4.9.2</td><td rowspan="2">Performance:
CLOSE the following RPCCW heat exchanger C Train B service water return valves:
• 3SWP*V70, RPCCW HX C SW B rtn isol
• 3SWP*V71, RPCCW HX C SW B rtn stop</td><td rowspan="2">Standard:
1. Locates 3SWP*V70 & 3SWP*V71.
2. Simulates rotating the handwheel(s) for 3SWP*V70 and 3SWP*V71 in the clockwise direction until the valve(s) are closed (hard stop).
3. Uses attached position indication(s) for verification.</td><td>Critical:
Y [x] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td>Critical:
Y [x] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:
1. The valve handwheel rotates in the clockwise direction and the position indicator starts moving toward the close position. Eventually some resistance is met and the valve comes to a hard stop.
2. The position indicator points to the “closed” position.</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td>STEP
#3

3330A

4.9.3</td><td>Performance:
OPEN the following RPCCW heat exchanger C Train A service water supply valves:
• 3SWP*V36, RPCCW HX C SW A sply isol
• 3SWP*V37, RPCCW HX C SW A sply stop</td><td>Standard:
1. Locates 3SWP*V36 & 3SWP*V37.
2. Simulates rotating the handwheel(s) for 3SWP*V36 and 3SWP*V37 in the counterclockwise direction until the valve(s) are open (hard stop).
3. Uses attached position indication(s) for verification.
4. Rotates the handwheel(s) ¼ in the clockwise (close) direction.</td><td>Critical:
Y [x] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td></td><td colspan="4">Cue:
(If needed, remind candidate that vents on ‘C’ CCP heat exchanger have been closed and 3SWP*V37 may be Opened).
1. The valve handwheel rotates in the counterclockwise direction. Eventually some resistance Is met and the valve comes to a hard stop.
2. The position indicator points to the “open” position (not observable).
3. The handwheel has been rotated 1/4 turn in the clockwise direction.</td></tr>
<tr><td></td><td colspan="4">Comments:</td></tr>
</table>

STEP #4 3330A 4.9.4	Performance: OPEN the following RPCCW heat exchanger C Train A service water return valves: • 3SWP*V40, RPCCW HX C SW A rtn stop • 3SWP*V41, RPCCW HX C SW A rtn isol	Standard: 1. Locates 3SWP*V40 & 3SWP*V41. 2. Simulates rotating the handwheel(s) for 3SWP*V40 and 3SWP*V41 in the counterclockwise direction until the valve(s) are open (hard stop). 3. Uses attached position indication(s) for verification. 4. Rotates the handwheel(s) ¼ in the clockwise (close) direction.	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
	Cue: 1. The valve handwheel rotates in the counterclockwise direction. Eventually some resistance Is met and the valve comes to a hard stop. 2. The position indicator points to the "open" position. 3. The handwheel has been rotated 1/4 turn in the clockwise direction.			
	Comments:			
STEP #5 3330A 4.9.5	Performance: PLACE the following in PULL-TO-LOCK (MB-1): 3CCP*P1C, "PP C" (Train A) 3CCP*P1C, "PP C" (Train B)	Standard: No action required. Both control switches are in PULL-TO-LOCK. This was given in the initial conditions.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue: If the examinee asks the status of these switches, inform him that both switches are in the PULL-TO-LOCK position.			
	Comments:			

STEP #6 3330A 4.9.6	Performance: CLOSE the following Train B RPCCW discharge cross-connect valves: • 3CCP*V8, train B RPCCW secondary discharge cross connect to P1C • 3CCP*V10, train B RPCCW primary discharge cross connect to P1C	Standard: 1. Locates 3CCP*V8 & 3CCP*V10. 2. Simulates rotating the handwheel(s) for 3CCP*V8 and 3CCP*V10 in the clockwise direction until the valve(s) are closed (hard stop). 3. Uses attached position indication(s) for verification.	Critical: Y [x] N [ ] Critical: Y [x] N [ ]	Grade S [ ] U [ ] Grade S [ ] U [ ]
	Cue: 1. The valve handwheel rotates in the clockwise direction and the position indicator starts moving toward the close position. Eventually some resistance is met and the valve comes to a hard stop. 2. The position indicator points to the "closed" position.			
	Comments: Location for Performance Steps 7 and 8 is Aux. Bldg. 14' platform.			
STEP #7 3330A 4.9.7	Performance: CLOSE the following Train B RPCCW suction cross-connect valves: • 3CCP*V94, train B RPCCW secondary suction cross connect to P1C • 3CCP*V95, train B RPCCW primary suction cross connect to P1C	Standard: 1. Locates 3CCP*V94 & 3CCP*V95. 2. Simulates rotating the handwheel(s) for 3CCP*V94 and 3CCP*V95 in the clockwise direction until the valve(s) are closed (hard stop). 3. Uses attached position indication(s) for verification.	Critical: Y [x] N [ ] Critical: Y [x] N [ ]	Grade S [ ] U [ ] Grade S [ ] U [ ]
	Cue: 1. The valve handwheel rotates in the clockwise direction and the position indicator starts to move toward the close position. Eventually some resistance is met and the valve comes to a hard stop. 2. The position indicator points to the "closed' position.			
	Comments:			

STEP	Performance	Standard	Critical	Grade
STEP #8 3330A 4.9.8	Performance: OPEN the following Train A RPCCW suction cross-connect valves: • 3CCP*V92, train A RPCCW primary suction cross connect to P1C • 3CCP*V93, train A RPCCW secondary suction cross connect to P1C	Standard: 1. Locates 3CCP*V92 & 3CCP*V93. 2. Simulates rotating the handwheel(s) for 3CCP*V92 and 3CCP*V93 in the counterclockwise direction until the valve(s) are open (hard stop). 3. Uses attached position indication(s) for verification. 4. Rotates the handwheel(s) ¼ in the clockwise (close) direction.	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
	Cue: 1. The valve handwheel rotates in the counterclockwise direction. Eventually some resistance Is met and the valve comes to a hard stop. 2. The position indicator points to the "open" position. 3. The handwheel has been rotated 1/4 turn in the clockwise direction.			
	Comments: Location for Performance Step 9, 3CCP*V96 is Aux. Bldg. 14'Platform			
STEP #9 3330A 4.9.9	Performance: Ensure 3CCP*V96, RPCCW pump C suction isolation, open.	Standard: 1. Rotates the handwheel for 3CCP*V96 in the clockwise direction and verifies stem movement. 2. Returns valve to open position. 3. Rotates the handwheel ¼ turn in the clockwise (close) direction.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue: 1. The valve handwheel rotates in the clockwise direction and valve stem movement is verified. 2. Valve indicator is aligned to open 3. Valve rotates 1/4 turn in the closed direction.			

<table>
<tr><td>STEP
#10

3330A

4.9.10</td><td>Performance:
OPEN the following Train A RPCCW discharge cross connect valves:
• 3CCP*V7, train A RPCCW primary discharge cross connect to P1C
• 3CCP*V9, train A RPCCW secondary discharge cross connect to P1C</td><td>Standard:
1. Locates 3CCP*V7 & 3CCP*V9.
2. Simulates rotating the handwheel(s) for 3CCP*V7 and 3CCP*V9 in the counterclockwise direction until the valve is open (hard stop).
3. Uses attached position indication(s) for verification.
4. Rotates the handwheel(s) ¼ in the clockwise (close) direction.</td><td>Critical:
Y [x] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td rowspan="2"></td><td colspan="4">Cue:
1. The valve handwheel rotates in the counterclockwise direction and the position indicator starts moving toward the open position. Eventually some resistance is met and the valve comes to a hard stop.
2. The position indicator points to the “open” position.
3. The handwheel has been rotated 1/4 turn in the clockwise direction.</td></tr>
<tr><td colspan="4">Comments:
Location for Performance Step 11, 3CCP*V5 is Aux. Bldg. 24’6”, near HX and pumps.</td></tr>
<tr><td rowspan="3">STEP
#11

3330A

4.9.11</td><td>Performance:
Ensure 3CCP*V5, RPCCW pump C discharge isolation, open.</td><td>Standard:
1. Rotates the handwheel for 3CCP*V5 in the clockwise direction and verifies stem movement.
2. Returns valve to open position.
3. Rotates the handwheel ¼ in the clockwise (close) direction.</td><td>Critical:
Y [ ] N [x]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:
1. The valve handwheel rotates in the clockwise direction and valve stem movement is verified.
2. Valve indicator is aligned to open
3. Valve rotates 1/4 turn in the closed direction.</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td></td><td colspan="4">CUE:
Steps 4.9.12 Thru 4.9.16 have been completed. Simulate handing Kirk Key No. 3 to the examinee.</td></tr>
</table>

STEP	Performance	Standard	Critical	Grade
STEP #12 3330A 4.9.17	Performance: At 3CCP*TRS-P1C (east MCC/RCA 46'), INSERT the Kirk key No. 3 (RE11339) into the lower block at switch 2 and UNLOCK switch 2.	Standard: Inserts Kirk key No. 3 into the lower block and rotates the key to unlock switch 2.	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
	Cue: The Kirk key has been inserted, rotated, and switch 2 is unlocked.			
	Comments:			
STEP #13 3330A 4.9.18	Performance: To open switch 2, PULL the lever arm down.	Standard: Pulls the lever arm down	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
	Cue: The lever arm is in the down position			
	Comments:			
STEP #14 3330A 4.9.19	Performance: LOCK switch 2 open and REMOVE the upper Kirk key No. 2 (RE11337).	Standard: Rotates the Kirk key No. 2 to lock switch 2 and pulls the Kirk key out of the locking block.	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
	Cue: The upper Kirk key No. 2 has been rotated and you have the key in your hand.			
	Comments:			
STEP #15 3330A 4.9.20	Performance: INSERT Kirk key No. 2 (RE11337) into the lower block at switch 1 and UNLOCK switch 1.	Standard: Inserts Kirk key No. 2 into the lower block and rotates the key to unlock switch 1.	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
	Cue: The Kirk key has been inserted, rotated, and switch 1 is unlocked.			
	Comments:			

STEP #16 3330A 4.9.21	Performance: To close switch 1, PUSH the lever UP.	Standard: Pushes the lever up.	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
	Cue: The lever is aligned to the up position.			
	Comments:			
STEP #17 3330A 4.9.22	Performance: LOCK switch 1 closed and REMOVE the upper Kirk key No. 1 (RE11336).	Standard: Rotates the Kirk key No. 1 to lock switch 1 and pulls the Kirk key out of the locking block.	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
	Cue: The upper Kirk key No. 1 has been rotated and you have the key in your hand.			
	Comments: For the next JPM step, the cabinet should not be opened. The examinee will have to simulate opening the door, explain his actions and simulate closing the door.			
	Comments: The examinee should explain during the next step that he would turn the key as far as it will go to ensure the electrical interlocks are also made up.			
STEP #18 3330A 4.9.23	Performance: Using Kirk key No. 1 (RE11336), UNLOCK the elevator mechanism at breaker 34C10-2 and release clutch lever.	Standard: Inserts Kirk key No. 1 into the locking block and rotates the key to unlock the elevator mechanism and releases clutch lever.	Critical: Y [x] N [ ]	Grade S [ ] U [ ]
	Cue: 1. The Kirk key is inserted and rotated. 2. For the purposes of this JPM assume that he has RACKED-UP the "C" RPCCW pump circuit breaker into cubicle 34C10-2.			
	Comments:			

STEP #19	Performance: Notify the US that the "C" RPCCW pump and heat exchanger are aligned to the Train A RPCCW System.	Standard: Informs the US that Section 4.9 of OP 3330A has been completed and the "C" RPCCW pump and heat exchanger are aligned to the Train A RPCCW System.	Critical: Y [ ] N [x]	Grade S [ ] U [ ]
	Cue:			
	Comments:			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: _________

VERIFICATION OF JPM COMPLETION

JPM Number: 2K13 NRC P.3 Revision: 4 chg 10

Date Performed: ______________

Student: ____

Evaluator: ____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes _____ No **X**

Validated Time (minutes): 15

Actual Time to Complete (minutes): ______

JPM Work Practice Evaluation*: SAT UNSAT N/A

Overall Result of JPM: SAT UNSAT

The Pass/Fail criteria for the JPM is that the trainee must 1) Perform the task correctly and IAW procedure use and adherence requirements, 2) Never put anyone's safety at risk, 3) Never put equipment reliability at risk, 4) Never violate radiological work practices, 5) Demonstrate effective use of event-free human performance tools. If a failure occurs, indicate why the failure occurred and which of these 5 task performance criteria contributed to the failure.

Areas for Improvement / Comments:

STUDENT HANDOUT

JPM Number:	2K13NRC P.3	Revision:	4 chg 10

Initial Conditions: Train “A” RPCCW pump has been lost and the Control Room team is carrying out the actions in AOP 3561 for a loss of RPCCW. The CTMT headers have been cross-connected.

Initiating Cue: The US has directed you to align the “C” RPCCW pump and heat exchanger to the “A” train of RPCCW using OP 3330A Section 4.9. Both RPCCW pump “C” control switches are in the PULL-TO-LOCK position. (Step 4.9.5)

- Another PEO will complete steps 4.9.12 through 4.9.16 in OP 3330A and will provide you with the appropriate Kirk key when he has completed his actions.
- The vents on ‘C’ CCP heat exchanger have been closed to allow performing section 4.9 as written. This was done to comply with long term tagging section 3C16 3SWP20-0005. This tag section requires the ‘C’ CCP vents be closed prior to opening 3SWP*V037 or 3SWP*V69 (due to valve leak by of 3SWP*V38).

SITE:	MP3		
PROGRAM:	ILT		
PROGRAM No.			
LESSON TITLE:	'B' Steam Generator Tube Rupture		LESSON #: 2K13 NRC-01
Total Time	90 minutes		

	Printed Name	Signature	Date
Prepared by:	William M. Forrestt	Developer Signature	9/27/13
Reviewed by:	Bob Royce	Validation Signature	9/27/13
Approved by:	Paul Scott	Operations Supervisor	9/27/13
Approved by:	Trad Horner	Training Supervisor	10/1/13

SEG# 2K13 NRC-01 Rev : 0

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE

SECTION 2

SIMULATOR EXAM GUIDE

TABLE OF CONTENTS

SECTIONS LISTED IN ORDER

SECTION 3

EXAM OVERVIEW

Title: 'B' SG Tube Rupture

ID Number: 2K13 NRC-01

1. The crew will take the shift with Reactor power stable at 100%. The 'C' Reactor Plant Component Cooling heat exchanger is tagged out for tube leak repair. Additionally, Control Rods are in manual for repair of auto circuitry (which is not functional due to Tavg / Tref circuit card failure).

   The scenario will start with a phone call informing the Unit Supervisor (US) that 'B' Emergency Diesel Generator governor sightglass is empty and there is a puddle of oil beneath the governor. The US will enter the appropriate Tech Spec and have the BOP disable the 'B' EDG.

   Next, the controlling channel of pressurizer pressure fails high. The RO will take manual control of the Master Pressure Controller and the crew will carry out actions of AOP 3571, Instrument Failure Response.

   Once the associated bistables are tripped, the 'A' Heater Drain Pump will trip. The associated annunciator response procedure will direct a 7% downpower. The loss of the Heater Drain Pump will cause Reactor power to exceed license limits and could cause a loss of the Main Feed Pumps on low suction pressure. The crew may decide to start a third condensate pump to allow time to enter AOP 3575, Rapid Downpower. Conversely, the crew may decide to use turbine controls to lower power while having the RO step Control Rods in manual. In either case, the crew will stabilize the plant at ~93% power.

   Next, the letdown pressure transmitter fails to an intermediate value causing the letdown pressure controller to modulate close. This will lift a letdown relief valve to the Pressurizer Relief Tank in Containment. The RO will diagnose the failure and take manual control using diverse indications of letdown and RCS parameters.

   Shortly afterwards, a tube leak on 'B' SG will develop into a rupture. At first, the crew will attempt to mitigate using AOP 3576, SG Tube Leak. However, the leak will develop and exceed Charging System make-up capacity. The crew will identify this and attempt a manual Reactor Trip. All Reactor Trip switches will be defeated and the BOP will be successful using load center switches **[Critical Task]**. Following the successful Reactor Trip, the crew will manually initiate Safety Injection.

The crew will carry out actions in E-0, Reactor Trip or Safety Injection. The crew will need to identify and re-align multiple Charging components which are out of position **[Critical Task]** and take actions to align Feed Water Isolation components.

The crew will transition to E-3 and mitigate the tube rupture by successfully implementing the strategies of this procedure. The crew will isolate the affected SG, establish and maintain the necessary subcooling **[Critical Task]**, depressurize the RCS, and terminate Safety Injection. The scenario will end once the crew successfully implements E-3, step 27 "Control RCS Pressure and Charging Flow to Minimize RCS-To-Secondary Leakage.

2. The SRO candidate (US) should classify this event as an **ALERT Charlie One** based on barrier failure, BA1.

3. Duration of Exam: 90 minutes

SECTION 4

EXAM GUIDE

Title: <u>'B' SG Tube Rupture</u>

ID Number: <u>2K13 NRC-01</u>

All Control Room Conduct, Operations and Communications shall be in accordance with OP-AA-100, Conduct of Operations.

Review the Simulator Operating Limits (design limits of plant) and the Simulator Modeling Limitations and Anomalous Response List prior to performing this exam scenario on the simulator. The evaluators should be aware if any of these limitations may be exceeded." (NSEM 6.06)

INPUT SUMMARY						
RESET SIMULATOR TO IC____IC-13						
Either **INPUT** or **Load** Schedule SIM1**.sch** AND **VERIFY** the following functions:						
ID	Description	Event Trigger	Delay Time	Ramp Time	Delete Time	Severity Or Value
	MALFUNCTIONS					
RX09A	PZR PT455 FAIL	1	0	0		2500 psia
FW16A	4TH POINT HTR DRN PP TRIP (P1A)	2	0	0		
CV05	LTDN PRES TRANS FAIL PT131	3	0	30 sec		275 psig
SG01B	S/G B TUBE RUPTURE	4	0	22 min		200 gpm
RP10A	AUTO REACTOR TRIP TRAIN A FAIL		0	0		
RP10B	AUTO REACTOR TRIP TRAIN B FAIL		0	0		
RP09A	REACTOR MANUAL TRIP SWITCH MB4 FAIL		0	0		
RP09B	REACTOR MANUAL TRIP SWITCH MB7 FAIL		0	0		
RP11L	AUTO ACT FAIL: FW ISO (FWI)		0	0		
R11F	AUTO ACT FAIL: CVCS		0	0		
MS12B	MS ISO VALVE CTV27B STUCK OPEN		0	0		
	REMOTE FUNCTIONS					
RXR 106, 05, 34, 44, 40, 48, 120 RPR 40	PZR PRESSURE BISTABLES AND DOOR	10	0 to 40 sec	0		Bistables to TRIP Door open/ close

INPUT SUMMARY						
RESET SIMULATOR TO IC____IC-13						
Either **INPUT** or **Load** Schedule SIM1**.sch** AND **VERIFY** the following functions:						
ID	Description	Event Trigger	Delay Time	Ramp Time	Delete Time	Severity Or Value
MSR01	Start Aux Boiler	11	5 min	0		START
FWR33 FWR62	Close 3CNS-V9 & V11	12	5 min	0		CLOSE
RCR 23 thru 26	RCP Hot / Cold Switches	13	0	0		COLD
OVERRIDES						

<table>
<tr><th colspan="3">SCENARIO TIME LINE</th></tr>
<tr><th>BOOTH INSTRUCTOR</th><th>FLOOR INSTRUCTOR</th><th>STUDENTS</th></tr>
<tr><td colspan="2">❑ COMPLETE Simulator Setup and Readiness Checklist.
❑ SELECT appropriate IC
❑ LOAD and RUN applicable Schedule.
❑ As necessary, ENTER or VERIFY the following Initial Malfunctions / I/Os / Remote Functions, <u>OR</u>, as specified on previous 'Input Summary' page:
▪
❑ As necessary, PERFORM verification of Initial Malfunctions / I/Os / Remote Functions entered.
❑ When the simulator is ready, PLACE to Run and VERIFY the simulator reflects the following Initial Conditions for the scenario and is stable:
▪
❑ As necessary, REMOVE the following Equipment from service and tag accordingly:
▪ PLACE Rod Control in Manual with YCT
▪ PLACE YCT on 'C' CCP pump control switches (both trains)</td><td>N/A</td></tr>
<tr><td>❑ CONDUCT briefing with evaluators.</td><td>PRE-SCENARIO:
❑ BRIEF the crew initial plant conditions and provide a shift turnover.
❑ <u>IF</u> this is the first simulator scenario of the week, REVIEW the Plant/Simulator Differences List and Simulator Training Objectives with the crew.
❑ As necessary, REVIEW any scenario specific differences and any planned simulator freeze points.</td><td>N/A</td></tr>
<tr><td></td><td></td><td>(All) Walk down control boards and conduct shift briefing.</td></tr>
</table>

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
Event 1 : **'B' EMERGENCY DIESEL GENERATOR INOP**		
NOTE: Anything the booth instructor needs to perform or report as part of the scenario should be BOLD.		
Call x6200 as Outside Rounds PEO and report: "'B' EDG governor oil level is empty. There is a puddle of oil beneath the governor."		**RO or BOP:** Acknowledges field report and transmits to US. **US:** Determines that the 'B' EDG is inoperable and performs / directs: (1) BOP to place 'B' EDG Start switch in PTL. (2) Enters T/S 3.8.1.1 Action b (table requires addressing b.1, b.2, b.3, b.4, & b.5).
Event 2 **INSERT TRIGGER 1 (RX09A)** CONTROLLING PZR PRESS CHANNEL FAILS HIGH	Notes on failure: (1) Placing the Master Pressure Controller at 50% (normal output) will close the pressurizer spray valves and stabilize the plant. (2) The failure will lower RCS pressure. Some RCS pressure limits: - 2204 psia (DNB, T/S 3.2.5) - 1900 psia (Auto Reactor Trip)	**RO:** Recognizes channel 1 of pressurizer pressure has failed high, notifies US of failure, and manually raises output of master pressure controller to close pressurizer spray valves.
		US: Enters AOP 3571 (Rev-09-07) **after plant is stable and reads:** CAUTION Do not leave the rod selector switch in AUTO while diagnosing a related instrument failure unless the reason for rod movement is a turbine runback. NOTE If a reactor trip occurs, immediately go to E-0, Reactor Trip or Safety Injection.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	The RO should have already placed the Master Pressure Controller in Manual.	**RO:** Determine The Initiating Parameter And Place The Affected Controller In MANUAL
		RO: Stabilize The Plant Parameters
		US: Reads Note to crew: <u>NOTE</u> It is desired that I&C personnel trip the bistables specified in this procedure. If, during off-hours, I&C personnel are not able to trip the necessary bistables within the time limitations required by the Technical Specifications, Operations Department personnel may trip the bistables using the guidance provided within this procedure.
		US: Perform Corrective Actions Using Appropriate Attachment: Pressurizer Pressure Channel Failure(Att B)
	RO should select Channel 3/4.	**RO:** Defeat the failed channel input. Pressurizer Press Select - Control 3RCS-PS455F
	RO should select a channel other than Ch 1 (likely channel 3).	**RO:** Pressurizer Press Select - Record 3RCS-PS455G
	RO should select a channel other than Ch 1	**RO:** OT/OP Delta T Record Select RCS-TS411E
		RO: Restore RCS pressure to normal, then Place PZR pressure control in automatic.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		RO & BOP: When conditions have stabilized, Observe MB annunciators and parameters. Immediately report any unexpected or unexplained conditions to the Shift Manager.
		US: Trip the associated Reactor Protection System bistable(s): Place a check mark in the box above the appropriate channel that requires tripping on pages 5 or 6 of this Attachment.
	Logs into 3.3.1 Action 6 (FU #7,9 &10) and 3.3.2 Actions 20 and 21 (FU #1.d & 9.a).	**US:** Refer to Technical Specification 3.3.1, 3.3.2, and 3.3.3.5.
	Logs into TRM 3.3.2.1, Action 27..A.	**US:** Refer to Technical Requirement 3.3.2.1.
		RO: Check the existing bistable status to ensure a reactor trip will not occur when the failed channel is tripped.
		US: Reads to crew: <u>CAUTION</u> If the General Warning lamp is lit on 3RPS*RAKLOGB, placing train A SSPS “Multiplexer Test” switch in “A+B” will cause the reactor to trip. <u>NOTE</u> The following step will distinguish whether the failure is within SSPS or the Protection channel.
	US determines this step is not applicable as the instrument channel has failed.	**US:** If bistable status light(s) (MB2D or MB4F) indicate that a single bistable input has tripped and channel indications are normal, PERFORM the following….

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
After I&C brief, INSERT TRIGGER 10 to trip bistables	When requested, report to the Control Room as I&C.	**US:** Request the I&C Department trip the appropriate bistables using Attachment B and Attachment S.
		RO: Verify the appropriate bistable status light(s) are lit.
	Enters 14 day TRM Action Statement, 7.4.1 Action a.2.	**US:** If indicator 3RCS*PI 455B is failed, Refer to TRM Table 7.4.1, Fire Related Safe Shutdown Components, Reactor Coolant System."
		US: Request I&C Department perform corrective maintenance on failed instrument.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
Event 3: **INSERT TRIGGER 2 (FW16A)** 4TH POINT HTR DRN PP TRIP (P1A)	Notes on failure: (1) The loss of a heater drain pump will initially cause Reactor Power to exceed license thermal limit of 3650 MWth (due to colder Condensate water. Op 3204, At Power Operation, step 4.3.1 directs Immediately reducing reactor power to less than or equal to 3,650 MWth if CVQRPA (4 min calorimetric average) exceeds 102% (3723 MWth). (2) The next impact is Main Feed Pump suction pressure and a concern for pump trip (250 psig after 30 seconds). This can be addressed by a.) Starting a third condensate pump (not in Heater Drain Pump ARP BUT guidance is in TDFW PP A or B Suction Press Lo ARP) **OR** b.) Immediately starting a downpower (3) The result of the above concerns may cause the US to provide immediate direction to the crew and later back-up with procedures (allowed by site guidance) . The crew may decide to start a third condensate pump to allow time to enter AOP 3575, Rapid Downpower. Conversely, the crew may decide to use turbine controls to lower power while having the RO step Control Rods in manual. In either case, the crew will stabilize the plant at ~93% power (per ARP guidance).	

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	BOP determines the 'A' Heater Drain Pump (HDP) has tripped.	**US:** **Enters ARP OP3353.MB6A (5-7)** (Rev06-12) Check heater drain pump current and pressure to determine affected pump.
	The crew may elect to start a third condensate pump. This ARP guidance is contained in "TDFW PP A or B SUCTION PRESS LO" ARP. Additionally, if MB6A 2-7, "COND DEMIN DP HIGH", becomes lit then the crew will bypass the condensate demins by throttling open, 3CNM-MOV78.	**BOP:** ADJUST feedwater flow to match steam flow.
	As stated above, the US may either direct: a.) Having BOP use load limit dial to reduce power ~7%. If this occurs, the crew must recognize that control rods are in manual and the RO will need to insert rods (OP 3204 Tavg band is + / - 5 F). b.) Entering AOP 3575, Rapid Downpower, to lower reactor power ~7%.	**RO & BOP:** If reactor power is greater than 93.4% (3411 MWth), REDUCE reactor power to less than 93.4% (3411 MWth).
	N/A	**BOP:** IF directed by SM/US, STOP affected heater drain pump.
	Follow ARP action. Do not allow completion of this activity to stop transition to next Event.	**RO:** IF reactor power was reduced, Refer To "Reactor Engineering Curve and Data Book," reactivity plan RE---H---01 for guidance on positioning control rods for AFD control.
	N/A	**BOP:** IF heater drain pump trip is due to feedwater heater low level, PERFORM the following:

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	Follow ARP action. Do not allow completion of this activity to stop transition to next Event.	**BOP:** IF heater drain pump trip is *not* due to feedwater heater low level, Refer to OP 3320, "Feedwater Heater Drains and Vents," and REMOVE affected heater drain pump from service.
	Follow ARP action. Do not allow completion of this activity to stop transition to next Event.	**BOP:** IF feedwater heater string is isolated, Go To AOP 3567, "Operation With One Feedwater Heater String Isolated."
	Follow ARP action. Do not allow completion of this activity to stop transition to next Event.	**BOP:** Using "Feedwater Heater Level" display, MONITOR affected string feedwater heater levels (Foxboro DCS) for operation of normal and emergency drain valves.
<u>Event 4</u> **INSERT TRIGGER 3 (CV05)** LETDOWN PRESSURE TRANSMITTER FAILS TO 275 PSIG		**RO** responds by (1) announcing Annun MB3A"Letdown Relief Vv Temp Hi", (2) notes that letdown flow is reduced, and (3) identifies letdown pressure control valve throttling closed. The RO may take manual control of 3CHS-PK131 at this time. **US:** **Enters ARP OP3353.MB3A** (Rev. 02-13)
		RO: CHECK 3RCS*TI 125, letdown relief valve temperature (MB3), to confirm alarm.
		US: Reads note to crew: NOTE 3CHS*RV8117, letdown relief valve, lifts at 600 psig

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	RO will see process input (green arrow) on 3CHS-PK131 drifting towards its failed state of 275 psig (30 sec ramp). The RO will need to recognize that the valve is modulating closed correctly and there is a failure of the process input.	**RO:** Check 3 CHS*PI 131, letdown pressure 300 to 350 psig.
	Based on failure to pressure instrument, RO will need to use diverse indication to maintain letdown pressure (letdown flow, normal controller output of approx 50%, inventory balance).	**RO:** <u>IF</u> directed by SM/US, PLACE 3CHS*PK131, letdown pressure controller, in "MANUAL", and MAINTAIN letdown pressure 300 to 350 psig.
	This letdown relief tailpiece temperature is modeled and will drift down SLOWLY after the relief valve is re-seated.	**RO:** CHECK 3RCS*TI 125, letdown relief valve temperature (MB3), to check 3CHS*RV8117, letdown relief valve, seated.
<u>Event 5</u> **INSERT TRIGGER 4 (SG01B)** 200 GPM 'B' SG TUBE RUPTURE (ramps in over 22 minutes)	Notes on failure: This malfunction is ramped such that it begins as a small tube leak on 'B' SG. At first, the crew will attempt to mitigate using AOP 3576, SG Tube Leak. However, the leak will develop and exceed Charging System make-up capacity. This will cause the crew to return to Step 1 (per note instruction) and eventually trip the reactor.	**US:** **Enters AOP 3576** (Rev-04-03)
	This is significant as it becomes the reason for later transition to E-0 per the definition of a continuous step in the User's guide.	**US:** Reads Note to crew: <u>NOTE</u> Foldout Page must be open. Step 1 is a continuous action step and should be performed at any time additional charging flow is required to maintain pressurizer level.
		RO: **Verify PZR Level** Check PZR Level-DECREASING

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		RO: Fully Open charging line flow control valve
		RO: Check letdown orifice isolation valves --- ONLY ONE OPEN
	At this point, PZR level should be increasing. The US will transition to RNO.	**RO:** Check PZR level --DECREASING RNO: Proceed to step 1.g.
		RO: Adjust charging flow control valve to maintain PZR level on level setpoint
		RO: If desired, place charging line flow controller in AUTO
		RO or BOP: **Notify Chemistry** Request Chemistry perform SP 3861, "Primary to Secondary Leak Rate Determination," to: 1) Determine the presence of primary to secondary leakage 2) Determine the leak rate 3) Identify the leaking SG
		US: Reads Note to crew: <u>NOTE</u> SG tube leakage can be interpreted as "verified" when any two of the bulleted substeps of step 3 are satisfied.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	The crew will satisfy this step by meeting multiple bullets (likely all satisfied except Chemistry grab sample is not completed yet).	**RO or BOP:** **Verify Primary To Secondary Leakage** * Check trend history and alarm status of condenser air ejector radiation monitor--- NOT NORMAL *Check trend history and alarm status of steam generator blowdown radiation monitor--- NOT NORMAL * Check trend history and alarm status of main steam line radiation monitors --- NOT NORMAL * Check Chemistry grab sample --- INDICATES PRESENCE OF PRIMARY TO SECONDARY LEAKAGE * Check trend history and alarm status of N16 monitors ---NOT NORMAL
		RO or BOP: **Perform Monitoring Of N16** Monitor Trends - Initiate monitoring of N16 monitor trends

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	Blowdown will need to be isolated (and likely has already auto isolated).	**RO:** **Verify SG Blowdown Status** Check if blowdown should be isolated * Condenser air ejector radiation monitor --- IN ALARM OR * Steam generator blowdown radiation monitor --- IN ALARM OR * Chemistry grab sample indicates primary to secondary leakage --- GREATER THAN OR EQUAL TO 75 gpd OR *Annunciator N---16 HIGH (MB2B 3---6A) ---IN ALARM
	The blowdown isolation valves have likely automatically closed (depends on speed of crew thru AOP & progression of leak).	**RO:** Check SG blowdown isolation valves --- CLOSED * 3BDG---CTV22A * 3BDG---CTV22B * 3BDG---CTV22C * 3BDG---CTV22D Proceed to step 6.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
As required by NRC Chief, MODIFY TRIGGER 4 (SG01B) to a severity of 200 gpm	The remaining steps in AOP 3576 are not critical. Based upon the NRC Chief's input, the scenario may unfold in two possible ways: (1) The SGTR leak size can be increased at this point (will require going back to Step 1) **- OR -** (2) Alternatively, the leak will continue to ramp in and will likely result in re-performance of Step 1 shortly. The following steps in AOP 3576 are given, in case, this alternative is used.	**BOP:** **Limit Effects Of Secondary Contamination** Check auxiliary steam ---SUPPLIED FROM MAIN STEAM
INSERT TRIGGER 11 when requested. START OF AUX BOILER		**BOP** dispatches PEO to: Using OP 3331A, "Auxiliary Boiler, Steam and Condensate" Perform the following: 1) Startup of auxiliary boiler A (B) 2) Shift auxiliary steam from main steam to auxiliary boiler system
INSERT TRIGGER 12 when requested. LOCALLY CLOSE 3CNS-V9 & V11.		**BOP** dispatches PEO to: Locally Close condensate recirculation to condensate surge tank isolation valves (3CNS---V9 and 3CNS---V11)
		BOP: Request HP determine if personnel should be evacuated from affected areas * Turbine Bldg (north end) * Secondary sample sink * CPE * MS Valve Bldg
	Based upon above HP request, the US would make necessary evacuations. However, the HP surveys will not be completed yet.	**US:** Evacuate personnel from affected areas if necessary

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	For this event, the amount of guidance in the C-OP is limited. Reference to the C-OP is still required though.	**US:** Refer to C OP 200.11, "Operation of a Cross Contaminated System," and Perform any required actions
If not already performed, MODIFY TRIGGER 4 (SG01B) to a severity of 200 gpm	The downpower is not a required for this scenario. The SGTR should be modified to force a Reactor trip.	**RO or BOP:** **Check If Unit Shutdown Should Be Initiated** Check any of the following: Condenser air ejector radiation monitor --- IN ALARM OR Chemistry grab sample indicates primary to secondary leakage in any SG --- GREATER THAN OR EQUAL TO 75 gpd OR Condenser air ejector radiation monitor correlation to leak rate (gpd) indicates primary to secondary leakage --- GREATER THAN OR EQUAL TO 75 gpd OR Annunciator N---16 HIGH (MB2B 3---6A) --- IN ALARM
	These steps are a re-performance of Step 1 "Verify PZR Level" and are required when additional charging flow is required to maintain pressurizer level.	**RO:** **Verify PZR Level** Check PZR Level-DECREASING
		RO: Fully Open charging line flow control valve

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		RO: Check letdown orifice isolation valves --- ONLY ONE OPEN
	Pressurizer level will be decreasing.	**RO:** Check PZR level --DECREASING
		RO: START second charging pump.
	The RNO will be met and the crew will Trip the Reactor.	RO: Verify PZR level – STABLE OR INCREASING RNO: 1.) Trip Reactor 2.) Initiate SI 3.) Go to E-0

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
<u>Event 6</u> **NO TRIGGER NECESSARY** **(RP10A/B; RP9A/B)** **<u>Event 7</u>** **NO TRIGGER NECESSARY (RP11F)** MULTIPLE CHG COMPONENTS FAIL TO RE-ALIGN **<u>Event 8</u>** **NO TRIGGER NECESSARY (RP11L)** FEED WATER ISOLATION (FWI) COMPONENTS FAIL TO RE-ALIGN	Notes on failures: (1) <u>Event 6:</u> All Reactor Trip switches will be defeated and the BOP will be successful using load center switches **[Critical Task]**. Following the successful Reactor Trip, the crew will manually initiate Safety Injection. (2) <u>Event 7:</u> RO may identify multiple Charging components failed to re-align early after E-0 immediate actions. RO will eventually work to re-align components to achieve minimum safety function. It is a **[Critical Task]** to re-align CHS pump suctions without cavitating the CHS pumps. (3) <u>Event 8:</u> BOP will identify FWI components out of position and will re-align accordingly.	**US:** **Enters E-0** (Rev-27)
	RO is unsuccessful with MB4 Reactor Trip switch.	**RO:** **Verify Reactor Trip** Check reactor trip and bypass breakers ---OPEN Check rod bottom lights ---LIT Check neutron flux ---DECREASING
	BOP is successful with Reactor trip by opening 32B and 32N breakers. RO will manual actuate SI after successful Reactor trip.	**BOP:** TRIP the reactor. <u>IF</u> reactor will <u>NOT</u> trip, <u>THEN</u> * TRIP Bus 32B AND 32N.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		BOP: **Verify Turbine Trip** Check all turbine stop valves --- CLOSED
		BOP: **Verify Power To AC Emergency Busses** Check AC emergency busses 34C and 34D -BOTH ENERGIZED
	The crew should have manually activated SI per AOP 3576.	**RO:** **Check If SI Is Actuated** Verify SAFETY INJECTION ACTUATION annunciator (MB4D 1--6 or MB2B 5--9)--- LIT By observation of ESF Group 2 Status Panel lights, verify both trains of SI – ACTUATED Check reactor trip and bypass breakers --- OPEN
		RO: **Verify Service Water Pumps --- AT LEAST ONE PER TRAIN RUNNING**
		RO: **Verify RPCCW Pumps --- ONE PER TRAIN RUNNING**
	RO should red flag these components	**RO:** **Verify ECCS Pumps Running** * Check SI pumps ---RUNNING * Check RHR pumps ---RUNNING * Check two charging pumps ---RUNNING

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	BOP should red flag the A & B MDAFW pumps.	**BOP:** **Verify AFW Pumps Running** *Check MD pumps --- RUNNING * Check turbine---driven pump --RUNNING, IF NECESSARY
	BOP: The FW isolation trip valves (3FWS*CTV 41 A,B,C & D) did not close **(Event 8)** and will need to be manually closed. The BOP may have already performed this action (allowed by EOP User's Guide).	**BOP:** **Verify FW Isolation** *Check SG feed regulating valves --- CLOSED *Check SG feed regulating bypass valves -- CLOSED * Check FW isolation trip valves --CLOSED * Check TD FW pumps ---TRIPPED * Check MD FW pump ---STOPPED * Check SG blowdown isolation valves --- CLOSED * Check SG blowdown sample isolation valves --- CLOSED * Check SG chemical feed isolation valves --- CLOSED

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	MSI is not required.	**RO:** **Check If Main Steam Lines Should Be Isolated** Check Ctmt pressure --- GREATER THAN 18 psia OR Any SG pressure ---LESS THAN 660 psig OR Annunciator "MAIN STEAMLINE ISOLATION" (MB2B 5---7) --- LIT Proceed to step 11.
	CDA is not required.	**RO:** **Check If CDA Required** Check Ctmt pressure --- GREATER THAN 23 psia OR Annunciator "CONTAINMENT DEPRES ACTUATION" (MB2B 5---5)--- LIT Proceed to step 12.
	BOP will have to stop "C" CAR fan.	**BOP:** **Verify CAR Fans Operating In Emergency Mode** Check CAR fan status: * CAR fans A and B ---RUNNING * CAR fan C --- STOPPED
		RO: Verify RPCCW Ctmt supply and return header isolations --- OPEN

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		RO: Verify Train A and B RPCCW supply and return to chill water valves --- OPEN
	RO: **Event 7** caused several CHS system components to not re-align (simulated failure of a slave relay). The RO must use the ESF status panel to re-align components accordingly. The RO must complete the realignment and provide, as a minimum, single valve isolation. Based upon the lack of safety significance of the penetrations, the only **[Critical Task]** is to re-align the CHS pump suction valves without cavitating the CHS pumps. The failure criteria will be if a single VCT outlet isolation valve (3CHS*LCV112B OR 3CHS*LCV112C) is fully closed without at least one RWST supply valve (3CHS*LCV112D OR 3CHS*LCV112E) stroking open (dual light indication). There is no interlock during manual operation to prevent this from occurring. The expected action would be to fully open at least one RWST supply valve before closing the VCT outlet isolation valves.	**RO:** **Verify CIA** Check ESF Group 2, columns 2 through 10 --- LIT RNO--Initiate CIA. <u>IF</u> ESF Group 2, columns 2 through 10 are <u>NOT</u> lit, <u>THEN</u>: *Using Attachment A, Reposition valves as necessary for minimum safety function.
		RO: **Verify Proper ESF Status Panel Indication** * Verify ESF Group 1 lights ---OFF * Verify ESF Group 2 lights ---LIT RNO—Align component(s) as necessary for minimum safety function.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	Containment will not be adverse.	**RO:** **Determine If ADVERSE CTMT Conditions Exist** * Ctmt temperature ---GREATER THAN 180°F OR * Ctmt radiation ---GREATER THAN 1 x 10E5 R/hr
		RO: **Verify ECCS Flow** Check PZR pressure --- GREATER THAN 1900 psia
		RO: Check PORV block valves ---OPEN Proceed to step 17.
	BOP: Notes on 'B' SG level: (1) The EOP User's Guide requires the BOP to ask for US permission to isolate feed flow to a ruptured SG. Feed flow may be isolated once SG level reaches 8% NR or 67% WR. (2) Based on plant conditions (MSIV's open and 'B' SG still supplying steam to the TDAFW Pp), the 'B' SG will "steam down" level once AFW flow is isolated. If 'B' SG level goes below 8% NR or 67% WR, the BOP will have to inform the US and re-establish level (this maintains required thermal layer).	**BOP:** **Verify Adequate Heat Sink** Check NR level in at least one SG --- GREATER THAN 8% (42% ADVERSE CTMT)
		BOP: Verify Total AFW Flow --- GREATER THAN 530 gpm
		BOP: **Verify AFW Valve Alignment ---PROPER EMERGENCY ALIGNMENT**

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	Proper ECCS valve alignment will require the RO to re-align the failed CHS system components.	**RO:** **Verify ECCS Valve Alignment ---PROPER EMERGENCY ALIGNMENT**
	CBI will be actuated based on manual SI actuation.	**RO: Check If CBI Required** Check annunciator "CONTROL BUILDING ISOLATION" (MB4D 3---6) --- LIT
		BOP: Check Train A Control Building filter fan (3HVC*FN1A) ---RUNNING
	3HVC*AOD119A will be open.	**BOP:** Check recirc damper for the running Control Building filter fan (3HVC*AOD119A or B) --- OPEN
		RO: Verify ESF Group 2 CBI lights --- LIT
		BOP: Verify Control Building purge supply fan and purge exhaust fan --- NOT RUNNING
		BOP: Place kitchen exhaust fan in OFF
Report all SLCRS doors closed.	Security is called on the phone.	**RO OR BOP:** Verify SLCRS doors ---CLOSED
	PEO needs to be dispatched.	**RO OR BOP:** Perform the following: *CLOSE and DOG the following Control Building pressure boundary doors -CB west 47'6" (C---47---1A) -CB east 64'6" (C---64---1B) *Verify the following Control Building pressure boundary doors---CLOSED -CB west 47'6" (C-47-1) -CB north 64'6" chiller room door (C-64-4) -CB north 64'6" chiller room door (C-64-5) -CB east 49'6"(C-49-1)

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	RCS temperature is currently being maintained by the steam dump system.	**BOP:** **Check RCS Temperature** Using GA--26, Dump steam as necessary to control RCS cold leg WR temperature --- BETWEEN 550°F AND 560°F
		BOP: Verify RCS cold leg WR temperature --- GREATER THAN 550°F Proceed to step 22.
	Bus 34A will be supplying SBO auxiliaries.	**BOP:** **Check Power To SBO Diesel Auxiliaries** Verify any SBO bus tie breaker --- CLOSED TO AN ENERGIZED BUS *Bus 34A: 34A1---2 *Bus 34B: 34B1---2 Bus 24E: A505 (Unit 2)
		RO: Verify PORVs --- CLOSED
		RO: Verify normal PZR spray valves --CLOSED
		RO: Verify PORV block valves---AT LEAST ONE ENERGIZED VALVE OPEN
		RO: Verify PZR safety valves ---CLOSED
		RO: **Check If RCPs Should Be Stopped** Verify RCPs ---ANY RUNNING
		RO: Verify RCS pressure ---LESS THAN 1500 psia (1800 psia ADVERSE CTMT) Proceed to step 25.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	All SG secondary boundaries are intact.	**BOP:** **Check If SG Secondary Boundaries Are Intact** Check pressure in all SGs --- *NO SG PRESSURE DECREASING IN AN UNCONTROLLED MANNER *NO SG COMPLETELY DEPRESSURIZED
	The Crew will transition to E-3 here based upon 'B' SG tube rupture.	**BOP:** **Check If SG Tubes Are Intact** Check steam generator levels --- NO SG LEVEL INCREASING IN AN UNCONTROLLED MANNER Initiate monitoring of CSF Status Trees and Go to E---3, Steam Generator Tube Rupture.
		US: **Transitions to E-3 Rev. 24 and reads:** **<u>CAUTION</u>** To prevent seal damage, seal injection flow should be maintained to all RCPs. **<u>NOTE</u>** *Foldout page must be open. *The RCP trip criteria is only applicable until a controlled cooldown is initiated in step 6.
		RO: **Check If RCPs Should Be Stopped** Check RCPs --- ANY RUNNING
		RO: Verify RCS pressure ---LESS THAN 1500 psia (1800 psia ADVERSE CTMT) Proceed to step 2.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	'B' SG is ruptured.	**BOP:** **Identify Ruptured SGs** Unexpected increase in any SG level <u>OR</u> High radiation from any SG steam line as indicated by the trend history or alarm status <u>OR</u> High radiation from any SG sample
		US: Reads Caution to Crew: **<u>CAUTION</u>** *If the TD AFW pump is the only available source of feed flow, a steam supply to the TD AFW pump must be maintained from at least one SG. *At least one SG must be maintained available for RCS cooldown.
		BOP: **Isolate Flow From Each Ruptured SG** Verify each ruptured SG atmospheric relief valve controller ---IN AUTO AT 1125 psig
		BOP: Check each ruptured SG atmospheric relief valve ---CLOSED
		BOP: Check each ruptured SG atmospheric relief bypass valve --- CLOSED -3MSS*MOV 74B

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		BOP: CLOSE each ruptured SG steam supply isolation valve to TD AFW pump -3MSS*MOV17B
		BOP: Verify each ruptured SG blowdown isolation valve ---CLOSED
		RO: CLOSE each ruptured SG blowdown sample isolation valve
		RO: Verify each ruptured SG chemical feed isolation valve --- CLOSED
		BOP: Using table, CLOSE the main steam line drains upstream of MSIVs and TD AFW pump for the ruptured SG(s) **SG B** 3DTM*AOV29B 3DTM*AOV61B 3DTM*AOV63B 3DTM*AOV64B
	'B' MSIV will not close. US must implement RNO column.	**BOP:** CLOSE each ruptured SG MSIV and MSIV bypass valve
		BOP: RNO--Perform the following: CLOSE all remaining SG MSIVs and MSIV bypass valves.
	Switches are labeled: • INTLK-TRA • INTLK-TRB	**BOP:** RNO--Place both condenser steam dump interlock selectors --- OFF

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		BOP: RNO--Close all valves listed on Attachment A.
	BOP will have to use the Atmospheric Relief Valves for upcoming cooldown steps.	RNO--Use the intact SG atmospheric relief valves to dump steam, for RCS temperature control or cooldown.
	The transition to ECA-3.1 will not be necessary.	**BOP:** RNO--<u>IF</u> any ruptured SG can <u>NOT</u> be isolated from at least one intact SG, <u>THEN</u> Go to ECA---3.1, SGTR with Loss of Reactor Coolant --- Subcooled Recovery Desired.
		US: Reads Caution to Crew: **<u>CAUTION</u>** If any ruptured SG is faulted, feed flow to that SG should remain isolated during subsequent recovery actions unless the SG is needed for RCS cooldown.
		BOP: **Check Ruptured SG Level** Verify one of the following is satisfied: *Ruptured SG WR level --- GREATER THAN 67% (75% ADVERSE CTMT) <u>OR</u> *Ruptured SG NR level --- GREATER THAN 8% (42% ADVERSE CTMT)
	BOP should complete two valve isolation of the 'B' SG by closing: • 3FWA*MOV35B • 3FWA*HIC36B1 (Note: both FWA*HIC31B1 & 3FWA*HIC32B2 were closed earlier.)	**BOP:** Stop feed flow to ruptured SG(s)

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		US: Reads Caution to Crew: **CAUTION**: Major steam flow paths from the ruptured SG(s) must be isolated prior to RCS cooldown. Major flow paths include the main steam line, TD AFW pump steam supply, and SG atmospheric relief and bypass lines.
		BOP: **Check Ruptured SGs Pressure --- GREATER THAN 530 psig**
	During the upcoming RCS depressurization the crew must remember the 2nd bulleted note and block the "Low Steam Line Pressure SI" signal when RCS is < 2000 psia.	**US:** Reads Note to Crew: **NOTE** *If RCPs are NOT running, the following steps may cause a false entry into the INTEGRITY Status Tree for the affected loop. Disregard the affected loop Tc indication until after performance of step 27. *Ensure Low Steam Line Pressure SI is blocked when PZR pressure is LESS THAN 2000 psia.
		RO: **Initiate RCS Cooldown** Check RCPs ---ANY RUNNING
INSERT TRIGGER 13 when requested (RCR 23, 24, 25, 26) RCP HOT/COLD SWITCHES	PEO will need to be dispatched.	**RO:** Locally, Place the eight RCP overcurrent trip switches (43PP and 43PB) in the COLD position using CO Key Locker Key #7
	Ensure US selects temperature that correlates with lowest pressure (no interpolating).	**US:** Determine required core exit temperature without interpolating (use lower pressure)
	The A, C, and D Atmospheric Relief Valves or Atmospheric Relief Bypass Valves will be used. Also, the BOP should max feed these SGs.	**BOP:** Using GA---26, Dump steam from intact SGs at maximum rate

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		BOP: Verify core exit TCs --- LESS THAN REQUIRED TEMPERATURE
	BOP: It is a **[Critical Task]** that subcooling is maintained less than the required temperature.	**BOP:** Using GA---26, Perform the following: 1) Stop RCS cooldown 2) Maintain core exit TCs ---LESS THAN REQUIRED TEMPERATURE
		US: Reads Note to Crew: **<u>NOTE</u>** To aid in identifying previously undetected steam generator tube failures, the wide range SG level indication should be used if the narrow range level is off scale.
		BOP: **Check Intact SG Levels** *Verify NR level ---GREATER THAN 8% (42% ADVERSE CTMT) *Control feed flow to maintain NR level ---BETWEEN 30% and 50% (42% and 50% ADVERSE CTMT)
		US: Reads Caution to Crew: **<u>CAUTION</u>**: If any PZR PORV opens because of high PZR pressure, step 8.a. should be repeated after pressure decreases to LESS THAN 2350 psia.
		RO: **Check PZR PORVs And Block Valves** Verify PORVs ---CLOSED
		RO: Verify block valves --- AT LEAST ONE OPEN

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		US: Reads Caution to Crew: **CAUTION**: After SI reset, manual operator action is required to: *Open the charging pump cold leg injection valves when RCS pressure decreases to LESS THAN 1900 psia. *Restart safeguards equipment if offsite power is lost.
	SI and CIA will need to be reset.	**RO:** **Reset ESF Actuation Signals If Required** RESET SI RESET the following: *CDA *LOP *CIA *CIB
	The 'A' IAS compressor will be running. However, the instrument air containment isolation valves will need to be opened.	**RO:** **Establish Instrument Air To Ctmt** *Check instrument air compressors --- AT LEAST ONE RUNNING *OPEN instrument air Ctmt isolation valves
		RO or BOP: **Restore MCC 32---3T** Check emergency bus 34C --- ENERGIZED
INSERT TRIGGER 14 when requested to re-energize 32-3T	RO or BOP dispatch PEO.	Using GA---1, Energize MCC 32---3T

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		US: **Reads Caution to Crew:** **<u>CAUTION</u>**: To provide adequate ECCS flow, RCS pressure should be monitored to ensure the RHR pumps are manually restarted if pressure decreases in an uncontrolled manner to LESS THAN 300 psia (500 psia ADVERSE CTMT).
		RO: **Check If RHR Pumps Should Be Stopped** *Check RHR pumps --- ANY RUNNING IN SI MODE *Check RCS pressure ---GREATER THAN 300 psia (500 psia ADVERSE CTMT) *STOP RHR pumps and Place in AUTO
	BOP: It is a **[Critical Task]** that subcooling is maintained less than the required temperature. NOTE: This is a HOLD step in the procedure.	**BOP:** **Check If Cooldown Should Be Stopped** *Check RCS Cooldown ---IN PROGRESS *Check core exit TCs ---LESS THAN REQUIRED TEMPERATURE *Using GA---26, Perform the following: 1) Stop RCS cooldown 2) Maintain core exit TCs ---LESS THAN REQUIRED TEMPERATURE
	The ruptured SG pressure should be relatively stable—the RNO will not be met.	**BOP:** **Check Ruptured SG(s) Pressure --- STABLE OR INCREASING**
		RO: **Check RCS Subcooling Based On Core Exit TCs --- GREATER THAN 52°F (135°F ADVERSE CTMT)**

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	The RO will open 3RCS*PK455B & 3RCS*PK455C. The crew will need to block 'Lo pressurizer pressure SI' below 2,000 psia (per previous note).	**Depressurize RCS To Minimize Break Flow And Refill PZR** *Check normal PZR spray --AVAILABLE * Spray PZR with maximum available spray
		RO: Check any of the following depressurization termination conditions satisfied: *RCS pressure --- LESS THAN ruptured SGs pressure <u>AND</u> PZR level is GREATER THAN 16% (50% ADVERSE CTMT) **<u>OR</u>** * RCS pressure within 300 psi of ruptured SGs AND PZR level is GREATER THAN 46% **<u>OR</u>** *PZR level ---GREATER THAN 73% (63% ADVERSE CTMT) **<u>OR</u>** *RCS subcooling based on core exit TCs --- LESS THAN 32°F (115°F ADVERSE CTMT)

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	All critical tasks have been completed. The NRC Chief Examiner may end the scenario now or continue to run.	**RO:** Check depressurizing using ---NORMAL PZR SPRAY *Close normal PZR spray valve(s) *Proceed to CAUTION prior to step 19.
		US: Reads Caution to Crew: **CAUTION**: SI MUST be terminated when the criteria are satisfied to prevent overfilling of the ruptured SG(s). Voiding in the upper head region should NOT preclude SI termination.
		RO: **Check If ECCS Flow Should Be Terminated** Verify RCS subcooling based on core exit TCs --- GREATER THAN 32°F (115°F ADVERSE CTMT)
		BOP: Verify secondary heat sink: *Total feed flow to SGs ---GREATER THAN 530 gpm AVAILABLE OR *Narrow range level in at least one intact SG ---GREATER THAN 8% (42% ADVERSE CTMT)
		RO: Verify RCS pressure --- STABLE OR INCREASING
		RO: Verify PZR level ---GREATER THAN 16% (50% ADVERSE CTMT)

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		RO: **Stop ECCS Pumps** *STOP SI pumps and place in AUTO *STOP all but one charging pump and place in AUTO
		RO: **Establish Normal Charging Flow Path** Fully Open charging line flow control valve
		RO: Verify charging loop isolation valves (3CHS*AV8146 or 3CHS*AV8147) ---ONE OPEN
		RO: OPEN charging isolation valves *3CHS*MV8106 *3CHS*MV8105
		RO: CLOSE the charging pump miniflow isolations to the RWST *3CHS*MV8511A *3CHS*MV8511B
		RO: CLOSE both charging pump cold leg injection valves *3SIH*MV8801A *3SIH*MV8801B
		RO: OPEN the charging pump recirculation isolation valves *3CHS*MV8111A *3CHS*MV8111B *3CHS*MV8111C *3CHS*MV8110

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		RO: **Control Charging Flow To Maintain PZR Level**
		RO: **Verify Adequate RCS Depressurization** *Check normal PZR spray –AVAILABLE * Depressurize RCS using maximum normal PZR spray
		RO: Check any of the following depressurization termination conditions satisfied: * RCS pressure – LESS THAN reuptured SGs pressure OR * PZR level – GREATER THAN 73%
		RO: Stop RCS depressurization
		RO: **Verify ECCS Flow Not Required** * Check RCS subcooling based on core exit TCs—GREATER THAN 32 F * Check PZR level – GREATER THAN 16%
		RO: **Check If Letdown Can Be Established** Verify PZR level ---GREATER THAN 25% (50% ADVERSE CTMT)
		RO: Perform the following: *Verify Train A RPCCW pump ---RUNNING *Using GA---13, Establish normal letdown Proceed to step 26.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
		RO: **Check RCS Makeup System** *Adjust boric acid flow controller to pot setting 8.3 *Check RCS makeup ---ALIGNED FOR AUTO
		RO: **Align Charging Pump Suction To VCT** OPEN VCT to charging isolation valves *3CHS*LCV112B *3CHS*LCV112C
		RO: CLOSE RWST to charging isolation valves *3CHS*LCV112D *3CHS*LCV112E
		RO: **Check If SI Accumulators Should Be Isolated** Check RCS pressure --- LESS THAN 850 psia--- Proceed to CAUTION prior to step 29. and, <u>WHEN</u> RCS pressure is LESS THAN 850 psia, <u>THEN</u> Perform steps 28.b. and 28.c
		US : **Reads Caution to Crew:** **<u>CAUTION:</u>** RCS and ruptured SG(s) pressures must be maintained LESS THAN the ruptured SG(s) atmospheric relief valve setpoint

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**FLOOR INSTRUCTOR**	**STUDENTS**
	See table at the bottom of the page.	**RO:** **29. Control RCS Pressure And Charging Flow To Minimize RCS---To---Secondary Leakage** Perform appropriate actions from table
	The scenario may be ended.	*Depressurize using normal PZR spray as determined in step 29.a. * IF normal letdown is in service, THEN Using GA---28, depressurize using auxiliary spray. IF auxiliary spray is NOT available, THEN Depressurize using one PORV.

SECTION 4
EXAM GUIDE SUMMARY

Title: Large Break LOCA

ID Number: 2K11 NRC-04 Revision: 0 chg 2

II. Critical Tasks

TASK DESCRIPTION	TASK #	K/A >/= 3.0	BASIS SELECTION
Manually trip the reactor from the control room with either Main board trip switch or by opening 32B and 32N supply breakers before completing Step 1 of E-0.	E-0 -- A	012 A4.07 (3.9* / 3.9*)	Failure to manually trip the reactor causes a challenge to the subcriticality CSF beyond that irreparably introduced by the postulated conditions.
Following a postulated slave relay failure, properly re-align CHS pump suction to the RWST without cavitating / damaging the operating CHS pumps.	--	103 A3.01 (3.9 / 4.2)	Failure to properly re-align CHS pump suctions under the postulated conditions, would damage both Charging pumps. This constitutes a reduction in safety margin.
Properly select and maintain the target temperature for cooldown based on the chart in E-3.	E-3--B	EPE 038 EA1.36 (4.3 / 4.5)	Failure to achieve RCS subcooling transitions the crew to contingency procedure ECA-3.1, thereby delaying the RCS depressurization and SI termination. Such a delay may lead to SG overfill.

SIMULATOR TRAINING SHIFT TURNOVER REPORT

DATE-TIME	PREPARED BY	SHIFT
Today 0515	Unit Supervisor /"NIGHT" Shift	18:00 - 06:00

PLANT STATUS:

Mode:	1		Rx Power:	100%
Megawatts:	Thermal:	3645 MWTH	PZR Pressure:	2250 psia
	Electric:	1280 MWe	RCS T-AVE:	587 degF
RCS Leakage:	Identified:	0.078 gpm	Core Burnup:	150 MWD/MTU
	Unidentified:	0.108 gpm	Protected Train/Facility:	**"A" (Orange)**
Date/Time:	Today 0015		Intake:	**GREEN**

Active Tracking Records and Action Statements

Equipment/Reason

LCO	Action	Date	Time in LCO	Action Requirement	Time Left

OD Compensatory Actions / Temp Logs

Open Date	Class Reason	Reason	Watch Position

PLANT SYSTEMS APC

System	Notes
Auto Rod Control	Rods are in Manual with yct to "ONLY OPERATE IN MANUAL" as I&C is repairing tavg / tref circuit. Rods remain operable in this configuration as they operate in Manual and are Trippable.
'C' CCP	'C' CCP HX is tagged out / drained to repair a tube leak. Both trains of 'C' CCP pump control switches are tagged out of service.

CROSS UNIT SYSTEM STATUS

U3 Power to 24E	**34A aligned to 24E**

SURVEILLANCES / EVOLUTIONS IN PROGRESS

	Steady State Operation

REACTIVITY BRIEFING (SEE REACTIVITY THUMBRULES / SPREAD SHEET FOR ADDITIONAL INFO)

Current Rod Height	CBD @ 216 steps
Xenon Trend	stable
Current Boron	1376 ppm
Boron Pot Setting / Blend Ratio	3.93 / 15.7 gpm

ATTACHMENT 2

VALIDATION CHECKLIST

Title: 'B' SG Tube Rupture

ID Number: 2K13 NRC-01 Revision: 0

Verified By: (Initials)

Initial Conditions:

The initial condition(s) contained in the guide are certified or have been developed from certified ICs. WMF

Test Run:

The scenario contained in the guide has been test run in part or whole on the simulator. The simulator response is reasonable and as expected. If a simulator guide revision does not affect original Test Run, then enter N/A. WMF

Simulator Operating Limits:

The simulator guide has been evaluated for operating limits and/or anomalous response by reviewing the Simulator Modeling and Anomalous Response List. WMF

For Examination Scenario:

The Scenario Attributes Checklist is complete and attached. This is not required for Progress Review Exams. WMF

William M. Forrestt 9/6/13

Actions Complete (Signature) Date

REVISION 1

Facility: Millstone 3 Scenario No.: 2K13 NRC-01 (Rev 0) Op-Test No.: 2K13

Examiners:________________ Operators: ________________

Initial Conditions: IC-13, 100% Power, Beginning of Life, Equilibrium Xenon

Turnover:

The Plant is stable at 100% Power. 'C' CCP heat exchanger is tagged out for tube leak repair. Control Rods are in manual for repair of auto circuitry (which is not functional due to Tavg / Tref circuit card failure).

–

Event No.	Malf. No	Event Type*	Event Description
1	-	US T/S	'B' EDG INOP based on field report of an empty governor sightglass
2	RX09A	RO I US T/S	Controlling channel of pressurizer pressure fails high (AOP 3571).
3	FW16A	RO R BOP C US R	'A' Heater Drain Pump trips requiring a 7% downpower.
4	CV05	RO C	Letdown pressure transmitter, PT-131, fails to intermediate value below setpoint
5	SG01B MS12B	RO M BOP M US M	'B' SG has a tube leak that develops into a 200 gpm tube rupture. Crew trips Reactor and ultimately mitigates using E-3, SG Tube Rupture. 'B' MSIV fails to close complicating E-3 recovery.
6	RP10A/B RP9A/B	BOP C	Automatic and manual Reactor trip switches fail. BOP is successful using load center switches.
7	RP11F	RO C	Multiple Charging components fail to re-align.
8	RP11L	BOP C	Feed Water Isolation (FWI) components fail to re-align.

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

QUALITATIVE ATTRIBUTES

___Y__1. The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the crew into expected events.

___Y__2. The scenario consists mostly of related events.

___Y__3. Each event description consists of:

- the point in the scenario when it is to be initiated
- the malfunctions(s) that are entered to initiate the event
- the symptoms/cues that will be visible to the crew
- the expected operator actions (by shift position)
- the event termination point (if applicable)

___Y__4. No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.

___Y__5. The events are valid with regard to physics and thermodynamics.

_Y__6. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.

_N/A__7. If time compression techniques are used, scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.

___Y__8. The simulator modeling is not altered.

___Y__9. The scenario has been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure functional fidelity is maintained while running the planned scenario.

___Y__10. Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered IAW Section D.5 of ES-301.

___Y__11. All individual operator competencies can be evaluated, as verified using form ES-301-6.

___Y__12. Each operator will be significantly involved in the minimum number of transients and events specified on Form ES-301-5.

___Y__13. Level of difficulty is appropriate to support licensing decisions for each crew position

'ITE:	MP3	
PROGRAM:	ILT	
PROGRAM No.		
LESSON TITLE:	LOCA Outside Containment	LESSON #: 2K13 NRC-02
Total Time	90 minutes	

Prepared by:	William M. Forrestt	[signature]	9/27/13
	Printed Name	Developer Signature	Date
Reviewed by:	Bob Royce	[signature]	9/27/13
	Printed Name	Validation Signature	Date
Approved by:	Paul Scott	[signature]	9/27/13
	Printed Name	Operations Supervisor	Date
Approved by:	Trad Horner	[signature]	10/1/13
	Printed Name	Training Supervisor	Date

SEG# 2K13 NRC-02 Rev ; 0

SUMMARY OF CHANGES

A/I & DATE	DESCRIPTION	REV/CHANGE

SECTION 2

SIMULATOR EXAM GUIDE

TABLE OF CONTENTS

SECTIONS LISTED IN ORDER

SECTION 3

EXAM OVERVIEW

Title: LOCA Outside Containment

ID Number: 2K13 NRC-02

1. The crew will take the shift with reactor power at 74%. The plant is being returned to service following a refueling outage. The crew is to stabilize reactor power at 74% while Reactor Engineering performs EN 31015 “Power Ascension Testing of Millstone Unit 3”. Additionally, the ‘A’ SIH pump was taken out of service one hour ago to repair a newly discovered oil leak.

The scenario will start with a power range nuclear instrument, N41, failing high. This will cause control rods to insert in auto. The RO will place rod control in manual and the crew will carry out action of AOP 3571, Instrument Failure Response.

Once the associated bistables are tripped, the controlling ‘B’ SG Feed flow instrument will fail high. This will require manual control of the ‘B’ Feed Reg Valve and re-entry into AOP 3571.

Next, CONVEX calls and requests an emergency load reduction. The crew will carry out actions using AOP 575, Rapid Downpower.

During the downpower, the ‘A’ RCP develops an oil leak as evidenced by MB alarms and computer point bearing temperatures rising at a moderate rate. The crew enters AOP 3575, Rapid Downpower, and lowers Reactor Power below P-8 (50%) at 5% per minute to allow for pump removal. Once below P-8, the crew stops ‘A’ RCP in accordance with AOP 3554, RCP Trip or Stopping a RCP at Power.

Shortly after ‘A’ RCP is stopped, a spurious ‘A’ train Safety Injection (SI) is caused from a tin whisker on a MSI card (MP3 OE 20450). The tin whisker causes only ‘A’ train SI to actuate and a partial MSI actuation. Due to automatic reactor trip circuitry being defeated, the crew must manually trip the reactor **[Critical Task]** and manually actuate SI and MSI. The spurious, auto start of ECCS equipment will generate an intersystem LOCA into the ‘A’ RHR system and out a break into the ESF building.

The crew will carry out actions in E-0, Reactor Trip or Safety Injection. The crew will need to identify and correct Component Cooling Water valves out of position and manually start the ‘A’ EDG.

After transition to ECA-1.2, LOCA Outside Containment, the crew will need to correctly diagnose that closure of 3SIL*MV8809A has successfully isolated the leak **[Critical Task]**. After making this diagnosis, the crew will transition to E-1, Loss of Reactor or Secondary Coolant. The scenario may end at this point.

2. The SRO candidate (US) should classify this event as an **Site Area Emergency** based on the loss of Containment and RCS barriers.

3. Duration of Exam: 90 minutes

SECTION 4

EXAM GUIDE

Title: LOCA Outside Containment

ID Number: 2K13 NRC-02

All Control Room Conduct, Operations and Communications shall be in accordance with OP-AA-100, Conduct of Operations.

"Review the Simulator Operating Limits (design limits of plant) and the Simulator Modeling Limitations and Anomalous Response List prior to performing this exam scenario on the simulator. The evaluators should be aware if any of these limitations may be exceeded." (NSEM 6.06)

INPUT SUMMARY						
RESET SIMULATOR TO IC-12						
Either **INPUT** or **Load** Schedule **Sim2.sch** AND **VERIFY** the following functions:						
ID	Description	Event Trigger	Delay Time	Ramp Time	Delete Time	Severity Or Value
MALFUNCTIONS						
NI09A	PR N41B LO DET FAIL	1	0	0		5 MAMP
RX13C	SG FD FLOW FT520 FAIL	2	0	20 sec		5E6 LBM / HR
RC12A	RCPA OIL LEAK UPR RSVR	3	0	0		100
RP05A	SAFETY INJECTION TRAIN A ACTUATION	4	0	0		
RP10A	AUTOMATIC REACTOR TRIP TRAIN A FAIL		0	0		
RP10B	AUTOMATIC REACTOR TRIP TRAIN B FAIL		0	0		
MB4E-E05	STEAM LINE PRESSURE LO ISOL SI	4	0	0		ON
MB4E-F05	MANUAL SAFETY INJECTION	4	0	0		ON
MB2B-E07	MAIN STEAM LINE ISOLATION	4	0	0		ON
RP11H	AUTO ACT FAIL: RPCCW	30	0	0		
SI06C	RCS TO SI LOCA (ISOLABLE) UPSTRM MV8809A	30	0	0		300 GPM
EG13A	EDG A AUTO START FAILURE	4	0	0		
FW01	LOWERING CONDENSER VACUUM	11	5 min	0		200 cfm
REMOTE FUNCTIONS						

ID	Description	Event Trigger	Delay Time	Ramp Time	Delete Time	Severity Or Value
INPUT SUMMARY						
RESET SIMULATOR TO IC-12						
Either **INPUT** or **Load** Schedule **Sim2.sch** AND **VERIFY** the following functions:						
OVERRIDES						
MSDI0023	3MSS*CTV27A SG 1 MSIV	4	0	0		CLOSE
MSDI0024	3MSS*CTV27B SG 2 MSIV	4	0	0		CLOSE
MSDI0025	3MSS*CTV27C SG 3 MSIV	4	0	0		CLOSE
MSDI0026	3MSS*CTV27D SG 4 MSIV	4	0	0		CLOSE
RXR106, RXR05, RXR34	N41 BISTABLES AND DOOR	10	0 – 40 sec	0		Bistables to TRIP Door open/ close

<table>
<tr><th>BOOTH INSTRUCTOR</th><th>FLOOR INSTRUCTOR</th><th>STUDENTS</th></tr>
<tr><td colspan="2">❑ COMPLETE Simulator Setup and Readiness Checklist.
❑ SELECT appropriate IC
❑ LOAD and RUN applicable Schedule.
❑ As necessary, ENTER or VERIFY the following Initial Malfunctions / I/Os / Remote Functions, <u>OR</u>, as specified on previous 'Input Summary' page:
▪
❑ As necessary, PERFORM verification of Initial Malfunctions / I/Os / Remote Functions entered.
❑ When the simulator is ready, PLACE to Run and VERIFY the simulator reflects the following Initial Conditions for the scenario and is stable:
▪
❑ As necessary, REMOVE the following Equipment from service and tag accordingly:
▪ PLACE 'A' SIH Pp in PTL and YCT control switch</td><td>N/A</td></tr>
<tr><td>❑ CONDUCT briefing with evaluators.</td><td>PRE-SCENARIO:
❑ BRIEF the crew initial plant conditions and provide a shift turnover.
❑ <u>IF</u> this is the first simulator scenario of the week, REVIEW the Plant/Simulator Differences List and Simulator Training Objectives with the crew.
❑ As necessary, REVIEW any scenario specific differences and any planned simulator freeze points.</td><td>N/A</td></tr>
<tr><td></td><td></td><td>(All) Walk down control boards and conduct shift briefing.</td></tr>
</table>

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
Event 1 **INSERT TRIGGER 1 (N109A)** POWER RANGE INSTU, N41, FAILS HIGH		
	Notes on failure: (1) This failure will cause rods to insert. (2) The expected Operator response is to place rods in manual after verifying no runback in progress (checks MWe meter on MB4 stable).	**RO:** Recognizes PR CH.1 NI failing high, control rods auto inserting, and PLACES ROD CONTROL in MANUAL after verifying no runback (MWe stable).
		US: **Enters AOP 3571 (Rev 09-07) after plant is stable and reads:** **CAUTION**: Do not leave the rod selector switch in AUTO while diagnosing a related instrument failure unless the reason for rod movement is a turbine runback. **NOTE** If a reactor trip occurs immediately go to E-0, Reactor Trip or Safety Injection.
	Rod Control is the only affected controller.	**RO:** Determine The Initiating Parameter And Place The Affected Controller In MANUAL
		RO: Stabilize The Plant Parameters
		US: Reads Note to crew: **NOTE** It is desired that I&C personnel trip the bistables specified in this procedure. If, during off-hours, I&C personnel are not able to trip the necessary bistables within the time limitations required by the Technical Specifications, Operations Department personnel may trip the bistables using the guidance provided within this procedure.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		US: Perform Corrective Actions Using Appropriate Attachment Power Range Nuclear Instrument Channel Failure—Attachment D
		US: Reads Caution to crew: **CAUTION**: * Failure of two or more channels of PR instrumentation may prevent P-10 from resetting when power is reduced below 10%. If P-10 fails to reset, the following automatic reactor trip signals are lost: 1) SR HIGH FLUX TRIP (10^5 CPS) 2) IR HIGH FLUX TRIP (25%) 3) PR HIGH FLUX LOW STPT TRIP (25%) *The reactor operator must remain alert to any power increases which would necessitate a manual reactor trip. *The Gamma Metrics Nuclear Instrumentation System shall be used during the reactor shutdown in lieu of the source range channels.
	The crew should discuss expected plant response. The following alarms are expected to clear when N41 is selected on the switches below: Rod Stop Bypass- MB4C 5-7 Upper Section- No alarms clear Lower Section- MB4C 6-3 Power Mismatch Bypass- No alarms clear	**RO:** Defeat the failed channel input. At the detector current comparator drawer, Turn the following switches to the failed channel: Rod Stop Bypass Upper Section Lower Section Power Mismatch Bypass

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	The crew should discuss expected plant response. The following alarm will clear when N41 is selected: MB4C 3-3.	**RO:** At the comparator and rate drawer, Turn the following switch to the failed channel: Comparator Channel Defeat
		US: Reads Note to crew: **NOTE** Defeating the failed channel will remove it from the rod control_circuit and may create an artificial primary to secondary power rate of change signal to rod control. Placing rod control in automatic, prior to the signal dissipating, may result in rod motion.
		RO: Restore TAVE - TREF error to within 1°F and Place rod control in automatic.
		US: Reads Note to crew: **NOTE** If the plant calorimetric source is NI's, the failure of one NI channel will disable the calorimetric program.
		RO & BOP: When conditions have stabilized, Observe MB board annunciators and parameters and immediately report any unexpected or unexplained conditions to the Shift Manager.
	US should check the box for Channel 'N41'	**US:** Trip the associated Reactor Protection System bistable(s): Place a check mark in the box above the appropriate channel that requires tripping on page 6 or 7 of this Attachment.
	US enters LCO 3.3.1 (FU2). This is a 6 hour action statement to trip bistables.	**US:** Refer to Technical Specification 3.3.1.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		RO: Check the existing bistable status to ensure a reactor trip will not occur when the failed channel is tripped.
		US: Reads Caution / Note to crew: **CAUTION**: If the General Warning lamp is lit on 3RPS*RAKLOGB, placing the train A SSPS "Multiplexer Test" switch in "A+B" will cause the reactor to trip. **NOTE**: The following step will distinguish whether the failure is within SSPS or the Protection channel.
	US determines this step is not applicable as the instrument channel has failed.	**US:** If bistable status light(s) (MB4F or MB4G) indicate that a single bistable input has tripped and channel indication is normal, perform the following:
After I&C brief, INSERT TRIGGER 10 to trip bistables	When requested, report to the Control Room as I&C.	**US:** Request the I&C Department trip the appropriate bistables using Attachment D and Attachment S.
		RO: Verify the appropriate bistable status light(s) are lit.
	All are determined to be in required state (P-7, P-8, & P-9 are off and P-10 is lit). No T/S entry is necessary.	**US:** Within one hour, Determine by observation of the associated permissive annunciator window(s) that the following interlocks are in their required state for the existing plant condition (Tech. Spec. 3.3.1, Action 8): * RX OR TURBINE NOT AT POWER P-7 (MB4D 5-3) .....continued next page...

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		*THREE LOOP PERMISSIVE P-8 (MB4D 3-3) *NIS POWER RANGE P-9 PERMISSIVE (MB4D 6-1) *REACTOR AT POWER P-10 (MB4D 4-3)
		US: Reads Note to crew: **NOTE** *The following step for removing the failed PR channel from Program 3R5 restores OPERABILITY to the AFD Monitor Alarm and must be completed within 1 hour or SURVEILLANCE REQUIREMENT 4.2.1.1.1.b. must be performed. *The following step for removing the failed PR channel from Program 3R5 does NOT restore OPERABILITY to the QPTR Alarm Monitor; therefore, TABLE 3.3-1, ACTION 2.c., and SURVEILLANCE REQUIREMENTS 4.2.4.1.b, and 4.2.4.2 are in effect.
		RO: Perform the following to remove the affected power range input to the AFD and QPTR monitor alarm (Program 3R5) : a. Using PPC display "TILT_CHANNEL," Press the button that corresponds to the channel to be removed. b. Press "Apply" button to remove channel input.
		US: Refer to the following Technical Specifications and Perform any required actions: *Surveillance Requirement 4.2.1.1.1.b. *TABLE 3.3-1, ACTION 2.c. *Surveillance Requirement 4.2.4.1.b. *Surveillance Requirement 4.2.4.2

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		RO or BOP: Request I&C Department perform corrective maintenance on failed instrument.
<u>Event 2</u> **INSERT TRIGGER 2 (RX13C)** CONTROLLING 'B' SG FEED FLOW CHANNEL FAILS HIGH	Notes on failure: (1) The only affected controller is the 'B' SG Feed Reg Valve. This valve will modulate closed by the failure.	**BOP:** Recognizes 'B' SG feed flow instrument failed high, takes manual control of 'B' feed reg valve, and maintains 'B' SG level.
		US: Enters AOP 3571 (Rev 09-07) after plant is stable and reads: **<u>CAUTION</u>**: Do not leave the rod selector switch in AUTO while diagnosing a related instrument failure unless the reason for rod movement is a turbine runback. **<u>NOTE</u>** If a reactor trip occurs immediately go to E-0, Reactor Trip or Safety Injection.
	'B' Feed Reg Valve should be in manual.	**BOP:** Determine The Initiating Parameter And Place The Affected Controller In MANUAL
		BOP: Stabilize The Plant Parameters
		US: Reads Note to crew: **<u>NOTE</u>** It is desired that I&C personnel trip the bistables specified in this procedure. If, during off-hours, I&C personnel are not able to trip the necessary bistables within the time limitations required by the Technical Specifications, Operations Department personnel may trip the bistables using the guidance provided within this procedure.
		US: Perform Corrective Actions Using Appropriate Attachment Feed Flow Channel Failure Attachment L

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	'B' Feed Reg Valve should already be in manual.	**BOP:** If the failed feed flow channel is selected as the input to SG level control, Perform the following: Verify the affected SG feed regulating valve controller is in MANUAL.
	Normal level setpoint is 50% Narrow Range.	**BOP:** Restore SG level to normal.
	Crew should discuss expected response (to include: MB5 recorder coming on scale & annunciator MB5B 5-3 will clear.	**BOP:** Defeat the failed channel input by selecting the alternate channel on the feed flow selector.
		BOP: When SG level is restored to normal and feed/steam flow are matched, Place the affected steam generator feed regulating valve controller in AUTO.
		US: Reads Note to crew: **NOTE** *There are no Technical Specifications or bistables to be tripped associated with the feed flow instruments. *When the plant calorimetric is based on feed flow, the program will automatically shift to an NI based output if any feed flow channel is X-tagged by the process computer.
		RO & BOP: When conditions have stabilized, Observe MB annunciators and parameters. Immediately report any unexpected or unexplained conditions to the Shift Manager.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		RO or BOP: Request I&C Department perform corrective maintenance on failed instrument.
<u>**Event 3**</u> **CONVEX REQUESTED DOWNPOWER TO 460 MWE (~45% Rx Power)** **Call as CONVEX and report "You are required to perform an emergency load reduction to 460 MWelectric".** **INSERT TRIGGER 3* (RC12A)** RCP A OIL LEAK UPR RSVR *Once Trigger 3 is inserted (for Event 4), it will take 12 minutes to cause MB alarm. Inputting Trigger 3 now will avoid future delay for Event 4.	When the eventual alarm comes in for Event 4 (RCP oil leak), expected operator action may be found under Event 4 (later in guide).	**US:** Briefs crew on CONVEX requested downpower and **enters AOP 3575 (Rev 18)** and Reads the following Note: <u>**NOTE**</u> If at any time either of the following annunciators is received, Immediately perform step 7.: *ROD CONTROL BANKS LIMIT LO (MB4C 3---9) *ROD CONTROL BANKS LIMIT LO---LO (MB4C 4---9)
		RO: **Check Rod Control --- IN AUTO**
	Load set is normally desired (as it doesn't require BOP to manually lower turbine load).	**BOP:** **Align EHC Panel** a. Check load reduction using load set --- DESIRED b. Using Attachment E align EHC panel for LOAD SET operation
	US recognizes need to perform a 5%/min downpower.	**US:** Reads Note to crew: <u>**NOTE**</u> ISO---NE requested load reductions should be performed at 5%/min and completed within 25 minutes of notification.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	US selects 5%.	**US:** **Determine Power Reduction Rate (% / min)** a. Check desired power reduction rate --- 3%/min OR 5%/MIN
		US: Reads Caution to crew: **CAUTION**: If SI actuation occurs during this procedure, go to E---0, Reactor Trip or Safety Injection and restore from rapid boration lineup.
		RO: **Initiate Rapid Boration** Verify RCS makeup system in --- AUTO
		RO: START one boric acid transfer pump
		RO: OPEN emergency boration valve (3CHS*MV8104) and Verify direct boric acid flow (3CHS---FI 183A) --- INDICATED
		RO: OPEN charging line flow control valve, to match indicated boric acid flow (3CHS---FI 183A)
		RO; Record time boration started Time ____________
		RO: Check Rod Control---AVAILABLE FOR ROD INSERTION

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	US will use RNO. RE has built rapid reactivity plans (Rapid Downpower Summary Sheets); however, they all begin at 100% power.	**RO:** Check use of "Rapid Downpower Summary Sheet" (RE---H---17) in the RE Curve and Data Book --- DESIRED RNO Proceed To step 4.k.
		RO: Use 18 gal BA/% Power to determine boration time in step 4.l.
	Numbers may vary slightly.... 29 (power change) x 18 (gal per % pwr) 80 (expectant flow rate) **EQUALS 6.5 minutes**	**RO:** Using formula, Determine boration time (If gravity borating, use net charging flow (chg +seal inj---seal return total flow) for BA flow rate: Total Power Change (Δ%) X (galBA/%Power)/BA Flow Rate=____min/Boration Time Proceed to step 6.
		US: Reads Note to crew: **NOTE** If at any time the power reduction rate or final desired power level must be changed, Return to step 1.
		RO: **Initiate Load Reduction** Check Rapid or gravity boration --- IN PROGRESS
		BOP: Check turbine OPERATING MODE --- MANUAL
		US: Check load reduction using load set --- DESIRED
	Expect US to have chosen 5%.	**BOP:** Select LOAD RATE LIMIT % /MIN to the desired value (1%, 3%, or 5%)

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		BOP: Using Attachment H and the DECREASE LOAD pushbutton, Adjust LOAD SET to desired final MWe
	As a plant turnover item, the pressurizer sprays are already induced. No actions necessary.	**RO:** Energize all PZR heaters
	As a plant turnover item, the pressurizer sprays are already induced. No actions necessary.	**RO:** Adjust Pzr Spray Valves to 50% setpoint (RCS---PK 455B and RCS---PK 455C)
		RO: Adjust boration time and/or flow rate as necessary to maintain: * Rods above the Rod Insertion Limit (RIL) * Tavg within ±5_F of Tref * AFD within COLR limits
		RO: Check rapid OR gravity boration performed for the time determined in steps 4.i.or 4.l. RNO Proceed to step 6.k. and, WHEN Boration has been performed for the desired time, THEN Using Attachment G,stop boration.
		US: Check power reduction ---CONVEX REQUESTED RNO Inform CONVEX of load reduction rate (MWe/min) and final MWe level.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		RO: **Verify Rod Position Above RIL** a. Check ROD CONTROL BANKS LIMIT LO---LO (MB4C 4---9) annunciator ---LIT RNO Proceed to step 7.g. and, IF at any time, the annunciator is received, THEN Perform steps 7.c., 7.d. and 7.e.
		RO: Check ROD CONTROL BANKS LIMIT LO (MB4C 3---9) annunciator ---LIT RNO Proceed to step 8. and, IF the annunciator is received, THEN Perform step 7.h. and 7.i.
		RO & BOP: **Using Attachment C, "Rapid Downpower Parameters" MONITOR parameters**
INSERT TRIGGER 11 (FW01) and adjust as necessary DEGRADE CONDENSER BACKPRESSURE		**BOP:** **Degrade Condenser Backpressure** a. Verify Final Desired Turbine Load (MWe) --- LESS THAN 70% (907 MWe) b. Using OP 3329, "Condenser Air Removal", Degrade condenser backpressure to between 2.0 in. HgA and 4.0 in. HgA.
	US has BOP remove a feed pump from service per Attachment A or B (for either the 'A' or 'B' TD FW Pump).	**US:** **Align One Feedwater Pump For Removal from Service** a. Verify Final Desired Turbine Load (MWe) --- LESS THAN 50% (648 MWe) RNO Proceed to step 11.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		RO: **Verify Power Related Interlock Status** a. Check reactor power --- LESS THAN THE P---9 SETPOINT RNO Proceed to step 12. and, WHEN Power LESS THAN P---9, THEN Return to step 11.
		US: **Align Plant Systems for less than 30% Power Operation** a. Verify Final Desired Power Level --LESS THAN 30% RNO Proceed to step 13.
		US: **Check Plant Status** a. Verify --- AT FINAL DESIRED POWER LEVEL
		RO: Borate or Dilute as necessary to maintain AFD as close to the target value as possible while maintaining rods above the Rod Insertion Limit
		RO: Using GA---9, Align for auto makeup
		BOP: If desired, Using OP 3323A, "Main Turbine" PLACE turbine in "Load Limit" operation

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		BOP: Verify TURB LOAD REJECTION ARM C---7 (MB4D 6---6) annunciator ---NOT LIT
		US: **Report Unit Status And Power Reduction** a. Notify CONVEX and ISO New England. b. Notify the OMOC to make DEMI notifications
		RO: **Check If RCS Sample Required** a. Verify change in reactor power ---GREATER THAN OR EQUAL TO 15% IN ONE HOUR b. Request Chemistry perform SP 3855, “Reactor Coolant Analysis for Dose Equivalent I---131” (*between 2 and 6 hours after the power change*) c. Request Chemistry perform SP 3875, “SLCRS Normal Vent ESF Building Gaseous Effluent Analysis,” (*between 24 and 72 hours after the power change*) for the following process monitors: *3HVR---RE10B *3HVR---RE19B
		US: **Check If Plant Should Be Shutdown** a. Verify plant shutdown --- DESIRED b. Check reactor power --- LESS THAN OR EQUAL TO 25% **RNO** *Go To OP 3204, “At Power Operations.”

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
<u>**Event 4**</u> **TRIGGER 3* (RC12A)** **RCP A OIL LEAK UPR RSVR** *** SHOULD HAVE BEEN INSERTED EARLIER**	Notes on failure: (1) The malfunction (RC12A) will cause a slow computer point alarm for low oil level (level is not trendable) and will cause a SLOW rise in 'A' RCP oil temperatures. (2) This malfunction would cause exceedance of oil temp limits (195 F) in over an hour's time. (3) The ARP will either have crew trip reactor (if temp limit is exceeded, not the case) or use AOP 3554 to remove the RCP (this will be expected flow path).	**RO:** Acknowledges annunciator MB4B 4-2B "RCP A UPR OIL RSVR LVL LO" and reports on status of 'A' RCP **US: Acknowledges RO report and enters ARP** (OP 3353.MB4B 4-2B (Rev04—12):
	Computer point will show low oil level.	**RO:** CHECK RCS---L475A, RCP A upper oil reservoir level computer point, to confirm alarm.
	'A' RCP temperatures will have risen ~5 deg F and will continue to slowly rise.	**RO:** MONITOR the following RCP A computer points: * RCS---T479A, RCP A upper thrust bearing temperature * RCS---T479B, RCP A lower thrust bearing temperature * RCS---T483A, RCP A upper radial bearing temperature

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	US should recognize need to remove 'A' RCP from service. In order to do this, power level will need to be reduced below 50% (P-8 3 loop permissive). AOP 3554 will direct the downpower for these conditions. However, this AOP is non-specific on rate of downpower. If the US consults the OMOC, direct a 5% / min downpower.	**US:** Reads conditional step to crew: IF at any time any RCP A thrust bearing or radial bearing temperature computer point is greater than 195° F, PERFORM the following: (1) IF reactor power is greater than P---8 (50%), PERFORM the following: (2) TRIP reactor. (3) STOP RCP A. (4) Go To E---0, "Reactor Trip or Safety Injection." OR Refer To AOP 3554, "RCP Trip or Stopping an RCP at Power," and REMOVE RCP A from service.
	The US will likely go to AOP 3554 at this time and not perform the rest of the ARP at this time. However, the three remaining ARP actions are noted here in case the US references them. If US consults OMOC on a containment entry, report "The containment entry will be made after the 'A' RCP is removed from service".	**US:** Reads note to crew: **Note:** ALARA- The following step requires containment entry.
		RO: IF directed by SM/US, CHECK for RCP A lube oil leak in piping or oil pot.
	T/S will not apply until the RCP is taken out of service.	**US:** Refer To Technical Specifications, and DETERMINE Limiting Condition for Operation.
		US: Enters AOP 3554 (Rev 08-01)
		RO: Check RCP Status - ALL PUMPS RUNNING

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	Based on timing, the US may have to wait until the downpower is complete before continuing on in AOP 3554.	**RO:** Check Reactor Power Verify THREE LOOP PERMISSIVE P-8 annunciator (MB4D 3-3) – LIT RNO: Using one of the following reduce power as required: * AOP 3575 "Rapid Downpower" * OP 3204 "At Power Operation"
	Notes on **event 4**: (1) The US will have to co-ordinate timely, execution of this procedure so the Reactor doesn't trip on a SG level transient. (2) The AOP will have the BOP overfeed the affected SG prior to RCP removal. This will ensure the subsequent SG shrink doesn't cause a SG LO LO (18%) Reactor Trip.	**US:** reads Note prior to step 3: NOTE If stopping the RCP due to No. 1 seal failure, steps 3. through 5. should be completed as quickly as possible in order to isolate the affected pump No.1 seal within the recommended 5 minutes. While removing the RCP from service, it is desirable to maintain feedwater flow to the affected steam generator, to ensure that the reactor does not trip on low-low steam generator level from the shrink that will occur. Approximately 0.5 MPPH excess flow is sufficient. Feedwater flow to the affected steam generator should be stopped once shrink has stopped.
		BOP: **Feed Affected Loop SG NR Level To Between 65% And 70%** ESTABLISH approximately 0.5 MPPH excess feed flow to raise affected steam generator level.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	RO takes Loop delta T and Tavg switche(s) to Loop 1 and pulls out. Recorder selected to loops 2,3, or 4.	**RO:** **Defeat Affected Loops Temperature Input** * Place loop temperature cutout. switch for ΔT to the affected loop and Pull out * Place loop temperature cutout switch for Tavg to the affected loop and Pull out *Place OT/OP ΔT recorder select switch to an unaffected loop
		RO: **Remove Affected RCP From Service** Check RCP status – ALL PUMPS RUNNING
		BOP: Check the following conditions: *Affected SG NR level - GREATER THAN 65% *THREE LOOP PERMISSIVE P-8 annunciator (MB4D 3-3) – LIT
	‘A’ RCP stops.	**RO:** STOP affected RCP
	BOP should continue to flow until SG “shrink” subsides and SG level starts to rise. At this point, the BOP should go nearly full close on the ‘A’ FRV.	**BOP:** Verify affected S/G level-STABLE Stop feeding the affected S/G
	‘A’ Loop pressurizer spray valve should be closed.	**RO:** Check RCP 1 and 2 -BOTH RUNNING **RNO:** Place affected PZR Spray Controller in manual and Close spray valve.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	US proceeds to step 7 as the RCP was NOT stopped due to a seal failure.	**RO:** **Check If RCP Seal Leakoff Should Be Isolated** Verify RCP - STOPPED AS A RESULT OF SEAL FAILURE REQUIRING IMMEDIATE SHUTDOWN Proceed to step 7.
		BOP: **Shift Affected SG To Main Feed Bypass Flow** Close affected SG feed regulating valve
		BOP: CLOSE affected SG FW control isolation valve 3FWS-MOV35A
		BOP: Using the SG feed regulating bypass valve, Maintain the affected SG level between 45% and 55%
		US: **Perform Follow-Up Actions** Using AOP 3571, Instrument Failure Response, Attachment A, step 6, Trip the associated temperature bistables for the affected loop
		US: Trip the associated Reactor Protection System bistable(s): Place a check mark in the box above the appropriate channel that requires tripping on page 6 of this Attachment.
	US enters LCO 3.3.1 (FU7 & FU8). This is a 6 hour action statement to trip bistables. **Once US completes T/S entry, the next event may be started.** The remaining steps in AOP 3571 are given below for reference.	**US:** Refer to Technical Specification 3.3.1 and 3.3.2.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		RO: Check the existing bistable status to ensure a reactor trip will not occur when the failed channel is tripped.
		US: Reads Caution / Note to crew: CAUTION: If the General Warning lamp is lit on 3RPS*RAKLOGB, Placing train A SSPS "Multiplexer Test" switch in "A+B" will cause the reactor to trip. NOTE The following step will distinguish whether the failure is within SSPS or the Protection channel.
	NA	**US:** If bistable status light(s) (MB2D or MB4F) indicate that a single bistable input has tripped and channel indications are normal, PERFORM the following:
		US: Request the I&C Department trip the appropriate bistables using the last page of Attachment A and Attachment S.
		RO: Verify the appropriate bistable status light(s) are lit.
		US: Reads Note to crew: NOTE Following corrective action by the I&C Department, the channel may be declared OPERABLE if it complies with the guidelines provided in the Table found on page 5 of this Attachment.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		RO: Verify MB annunciators and parameters – AS EXPECTED
		US: Perform the following to be in c. HOT STANDBY (MODE 3) within 6 hours 1) Check reactor power - GREATER THAN 25% 2) Continue plant shutdown using OP 3204, At Power Operation
<u>Event 5</u> **INSERT TRIGGER 4** SPURIOIUS 'A' TRN SI WITH MSI ON RX TRIP, INTERSYSTEM LOCA **<u>Event 6</u>** NO TRIGGER NECESSARY 'B' TRN SI DID NOT ACTUATE & MUST BE MANUALLY ACTUATED **<u>Event 7</u>** OCCURS ON TRIGGER 4 PARTIAL MSI, MANUAL MSI NEEDED	Notes on failures: (1) **Event 5:** A spurious 'A' train Safety Injection (SI) is caused from a tin whisker on a MSI card (MP3 OE 20450). The tin whisker causes only 'A' train SI to actuate and a partial MSI actuation (**Event 7**). (2) Due to automatic reactor trip circuitry being defeated, the RO must manually trip the reactor **[Critical Task]** and manually actuate SI **(Event 6)**. (3) The spurious, auto start of ECCS equipment will generate an intersystem LOCA into the 'A' RHR system and out a break into the ESF building.	**US:** **Enters E-0** (Rev 27)
	RO: Recognizes Reactor Trip first out (SI) and manually trips the reactor **[Critical Task]**.	**RO:** **Verify Reactor Trip** *Check reactor trip and bypass breakers --- OPEN *Check rod bottom lights --- LIT *Check neutron flux --- DECREASING

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		BOP: **Verify Turbine Trip** Check all turbine stop valves -- CLOSED
		BOP: **Verify Power To AC Emergency Busses** Check AC emergency busses 34C and 34D --- BOTH ENERGIZED
	RO Event 6: Recognizes 'B' Train SI did not actuate and manually actuates SI.	**RO:** **Check If SI Is Actuated** a. Verify SAFETY INJECTION ACTUATION annunciator (MB4D 1---6 or MB2B 5---9)--- LIT b. By observation of ESF Group 2 Status Panel lights, Verify both trains of SI --- ACTUATED c. Check reactor trip and bypass breakers --- OPEN
		RO: **Verify Service Water Pumps --- AT LEAST ONE PER TRAIN RUNNING**
		RO: **Verify RPCCW Pumps --- ONE PER TRAIN RUNNING**
	RO should red flag ECCS Pumps.	**RO:** **Verify ECCS Pumps Running** *Check SI pumps ---RUNNING *Check RHR pumps ---RUNNING *Check two charging pumps ---RUNNING
	BOP should red flag MDAFW Pumps.	**BOP:** **Verify AFW Pumps Running** a. Check MD pumps --- RUNNING b. Check turbine---driven pump --- RUNNING, IF NECESSARY

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		BOP: **Verify FW Isolation** *Check SG feed regulating valves --- CLOSED *Check SG feed regulating bypass valves --- CLOSED *Check FW isolation trip valves --- CLOSED *Check TD FW pumps ---TRIPPED *Check MD FW pump ---STOPPED *Check SG blowdown isolation valves --- CLOSED *Check SG blowdown sample isolation valves --- CLOSED *Check SG chemical feed isolation valves – CLOSED
	Event 7 RO or BOP should notice that a MSI signal was generated (MB2B 5-7 "Main Steam Isolation" is LIT) and only a partial MSI occurred. The MB2 or MB5 should be used to re-initiate MSI and re-align components accordingly.	**RO:** **Check If Main Steam Lines Should Be Isolated** a. Check Ctmt pressure --- GREATER THAN 18 psia OR Any SG pressure --- LESS THAN 660 psig OR Annunciator "MAIN STEAMLINE ISOLATION"(MB2B 5---7) --- LIT
		BOP: Verify MSIVs and MSIV bypass valves --- CLOSED

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	If MSI components were not aligned above, the RNO will re-align components.	**RO:** Check ESF Group 3 lights --- LIT **RNO:** Align steam line drains for minimum safety function.
	CDA will not be actuated or required.	**RO:** **Check If CDA Required** a. Check Ctmt pressure --- GREATER THAN 23 psia <u>OR</u> Annunciator "CONTAINMENT DEPRES ACTUATION" (MB2B 5---5)--- LIT
	'C' CAR fan will have to be stopped.	**BOP:** **Verify CAR Fans Operating In Emergency Mode** Check CAR fan status: *CAR fans A and B ---RUNNING *CAR fan C --- STOPPED RNO: START/STOP CAR fans as necessary.
		RO: Verify RPCCW Ctmt supply and return header isolations --- OPEN
		RO: Verify Train A and B RPCCW supply and return to chill water valves --- OPEN
	Notes on failures: (1) Two failures of components to re-align occurred on the reactor trip. See below: (2) **Event 8:** Reactor Plant Component Cooling water valves failed to re-align. If the RO hasn't corrected this by now, this step's (& next step) RNO will provide re-alignment direction **[Critical Task]**. …continued next page…	**RO:** **Verify CIA** a. Check ESF Group 2, columns 2 through 10 --- LIT Initiate CIA. <u>IF</u> ESF Group 2, columns 2 through 10 are <u>NOT</u> lit, <u>THEN</u> Using Attachment A, Reposition valves as necessary for minimum safety function.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	(3) **Event 9:** The 'A' EDG failed to auto start on the original SI. The BOP may have noticed and started the EDG by now. If not, the next step ("Verify Proper ESF Status Panel Indication") will identify the failure. While not needed for this scenario, the 'A' EDG should be started because it's an automatic action that should have happened but did not occur (reference EOP User's Guide). (4) While re-aligning components, the 3SIH*MV8801A& B should NOT be opened unless < P-19 (1900 psia).	
	RO re-align components described on previous step.	**RO:** **Verify Proper ESF Status Panel Indication** *Verify ESF Group 1 lights ---OFF *Verify ESF Group 2 lights ---LIT
	Containment will not be adverse.	**RO:** **Determine If ADVERSE CTMT Conditions Exist** *Ctmt temperature --- GREATER THAN 180°F OR *Ctmt radiation --- GREATER THAN 1 x 10E5 R/hr DO NOT use ADVERSE CTMT parameters.
		RO: **Verify ECCS Flow** a. Check PZR pressure --- GREATER THAN 1900 psia Proceed to step 16.d.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		RO: Check charging pumps --- FLOW INDICATED
		RO: Check RCS pressure --- LESS THAN 1650 psia (1950 psia ADVERSE CTMT) Proceed to step 17.
		BOP: **Verify Adequate Heat Sink** a. Check NR level in at least one SG --- GREATER THAN 8% (42% ADVERSE CTMT) Proceed to step 17.d.
		BOP: Verify Total AFW Flow --- GREATER THAN 530 gpm
		BOP: **Verify AFW Valve Alignment ---PROPER EMERGENCY ALIGNMENT**
		RO: **Verify ECCS Valve Alignment --- PROPER EMERGENCY ALIGNMENT**
	Based on previous manual SI, CBI will have actuated.	**RO:** **Check If CBI Required** Check annunciator “CONTROL BUILDING ISOLATION” (MB4D 3---6) --- LIT
		BOP: Check Train A Control Building filter fan (3HVC*FN1A) --- RUNNING
	3HVC*AOD119A will be OPEN.	**BOP:** Check recirc damper for the running Control Building filter fan (3HVC*AOD119A or B)--- OPEN

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		RO: Verify ESF Group 2 CBI lights --- LIT
		BOP: Verify Control Building purge supply fan and purge exhaust fan --- NOT RUNNING
		BOP: Place kitchen exhaust fan in OFF
Report "All Unit 3 SLCRS doors are closed."		**RO:** Verify SLCRS doors --- CLOSED
	Dispatches PEO to close and dog doors.	**RO:** Perform the following: *CLOSE and DOG the following Control Building pressure boundary doors *CB west 47'6"(C---47---1A) *CB east 64'6"(C---64---1B) *Verify the following Control Building pressure boundary doors---CLOSED *CB west 47'6"(C---47---1) *CB north 64'6" chiller room door (C---64---4) *CB north 64'6" chiller room door (C---64---5) *CB east 49'6"(C---49---1)
		BOP: **Check RCS Temperature** a. Using GA---26, Dump steam as necessary to control RCS cold leg WR temperature --- BETWEEN 550°F AND 560°F
		BOP: Verify RCS cold leg WR temperature --- GREATER THAN 550°F Proceed to step 22.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	34A1-2 will be closed to an energized BUS 34A.	**BOP:** **Check Power To SBO Diesel Auxiliaries** a. Verify any SBO bus tie breaker --- CLOSED TO AN ENERGIZED BUS *Bus 34A: 34A1---2 *Bus 34B: 34B1---2 *Bus 24E: A505 (Unit 2)
		RO: **Check PZR Valves** Verify PORVs --- CLOSED
		RO: Verify normal PZR spray valves --- CLOSED
		RO: Verify PORV block valves---AT LEAST ONE ENERGIZED VALVE OPEN
		RO: Verify PZR safety valves ---CLOSED
		RO: **Check If RCPs Should Be Stopped** Verify RCPs --- ANY RUNNING
		RO: Verify RCS pressure --- LESS THAN 1500 psia (1800 psia ADVERSE CTMT) Proceed to step 25.
	All SG secondary boundaries will be intact.	**RO:** **Check If SG Secondary Boundaries Are Intact** a. Check pressure in all SGs --- *NO SG PRESSURE DECREASING IN AN UNCONTROLLED MANNER *NO SG COMPLETELY DEPRESSURIZED

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	All SG tubes are intact.	**BOP:** **Check If SG Tubes Are Intact** Check steam generator levels --- NO SG LEVEL INCREASING IN AN UNCONTROLLED MANNER
		BOP: Verify trend history and alarm status of radiation monitors *Main steam line --- NORMAL *Condenser air ejector --- NORMAL *SG blowdown --- NORMAL
	All CTMT conditions will be normal.	**RO:** **Check If RCS Is Intact** *Verify Ctmt radiation using 3CMS*RE22 (pre---trip) ---NORMAL *Verify Ctmt radiation using radiation monitoring group histogram (CTMT) --- NORMAL *Verify Ctmt pressure --- NORMAL *Verify Ctmt recirculation sump level --- NORMAL
		US: Reads Caution to crew: <u>CAUTION</u>: Consult with ADTS and RMT prior to performing any local inspections in the Auxiliary Building or ESF Building.
		RO: **Check For RCS Leakage Outside Containment** a. Check Auxiliary Building and ESF Building radiation (radiation monitoring group histograms) *Verify Auxiliary Building (AUX) --- NORMAL *Verify ESF Building (ESF) --- NORMAL

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	Based on "ESF RHR CUB" MB1 Sump Level Hi lights lit, the crew will transition to ECA-1.2.	**RO:** Check for Auxiliary Building or ESF Building flooding 1) Verify SUMP LEVEL HI lights (MB1) --- NOT LIT *AUX BLDG PIPE TNL *ECCS PIPE CUB *ESF RHR CUB *ESF RSS CUB 2) Verify annunciator "SAFEGUARDS AREA FLOODING" (MB1C 2---8) --- NOT LIT <u>IF</u> the cause is a loss of RCS inventory outside containment, <u>THEN</u> Initiate monitoring of CSF Status Trees and Go to ECA---1.2, LOCA Outside Containment.
		US: Transitions to ECA-1.2 (Rev08) and Reads: **<u>NOTE</u>** * For some breaks, ECCS flow may cause an RCS pressure increase without break isolation, or a pressure increase may not be indicated, for example, if the RCS is cycling on the PORVs or if a cooldown is in progress. ...continued next page... * Other means of verifying break isolation should be checked such as pressurizer level increase, reports from the field, decrease in area radiation, or an increase in PORV cycling frequency.
	Aux Building conditions will be normal.	**RO:** **Verify Loss Of Coolant Location** a. Check loss of RCS inventory determined to be - IN THE AUXILIARY BUILDING Proceed to CAUTION prior to step 3.

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		US: Reads Caution to crew: CAUTION: Consult with the ADTS and RMT prior to performing any local RHR System operations.
	Valve alignments are proper.	**RO:** **Verify Proper Valve Alignment In ESF Building** a. Verify RHR suction isolation valves - CLOSED *3RHS*MV8701A *3RHS*MV8701B *3RHS*MV8701C *3RHS*MV8702A *3RHS*MV8702B *3RHS*MV8702C
	Valve alignment is proper.	**RO:** Verify RHR hot leg injection valve (3SIL*MV8840) – CLOSED
	Valve alignments are proper.	**RO:** Verify SI pump hot leg injection valves - CLOSED *3SIH*MV8802A *3SIH*MV8802B
		RO: **Try To Identify And Isolate Break** a. Turn the power lockout switch to ON for the following valves (MB2R): *RHR pump A (3SIL*MV8809A) *RHR pump B (3SIL*MV8809B) *SI injection (3SIH*MV8835)

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	The US will be given a choice of three valves to cycle in this step (3SIL*MV8809A, 3SIL*MV8809B, or 3SIH*MV8835). Based on 'A' RHR sump level hi, it is either 3SIL*MV8809A or 3SIH*MV8835. This guide is written such the crew chooses 3SIL*MV8809A first. It's possible and acceptable, that they choose an alternate valve first.	**RO:** CLOSE one of the following: *RHR pump A cold leg injection valve (3SIL*MV8809A)
	Once 3SIL*MV8809A is closed, the RCS leak will be isolated and RCS pressure will rise. It's possible that P-19 caused the CHG Cold Leg Injection Valves to OPEN and RCS pressure was already rising. If this is the case, computer trends will still show a definite increase in the rate of RCS pressure rise. In either event, the crew will be able to determine the RCS leak is isolated once 3SIL*MV8809A is closed and the US will make the proper transition to E-1 (below) **[Critical Task]**.	**RO:** Check RCS pressure -INCREASING
		RO: Turn the power lockout switch to OFF for the following valves (MB2R): *RHR pump A (3SIL*MV8809A) *RHR pump B(3SIL*MV8809B) *SI injection(3SIH*MV8835)
		RO: **Check If Break Is Isolated** Check RCS pressure –INCREASING

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
	At the discretion of the Chief Examiner, the scenario may be ended at this point (all required events have been completed). The remaining steps are to proceed in E-1 and kick-out to ES-1.1 and complete SI termination.	**US:** **Go to E-1, Loss of Reactor or Secondary Coolant**
		US: Enters E-1 and Reads CAUTION: To prevent seal damage, sel injection flow should be maintained to all RCPs. NOTE: Foldout page must be open.
		RO: **Check If RCPs Should Be Stopped** Verify RCPs --- ANY RUNNING
		RO: Verify RCS pressure --- LESS THAN 1500 psia (1800 psia ADVERSE CTMT) **RNO--**Proceed to step 2.
		BOP: **Check If SG Secondary Boundaries Are Intact** Check pressures in all SGs --- • NO SG PRESSURE DECREASING IN AN UNCONTROLLED MANNER • NO SG COMPLETELY DEPRESSURIZED
		BOP: **Check Intact SG Levels** a. Verify NR level --- GREATER THAN 8% (42% ADVERSE CTMT) b. Control feed flow to maintain NR level -- BETWEEN 8% and 50% (42% and 50% ADVERSE CTMT)

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		RO: **Check Secondary Radiation** a. Sample all SGs for activity 1. RESET SG blowdown sample isolation 2. OPEN SG blowdown sample isolation valves 3. Request Chemistry obtain activity samples using HP coverage
		RO: Verify trend history and alarm status of radiation monitors • Main steam line --- NORMAL • Condenser air ejector --- NORMAL • SG blowdown --- NORMAL
		US: Reads Caution to crew: **CAUTION:** If any PZR PORV opens because of high PZR pressure, step 5.a. should be repeated after pressure decreases to less than 2350 psia.
		RO: **Check PZR PORVs and Block Valves** Verify PORVs --- CLOSED
		RO: Verify block valves --- AT LEAST ONE OPEN
		RO: **Check If ECCS Flow Should Be Reduced** Verify RCS subcooling based on core exit TCs --- GREATER THAN 32°F (115°F ADVERSE CTMT)

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		BOP: Verify secondary heat sink • Total feed flow to intact SGs --- GREATER THAN 530 gpm OR • Narrow range level in at least one intact SG --- GREATER THAN 8% (42% ADVERSE CTMT)
		RO: Verify RCS pressure --- STABLE OR INCREASING
		RO: Verify PZR level --- GREATER THAN 16% (50% ADVERSE CTMT)
		US: Go to ES---1.1, SI Termination
		US: Enters ES-1.1 (Rev016-02) and reads: **CAUTION:** After SI reset, manual operator action is required to: • Open the charging pump cold leg injection valves when RCS pressure decrease to LESS THAN 1900 psia. • Restart safeguards equipment if offsite power is lost. **NOTE:** Foldout page must be open.
		RO: **Reset ESF Actuation Signals If Required** a. RESET SI b. RESET the following: • CDA • LOP • CIA • CIB

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		BOP: **Restore MCC 32---3T** a. Check emergency bus 34C—ENERGIZED b. Using GA---1, Energize MCC 32---3T
		RO: **STOP All But One Charging Pump And Place In AUTO**
		RO: **Check RCS Pressure --- STABLE OR INCREASING**
		RO: **Establish Instrument Air To Ctmt** Check instrument air compressors --- AT LEAST ONE RUNNING
		RO: OPEN instrument air Ctmt isolation valves
		RO: **Establish Normal Charging Flow Path** Fully Open charging line flow control valve
		RO: Verify charging loop isolation valves (3CHS*AV8146 or 3CHS*AV8147) --- ONE OPEN **RNO**-- Re---position valves to establish only one open.
		RO: OPEN charging isolation valves • 3CHS*MV8106 • 3CHS*MV8105

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		RO: CLOSE the charging pump miniflow isolations to the RWST • 3CHS*MV8511A • 3CHS*MV8511B
		RO: CLOSE both charging pump cold leg injection valves • 3SIH*MV8801A • 3SIH*MV8801B
		RO: OPEN the charging pump recirculation isolation valves • 3CHS*MV8111A • 3CHS*MV8111B • 3CHS*MV8111C • 3CHS*MV8110
		RO: **Verify PZR Level** Check pressure in all SGs --- NO SG PRESSURE DECREASING IN AN UNCONTROLLED MANNER
		RO: Check PZR level --- STABLE OR INCREASING
		RO: Control charging flow to maintain PZR level
		RO: **Check If SI Pumps Should Be Stopped** Check pressure in all SGs --- NO SG PRESSURE DECREASING IN AN UNCONTROLLED MANNER

BOOTH INSTRUCTOR	FLOOR INSTRUCTOR	STUDENTS
		RO: Check RCS pressure: • Pressure --- STABLE OR INCREASING • Pressure --- GREATER THAN 1650 psia (1950 psia ADVERSE CTMT)
		RO: STOP SI pumps and Place in AUTO
		RO: **STOP RHR Pumps And Place In AUTO**
RESTORE simulator to "training ready" conditions. .	**SCENARIO END: Place simulator in FREEZE.**	

SECTION 4
EXAM GUIDE SUMMARY

Title: LOCA Outside Containment

ID Number: 2K13 NRC-02 Revision: 0

II. Critical Tasks

TASK DESCRIPTION	TASK #	K/A >/= 3.0	BASIS SELECTION
Manually trip the reactor from the control room with either Main board trip switch or by opening 32B and 32N supply breakers before completing E-0 Step 1.	E-0 -- A	012 A4.07 (3.9* / 3.9*)	Failure to manually trip the reactor causes a challenge to the subcriticality CSF beyond that irreparably introduced by the postulated conditions.
Isolate the LOCA outside containment before transition out of ECA-1.2.	ECA-1.2-A	Westinghouse EPE LOCA Outside CTMT EA2.1 (3.4 / 4.3)	Failure to isolate a LOCA outside containment (that can be isolated) degrades containment integrity beyond the level of degradation irreparably introduced by the postulated conditions.

SIMULATOR TRAINING SHIFT TURNOVER REPORT

DATE-TIME	PREPARED BY	SHIFT
Today 0515	Unit Supervisor /"NIGHT" Shift	18:00 - 06:00

PLANT STATUS:

Mode:	1		Rx Power:	74%
Megawatts:	Thermal:	2726 MWTH	PZR Pressure:	2250 psia
	Electric:	863 MWe	RCS T-AVE:	577 degF
RCS Leakage:	Identified:	0.078gpm	Core Burnup:	150 MWD/MTU
	Unidentified:	0.108gpm	Protected Train:	**"A" (Orange)**
Date/Time:	Today 0015		Intake:	**GREEN**

Active Tracking Records and Action Statements

Equipment/Reason

LCO	Action	Date	Time in LCO	Action Requirement	Time Left
3.5.2	a	Today	1 hour	Return to service within time (71 hours left) or Hot Stby within next 6 hours	71 hours

OD Compensatory Actions / Temp Logs

Open Date	Class Reason	Reason	Watch Position

PLANT SYSTEMS APC

System	Notes
SIH	3SIH*P1A is out of service (red tagged) to repair an oil leak. In T/S LCO with 71 hours remaining.

CROSS UNIT SYSTEM STATUS

U3 Power to 24E	**34A aligned to 24E**

SURVEILLANCES / EVOLUTIONS IN PROGRESS

OP 3204	Plant is being returned to service following a refueling outage. HOLD POWER at 75% to support while Reactor Engineering performs EN 31015 "Power Ascension Testing of Millstone Unit 3". Pull rods in MANUAL (at no more than 1 or 2 steps per minute) to maintain temperature + / - 1 F of Tref (as Xenon builds in).

REACTIVITY BRIEFING (SEE REACTIVITY THUMBRULES / SPREAD SHEET FOR ADDITIONAL INFO)

Current Rod Height	202 steps
Xenon Trend	Building in at -90 pcm per hour
Current Boron	1777
Boron Pot Setting / Blend Ratio	5.25 /21 gpm

ATTACHMENT 2

VALIDATION CHECKLIST

Title: LOCA Outside Containment

ID Number: 2K13 NRC-02 Revision: 0

Verified By: (Initials)

Initial Conditions:

The initial condition(s) contained in the guide are certified or have been developed from certified ICs. WMF

Test Run:

The scenario contained in the guide has been test run in part or whole on the simulator. The simulator response is reasonable and as expected. If a simulator guide revision does not affect original Test Run, then enter N/A. WMF

(2)

Simulator Operating Limits:

The simulator guide has been evaluated for operating limits and/or anomalous response by reviewing the Simulator Modeling and Anomalous Response List. WMF

For Examination Scenario:

The Scenario Attributes Checklist is complete and attached. This is not required for Progress Review Exams. WMF

William M. Forrestt 9/6/13

Actions Complete (Signature) Date

REVISION 1

Facility: Millstone 3 Scenario No.: 2K13 NRC-02 (Rev 0) Op-Test No.: 2K13

Examiners: ________________ Operators: ________________

Initial Conditions: IC-12, 74% power, Beg of life, Xenon building in @ 90 pcm / hr.

Turnover:

The plant is being returned to service following a refueling outage. The crew is to stabilize reactor power at 74% while Reactor Engineering performs EN 31015 "Power Ascension Testing of Millstone Unit 3". Additionally, the 'A' SIH pump was taken out of service one hour ago to repair a newly discovered oil leak.

Event No.	Malf. No	Event Type*		Event Description
1	NI09A	RO US	I T/S	Power range nuclear instrument, N41, fails high causing control rods to auto insert (AOP 3571).
2	RX13C	BOP	I	The controlling 'B' SG Feed flow instrument fails high (AOP 3571).
3	RC12A	RO BOP US	R N R	Convex requested emergency downpower.
4	-	RO BOP US	C C T/S	'A' RCP develops an oil leak and requires shutdown. 'A' RCP is removed from service iaw AOP 3554.
5	RP05A SI06C RP10A RP10B	RO BOP US	M M M	A spurious 'A' train Safety Injection is caused from a tin whisker on MSI card. The reactor fails to auto trip. An isolable, inter-system LOCA develops in the RHR system and out a break in the ESF building (outside containment).
6	-	RO	C	'B' train of SI did not actuate and must be actuated.
7	MSDI23 Thru MSDI26	BOP	C	Partial MSI generated caused only the MSIV's to close. The remainder of the MSI components need to be manually re-aligned.
8	RP11H	RO	C	Component Cooling Water valves fail to reposition and must be manually re-aligned.
9	EG13A	BOP	C	'A' EDG fails to auto start and is manually started.

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

QUALITATIVE ATTRIBUTES

___Y__1. The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the crew into expected events.

___Y__2. The scenario consists mostly of related events.

___Y__3. Each event description consists of:

- the point in the scenario when it is to be initiated
- the malfunctions(s) that are entered to initiate the event
- the symptoms/cues that will be visible to the crew
- the expected operator actions (by shift position)
- the event termination point (if applicable)

___Y__4. No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.

___Y__5. The events are valid with regard to physics and thermodynamics.

__Y__6. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.

_N/A__7. If time compression techniques are used, scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.

___Y__8. The simulator modeling is not altered.

___Y__9. The scenario has been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure functional fidelity is maintained while running the planned scenario.

___Y__10. Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered IAW Section D.5 of ES-301.

___Y__11. All individual operator competencies can be evaluated, as verified using form ES-301-6.

___Y__12. Each operator will be significantly involved in the minimum number of transients and events specified on Form ES-301-5.

___Y__13. Level of difficulty is appropriate to support licensing decisions for each crew position